

Resiliencies

University Honors Program



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Resiliencies

A Journal of Exploratory Research and Analysis

In this issue, we are pleased to publish articles that present the Capstone Research projects completed by graduating seniors in the Stanislaus State University Honors Program. These articles present projects conceived from personal academic interests shaped by scholarly research, peer review, and the disciplinary expertise of faculty mentors.

As in the 2019-2020 academic year, Stanislaus State Honors students designed, completed, and published this work in the context of the COVID-19 pandemic. When classes started on January 28, 2021, and students in their junior year logged on to HONS 3990 Zoom meetings and Canvas pages to begin preliminary research for their projects, the [Johns Hopkins Coronavirus Resource Center](#) had reported 25,930,827 cumulative confirmed cases of COVID-19 and 438,259 deaths directly attributed to it in the U.S. alone. By the time students presented their findings as seniors in the Spring 2022 Capstone Conference on April 23, 2022, those totals had increased to 81,086,627 confirmed cases and 993,718 cumulative deaths.

When the semester started, the color-coded tier system for reopening California was in place, and, after pivoting back to a nearly complete regional closure in early December, Stanislaus County remained squarely in the most restrictive Purple Tier until mid-April and only reached the mid-level Orange Tier the week before California fully reopened on June 15, 2021, never having moved into the least restrictive Yellow Tier.

While the numbers were bleak and the region especially hard-hit, this was also a time of hope as monoclonal antibody treatments, mRNA vaccines developed by Pfizer-BioNTech and Moderna, and, eventually, antiviral treatments like Paxlovid were becoming available. Stan State opened a vaccination site in the Warrior Arena in late January 2021, where vaccinations and boosters were provided to the Stan

State community and the general public. For many faculty, staff, and students, waiting in line for vaccination doses was the first time we'd seen each other in person since March 2020. The campus also hosted a testing site on the south side of campus, and the CSU instituted a vaccination requirement (with a testing program available to those with medical or religious exemptions) for all students, faculty, and staff. With a daily self-screening process, the vaccination/testing requirement, and a mask mandate in place, we were set to start the Fall 2021 semester in-person—until the Delta variant exploded in India and spread around the world, threatening to overwhelm local hospitals in early January. In response, in-person classes were moved to remote learning through October 1, 2021, and students once again pivoted research plans to projects that could be completed remotely.

Despite the odds, in-person classes resumed in October, and the students were able to finish the semester in-person and plan for a “normal” spring. The highly transmissible Omicron variant, however, delayed the start of Spring 2022 in-person instruction until February 14, 2022. Fortunately, that would prove to be the last delay for in-person instruction that these students would face, and they even had the option to present their work in an in-person or virtual Capstone Conference on Saturday, April 23, 2022.

Despite these challenges, including political and ideological differences over vaccine and mask mandates, Stan State Honors students persevered. Students found new ways to conduct research, navigated the pivots, and managed to produce quality research during trying times.

We are very proud of the research published in this year's *Journal of Exploratory Research* and invite you to enjoy the fruits of some extremely hard labor.

The Honors Capstone Project

Seniors in the Honors Program are encouraged to tackle complex problems using methods, insights and knowledge drawn from relevant disciplines. Honors Program faculty and capstone research mentors offer critical feedback and guidance along the way. The main objective is for students to explore, gather, and analyze information effectively, and to share their reflections on the implications of what they have discovered. Group discussions help to promote thoughtful questioning and critical analysis. The primary goal is to communicate knowledge, judgments, and original perspectives cultivated on the basis of careful inquiry, exploration, and analysis.

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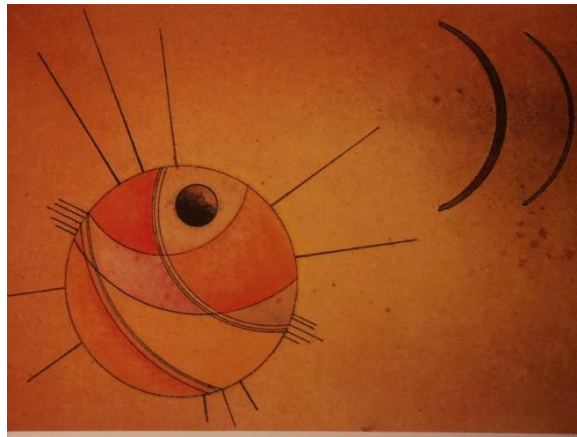
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HONORS PROGRAM COMMUNITY STATEMENT

The Honors Program at CSU Stanislaus is a community of scholars bound together by vital principles of academic openness, integrity, and respect. Through focused study and practice involving exploration and discovery across a variety of disciplines, the Honors Program upholds these principles of scholarly engagement and provides students with the necessary foundations for further research and inquiry.



Our interdisciplinary curriculum is integral to this work and is intended to facilitate creative understanding of the irreducible complexities of contemporary life and knowledge. Personal and intellectual honesty and curiosity are essential to this process. So, too, is critical openness to difficult topics and respect for different perspectives, values and disciplines. The Honors Program aims to uphold these virtues in practice, in principle, and in community with one another.

COVID-19 vs. Racism: What Causes More Anxiety?

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Abstract

The year 2020 was quite an obstructive, challenging, year that has left many scared in different aspects of life from losing loved ones to permanently shutting down many businesses due to the COVID-19 global pandemic. Along with another negative aspect that was raging across the U.S.A: racism. Year 2020 was a peak year in racism as the Black Lives Matter movement started a global phenomenon against racism due to the murder of George Floyd but unfortunately, this problem is still active along with COVID-19. My research was designed to examine the comparison of general anxiety levels created from racism and COVID-19 pandemic by comparing general anxiety levels. My participants were people 18 and over and solely focused on Stanislaus State students. To be a bit more specific, I will allow within demographics to be identified in their own group such as Latinx/Hispanic. They will be asked questions to measure their anxiety levels. My analysis will be shown via an ANOVA test to differentiate the means between each variable. My results will show if whether one factor causes more anxiety than the other, which no matter what the results were, seeing these two factors terrorize society is alarming to witness to say the least.

Keywords: Anxiety, COVID-19, Racism

Introduction

People who are victims of general anxiety tend to be highly fearful, anxious and/or try to avoid any type of interaction/s that increase levels which can either be socially or situations that trigger traumatic memories (Craske & Stein, 2017). It can also affect memory as well. There is a route that is used in many patients with general anxiety called the “Stoop” effect where it has been shown that when patients who are shown words related to something that threatens them, they take longer to memorize (Becker et al., 1999). In other words, specific “triggers” can serve as a distraction as it brings out the anxiety in patients. Anxiety can on many occasions co-occur with major depression, personality disorders such as Borderline, as well as substance abuse (Craske & Stein, 2017). Now, fear and anxiety can be used interchangeably however have different aspects. In other words, anxiety is a generalized response to an unknown threat or internal conflict, whereas fear is focused on known external danger (Steimer, 2002). To continue, fear is against something that is ‘real’ whereas anxiety is unclear (Steimer, 2002).

To continue, everyone understands what anxiety is from either the feeling of losing your keys to forgetting a flash drive that had your presentation for the day; for one to be clinically diagnosed with anxiety however, occurrences must happen more than the average rate and distract everyday activities (Craske &

Stein, 2017). So, there is “regular” everyday anxiety then impaired anxiety however, both aspects can have levels increased when in unknown/fearful situations.

An example of a massive anxious situation is the topic of racism, hatred against minority groups. As mentioned by Berman et al. (2010, as cited by Sosoo, Bernard & Neblett Jr., 2020), racism is described as a system of power and privilege given to a “superior” group such as the Whites here in the US, against a minority group such as blacks, with no such “luck”. To note, exceeded exposure to racism can lead to anxiety symptom distress known as internalized racism, it is known to be a risk factor as well (Sosoo et al., 2020). To continue, arising adulthood is a critical stage where one uncovers their identity, however, unfortunately for the black youth, they are faced with discrimination as mentioned by Hope et al. (2017, as cited by Sosoo et al., 2020). As a result of this, as students start to navigate their own routes, they are met with negative stereotypes of their personality which may lead them to seeing themselves in a harsh way (Sosoo et al., 2020). Begrer and Sarnyai (2015, as cited by Sosoo et al., 2020), mentioned that racial discrimination can induce negative emotional responses and physiological arousal that can cause hypothalamic-pituitary-adrenal axis to initiate and the release of cortisol as explained by Berger and Sarnyai (2015, as cited by Sosoo et al., 2020). Adding to this,

cortisol transmission can result in hypervigilance, triggering stress response to nonthreatening stressors in which leads to a main core of anxiety as mentioned by Brosschot et al., (2006, as cited by Sosso et al., 2020).

Another perspective that can cause anxiety levels to spark can be threats to our physical health, i.e., the Covid-19 virus that was brought to light in the year 2019 that has taken this world by storm. Per the CDC website (2022), COVID-19 is the third leading cause of death right behind heart disease and cancer. Due to the demanding action of washing and sanitizing your hands and the increasing fear of contamination of the virus may have provoked symptoms to worsen in patients with OCD as mentioned by Akhtar et al. and Khanna et al., (1975 and 1990, as cited by Kumar and Somani, 2020). As mentioned by Kumar and Somani, a 28-year-old OCD patient unfortunately had his symptoms worsen in the start of the pandemic to the point where he would not even socialize with anyone and started to frequently wash his hands (2020).

As noted, prior, these two factors can lead to a spike in anxiety levels as it makes us become more aware of our surroundings due to negative impacts. It may all depend on race, as per discrimination, one group may be more superior than the other as well as economic status, wealth and access to specific resources may all come into terms when discovering how and when anxiety levels spike during these two events that took the nation by storm in 2020.

Significance

With the Covid-19 pandemic still tormenting us and racism still negatively impacting our cultures, it is predominant to witness how anxiety comes into play depending on which factor the individual fears more and how to determine solutions to cope with these obstacles. These two factors have massively impacted us in a very negative way however, it is important to note if being a part of a minority group comes into play when determining which event causes more anxiety. These two events have changed the world as we know it and we must understand if a person is more afraid to socialize due to their appearance or due to being afraid of being exposed to one of the deadliest viruses currently out there.

Method

Participants

A sample of 63 participants were recruited using the CSU Stanislaus SONA system, the Psychology Department's online subject pool (<http://csustan.sona-systems.com/>). All participants gathered from SONA were 18 years old or older and were students at California State University, Stanislaus. I conducted a

demographics questionnaire prior to the participants completing the Becks Anxiety Inventory (BAI) and randomly assigned to my three conditions using Qualtrics. The demographics that were asked were the sex that the participant identified with, and their race/ethnicity. All participants were then entered into a raffle for a chance to win a \$50 Amazon gift card; two participants were randomly chosen by having their email address entered into a raffle.

Design

This study is a correlation between racism (IV), Covid-19 (IV) and general anxiety (DV) in college students, particularly at California State University, Stanislaus. How this study occurred was that first and foremost, I had my participants answer questions about their demographics (should they have given consent to such survey) such as what race they identify with as well as their sex. Afterwards, they were either presented with 3 different videos depending on which condition they were assigned too; first condition was a compilation of racism caught in action against minority groups, second condition were patients in the ICU due to COVID then lastly, third condition was a video of a crash that occurred in Texas due to heavy ice on the road. After being presented with the videos, they were asked to complete the Beck Anxiety Inventory (BAI) assessment to measure general anxiety where they were asked anxiety related symptoms and had to answer one a 4-point scale with one where 0 being "not at all" to 3 being "severely-it bothered me a lot". Once completed, the participants automatically received one credit to use towards their class then were asked to enter their email address into a raffle to win one of two \$50 Amazon gift cards.

Results

Via the Becks Anxiety Disorder (BAI), after each participant answered each 4-point answer their scores were summed up. To assess if there were any significance differences between the two measures (COVID-19 and Racism) within the subjects in the three conditions, a One-Way ANOVA test was performed. This between subject test comparing the three conditions regarding anxiety, resulted in a p-value of 0.624 with a set p-value of 0.05.

Figure 1: Here we see the mean difference between the three conditions regarding the general anxiety levels. As we can see, there is not much of a difference in the SE

Group Descriptives					
	CONDITION	N	Mean	SD	SE
ANXIETY	1	19	18.4	12.4	2.85
	2	20	22.6	14.3	3.20
	3	18	20.4	14.1	3.33

Figure 2: We see the interpretation of how the scores were determined on the BAI

Scoring - Sum each column. Then sum the column totals to achieve a grand score. Write that score here _____.

Interpretation

A grand sum between 0 – 21 indicates very low anxiety. That is usually a good thing. However, it is possible that you might be unrealistic in either your assessment which would be denial or that you have learned to “mask” the symptoms commonly associated with anxiety. Too little “anxiety” could indicate that you are detached from yourself, others, or your environment.

A grand sum between 22 – 35 indicates moderate anxiety. Your body is trying to tell you something. Look for patterns as to when and why you experience the symptoms described above. For example, if it occurs prior to public speaking and your job requires a lot of presentations you may want to find ways to calm yourself before speaking or let others do some of the presentations. You may have some conflict issues that need to be resolved. Clearly, it is not “panic” time but you want to find ways to manage the stress you feel.

A grand sum that exceeds 36 is a potential cause for concern. Again, look for patterns or times when you tend to feel the symptoms you have circled. Persistent and high anxiety is not a sign of personal weakness or failure. It is, however, something that needs to be proactively treated or there could be significant impacts to you mentally and physically. You may want to consult a counselor if the feelings persist.

Figure 3: Here we can see the p-value resulted in $p \geq .05$, which is not statistically significant

One-Way ANOVA (Welch's)				
	F	df1	df2	p
ANXIETY	0.478	2	35.7	0.624

Figure 4: Post-Hoc Test

Tukey Post-Hoc Test – ANXIETY				
		1	2	3
1	Mean difference	—	-4.23	-2.02
	t-value	—	-0.966	-0.450
	df	—	54.0	54.0
	p-value	—	0.601	0.895
2	Mean difference		—	2.21
	t-value		—	0.497
	df		—	54.0
	p-value		—	0.873
3	Mean difference			—
	t-value			—
	df			—
	p-value			—

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

For the most part, we can see that within all three conditions, there was no concern for high anxiety as per the interpretation of the BAI noted in figure 2 above, “0-21 indicates very low anxiety”. This also states that individuals were not as affected by either measure considering how drastic and formidable these two have been against society.

Discussion/Conclusion

First and foremost, in no way is this study stating that racism is above COVID-19 or vice versa but to understand the potency of these two factors in general anxiety. Results from the within subject test verified that there was no significant difference between each condition, meaning that COVID-19 and racism both, statistically speaking, have the same potency with general anxiety. This is quite concerning as because 1.) due to the low numbers scored on the BAI, there was not much anxiety present and 2.) COVID-19 has now been seen as an “every day/regular” situation as racism has been seen over the years. To explain more in-depth, racism is only in the spotlight when a viral video trends and it appears on the media but then it takes the back burner just like COVID has.

The hypothesis is that participants would have higher levels of general anxiety due to COVID-19 than racism which per the results, was rejected. Reason behind the choosing of my hypothesis is because COVID is a “new-comer” and because of this “new world” it would have had more potency. Either if the hypothesis was accepted or rejected, the results would be alarming overall. Should the hypothesis be accepted, meaning that COVID-19 had a higher influence on general anxiety than racism, would have been harsh truth to accept, stating how much harm racism has done not just physically but mentally as well. However, per the results, COVID-19 caused the same anxiety levels as racism, a factor that has caused harm for many generations, is still alarming. In other words, no matter what the results stated, COVID-19 becoming a more grinding factor or on the same level as racism, proves how much negative impact it has had on humans thus far.

Limitations

Confounds

The BAI measured anxiety symptoms in participants however, a confound present is pre-existing general anxiety that was not measured with a pre-test, such as the Generalize Anxiety Disorder (GAD-7). Many participants could have already had anxiety prior to being exposed to such condition which could have affected the results from the BAI of the individual. Or the opposite where an individual’s anxiety may have dwindled down and are now in the “acceptance” period. This study was conducted during summer 2021 where vaccinations were already existing in society and many places were now open as well as mandates less strict. Should this study have been conducted during “peak season” which COVID-19 did take the front wheel and everything was change around us drastically and at a fast pace.

One limitation that was noticed from the get-go was the limitation of accomplishment everything via

online. The respective participants had to watch videos within each condition and there was no evidence to support the statement “I did watch the video in its entirety” by the participant. Due to this reason, participants may have completed the BAI without the necessary pre-existing tools which were the videos.

<https://doi.org/10.31887/DCNS.2002.4.3/tst-eimer>

Future of the study

Due to pre-existing anxiety that may exist in many individuals, a pre-test measure already established study would make the results more valid. Due to the mercurial path of both racism and now COVID-19, results could change every time is accomplished. In other words, these two factors may increase or decrease their potency such as with COVID, a new variant could come into existence as well as with racism, a new video could surface and bring immediate spotlight into this topic again.

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Power of Emotion

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Abstract

The purpose of the present study is to see if there is a relationship between emotions and academic motivation in students. In past studies, it has been shown that people who are more positive, tend to be more motivated to accomplish things. This is especially true for students who have been shown to have more motivation when it comes to positive emotions. Past studies have led me to hypothesized that there will be a positive correlation between positive emotion and academic motivation towards accomplishment. I have conducted a survey to determine if there is a relationship between both variables. I will be using the Positive and Negative Affect Schedule, which will help me determine if students have felt a positive or negative emotion throughout the week. I will also be using the Academic motivation scale, to determine the students' academic motivation level. Based on my current findings, there was a positive correlation between positive emotions and academic motivation towards achievement in students. Thus, supporting my hypothesis that there is a relationship between positive emotion and academic motivation. $r(45) = .51, p < .001, 95\% \text{ CI}, [.26, .69]$

Keywords: (Academic Motivation, Emotions, correlation, positive, negative)

Introduction

Emotions are everywhere, we feel emotions throughout our lives every day. Some people feel more emotions than others, and this is especially true for college students. They are bombarded with external situations in their lives that affect their emotions. Not only do college students have to deal with emotions, but they also must deal with a variety of schoolwork and tests. This can impact students' motivation level especially when they feel a negative emotion. These two variables, (emotions and academic motivation) make a significant impact on students' academic career. When students feel a negative emotion, their motivation will be impacted and could be detrimental. Whereas when students feel a positive emotion, it will enhance academic motivation (Pekrun et al., 2002). Therefore, the role that emotions play is an interesting dynamic in a student's life for them to be motivated in school.

Another component of emotion is how it is linked to academic success. Research has shown that students will do much better in school if they have positive emotions, which are emotions a student feels when they get good grades, when they understand the class or when they achieve something positive. In contrast, negative emotions are emotions that are characterized as boredom, helplessness, and anger (Pekrun et al., 2017). However, emotions might play a role in why some people have higher levels of academic success while having a lack of control has contributed to several things. Two of those things are motivation and academic success. If the students perceive that they have no control over their work, homework, or their test score, then they will be doing poorly in school and be less motivated.

In contrast, having more control leads to academic success and higher levels of motivation (Perry et al., 2001). The perceived lack of control plays a factor in determining levels of motivation. However, studies have shown that students being more positive have been able to maintain success throughout the academic school year. Pekrun et al. (2017) conducted a longitudinal study to see whether emotion was related to achievement in a math class. He found that there was a positive relationship between positive emotion and end of the year achievement. Students who enjoyed the class more, were more likely to have better grades than students who had negative emotions towards the class. Another study found that being more positive helped students improve their grade by implementing a positive intervention plan where it exposed students to more positive outcomes (Muro et al., 2018).

One of the key factors of student's motivation in school is a concept called self-regulated learning. This type of learning is achieved by how the individual learns and perceived information on their own. (Mega & De Beni, 2014). According to Mega and De Beni (2014) they found that students' positive emotion impacts the way students summarize their materials and the way they are motivated to learn. Positive emotion encourages the students to want to learn more. They have also found that positive emotions have a bigger impact on self-regulated learning compared to negative emotions. However, a different theory that explains how students can get through their challenges and be motivated in school is academic buoyancy. This is the ability to get through academic challenges and be resilient when school gets difficult. This concept is positively

contributed to students' beliefs and behaviour in learning situations. It is not emotion that is influencing students' academic success and motivation, but their academic buoyancy. Hiroven et al., (2020) conducted a study to see if academic buoyancy predicts positive academic behaviour and found that it does predict positive behaviour in an academic setting. Consequently, when emotion plays a direct factor in why some students have more successes, they tend to do better. Kim and Hodges (2012) conducted a study to see how emotion plays a factor in students' academic motivation in an online math course. They had a treatment group where the students were presented with positive items that influence their emotions to be more positive. Whereas the control group had no positive items to view. They found that in the treatment group people had higher academic motivation in contrast to the control group. Consequently, there is a higher risk for students to do bad not only in school, but in life if they have low school motivation. In a study conducted by Parhiala et al, (2018), she wanted to see the profiles of adolescents regarding motivation and emotional well-being compared to their reading and math scores. They found that students who had low scores in their reading and math, had lower levels of academic motivation. Not only is there a relationship between emotions and academic motivation, but also how successful the student will be during their academic year.

Emotions play a part in everyone's life; they can impact how you perceive certain things in your life. The same can be said about motivation in school. If students are more positive, then they will be more motivated to do well in school. But it's more complex than that. Students can vary from being positive one day and negative the next day. Therefore, it's important to understand the role that emotions have on student's motivation. This will better clarify ways every student can be more positive in the classroom and for students to be more motivated and successful. Therefore, it is hypothesized that there will be a positive correlation between positive emotion and academic motivation towards achievement.

Method

Participants

A sample of 47 participants (40 female, 7 male), were recruited through the California State University, Stanislaus Department of Psychology online participant pool (SONA). The age of the participants ranged from 19 to 53. The sample was made up of predominantly Hispanic (42.6 %) and white/European American (36%). Most of the student who took the survey were mostly in their Junior year (44.7%) and senior year (40.4%) in college. All participants were given 1 Sona credit for participating in the study, which may have counted as experimental credit for a psychology class.

Measures

There was a consent form given to let the participants know of any risk they might encounter and to let the participants know that their information is going to be kept confidential. There was also a demographics survey which consisted of 8 questions designed to assess the participants personal characteristic. There also were two different types of surveys. The first one was the Positive and Negative Affect Schedule (PANAS) This scale measured a person affect score and it has shown to be a reliable scale of measuring people's affect level. It is a 20-item scale that has 10-positive and 10-negative item scale, (Interested, nervous, alert, etc) that will determine the score of the participants affect level. The participant would score how often they have felt each item in the past week, and it ranges from 1 (very slightly) to 5 (extremely). Positive and negative items were added up separately. Higher scores for the positive item would indicate high positive affect and high scores on the negative item would indicate higher negative affect

scores. Their academic motivation was measured by using the Academic Motivation Scale (AMS-C 28). It is a scale that measures students' academic motivation, and it is split up into 7 subscales each with 4 questions. It was measured by asking the participants question that best corresponds to them. Some of the questions were, "Honestly, I don't know, I really feel like I am wasting my time in school". The participants took the whole survey, but I only looked at the average scores of two subscales that would look at their academic motivation. The two subscales were Intrinsic Motivation toward Achievement and Amotivation. I took the average score from both subscales and compare the average to their scores on the PANAS. Furthermore, I also used SONA to recruit participants and Qualtrics, which is an online service where participants can take the quiz. I also used SPSS to analyse the results of the study.

Design

This research design was a correlational design examining the relationship between positive emotions and academic motivation. Positive affect was the predictor variable and was measured using the positive affect subscale of the Positive and Negative Affect Schedule (PANAS-SF). The PANAS is a 20-item instrument that has two subscales (positive and negative affect). For this instrument, participants will be presented with words (e.g. interested, nervous, alert) and indicate the extent to which each word describes how they've felt over the past week using a 5-point scale. The outcome variable, academic motivation was measured using the Academic Motivation Scale (AMS-C 28). Although the AMS-C includes several subscales, I only examined the Intrinsic Motivation Toward Achievement (looking at how motivated a

student feels to achieve) and Amotivation (looking at low motivation). Then I looked at the average of the two scored and compared them to their scores on the PANAS

Procedure

This was an online study to see if there is a relationship between positive emotions and academic motivation. The researchers posted the link of the survey on SONA, the Psychology Department’s online subject pool. Participants would sign up and participate at a time that is convenient for them and be redirected to Qualtrics where they took the survey. They would first read the consent form and it would state that we are going to collect data anonymously. Then they would check a box to say that they agree or disagree to participate. If they do not agree to participate, then they would be redirected to the end of the survey and be thanked for taking the time to consider taking the survey. If they agree to participate, then they would take a demographic’s questionnaire. After completing the questionnaire, the two scales will be randomized to see which survey the participants would take first. The participants took the PANAS and AMS-C. Once there were done completing both scales, they would read the debriefing form and be thanked for taking the survey and be awarded one experimental credit point.

Results

To determine if there was a positive correlation between positive emotion and academic motivation, data was analysed using a correlational analysis. There was a positive correlation between positive emotions and higher levels of motivation in students (see figure 1). $r(45) = .51, p < .001, 95\% CI, [.26, .69]$ (see table 1). I also decided to look at if there was some sort of relationship when looking at positive emotions and amotivation. The results showed that there was a slight negative correlation between the two variables (see figure 2) $r(45) = -.17, p = .26, 95\% CI, [-.44, .13]$ (see table 2). However, it was not statistically significant, and it was a negative correlation. There was a small sample size that might have influenced the results, but regardless, there was a positive correlation between positive emotions and academic motivation towards achievement. Thus, supporting my hypothesis.

Table 1

Correlation of Positive scores on the PANAS and the sub-score of motivation towards accomplishment on ASM-C

Positive score	Positive	Accomplishme nt
<i>r</i>	1	.507
<i>p</i> -value	-	<.001
<i>n</i>	47	47
Accomplishme nt		
<i>r</i>	.507	1
<i>p</i> -value	<.001	-
<i>n</i>	47	47

Figure 1

Scatterplot showing the linear relationship between scores on the PANAS (positive affect) and AMS-C (motivation towards accomplishment)

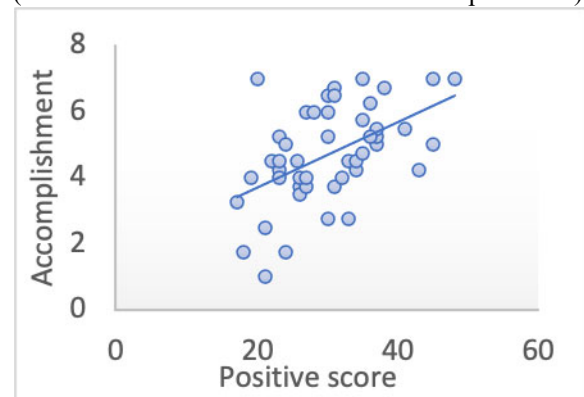
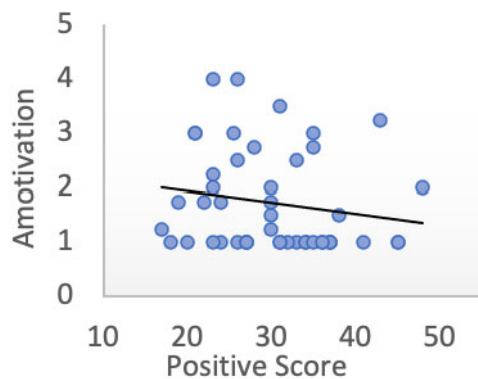


Table 2

Correlation of positive scores on the PANAS and the sub-score of amotivation in the ASM-C

Positive score	Positive	Amotivation
<i>r</i>	1	-.169
<i>p</i> -value	-	.257
<i>n</i>	47	47
Amotivation		
<i>r</i>	-.169	1
<i>p</i> -value	.257	-
<i>n</i>	47	47

Figure 2
correlation coefficient (r) scatterplot as a function of scores on the PANAS and ASM-28 (amotivation)



Discussion

The present study does support my hypothesis that there was a positive correlation between positive emotion and academic motivation towards achievement. This study is important because it shows the impact that emotion has on students. These results can indirectly be used to help some students feel more motivated. If the student feels a positive emotion, then their motivation will be higher. This can be beneficial to college students, who are faced with an array of challenges throughout their academic career. By providing a set of positive emotions, students can come motivated to class, either in person or online, and be active learners in the classroom. There are ways that schools can impact emotions as well. Either by providing positive incentive for students to feel a positive emotion, by recognizing them for their hard work or by simply having posters around saying that each student is amazing and awesome. Emotion is a crucial part for a student's life. It can impact their motivation in a positive or negative way. The more positive someone is the better they will learn and be motivated to learn new things. Therefore, emotions can flip the script for students to be more attentive in class and be more successful in the long run. However, there are some limitations with the present study; there was a small sample size with about 47 participants. Originally, there was supposed to be over 100 participants. There were also more females than males, which could have impacted the data depending on how they answered the survey questions. This was also an online study, which meant that people might not answer truthfully and might have rushed to take the survey to get the one-point credit. But the biggest limitation of the study was that it was a correlation design. The results should not be taken for face value, the results should be looked at with caution. There could have been a third variable that could have affect the results, especially with students' emotions. However, the

results seem to show that there is a relationship between the two variables and this kind of design. For future studies, they should focus on running an experimental design for the variables to be controlled and for the results to be generalized between the two variables. Another thing they could do in the future is to look at how negative emotions have an impact of academic motivation. There could be similar or different results when looking at the negative side of emotions. However, we are only scratching the surface when studying emotions and how it can play a factor in a college students' academic career. But the future is bright and so are positive emotions.

Acknowledgments

I want to thank my mentor, Dr. Gary Williams for helping me with my project and all my past professors who have helped me along my journey. This would not be possible without the help and guidance of all my professor and to the honors program for giving me the opportunity to improve as a student and as a researcher.

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Understanding the Characteristics and the Method of Transmission for Gallbladder Disease Within Families

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Abstract

To protect one's lifestyle one should not only focus on their own health, but the health of their family members. In this project several members of the control family suffer from gallbladder disease, a major digestive disease known to affect millions of Americans, and for the control family it is not only important to know the factors of gallbladder, but to understand how these factors present themselves and how their presence can increase susceptibility to gallbladder disease. Analysis of personal and medical information gathered from interviews, conducted over the phone or through zoom, will be used to construct pedigrees for each family involved. These pedigrees will follow certain family lines showing gender, offspring, or parent, living or deceased, and those affected by gallbladder disease or other ailments in relation to gallbladder disease. With the visual representation of the information, I can determine the risk factors that can result in the greatest susceptibility toward gallbladder disease within a family and between families. This reveals the importance of understanding the medical history of one's own family to ensure the health of future descendants and to preserve one's own health.

Introduction

Across the United States various diseases are diagnosed for various people. The types of diseases vary from the strange, to the rare, and to the common. One of those diseases is considered benign when it first manifests, but the treatment for dealing with the disease is extreme. That disease is known as gallbladder disease (GBD). This disease effects the gallbladder a small organ located underneath the liver. Responsible for storing bile produced within the liver, which is then emptied out after eating to help in the breakdown of fats. Normally cholesterol is converted into bile within the liver prior to entering the gallbladder, however, it is possible for cholesterol to build up within the gallbladder forming the most common symptom and sign of GBD, gallstones. Other risk factors for GBD exist including age, obesity, diabetes, and metabolic syndrome (MS), which is related to high blood pressure, high blood sugar levels, and abnormal cholesterol levels. The article by Puppala et al. (2019) mentions that "an estimated 20 million Americans are affected with GBD, and >700,000 cholecystectomies are performed every year." (377). The number of people affected and the number of cholecystectomies, surgeries to remove the gallbladder, conducted indicates the seriousness of GBD both health-wise and financially. GBD isn't only the result of lifestyle, but also of genetics. It is possible for a person to be susceptible to a disease due to genetic information passed down within a family. In a study involving monozygotic twins mentioned within the article by Katsika et al. (2010) they wanted to identify how a gene variant, located on chromosome 2, appears and its role in the

susceptibility to gallbladder disease. The researchers discovered that out of the thirty-two pairs of monozygotic twins they observed twenty-four were susceptible for gallstones forming, revealing the major impact genetic factors can have on health. Another gene codes for several receptors all involved in the digestion and absorption of lipids, but their variants alter the function of the receptor influencing the manifestation of both GBD and its various symptoms. These genes and others have been identified, located, and mapped on the human genome in previous studies and their influence on the susceptibility to GBD has been analyzed. Because of the link between the symptoms to GBD, the disease itself, and the evidence of genetic determinants it's easy to assume that any family where members show symptoms of GBD has a high probability to have other members with symptoms to GBD or even to the disease itself. This study will focus on observing how susceptibility to GBD is transmitted within a family revealing the importance of understanding the medical history of one's own family to ensure the health of future descendants and to preserve one's own health. This will be achieved through analysis of personal and medical information gathered from interviews, supported by the construction of pedigrees for each family involved, to determine which risk factors are more likely to cause susceptibility to gallbladder disease within a family and between families.

Methods

This study was designed to revolve around the control family, covering four generations of the father's side of the family. Several control family

members showed symptoms, were diagnosed with GBD, and had to undergo cholecystectomies. Other families will be interviewed for comparison against the control family. The goal is at least five families, directly interviewing at least two family members from each family. This will ensure credibility to the responses that the members give for the interview questions. To ensure families meet the parameters designed, for data filtering and collection, a preliminary survey will be distributed through emails and provided links. The preliminary survey will ask several questions regarding medical health and their willingness to volunteer in a future interview. Once several responses were received for the preliminary survey, requests were sent out for interviews with those who matched the parameters and were willing to volunteer. Each person who volunteered was given a copy of the abstract and a consent form for more information and to fill out. The interviews are conducted over the phone, through zoom, and in-person answering questions regarding sex, diet options, and on residence for the past five years. There will also be questions pertaining to the health of family members asking if any had ever shown symptoms of GBD or if any had to undergo a surgery for the removal of their gallbladders. All this information will be used to then construct a pedigree for each family following certain family lines showing gender, offspring or parent, those living or deceased, and those affected by gallbladder disease or other ailments in relation to gallbladder disease, each being specifically marked and classified within the key. The pedigree will also expand several generations, indicated by the roman numerals, while each family member will be counted in each of the generations.

Results

The goal of five families volunteering was reached and for most, two family members were interviewed for confirmation of the information provided. The families' pedigrees will be classified based on order of interview. The control family, figure 1, the first family or the negative control family, figure 2, the second family, figure 3, the third family, figure 4, and the fourth family, figure 5. Out of the five families only the control family is comprised of four generations the other either have three or two generations. The first family is designated as the negative control family because the majority of the members were recorded having at least two symptoms of GBD, but none have ever been diagnosed with GBD. This is in contrast with the control family where several members showed signs of a single symptom and were diagnosed. The second family had three members with gallbladder disease while the third and fourth families each had one member. The difference between the third and fourth families is that the third had one member with

two symptoms, but it was a member with a single symptom that developed GBD, while in the fourth family only had one member showing symptoms and being diagnosed.

Discussion

This data differs from the suspected reason for susceptibility. The first and third families both had members with multiple symptoms, but they were never diagnosed with GBD. The second family revealed members on the father's side having developed symptoms, but only the father was diagnosed, while the mother contracted GBD despite being clear of symptoms. The fourth family only had a single member reported to have suffered from the symptoms and GBD, thus this could be environmentally caused or as a result of their lifestyle without any genetic determinants involved. In contrast, the control family showed a high potential of susceptibility being caused by genetic inheritance as three generations showed a symptom and the disease. Unfortunately, because the sample group for this experiment is only comprised of five families, with some only revealing information pertaining to two generations, the data is limited. A larger sample group, with each family being comprised of at least three generations, would provide a clear image of the mode of inheritance, if involved. It would also provide a greater understanding on how the different lifestyles of each family can impact their health. It's an enormous opportunity to question one's own family medical history and to observe how susceptibility emerges, is passed on, and how it leads to disease. But as discovered in this study susceptibility doesn't mean eventually. Gallbladder disease is one of several diseases formed from genetic and environmental factors and its manifestation isn't a certainty. To expand upon this study a genetic test should be conducted to find any genes that both appear in several family members, of various generations, and adds credibility of the responses provided for the interview questions. This will allow for a greater understanding of how the characteristics and transmission for gallbladder disease appears within families.

Acknowledgement

I thank my mentor Dr. Bissonnette and Dr. Newton who advised me and guided me throughout my process of completing this study. I also thank the members of the five families who were willing to share personal and medical information from which the data for this study is based off of.

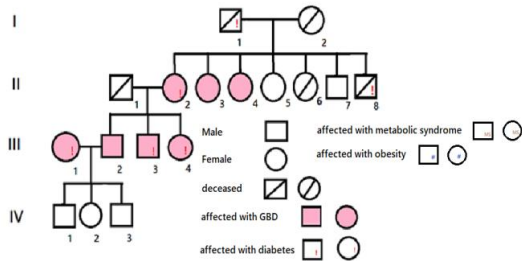


Figure 1: Control family pedigree created by Angel Reyes using information gained from interview. Designated as the control family comprised of four generations and having several members with the symptoms and disease.

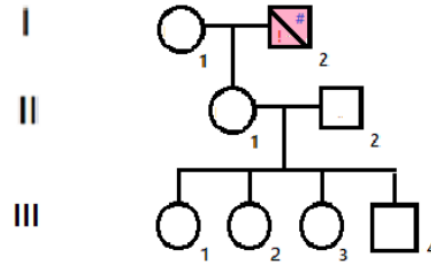


Figure 5: The fourth family pedigree.

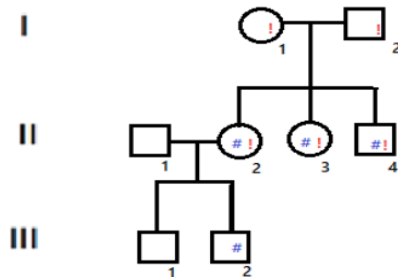


Figure 2: The first family of the negative control pedigree. Designated due to several members in the second generation showing signs of two symptoms yet never being diagnosed with GBD.

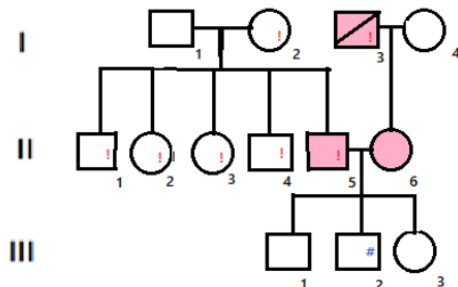


Figure 3: The second family pedigree.

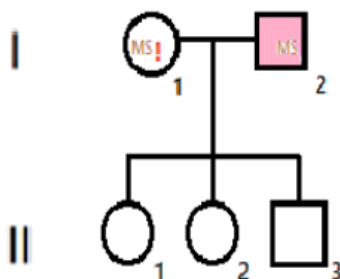


Figure 4: The third family pedigree.

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The Polarizing Effect of Social Media on Its Users

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Abstract

Social media curation algorithms are designed to create subtle echo chambers for their users in which groups of users tend to mainly interact with other users that share similar opinions on topics they express interest in. As a result, I hypothesize that these algorithms have a deterministic effect on users, causing them to form more polarized views on certain topics the more they are exposed to them. To test this, I analysed user data from two types of social media platforms: those that I considered “opinion based” and are driven by posting what they think and feel such as Facebook or Twitter, and those that are “objective oriented” with content based around certain goals or interests like Twitch or GitHub. I have found that, based on metrics such as transitivity, average clustering coefficient, diameter, and the size of the largest community, “opinion” networks are less connected than “objective” ones, meaning they tend to be clustered in a larger number of groups than “objective” networks but with each cluster being smaller and with little interconnection between clusters.

Keywords: (Social media, Curation, Echo chambers, Polarization, Algorithm, Network Analysis)

Introduction

Social media platforms have become a fundamental aspect of everyday life. From news to entertainment to communication, these supposed tools have engrained themselves in modern society. Social media, however, is not benign, these platforms exist as double-edged swords, their great power capable of much good and evil. Social media has changed many people’s lives for the better, but it has also destroyed countless others. For the first time in history, millions of people are all connected to the same informational network, a network that can amplify voices that previously had no platform.

Background

Compounding on this situation are the specific curation algorithms employed by the social media platforms. By encouraging interaction with content that is both popular and similar to previously engaged with content, these platforms have great deterministic power over their user base because they control what users see and when they see it (Milan, 2015).

Social media platforms create a space where anyone’s voice can be amplified. Unfortunately, this is not exclusive to people acting in good faith, or even to real people. While they have largely fallen into disuse, crowdsourcing systems such as Amazon Mechanical Turk had a dark side: a technique known as “crowdturfing,” where an individual would hire others to perform a task that would create the appearance of a specific public opinion online, such as using specific terms in a search engine, casting votes in an online poll, or signing up on a certain website (Wang et al. 2012). More recently, computer-run social media accounts, known as ‘bots,’ have mostly taken over this role, but the effect persists.

A study conducted in 2013 found that an estimated 52% of crowdturfing campaigns were to manipulate social media in some capacity, whether it was following a specific account, sharing a prescribed message, a specific image, or another task of the sort (Lee, Tamilarasan, & Caverlee, 2013). One of the most nefarious usages of these crowdturfing campaigns, called ‘astroturfing,’ is spreading propaganda in such a way that it appears to be from an organically formed grassroots movement, such as when the South Korean National Intelligence Service used the strategy to influence their 2012 presidential elections.

In 2012, the NIS used employed crowdturfing techniques in favor of presidential candidate Park Geun-hye, the eventual winner of their 2012 presidential election. After being discovered by the opposition, 1,008 Twitter accounts were found to be used in this campaign (Song, Kim, & Jeong, 2014). As found in a related project using the same data as the 2014 study, these accounts leveraged Twitter’s trends system by having groups all tweet at roughly the same time using the same keywords, creating the appearance that there was a lot of discussion surrounding those topics and, because of how Twitter’s algorithm works, it would be suggested to authentic Twitter users (Keller et al., 2017). Interestingly, this astroturfing campaign was not entirely one of crowdturfing. The same study deduced that at least seventeen of the NIS accounts were operated, at least in part, by bots.

A common misconception about bots is that they’re only effective if they can convincingly pass themselves off as human, but, in a study done by University of Turin researchers, it was found that even a bot that made no effort to act as a regular social media user could successfully influence human users (Aiello et al., 2012). The researchers’

bot, whose account was named ‘lajello,’ was created on the Italian social media site aNobii.com in July of 2010. By the experiment’s end in December of 2011, lajello was one of the most popular users on the site, among the top 0.3% of users. The most alarming aspect of the bot’s lifespan, though, is that in November of 2011 the researchers used it to send out tailored recommendations to users of other users on the site to connect with. Of these users, 52% followed the recommendations, and another 11% followed randomized, non-tailored recommendations of the same kind. While these numbers do show that people are generally reluctant to follow the bot blindly, they display a troubling ability of algorithms to push social media users to take an action that is slightly different than what they would otherwise do.

In 2018, civil unrest was mounting in Myanmar. This was most apparent as it manifested in violence against the Rohingya. A U.N. fact-finding mission determined that chief among sources for violent rhetoric was Facebook (UN, 2018). In 2020, a team lead by three researchers from University of Massachusetts sought to determine how citizens of Myanmar used Facebook by conducting several interviews that addressed these issues (Whitten-Woodring, Kleinberg, and Thawngmung, 2020). They found that, while 40% of Myanmar citizens listed Facebook as their primary news source, very few utilized adequate fact-checking techniques, and most were aware of the confirmation bias that exists in their Facebook news feed. Additionally, they found that, despite none of the respondents blaming Facebook for social conflicts that exist both on and off the platform, Facebook made extreme speech more accessible, allowing it to spread farther than it would be able to otherwise.

As we’ve seen recently in Myanmar, the social unrest that Facebook fostered had explosive consequences. Social media platforms such as Facebook are designed to maximize engagement, and therefore show users content that is similar to what they already interact with, creating echo-chambers that Stefania Milan described as “both descriptive and prescriptive,” in that they reinforce a user’s behavior based on their previous engagement patterns and those of users like them (2015). If social media has such prescriptive power, and bad actors can employ strategies such as using bots for astroturfing, what is the potential effect on democracy? Or, as is currently being seen in Myanmar, what effects has it already had?

What makes this even more dangerous is the average pattern of interaction on social media. In 2014, one study found that Twitter users tended to interact most with users that shared the same political affiliation as they did (Barberá et al.). However, the same study found that in conversations unaffected by politics, the same party lines were not drawn. Rather, it can be said that users interact with

users that share a common opinion with them on the topic at hand. For example, if discussing their favorite ice cream flavor, a user whose preference is chocolate will likely end up interacting most with users who also favor chocolate and will have minimal interaction with users who find the flavor revolting. Because of this, the echo chamber effect is far subtler than if it included only users that expressed the same opinions on every topic. This subtly is dangerous, creating the feeling of a balanced conversation when in reality none exists.

As mentioned, these algorithms are designed to create an echo chamber for their users. However, because social media content does not all fall nicely into simple categories, users will still see content on the “edges” of their chamber. Interacting with these “edge” content items will cause the chamber to expand in their direction slightly as the user has shown that they will engage with that kind of content (Rassameeroj & Wu, 2019). This likely creates a sort of moving goalpost, where one “edge” of the user’s echo chamber expands to include the new type of content and the other shrinks as the algorithms attempts to continually narrow in on desired content. If this is the case, the algorithms will be slowly pushing users toward polarizing views on a subject, whether it be a car brand, political affiliation, or ice cream flavors, while also continuously showing them that their opinion is right and supported by public opinion, because their opinion is the only one they get shown (McLaughlin, 2019).

However, while computer scientists and engineers attribute this kind of polarization to the influence of social media algorithms, those with a background in human-centric fields like psychology or sociology may disagree. Dr. Michal Kosinski — a psychologist, data scientist, and professor at Stanford University — argued that it wasn’t that the internet was creating echo chambers or information bubbles (Noor, 2017). Rather, he claimed that social media sites such as Facebook are providing more diverse information than we would otherwise be accessing and that the formation of echo chambers is a natural human behavior that recommendation systems actually work to impede. He argued that, even in the case where a curation algorithm finds someone prefer content that is factually unsound, and therefore exclusively show them “fake news,” this would be no different than should that same person disregard any print sources that don’t agree with their views and only engage with the ones that do (Noor, 2017).

What I believe Dr. Kosinski fails to consider is that social media isn’t passive. In his proposed reality, individuals are free to pick and choose what content they consume in the same way they would be a newspaper — they pick a specific publication that presents what they want to see and get whatever that one gives them. But that’s not actually how social media works. A more apt comparison, based on the

findings of Rassameeroj and Wu (2019), would be if the individual picked up a newspaper that was custom made for them, with only content that the publication believed they specifically would want to see. They would still be free to read or not read any article therein, but they don't have the option to pick another publication with different content. As such, while at its core this may be a basic human behavior, the algorithms employed by social media platforms work to enhance and exaggerate this phenomenon (Geschke et al., 2019). Once exaggerated in this manner, I believe this quirk of human nature becomes a threat to democracy itself, all because of the outside influence of social media curation algorithms.

Methods

Materials

We utilize datasets provided by the Stanford Large Network Dataset Collection and the Datasets for Social Network Analysis collected by AMiner. The datasets we have analyzed from these collections were data focused on user interactions on social media platforms such as Facebook, Github, Twitch, and the like. There are twelve datasets in all.

Participants

The datasets we have used feature anonymized user data from the associated social media platform. The number of users whose data is collected in each dataset ranges from around 7,000 to about 900,000 but averages around 30,000 users per dataset.

Design

I conducted a secondary data analysis to identify whether algorithmically propagated content can change or reinforce participants' behaviours on social media platforms by comparing how users behave on social media platforms designed to facilitate interaction with other users and opinion-based content compared to that of users on platforms that are meant for more objective, goal-based interactions.

Procedure

Using the Python network analysis tools NetworkX and Pandera, we determined certain characteristics of each network, these being the densities, clustering coefficients, the size of the largest community, the transitivity, the ratio of the

size of the largest community to the whole network, and the diameter of the network when applicable. With these metrics, we were able to compare numerical data of networks and, when separated into each category, identify patterns representative of the determined network type.

Related Work

The datasets I am using were collected and previously used for other research. Many of these projects were using artificial intelligence to assert features of a user's identity given only the other features present as part of the node and its connections to other nodes. Some others were collected purely as a proof of collection techniques where the characteristics of the data were less important. Regardless, none of the prior research using these datasets aimed to identify relational behaviors in the nodes as a result of the nature of the platform they were on as we have.

Results

Table 1 depicts an abbreviated set of our findings from each dataset evaluated. We found that, compared to "Objective" networks, networks classified as "Opinion" tended to have a smaller largest community relative to the total number of users in the network, indicating that users did not form into as large of groups (see figure 1). These networks also had a higher transitivity, as seen in figure 2, which measures the tendency of the network to form cliques, indicating that these networks were less interconnected and users in communities tended to engage less with those outside of them. However, the differences in these metrics shrunk significantly, though still existed, when comparing older data from similar "Opinion" networks, implying that this behaviour has likely either been exaggerated in recent years or has been steadily increasing since at least the time of the older data. Unfortunately, not enough older data was available to make this distinction.

Table 1.
Network Features

Opinion Networks						
Dataset	Nodes	Density	Diameter	Largest Community	Transitivity	Ratio
Facebook	22,470	0.001	15	3,530	0.2323	0.157
LastFM Asia	7,624	0.001	15	1,053	0.1786	0.138
Deezer Europe	28,281	0.0002	21	4,288	0.0959	0.152
Deezer Romania	41,773	0.0001	19	6,466	0.0753	0.155
Deezer Croatia	54,573	0.0003	12	6,942	0.1272	0.127
Deezer Hungary	47,538	0.0002	14	7,931	0.0929	0.167
Slashdot	77,360	0.00018	N/A	15,739	0.024	0.203
MySpace	854,500	0.00001778	N/A	186,219	0.0022	0.218
Objective Networks						
Twitch Germany	9,498	0.003	7	1,798	0.0465	0.258
Twitch England	7,126	0.001	10	1,022	0.0424	0.143
Twitch France	6,549	0.005	7	1,572	0.0541	0.240
GitHub	37,700	0.0004	11	8,689	0.0124	0.231

A summary of the numerical properties of each network. The table is sorted so that “Opinion” networks are on top and the “Objective” networks are below. Two networks are separated from the “Opinion” networks by a dotted line to indicate that these are older (pre-2016) networks. Full table in Appendix A.

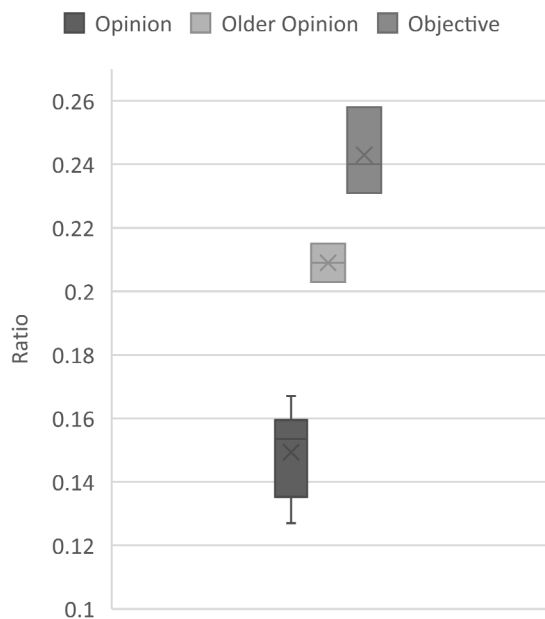


Figure 1. The ratios of each type of network. Opinion networks had a mean ratio of 0.15, older networks 0.21, and Objective 0.24

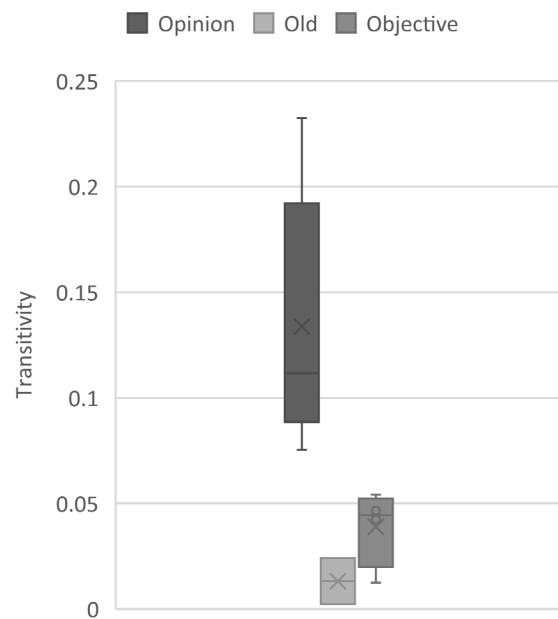


Figure 2. The transitivity coefficient of each type of network. Opinion had a mean transitivity of 0.13, older networks 0.01, and Objective 0.04

We also compared the density of the networks and found that “Objective” networks were consistently denser than “Opinion” networks, with the least dense “Objective” network (Github with density 0.0004) being smaller than only the two densest “Opinion” networks (Facebook and LastFM Asia at 0.001). This difference was still present when examining older data, suggesting that this is either the nature of “Opinion” networks in general or could be a feature of older social media data in general, but due to a lack of older “Objective” data we cannot answer this question definitively.



Figure 3. Facebook network visualization using the Yifan Hu arrangement algorithm with each color representing a different community in the network. Each node represents a user in the network, with edges corresponding to mutual “friend” relationships.

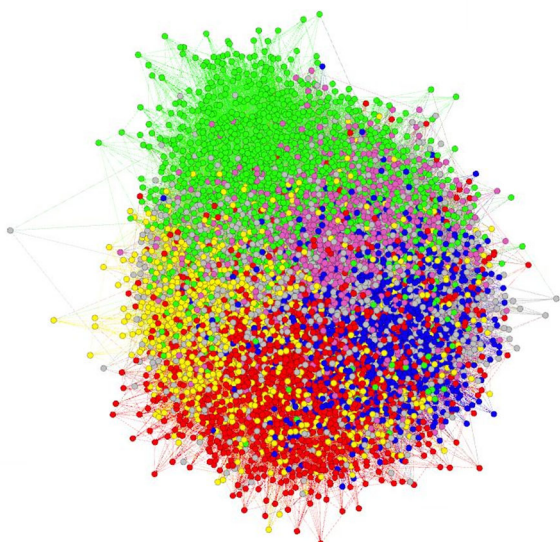


Figure 4. Visualization of German Twitch data using the Yifan Hu arrangement algorithm with each color representing a different community in the network. Each node represents a user in the network, with edges corresponding to mutual “following” relationships.

Discussion

Significance

If algorithmically propagated content does indeed influence a person’s opinions on select content, then it would show that social media platforms do change a user’s beliefs. With the known phenomenon of social media platforms’ tendency toward echo chambers (Geschke et al., 2019), this could have disastrous effects. While already a popular space for campaigning (Keller et al., 2017), the platforms would be cemented as the best way to influence citizens toward or away from a given political party, and through the use of crowd-turfed or bot accounts, this could be done subtly enough that the average user doesn’t realize that they’re being campaigned to. Businesses could leverage the algorithms to convince users that their product is superior and that such superiority is well established and rarely disagreed with.

Potentially worst of all, these platforms would be fostering misinformation and creating a lack of faith in science itself. If two users each only see scientific articles that support what they believe, despite their beliefs being entirely opposite they could both be completely convinced that the scientific community is in full support of research data that supports their beliefs. In this potential world, the divide between people of opposing beliefs would be ever widening, such that eventually it would become nearly impossible for those on differing sides to find a common ground. By shining a light on this supposed phenomenon, there would be clear evidence to support the drive for increased legislation against social media platforms which, if implemented properly, could stop this dark prediction from coming to pass.

While I don’t feel that this analysis alone is extensive enough to conclude one way or the other, I do feel that the data presented here supports our hypothesis that the kinds of curation algorithms used on “Opinion” style social media networks cause users to be less interconnected isolated from dissent, effectively forcing them into an echo chamber of a given viewpoint.

Limitations

There are several ways in which this project was unable to achieve our intentions. First and foremost, the lack of data from major platforms (Twitter, Instagram) means that there could be behaviors completely contrary to that of what we have found that would potentially be prevalent in millions of users and we have no way of knowing. Further, despite our intentions the datasets utilized tend to all fall in the same 5-year span from roughly 2016-2021, meaning we have very few datasets that allow us an insight into whether these platforms are changing behavior over time or just influencing how users

interact using them. However, despite this while we may not have found not conclusive proof, I feel that our efforts have successfully provided one further piece of evidence into the larger case that is being made against the design of social media platforms by so many others, some of which having been cited in this paper.

Acknowledgements

Thank you to Dr. Ayat Hatem, my research advisor, for her continued support and guidance on this project. I would also like to thank my classmate and research partner towards the end of this project, Lizbeth Solis, who was instrumental to the data analysis process as I was far less familiar with the technology in use.

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Appendix A

Table 2. Network Features

Dataset	Nodes	Edges	Density	Diameter	Average Clustering Coefficient	Number of communities	Largest Community	Range of communities	Transitivity	Ratio
Opinion Networks										
Facebook	22,470	171,002	0.001	15	0.36	59	3,530	58-67	0.2323	0.157
LastFM Asia	7,624	27,806	0.001	15	0.219	31	1,053	24-30	0.1786	0.138
Deezer Europe	28,281	92,752	0.0002	21	0.141	81	4,288	77-101	0.0959	0.152
Deezer Romania	41,773	125,826	0.0001	19	0.091	58	6,466	41-58	0.0753	0.155
Deezer Croatia	54,573	498,202	0.0003	12	0.136	24	6,942	23-25	0.1272	0.127
Deezer Hungary	47,538	222,887	0.0002	14	0.116	25	7,931	23-39	0.0929	0.167
Slashdot	77,360	905,468	0.00018	N/A	0.0555	1408	15,739	1,377-1,644	0.024	0.203
MySpace	854,500	6,489,736	1.778E-05	N/A	0.0432	1818	186,219	1,687-2,215	0.0022	0.218
Objective Networks										
Twitch Germany	9,498	153,138	0.003	7	0.2	9	1,798	12-Sep	0.0465	0.258
Twitch England	7,126	35,324	0.001	10	0.13	18	1,022	15-22	0.0424	0.143
Twitch France	6,549	112,666	0.005	7	0.22	9	1,572	11-Jul	0.0541	0.24
GitHub	37,700	289,003	0.0004	11	0.167	41	8,689	23-87	0.0124	0.231

Full table of network features. Average clustering coefficient is the network's tendency towards interconnection. Number of communities measures the number of unique clusters of users algorithmically detected in the network. Range of communities was calculated as the upper and lower bounds of the number of detected communities after running the same algorithm ten times to identify error.

The Experiences of Unhoused People in the United States

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Abstract

In this research study, I will explore experiences of unhoused adults in the United States. Previous research has pointed to the way that homelessness is a result of moral failings. In this research study, I will argue that unhoused people have negative experiences because of the way that economic inequality impacts housing and criminalization. The research problem I have proposed is: How does unhoused peoples economic status affect their daily experiences. The design I will use in this study is a qualitative phenomenological research design. This study will be conducted utilizing the Qualtrics survey software. The main reason for this study is to uncover a similar pattern within the lived personal experiences of unhoused people, which could reveal how economic inequality and homelessness are correlated. I will survey approximately 20 (18–64+) unhoused individuals. There will be 9 open-ended questions. There are 3 neutral questions, and 3 questions made to discuss negative experiences of being homeless, as well as 3 questions about the positive experiences unhoused people have had. The significance of my argument is that homelessness is a human rights violation. My hypothesis is: If individuals experience homelessness, then there will be more reports of negative experiences amongst criminalization and housing.

Introduction

Over the years, economic inequality has grown into one of the most prominent and scrutinized social issues. Throughout the decades, economic inequality has taken various forms. Today's society views economic inequality through the way that few individuals hoard the world's wealth. Those who are not part of this privileged group, are more likely to be herded to compete in a labor market that criminalizes and dehumanizes people who are unable to produce for the market, such as unhoused people. In this research study, I will examine the everyday experiences of unhoused people. My hypothesis is: If individuals experience homelessness, then there will be more reports of negative experiences amongst criminalization and housing. The main problems within this research study are centered around the way that unhoused people experience economic inequality in the United States.

First, the criminalization of unhoused individuals takes form in many ways. Faoscarinis' (1996) explores three forms of criminalization, public space restrictions, indirect restrictions, and restrictions on begging. Restrictions of public space come in forms such as homeless encampments swept by cities, destroying the little belongings that many unhoused people have. Indirect restrictions include laws or city regulations that cities impose to keep unhoused people away from businesses or areas with many individuals. Restrictions on begging include the criminalization of loitering or solicitation, many business owners are more concerned with the customers that unhoused people drive away, rather than

said unhoused individual. People who do not comply with the overall interest of the wealthiest individuals in mind, are often more likely to be stigmatized as criminals. For instance, policemen, businessmen, and landlords are positions that function to protect private property, and in doing so, many unhoused people are given citations for soliciting and/or loitering on these properties. Which brings me to my next point, another way that unhoused people experience criminalization is through community members, such as policemen, businessman, and landlords. Wilson (2019) utilizes a Marxist analysis to explore the relationship between policemen, businessman, landlords and unhoused people. The author examines how these job positions serve a large role in adding to the criminalization that unhoused people experience. Wilson states, "The police can be seen as servants of capitalist repression, enforcing the laws that benefit landlords and businessmen, and permit the attraction of investment to city centers that have banished the homeless or harassed them out of sight". She believes that these job positions are embedded with inequality and as a result they have a large impact on the experiences of unhoused people.

Next, housing in the United States has been a highly discussed issue. Access to housing shapes the everyday lives and activities of unhoused people in various ways. Due to the fact that many unhoused people spend large amounts of time seeking shelter, this often leads individuals to a constant state of distress, which can lead to unhoused individuals experiencing both mental and physical issues. Author Philp Alston (2017) discusses extreme poverty in the United States

as a result of political choices. When unhoused people experience a lack of adequate housing this often leads to more experiences with incarceration, which perpetuates a greater state of distress. For example, “Sleeping rough, sitting in public places, panhandling, public urination (in cities that provide almost zero public toilets) and myriad other offenses have been devised to attack the ‘blight’ of homelessness. Ever more demanding and intrusive regulations lead to infraction notices, which rapidly turn into misdemeanors, leading to the issuance of warrants, incarceration, the incurring of unpayable fines, and the stigma of a criminal conviction that in turn virtually prevents subsequent employment and access to most housing”. Alston also points to the way that these experiences accumulate into a lack of financial stability, escalating eviction rates, and an increasingly negative impact on the education of unhoused people.

Methods

This research study will use a phenomenological qualitative research design. A phenomenological design is useful for this research study because it is a powerful way to understand individual’s lived experiences and gain insights into people’s actions and motivations. The themes I will be examining are the criminalization of unhoused persons and adequate housing. My thesis is: Unhoused people have negative experiences with criminalization and housing because individuals who are unhoused are more likely to experience economic inequality. The purpose of this study is to explore the relationship between the social issue of homelessness and the socioeconomic system, which will be examined through the experiences of unhoused people. The premise of this research is that since economic inequality is a prevalent aspect of society, this increases the negative experiences that unhoused people have with housing and criminalization. These elements set the foundation to establish a parallel between experiences of unfair treatment among unhoused people and economic inequality in the United States.

In this study, a survey will be administered to unhoused respondents utilizing the Qualtrics Survey Software. The survey questions will examine unhoused individual’s emotional well-being in relation to their economic status and criminalizing treatment they may have received in the past. The survey will consist of 11 total questions, 9 of which will be open-ended. Every 3 open-ended questions are made to further elaborate on the respondent’s neutral, positive, and negative experiences with instances of housing and criminalization. The nature of the questions will be centered around economic inequality and the criminalization of unhoused people. For instance, one

question is “Have you ever been ticketed for soliciting and or loitering? How did it feel?”.

The sample size I will use will be 20 people 18-64+ years of age, who self-identify as unhoused individuals. The participants will be male, female, and other genders/sexes that the participants may identify with. Participants of all races will be accepted in this study. There will be no education level required for individuals to participate in the study. The survey will be conducted at Modesto Gospel Mission in Modesto CA. The scoring material will explore similar patterns between unhoused people’s personal experiences and housing, and criminalization. My survey will be administered at Modesto Gospel Mission. Some keywords I will be looking for in the participants’ responses will be feelings of depression and loneliness. All participants will provide written consent on a form they will be provided with in order to participate in the survey. This study will span over 2 days for approximately 2 hours. The questions will explore the mental health of unhoused people, their lived experiences, as well as physical and economic struggles.

Results

There was not enough data in this research study to reject or accept the hypothesis. As a result, I will discuss my expected results for this research study. I anticipate that the responses of my participants are more likely to bring up negative experiences that they’ve had with instances of adequate housing and criminalization. In addition to these expected results, I anticipate there may be other possible experiences that respondents may discuss, such as instances when they have experienced gratitude or gratefulness as unhoused people.

TABLE 1 EXPERIENCES OF UNHOUSED PEOPLE

Experience	Examples	Respondents Examples
Criminalization	Has received ticket for loitering or soliciting	
Adequate Housing	How often an individual has had access to adequate shelter	
Support from public employees	Felt victimized by policemen, businessmen, or landlords	

Table 1. This table will be used for the Experiences of Unhoused people survey. Each experience will be obtained from the answers of open-ended questions.

UNHOUSED PEOPLE'S EXPERIENCES EXPLAINED		
TABLE 2		
Criminalization	Adequate housing	Support from public employees
NEGATIVE	NEGATIVE	NEGATIVE
POSITIVE	POSITIVE	POSITIVE
NEUTRAL	NEUTRAL	NEUTRAL

Table 2. This table will examine patterns among respondent's answer.

Discussion

Economic inequality is an urgent social issue that impacts individuals of all races, classes, and genders. Economic inequality has been especially prevalent during the COVID-19 pandemic. COVID-19 pandemic has brought even more attention to this topic of poverty and labor. Labor shortage in the United States with two distinct arguments. Many argue that not returning to work is "Lazy" and hurts the economy. Others find themselves unable to return whether it be from a disability or autoimmune compromise; these individuals are forced to put their well-being at the mercy of the socioeconomic system.

The COVID-19 pandemic has brought even more attention to this topic of poverty and labor. In the earlier days of the pandemic, individuals were evicted due to the fact they were unable to pay rent on time. The United States' socioeconomic system was set on continuing to push profits, even at the expense of human lives. My research study will contribute to the sociological field's body of knowledge in many different ways. Poverty in the United States is a phenomenon that has long plagued working-class individuals. My research will be basic in the sense that it will enhance theories. To examine my research, I will use Marxist theories. In many Marxist theories, poverty and homelessness are heavily correlated with the superstructure of capitalism. The recent 2020 COVID-19 pandemic has brought even more attention to this topic of poverty and labor. In the earlier days of the pandemic individuals were evicted due to the fact they were unable to pay rent on time. The capitalist system was set on continuing to push profits, even at the expense of human lives. In addition, there has been much discussion around the labor shortage in the United States with two distinct arguments.

On one hand, while many argue that not returning to work is "Lazy" and hurts the economy, others find themselves unable to return whether it be from a disability or autoimmune compromise; these individuals are forced to put their well-being at the mercy of the economic system. In terms of my research

study, I plan on prioritizing the physical and mental well-being of my participants. The level of harm I expect my research participants to experience if I'm conducting this research in reality is little to no psychological or mental harm. No purposeful physical harm will be conducted on the participants in my study. Some limitations of the research design I selected include bias. Bias is very likely within phenomenological research, researcher-induced bias can influence studies. Another limitation for this research design is that I will need to further develop my communication skills needed for this research.

Future work

I have various recommendations for future studies. For instance, I would recommend utilizing interviews to collect data instead of surveys. I would also recommend dedicating a longer time span to this research study, in addition to interviewing more people. For future studies I would recommend a closer examination of specific laws or policies that may encourage unhoused people to keep to a particular area of a city, such as Skid Row located in Los Angeles, California. A similar study I would recommend examining would be a comparison between capitalist and socialist systems, one could analyze potential inequalities in both systems. Lastly, I would recommend a more in-depth analysis of racial disparities among unhoused people. For future studies I would ask more sociological based questions, such as, "Do race, class, or a combination of both factors have a larger impact on unhoused people? Does cultural economic, social, and cultural kind of capital most contributes to economic inequality?"

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The Potential and Problems of Gene Drive Technology

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Abstract

Mosquito-borne diseases take the lives of over one million people every year. Researchers have been combating diseases transmitted by mosquitoes for many years by using biotechnology, including gene drives. Gene drive technology has incredible potential in eradicating mosquito-borne diseases. It allows scientists to insert a desired gene into a few organisms within a population which then spreads until every individual has the desired gene. However, there are many ecological and environmental considerations researchers must examine to determine if this technology is safe and effective enough to move from the lab and into the field. This study focuses on two types of gene drives – population modification drives and suppression drives – that have been used to combat mosquito-borne diseases. In order to determine the safety and efficacy of these drives, I used a multi-case study design and examined data from seven different experiments that used this technology on different mosquito populations. I focused on the percent success rate and the rate of drive-resistance within each experiment to determine its effectiveness. Analysis of data revealed that each of the seven experiments had a high percent success rate within 6-10 generations, spreading throughout the entire populations with an overall mean success rate of 99.1%. These results demonstrated that this technology is extremely effective, however, the lack of information on its safety continues to be a huge barrier to using this technology in the field.

Keywords: gene drives, mosquitoes, gene drive technology

Introduction

Infectious diseases kill millions of people each year. According to the World Health Organization, seventeen percent of these infectious diseases are transmitted by mosquitoes (2020). Globally, diseases transmitted by mosquitoes, such as malaria, dengue fever, and yellow fever, kill over one million people every year (The American Mosquito Control Association 2022). However, new tools in biotechnology, such as gene drives, are being used to combat mosquito-borne illnesses by using genetic modifications to either eliminate the insect's ability to transmit disease or completely eradicate mosquito populations that are known to transmit disease.

Gene drive technology is based on the concept of "selfish genes," which are naturally occurring genes that are increased in heritable frequency with each generation no matter if they hold an evolutionary advantage for the population (Champer, et. al, 2016). This allows for increased transmission of certain chromosomes within particular species. A famous example is the *Paris* drive in *Drosophila simulans*, which is a sex ratio gene drive that occurs naturally within the species and causes a higher ratio of female development (Price et al. 2019). Though this gene offered no evolutionary advantage, and instead damaged the population, it was able to pass on with a greater frequency due to its selfish genetic elements.

Scientists are using the gene editing tool CRISPR to alter genes within an organism so that they will behave like "selfish genes" and spread throughout a population. CRISPR technology allows scientists to

pinpoint and edit particular genes, enabling researchers to design gene drives of their choice. Currently, researchers are using two types of gene drives, including suppression drives and population modification drives, to combat mosquito-borne diseases. Suppression drives completely suppress a population that is known to be carriers of disease by manipulating the sex ratio within the population or passing on sterility. Population modification drives spread a gene within a population that makes an individual unable to carry disease. Most population modification drives insert a gene that provides protection from being able to carry the disease or removes a gene that causes an individual to be able to be a carrier. Gene drives have until recently only been used in a laboratory setting with an emphasis on mosquito populations. For example, a study using population modification drives has been done in *A. stephensi* which successfully spread an antimalarial antibody within this mosquito population (Noble, 2017). This study demonstrates the amazing potential of this technology and its potential applications within the environment.

However, despite the immense benefits this technology may provide, there are many who believe this technology is dangerous and should not be used outside of the laboratory. There are many ecological and environmental considerations researchers must examine including the possibility of horizontal gene transfer, in which a modified gene may move to a completely different species, and gene flow, in which a modified gene may move to a different

population from the target population (Gene Drives on the Horizon, 2016). This could result in detrimental effects for an ecosystem and may have long-lasting effects within the environment. However, the biggest issue researchers now face is gene resistance since this renders the gene drive virtually ineffective (Brossard, et al., 2018). Gene resistance occurs when individuals within a population are unable to receive the desired gene. Some researchers believe that this resistance will be even more abundant in the natural world, making this technology useless for field experiments. However, despite these concerns, this technology has had great success in laboratory settings and many scientists believe that it is ready to be moved to field tests. This study will examine the safety and effectiveness of this technology and determine if it is ready to be used in the field.

Methods

To examine the safety and effectiveness of this technology I used a multiple case study design to review the experimental data from various experiments using this technology on mosquito populations. By using a case study design, I was able to review experimental data from various previous experiments using different forms of gene drives to examine their success rate and drive resistance rate. Research was limited to focus only on experiments using gene drives on mosquito populations.

Data was collected from seven different experiments within peer-reviewed articles. These articles were collected from the California State University - Stanislaus library database, which gives access to many professional, primary research journals, including the Proceedings of the National Academy of Sciences and Nature. Key words used for my search included gene drive mosquitoes, gene drive technology, and gene drives. After amassing approximately 433 articles, I then examined and determined that only seven included original research on gene drive resistance and success rate within mosquito populations. I examined the experimental results from each of these articles. I then used the data accumulated from these experiments to determine the effectiveness and safety of gene drives by examining the success rate and drive resistance rate within each.

Results

Out of the seven experiments analyzed in this study, either *Anopheles gambiae* or *Anopheles stephensi* were used in each experiment since these two species are the most common carriers of malaria. Almost all of the experiments used small cage trials in a laboratory, except for Hammond et al. (2021), which attempted to simulate a field experiment by doing large cage trials and creating a pseudo-natural environment. All of the experiments using suppression gene drives focused on generating

female sterility within *Anopheles gambiae*. Most of the experiments using population modification gene drives focused on manipulating or introducing genes to make mosquitoes malaria resistant, specifically within *Anopheles stephensi*. (See Table 1)

Table 1- Experimental details

Article	Modification	Species	N	n
Adolfi et al. 2020	Manipulates the function of kynurenine hydroxylase gene	<i>A. stephensi</i>	3	530
Carballar-Lejarazu et al. 2020	Introduction of AgNosCd-1 strain to deliver antiparasite effector molecules by targeting the cardinal gene	<i>A. gambiae</i>	3	1663
Gantz et al. 2015	Introduction of dual anti- <i>Plasmodium falciparum</i> effector genes	<i>A. stephensi</i>	2	1984
Hammond et al. 2021	Suppression of the female-specific exon 5 of the dsx gene	<i>A. gambiae</i>	6	400
Hammond et al. 2016	Disruption of three genes (AGAP005958, AGAP011377 and AGAP007280), causing female sterility	<i>A. gambiae</i>	3	600
Kyrou et al. 2018	Disruption of the intron 4-exon 5 boundary aimed at blocking the formation of functional AgdsxF, causing female intersex development and complete sterility	<i>A. gambiae</i>	2	650
Pham et al. 2019	Introduction of dual anti-malarial single-chain antibody (scFv) genes	<i>A. stephensi</i>	2	300

*N represents the total number of trials

*n represents the total sample size

For population modification gene drives, each experiment had over a 95% success rate and a low drive resistance rate (<0.01). The high success rate of each experiment indicated the effectiveness of this technology using population modification drives (Table 2).

Table 2 - Gene Drive Population Modification Results

Article	n with vector	n without vector	Success Rate
Adolfi et al. 2020	500	25	95.20%
Carballar-Lejarazu et al. 2020	1656	7	99.60%
Gantz et al. 2015	1781	3	99.80%
Pham et al. 2019	260	1	99.60%

Note. Each experiment experienced a success rate of over 95% within 6-10 generations.

*n represents the number of individuals within a population

For population suppression drives, each experiment had over a 99% success rate and a low drive resistance rate (<0.01). Two out of the three experiments, Kyrou et al. and Hammond et al. (2021), had a 100% success rate and were able to completely suppress their populations within 6-10 generations (Table 3).

Table 3 - Gene Drive Population Suppression Results

Article	n with vector	n without vector	Success Rate
Hammond, et al. 2016	540	2	99.60%
Hammond, et al. 2021	400	0	100%
Kyrou, et al. 2018	650	0	100%

Note. Each experiment experienced a success rate of over 99%
*n represents the number of individuals within a population

Overall, the average success rate was 99.1% within 6-10 generations (approximately 350 days). Though all of the experimental data analyzed demonstrated a high success rate, each of the experiments failed to discuss possible safety precautions that could be taken to prevent ecological disasters.

Discussion

Despite concerns about this technology, it has had great success in laboratory settings and many scientists believe that it is ready to be moved to field tests. From the analysis done in this review, seven separate experiments have shown over a 95% success rate, indicating this technology's effectiveness. These results indicate the effectiveness of this technology in both suppression and population modification, but each of the experiments failed to examine the safety concerns in regard to using this technology within the field. Though each experiment had a low drive resistance rate (<0.01), none addressed the concerns of gene transfer between populations and different species. Without distinguishing proper safety precautions, this technology can cause ecological harm if used in the field. More research should be done to determine what we must do to make this technology safer to use on a wider scale within our environment. Safety measures must be determined in order to use this technology to its full potential.

One way to determine accurate safety measures is to continue experiments using a pseudo-environment in large cage trials as was done by Hammond et al. (2021). By using a faux environment as they did and introducing a gene drive into a population of wild mosquitoes, they were able to observe drive resistance within a wild population in a controlled environment. However, since in the past researchers have used naturally occurring gene drives to their advantage with great success on wild populations, some believe that using CRISPR will only make this technology more effective when used in the field. Due to this reasoning this technology is beginning to be moved into the field within certain areas of the world.

Due to climate change, mosquitoes are expanding their range and living longer as the summer seasons are extended. This means that mosquito-borne

illnesses are increasing every year. Currently, scientists are beginning to use this technology in the field on mosquito populations within some areas of the United States. However, there is fear that areas with higher rates of mosquito-borne illnesses, such as Africa and Southeast Asia, will not have access to this technology anytime soon. For future study, I would like to examine the data collected within the field and see what safety precautions researchers have been using to determine the most effective and safe way to use this technology in the future. I would also like to examine the use of this technology in other areas of the world, especially areas with higher rates of mosquito-borne illnesses.

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Attitudes About Language in the USA

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Abstract

California has a reputation as a place of ethnic and linguistic diversity, due to its high immigrant population. However, negative language ideologies such as xenophobia or English-only policies still present themselves as an issue in society and school systems. In regard to linguistic diversity, multi/bilingual residents celebrate linguistic and ethnic diversity by keeping culture alive even when surrounded by negative ideologies. Because of these opposing ideologies present in society and school structures, I believe the people of California are influenced by their environment when forming language attitudes leading to a mixed language ideology regardless of language identity. To understand more about American language attitudes, data has been collected through surveys and interviews concerning attitudes towards language including multilingualism and language learning. The participants included in this research consist of California college students varying in age, major, and language identity. Survey results show participants have both positive and negative language attitudes. Interview results show participants encourage language learning.

Keywords: multilingualism, bilingualism, language attitudes, language learning, linguistic diversity

Introduction

With globalization on the rise, many countries have encouraged multilingualism so their citizens can navigate the modern world. Language learning in the U.S.A. does not have a stable and significant position in society and systems like that of other countries. Despite the positives of language learning such as cultural celebration, traveling, job opportunities, and communication, the U.S. has slowly implemented language programs into schools. Language attitudes in the U.S. have fluctuated from negative and positive due to counteracting forces such as xenophobia, immigration, English-only policies, linguistic diversity, and more. Even though English is not the U.S.'s assigned national language, policies, and societal influences encourage English to be predominantly spoken and written.

Ruiz's three language orientations include language as a problem, right, or resource. In America, each orientation surfaces in different contexts. Language as a problem orientation consists of the mindset of assimilation to a single language as linguistic diversity threatens national unification whereas language as a resource serves as an antithesis (Hult & Hornberger, 2016). Language as a problem supports English's role as the dominant language in the U.S. as English is for public spheres and other languages are for private spheres. Language as a right secures the use of a language although other factors can discourage the language use (Hult & Hornberger, 2016).

Counteracting the pressure to conform to English, communities celebrate their culture and

language. Famously known as the melting pot, the U.S. continues to be home to a high number of immigrants. One way to celebrate and maintain culture is through the use of a heritage language. Language allows for communication within families and members of the same culture therefore creating a home away from home. Aside from the cultural ties, research concerning the benefits of multilingualism is ongoing. Language can be beneficial for the brain as multilingualism seems to deter Alzheimer's by 4-5 years as code-switching strengthens their brains (Mehmedbegovic & Bak, 2017). Researchers such as Stewart & Thomas even call for more research into the benefits of translanguaging methods, the act of utilizing all one's languages in order to construct meaning, in the classroom as it seems to support creativity, critical thinking, and choice (2016). However, these ongoing positive language factors do not outweigh the negative language attitudes prominent in the U.S.

Regarding passing down language, "language policing [has] resulted in English language dominance, and very often English monolingualism among the second and third-generation children of immigrants in the U.S. at the expense of loss of their heritage languages" (Kaveh, 2020, p.1). Passing down a heritage language becomes a complex decision as maintaining a culture or assimilating are debated. Within immigrant households, families believe English will help their children navigate the U.S, and teaching children their heritage language becomes a decision based on whether it would hinder or help their social standing. Despite the linguistic diversity

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of America, the decision to speak a language besides English is a carefully thought-out matter. However, in contrast to their parents, children of immigrants believe their heritage languages to be an important part of their identity, showing the prioritization of their social identity rather than the language policies of society (Kaveh, 2020). The difference between these parental and adolescent beliefs shows how among minorities language learning attitudes differ.

Furthering the dominance of English in America is English's label as a lingua franca, meaning it is a globally used language. Foreign languages have become a commodity in a globalized world, primarily focused on English, or other standard languages that are usually taught in a standardized context (Vogl, 2018). Therefore, Americans will most likely encounter people in the workforce who speak English. However, expecting others to learn foreign languages and not making strides to learn any themselves perpetuates English as a dominant language. This mindset can be harmful as it reduces the opportunities for jobs, communication, and cultural celebration and does not prepare people for the global world. Students today "are confronted with diverse multilingual interactions both in the real world - in big urban centres or while travelling abroad - and in the virtual world - for example, through social media" (Vogl, 2018) and language learning would enhance each of these experiences. With types of negative mindsets such as these, whether explicit or implicit, learning other languages besides English is viewed as a problem rather than a resource.

To further contribute to negative language attitudes, many misconceptions about language continue to prosper. Goals of acquiring a native-like proficiency create issues for students as their inability to meet this goal creates a belief that their language skills are less valuable (Mehmedbegovic & Bak, 2017). In U.S. schools, speakers of other languages are placed into ESL, English as a Second Language, courses and expected to gain proficiency quickly. By creating false expectations, students fall victim to a language as a problem mindset, as students believe their first language to be a deficiency rather than a resource when learning English. This goal of native-like proficiency is a popular goal and disregards many multi/bilinguals' identities as they may be skilled in speaking but not reading, or writing, or have an accent or code-switch. This unrealistic language goal disregards the importance of communication which should be integral to the language learning process.

With more research into multi/bilingualism and an increasing push for diversity and inclusion, attitudes towards language learning seem to be altering. The example of other countries and their foreign language courses may propel the U.S. education system to prepare students for a multilingual competitive work field. In regard to demographics, the U.K. offers similarities to the U.S. due to international commonalities due to immigrant

population and English as the dominant language. In a study done by Jaowrska & Themistocleous in the U.K., results revealed "the public is generally positive towards multilingualism nevertheless, much more work still needs to be done in order to promote multilingualism and counteract some of the negative associations" (2018, p.84). Even though the U.K. encourages foreign language courses, negative media depictions can have an effect similar to the U.S. Because of the U.S.'s similarity to the U.K in terms of diversity, I believe results among California residents will be similar. Results may slightly differ due to U.S. societal, educational, and media influences.

Because of the aforementioned concepts, I believe the American population, regardless of language identity, holds a mix of negative and positive attitudes towards language learning. Since the focus of this study is on the general public's attitudes about multilingualism, the research will be conducted in a quantitative and qualitative manner. Information will be collected with two strategies: a closed-ended questionnaire and semi-structured interviews. With changes in the world like globalization and the growing number of multilingual speakers abroad, I seek to uncover the language ideologies present in the people of the U.S., specifically the Central Valley of California. The following questions guided the research process:

1. What are people's attitudes about multilingualism? Do the language attitudes differ from monolingual speakers compared to multi/bilingual speakers?
2. How do social and cultural implications affect people's language ideologies?

Methods

This study was designed with the use of a mixed methods approach of quantitative and qualitative methods. A mixed-methods approach can gather information about language attitudes and the reasoning behind them. Data was collected from surveys and interviews. Data collection began in the Spring of 2022 after IRB approval from Stanislaus State's Office of Research and Sponsored Programs.

Survey

For the survey, participants included undergraduate and graduate students whose ages approximately range from 18 and up. Participants were recruited from CSU Stanislaus and range in terms of year level at the time of participation. Survey participants were recruited through emails asking for participation and including information about the study including the topic, instructions, and information regarding the optional interview.

In total, the survey consisted of five demographic questions and ten survey questions. Questions first focused on demographics, then on

statements regarding language attitudes and ended with an optional question if interested in interview participation. In the demographics section, questions were open ended. Participants indicated their age, major or field of study, language(s) which represent them, places they lived in, and possible plans to move in the future. Participants answered statements using a Likert scale. On a closed-ended Likert scale participants chose whether they disagreed or agreed with statements. The scale ranged from 1=*Strongly Disagree*, 2=*Somewhat Disagree*, 3=*Neither Agree nor Disagree*, 4=*Somewhat Agree*, and 5=*Strongly Agree*. Survey responses were recorded through Google Forms and then sorted into Google Sheets. After distributing emails for participation, the Google Form survey was open for about a month before closing. Emails were not required in the survey as participants were anonymous. Each question in the survey required an answer for submission.

Interviews

In regard to qualitative measures, I conducted three interviews. Interviewees also participated in the surveys. The last and optional question of the survey asked participants to leave their email if interested in an online one-on-one interview. From this list of fifteen volunteers, I sorted them into monolingual and bilingual categories based on the languages listed in their answers to “What language(s) best represent you?” question. I then chose three volunteers with the minimum of one bilingual speaker and one monolingual speaker. Interviewee 1 was a self-identified bilingual speaker who spoke English and Spanish. Interviewee 1 was born in Mexico but raised in California for much of her life, specifically the Central Valley. Interviewee 2 was a self-identified monolingual English speaker who was born and raised throughout California. Interviewee 3 was a self-identified bilingual speaker who spoke English and Tagalog and was born and raised in the Central Valley as well. In total, participants include one monolingual and two bilingual speakers. Each participant has been exposed to California and its influences and expressed a desire to move away or travel. Interviewee’s ages ranged from 18-24.

I communicated through email with the interview volunteers to set up an interview time with the minimum of a forty-five minute to an hour time window. Consent forms were distributed, explained, and signed over email. Questions were created before the survey and interviews so there were only six questions to answer. All interviews contained the same set of questions. Interviews were conducted and recorded through Zoom. Within the Zoom, video was

Results

Surveys

In total, there were fifty-two survey participants. Survey participants ranged from ages eighteen to

not required and only audio was recorded. Interview participants confirmed their consent before starting the audio recording. Interviews were semi-structured as there were pre-constructed questions to cover and then the general flow of conversation. Participants were asked six questions with follow up questions when necessary. Despite their different language identities, each participant answered the same set of five questions:

1. Describe your language learning experiences. How did you learn English or any other language? Can you tell me about your most memorable experience learning a language? What do you remember most about your language learning classroom?
2. What languages are spoken at home? Are there any rules about which languages are spoken at home? If there are two languages spoken at home, do you codeswitch, how often do you do it, with whom, and why?
3. To you, what does language represent?
4. Why do you think people want to learn another language? Do you think it is important to learn another language and why?
5. How do you think language to be learned? What do you think should and shouldn’t be done when it comes to learning another language?
6. As for multilingual content, do you consume any in either school, the media or society, etc.? And if so, why? As for content, I mean tv shows, music, news, movies, conversations with coworkers, etc.

Zoom provided a transcript which was used and edited as necessary to replace the interviewees’ names and discrepancies in transcription. Each interview lasted about ten to fifteen minutes.

Data Analysis

Data was collected and analysed electronically as the survey was created and distributed through Google Forms. Google Forms sorted all answers together into bar graphs for each question except for the open-ended questions. Answers were transferred to Google Sheets where they were separated into three spreadsheets: all language identities, bilingual speakers, and then monolingual speakers. The Google Sheets spreadsheet allowed for further separation and analysis. Interview transcripts were hand coded by me as I looked for interesting quotes or negative and positive mindsets. Influences from family, society, education, or culture were noted as well.

forty-two. Participants indicated where they have lived in the past and answers ranged from: cities throughout California, states such as Idaho, Arizona, Texas, Kentucky, Missouri, Arkansas, and North Carolina, and countries such as the Philippines,

Mexico, and Germany. Participants hailed from different majors and consisted of different schools of college: social sciences, business, sciences, humanities, arts, education, kinesiology, and social work. Based on the question asking for a list of languages or languages which best represent them, I received a total of twenty-two monolingual participants and thirty bilingual participants. Majority of participants indicated a plan to move outside their current area however reasons and destinations differed. Reasons for moving included jobs, healthcare systems, education, cost of living, scenery, or a desire for a new or native culture. Destinations differed from different cities in California, other states, or other countries.

With the use of Google Sheets, Likert scale data was analysed. Out of the ten questions, about five questions revealed mixed language attitudes. In response to the statement “I believe people code switch because they don’t know both languages very well” responses ranged from (1) strongly disagree to (3) neither agree nor disagree. Disagree (25%) and strongly disagree (26.2%) were popular but neither disagree nor agree was the highest at 30.77%. Concerning the statement “I believe teachers and students should only use one language instead of two in the classroom” responses were mixed as people either strongly disagree (25%), disagree (34.62%), or neither disagree nor agree (25%). In response to the statement “I believe that acquiring/learning two languages at the same time can harm the process of fully acquiring both languages” participants strongly disagree (36.54%), disagree (34.62%), and neither disagree nor agree (17.31%). In Figure 1, the scale ranged from 1=Strongly Disagree, 2=Somewhat Disagree, 3=Neither Agree nor Disagree, 4=Somewhat Agree, and 5=Strongly Agree. Concerning the statement “I believe being able to learn a second language means being able to speak it like a native” responses differed strongly across four categories with disagree being the highest at 36.54%. Bilingual and monolingual answers slightly differed in the neither agree nor disagree category. This could be due to different language experiences and their perceived language expectations.

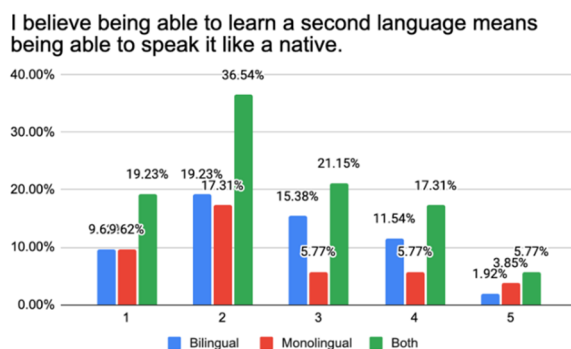


Figure 1: The percentage of bilingual and monolingual speakers who believe being able to learn a second language means being able to speak it like a native.

Regarding the statement “I believe children can become proficient when learning a second language but adults can not” respondents mostly disagree (38.46%) with follow up answers concerning strongly disagree, neither agree nor disagree and agree all equalling 15.38%. The statement “I believe language courses are not as useful as subjects such as math, science, history or others” received mixed results however the highest percentage was that of 57.69% for strongly disagree. As seen in Figure 2 results across the Likert scale did not significantly differ between bilingual and monolingual speakers. Once again, the scale ranged from 1=Strongly Disagree, 2=Somewhat Disagree, 3=Neither Agree nor Disagree, 4=Somewhat Agree, and 5=Strongly Agree.

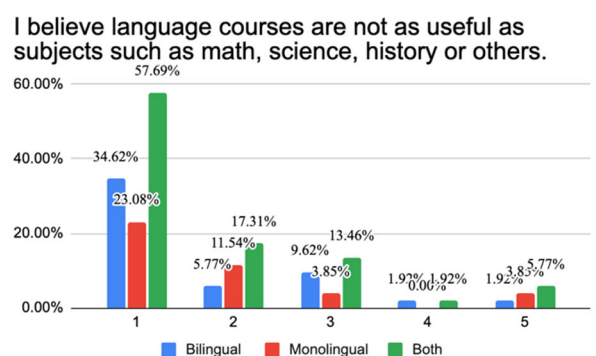


Figure 2: The percentage of bilingual and monolingual speakers who believe language courses are not as useful as subjects such as math, science, history or others.

I found four questions to have overwhelmingly positive results as their percentages were higher than eighty percent. In response to the statement “I believe it is not necessary to learn any other language than English because it’s the most commonly used language in the world” 82.69% of respondents indicated they strongly disagreed. Similarly, most participants strongly agreed (80.77%) with the statement “I believe that learning more than one language helps to facilitate communication.” Regarding the statement “I believe that knowing more than one language can open up job opportunities” 92.3% of participants indicated they strongly agreed. In response to “I believe knowing a second language can help me access different cultures, media, music, etc.” 88.5% of participants indicated they strongly agreed. Each of these statements provide an insignificant difference between monolingual and bilingual responses.

Interviews

For the interviews, I intended to choose participants with the goal of a minimum of one monolingual speaker and one bilingual speaker. However, the identity they chose to describe themselves did not align with this goal. Instead, my interviews were of two bilinguals and one

monolingual. Interviewee One identified as bilingual as they spoke English and Spanish. Interviewee Two identified as a monolingual speaker despite their use of English and ASL. Interviewee Three identified as a bilingual speaker due to their proficiency in English and Tagalog, however, they indicated use of Spanish as well. In terms of categorization and respect to their chosen language identity label, they will be regarded as how they chose. Their choice of language identity will be discussed further within the discussion section as will elements of the responses.

Discussion

There will be more focus more on the interview section rather than the survey responses as interviewees supplied more in-depth information about their language attitudes. Each interview provided an interesting insight into people's mindset towards language dynamics. Interviews touched upon a range of topics; however, the focus will be on their experiences with their language identities, ASL, culture, and the language classroom. Survey data will be addressed, however comparatively interviews have been analysed much further.

Survey

Although survey results contained fifty-two participants, participants ranged from different California cities, other states, and other countries. This mixture allows for a sample representative of the U.S. I do not believe my sample is large enough to generalize to the entire population of American residents. However, I do think it is representative of California university students. California is more socially progressive and diverse than other states, so I do not think it represents a demographic sample comparable to the rest. Despite this reputation, six questions contained very mixed results as listed in the results section. Within Figure 1 and 2, results differed across the scale for monolingual and bilingual categories. Survey results show no significant difference in answers based on the participant's language identity. For the remaining four questions results received majority responses with a percentage of eighty or higher. These findings align with the idea that participants have a mixed language ideology regardless of language identity due to similar environmental factors.

Interviews

Interviewee 1 and 3 expressed family and societal influences regarding their cultural language. Interviewee 1 was cognizant of the difference in expectations from her mother when speaking Spanish versus English since "growing up my mom would always, like, kind of critique my Spanish and how we speak to people." Additionally, Interviewee 1 took Spanish courses in high school because "I wasn't really confident speaking Spanish because I don't know, I think I always noticed that kids would always

talk, I mean speak English, and that kind of just made me insecure on speaking Spanish all together." Interviewee 1 experienced insecurity of her Spanish due to two different forces: her mother and societal pressures. Her mother's influence created a nervousness in her abilities and her observation of others added on to her hesitancy to speak Spanish. These negative factors caused her to view her Spanish as a problem rather than a resource. Likewise, Interviewee 3 expressed a similar mindset about their native language as a hindrance in his youth. Interviewee 3 comments on the change in perception of himself as "I think there is a lot of slight, there is not anymore, there was resentment towards the culture as a kid because it felt like this is the one thing that's preventing me from actually being able to be one of them or be accepted by them." As children, language and culture represented a barrier to acceptance by others. This language barrier is a common phenomenon among bilingual speakers especially when attending schools with children modelling English-only mindsets.

Interviewee 2 and 3 provided interesting comments regarding their language identities and ASL. Interviewee Three acknowledge themselves as bilingual due to their use of English and Tagalog, even though they were raised in a multilingual household of English, Tagalog, and Spanish. When prompted with whether they label themselves as bilingual or multilingual, Interviewee 3 responded with "I speak several languages, but in terms of ones that I'm adequately proficient in, that I would consider myself proficient in, I would say English, Tagalog, and maybe a little bit of Spanish. I know a little bit of others, but not enough to say that." This language label can differ based on one's viewpoint of proficiency prompting the discussion of what constitutes proficiency. Within this statement, Interviewee 3 shows his belief of inadequate skills and a desire to be better despite already utilizing Spanish. Additionally, Interviewee 2 contains similar sentiments towards her language skills and identity. Like previously mentioned, Interviewee 2 refers to themselves as a monolingual speaker despite their use of ASL. Even though showing a proficiency in ASL such as when there "were a couple events I went to where people were shocked that I wasn't deaf or hard of hearing," interviewee does not consider herself bilingual. This could be due to her lack of use of ASL for the past few years as she "haven't had to use it in a while or have people in my life that use it." However, Interviewee 1 still engages with ASL media such as movies, TV shows, TED talks, or YouTube videos. Both interviewees present an interesting point on whether one can identify as a speaker of a language despite not using it as often as their other languages or having less proficient skills.

Interviewee 2 and 3 provided many positive comments regarding language learning and their support for it. However, a few comments seem to hint

at ASL being seen differently in regard to other languages. Interviewee Three expressed interest in learning ASL because “it is practical for me if I am in the healthcare field and there's a patient who's handicapped and they need an interpreter.” Despite the enthusiasm to learn ASL, Interviewee 3 believes “learning ASL, that's not something that opens me up to a new culture per se.” In each interview, participants shared the belief that culture and language are intertwined as each component simultaneously affects a person and their life. Despite this perspective, Interviewee 3 made this contradicting statement regarding ASL and its lack of culture. This brings Interviewee 2's response into a different perspective as perhaps culture had something to do with her not identifying as bilingual as well. If Interviewee 2 does not use ASL or attend areas with ASL speakers, then she cannot identify as part of a culture she does not participate in.

Concerning culture each interviewee strongly believed culture and language were inseparable. Interviewee 1 expressed the belief language and culture should be taught together especially since “learning another language also kind of makes you more open minded to stuff because almost like learning the language again you're learning the culture and the mindset of that language.” Interviewee 1 and Interviewee 3 view language and therefore culture as a force which shapes a person. Interviewee 3 also made similar comments about how language highly influences personality and one you understand the language someone grew up with then you can understand the person better. Interviewee 3 sees the cultural and language link in the people around him and himself. Interviewee 3 sees language as a tie to his culture and homeland, the Philippines, since he's so far away. Despite their shame of their language in their youth they now understand language's role as a resource. Interviewee 2 applauded the culture of other languages and negated the idea of English having a culture. Instead, she expressed regret over experiencing no language as “if I'm being completely honest, I think it means different things so like as a white person from a white family I think my language really means nothing, it's I don't think it really has any meaning to it at all, but for anyone else.” This suggests that unlike other languages, she believes English should not be celebrated like other languages because English is already the dominant institution. The ease of speaking English in the U.S. has created no cultural ties as she says, “my identity is way more boring with my language versus people who have language and have had different struggles with, that I just think they're very, very, complex and strong and persevering people.” This statement recognizes how heritage language struggles within the U.S. and how this causes people to be stronger.

As for language learning classrooms, despite not being teaching experts, each interviewee offered suggestions for the classroom. Based on her

experiences in the high school Spanish classroom, Interviewee 1 believes classrooms should represent an in-depth look of cultures associated with the language. Interviewee 2 believes those who speak the language and represent the culture should be helping create the programs and classrooms since it creates job opportunities, and their communities should also reap the benefits. Interviewee 3 supports immersion as a language learning method and even suggests study abroad in order to understand the culture and its language. However, since studying abroad is not a viable option for everyone, Interviewee 3 strongly believes memorization is not the way to learn a language. Instead, the language should become part of the thought process before speaking instead of focusing on translation. These ideas all indicate that in their experience the foreign language classrooms in the U.S. need to be improved upon.

Conclusion

This research provides necessary intel on the linguistic mindsets of California college students. This data can help people understand what action must be taken to ensure linguistic diversity in society and in structures such as schools and the workforce. With an increase in immigration and an interconnected globe, language has become an imperative component of life both in the U.S. and outside of it. As supported by the results, California college students support language learning. In order to implement better second language learning in schools, people must support language learning programs and make their beliefs known to education boards and local school systems. If students are not retaining their language skills past the classrooms, schools should focus on implementing the suggestions of the people. Culture is an integral part of language learning and schools must acknowledge and practice this belief in order to foster a multilingual and multicultural California.

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Analyzing the Experience of Spanish-Speaking Students in California's Central Valley During COVID-19

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Abstract

Even before the onset of the COVID-19 pandemic, Latinx college students encountered a variety of stressors and obstacles that made their college experience different from that of other students. Additionally, their status as immigrants, first-generation, and/or undocumented caused this segment of students to experience financial and social hardships in addition to deleterious impacts to their mental health. In this study, I assessed the experience of Latinx college students at California State University, Stanislaus during the COVID-19 pandemic via the use of ethnographic methods. This project drew on the theoretical frameworks of multigenerational punishment and structural vulnerability and was guided by two research questions: 1) What has been the impact of the COVID-19 pandemic on bilingual students in the Central Valley of California? and 2) How is resource information being communicated to this population? I collected qualitative data through a survey (n=25) and semi-structured interviews (n=6). Findings have demonstrated the need for and yet lack of access to economic and mental health resources for this population. Participants described money as a resource that would most help them in that moment. Additionally, half of the participants also mentioned the need for mental health resources during this time. As informed through my research findings, I suggest ways CSU Stanislaus can better support this population. Specific, actionable steps include more funding for psychological counseling and a wider reach of information regarding food accessibility and resources outside of California State University, Stanislaus.

Keywords: COVID-19, Latinx College Students, Mental Health, Food Insecurity, California State University

Introduction

The COVID-19 pandemic affected the world in ways we cannot fully grasp yet. There will be years' worth of research into the impacts of the COVID-19 pandemic on different populations and at different points in time during the pandemic. I focused my research on the experience of Latinx individuals in California's Central Valley as a way to amplify the voice of this population. I spoke with students of California State University, Stanislaus (henceforth, Stanislaus State), which is a designated Hispanic Serving Institute (meaning that Hispanic students make up at least 25 percent of all undergraduates). As of Fall 2020, 57% of enrolled students at Stanislaus State were Hispanic/Latinx (*Diversity and Equity Data Portal*, 2021). Since more than half students at the university consist of this population, their needs should be a major priority for this institution.

Prior to the onset of the pandemic, Latinx college students faced problems that their white peers did not. Students under the Deferred Action for Childhood Arrivals (DACA) program, first-generation students, or undocumented students had to navigate the higher education system while at the same time dealing with noneducational issues such as immigration status, structural vulnerability, and multigenerational punishment. Once the pandemic began, many of these students had to continue their roles as language and cultural brokers during the pandemic which created

additional, negative impacts to their mental health and emotional well-being.

In this article, I describe the experience of Latinx college students in the Central Valley of California during the first year and a half of the pandemic. I consider the experience of this population pre-pandemic with the goal of examining how their needs were impacted during this liminal time period. Primary findings from the research indicated that mental health, food access, and economic struggles were the major issues experienced by participants. The students interviewed wanted to use mental health counseling during the time of the interviews in order to cope with pandemic-related problems. They also mentioned wanting or needing to use food pantries due to food scarcity during this time. Lastly, participants emphasized the need for more economic stability and aid. Based on these findings, I conclude with actionable steps Stanislaus State can take to aid this population going forward.

Previous Studies

In order to put my findings into perspective, I explored research surrounding this population and the topic. I focused primarily on mental health and social support as well as how a student's identity as Latinx affected these topics. These studies are part of a growing set of literature that explores the psychological well-being of minorities and students of color (Lipson et al. 2018, Cheng 2021, Johnson-

Esparza et al. 2021). Additionally, a key component of the research was to explore both pre-pandemic findings and post-pandemic studies. But as much COVID-related research is still ongoing, in this review, I focused primarily on pre-pandemic studies. To formulate this study, I combined these findings with a theoretical orientation of structural vulnerability (Quesada et al., 2011), multigenerational punishment (Enriquez, 2015), and language brokering (Morales & Wang, 2018). This guided data analysis and the recommendations section.

Even before the pandemic, mental health disparities between students of color and white students existed. Overall, students of color have greater unmet mental health needs than their white counterparts (Lipson et al., 2018). There is also a large variation and overall lower service utilization and treatment use among these students. This study by Lipson et al. (2018) also specifies the need for research into factors that affect this population such as acculturation or discrimination.

Similarly, a study conducted by Hsiu-Lan Cheng (2021) analyzes the effects of acculturative stress and family conflict on Latinx college students' depressive symptoms. Acculturative stress can be language expectation in different settings, being unfamiliar with mainstream work or school culture, or ethnic discrimination (Cheng, 2021). The major findings from this study state that diminishing acculturative stress and/or family conflict can lower depressive symptoms in these students.

Furthermore, according to Johnson-Esparza et al. (2021), this population benefits more from social support than non-Latinx white college students. Social support mitigated feelings of anxiety in Latinx college students, especially related to stressors such as being a first-generation student (Johnson-Esparza et al., 2021). Because these students face a wider range of stressors related to their minority status, social support has a larger impact against mental health symptoms.

With the onset of the COVID-19 pandemic, Latinx college students had even more to worry about. Not only did students have to face the myriad of stressors listed above but they were further impacted by the COVID-19 pandemic. All of these aspects put Latinx college students in a harsher situation than some of their peers. These studies, along with the following theoretical frameworks and qualitative results, directed the recommendations to Stanislaus State stated at the end of this article.

Theoretical Orientation

I drew on theoretical frameworks to understanding the lived experience of Latinx college students, starting with structural vulnerability. Defined by Quesada et al. (2011) as “a positionality that imposes

physical/emotional suffering on a specific population in patterned ways,” it provides a lens to understand the struggles of this population. Latinx college students are inherently affected through their ethnic identity which can also exacerbated depending on legal status and first-generation status. Studies I've encountered apply this concept to Latinx immigrants or farmworkers yet due to the nature of the college system, it can be useful when applied to college students.

Furthermore, familial vulnerability, which builds upon the previous framework, served as a lens to focus on mental health impacts within the family unit (Logan et al., 2021). For Latinx college students, their mental health can be impacted by their familial situation, specifically their family members' legal status. Through familial vulnerability, we can explore how students' own legal status and security is negatively impacted by their family's lack of status. Additionally, during the pandemic they might worry about their family members being eligible for aid or programs.

Multigenerational punishment (Enriquez, 2015) further provides insight into the experiences of the children of immigrants, including college-aged adults. Laura Enriquez (2015) defines this as a form of legal violence that targets undocumented parents and harms their children as well, regardless of status. In some cases, the children are U.S. citizens who suffer because of laws that target or exclude their parents. This can be the case for many documented and undocumented Latinx college students. Moreover, their parents not being eligible for aid during the pandemic might have immense impacts on their well-being.

The last theoretical framework I incorporated into this research is language brokering (henceforth LB). According to Morales & Wang (2018) LB is defined as the act of interpreting and/or translating for parents or other family members. This can have detrimental impacts on a child's development and mental health and can continue to impact them until their college years. LB can cause anxiety and depression due to lack of training which can bring feelings of frustration or embarrassment (Morales & Wang, 2018). In the context of COVID-19, this can be further exacerbated due to constant changing information and the high stakes nature of the situation. Having the burden of LB add to their other stressors and college workload can have harsh implications on a student's mental health. These frameworks guided this research with the goal of presenting a thorough insight into the experiences of these students.

Methods

Due to COVID restrictions on ethnographic research and as a current student of Stanislaus State, I had greater access to other students and decided to focus on this population for this project. I collected

data from June through August 2021, and I utilized two ethnographic methods to analyze the impacts of the COVID-19 pandemic on bilingual college students at Stanislaus State. I conducted this study in two phases: 1) an online survey and 2) a series of semi-structured interviews. The survey was conducted through the use of the Qualtrics Survey Software and was offered in English and Spanish. I collected demographic information as well as general questions about receiving COVID-19 aid and information access. I surveyed 25 individuals of varying ages (18-62), not all college students, living in primarily Spanish-speaking homes. At the end of the survey there was an optional section for participants to leave their contact information to take part in a follow-up, semi-structured interview.

In total, I interviewed six individuals to gather additional qualitative data: Julian, Carla, Adriana, Elias, Linda, and Nadia. Interviews lasted between 15-40 minutes and took place via a Zoom meeting or phone call and were conducted in English or Spanish, depending on the participant's preference. All interviews were transcribed verbatim and analyzed using MAXQDA, a data analysis software. The project received Institutional Review Board (IRB) approval from California State University, Stanislaus. Additionally, all names of participants are pseudonyms. Overall, the following two research questions guided the research process:

- 1) What has been the impact of the COVID-19 pandemic on bilingual students in the Central Valley?
- 2) How is resource information being communicated to this population?

Results

The results I will be focusing on for this article are based on the semi-structured interviews during the second phase of the research project. Three major themes came from these interviews: mental health, food insecurity, and economic needs. In the following sections, I expand on these themes, detail findings, and provide theoretical analysis. I then present ways that the university can take actionable steps based on these findings.

Mental Health

“...services for mental health, I would say cause I definitely think that there were a lot of people struggling, and that there are a lot of people still struggling, and it's just a different experience having to go through what we do with little to no counseling.” – Linda.

This was the response to a question about what would help participants most in that moment. Like everyone else, Linda was trying to keep up with the constant stream of information about COVID-19 and COVID-19 restrictions during the beginning of the pandemic. At the same time, she was keeping her family updated, juggling part-time jobs, partial unemployment, and job-hunting. Her situation changed many times throughout this time. She was let go of two part time jobs and was fully on unemployment for a few months. Throughout this time, she was not getting any mental health counseling and stressed this need during our conversation. She was constantly looking for aid to pay her bills and helping her family apply for programs as well. Handling all these responsibilities in an uncertain time gave her constant stress and she wanted support.

When asking about their experience during the pandemic, half (3/6) of the participants mentioned wanting mental health services at some point. While the pandemic impacted everyone differently, as seen previously, Latinx individuals already had extra stressors since before the pandemic. Even during this uncertain time, many of the participants, including Linda, upheld the role of being a language broker (LB) for their family. They had to communicate developing (and often, rapidly changing) information on COVID-19, the pandemic (such as COVID-19 restrictions), vaccines, stimulus checks, and more. The participants who mentioned having to do this for their family also mentioned wanting mental health services. We can understand the impact of family on mental health through familial vulnerability. These students need to help their family, and this takes a toll on their mental health. Similarly, their role as LB impacts their well-being not only as children but as adults too. Understanding how this impacts students is crucial in order to better support them.

While the participants were associated with Stanislaus State, none of them mentioned utilizing the university's mental health services. Only one participant, Nadia, directly mentioned the university as a resource for counseling. However, she did not use it because she mistakenly believed as a graduate student, she was ineligible. Overall, the lack of widespread information about these services during the pandemic prevented students from using them. They were unaware of them or unsure if they qualified even though they expressed the need for support. In order to create better programs and systems of support, this needs to be taken into consideration.

Food Insecurity

“I know we do like food pantries and stuff [at Stanislaus State] but I feel like a bunch of people

would benefit from having it local, closer to them.” – Julian.

During this time, Julian’s family struggled to make ends meet. He was unemployed for seven months and his parents’ employment was restricted. Because of this, he looked for aid to make sure they had all they needed. In his search for services, he found a lack of food pantry options near him. Not living near campus and during remote instruction, it was not possible for him to take advantage of the food pantry on campus. He found himself without options sometimes and expressed his need for more information on services outside of the university.

In response to the question about what would help them in that moment, half of the participants mentioned resources related to food access. Three of the participants had used the food pantry at Stanislaus State before the pandemic but only one of them, Carla, used it during the pandemic. She also used other local food pantries, so her unmet needs were related to mental health and money rather than food.

Furthermore, three participants, including Julian, mentioned using local food pantries during the pandemic but having problems with these services sometimes. The primary issues included food pantries closing, running out of food, or being backed up. Like Julian, some of the other participants were aware of the student food pantry at Stanislaus State but many were not living near the university. It was not an option to drive to campus in order to use this service, so they turned to local food pantries which were sometimes unreliable.

One participant, Adriana, mentioned using and volunteering at a church food bank as the best resource she used during the pandemic. Similarly to Carla, due to her ability to access resources in her community her expressed unmet needs were related to other issues rather than food insecurity.

Besides food pantries, I asked participants about services like the Supplemental Nutrition Assistance Program (SNAP), commonly referred to as food stamps. Only two of the participants had used this service before the pandemic. Three participants mentioned wanting to use this service during the pandemic but only one specified they could not use it due to ineligibility. Elias stated:

“...right now we're just going like from paycheck to paycheck just to pay the necessities and the food is getting a bit scarce from time to time...” – Elias.

Elias’ quote further illustrates the need for greater food access among college students at Stanislaus State. Due to distance, he was unable to go to Stanislaus State for support. He was also ineligible for SNAP

benefits due to his income and not being able to apply as a family. He was running out of options and wanted help getting some food. This can showcase how structural vulnerability and multigenerational punishment is affecting families with college-aged adults. While Elias has DACA, his parents’ status was an issue. Because of this, they did not access services that would help others in this situation. His family includes two young children who, along with Elias and his other siblings, are struggling due to his parent’s status.

Overall, the pandemic was a time for uncertainties and many of the participants I spoke to were worried about having food in their home. This is not a new issue for college students, but it is important to explore how other factors impact specific students’ ability for food. Stanislaus State’s initiatives for future support must expand to better suit the needs of students which I explain more in the recommendations section. The following section further builds upon Elias’ quote by exploring the economic instability the participants experienced during this time.

Economic Needs

“Money, money. Seriously, because if we for example... You could give us you could give us food. You could give us clothes, but really ultimate at the end of the day we know where best our money should go...” – Linda.

Linda stated this to me, again in response to the question “What would be most helpful to you and your family during this time?” She struggled to pay her bills by working various part time jobs. None of her jobs were stable, many being short-term, and she had to go back to partial unemployment after they ended. This instability further added to her stress and mental health struggles. Additionally, her constant and exhausting search for aid and support caused even more stress, the uncertainty of finding and getting aid to pay her bills.

Four of the six participants mentioned money as part of the answer to this question. There was a lot of uncertainty among participants when discussing work and their financial situation. Most of the participants had a job during this time but were still having issues; whether it was from stress about working during a pandemic to not having sick time or reduced work hours, this uncertainty deleteriously impacted their mental health and well-being.

Only two of the participants received unemployment during this time and they had differing experiences. Although Julian did not struggle with applying or receiving benefits from December 2020 to June 2021, Linda had a much harder time. Her legal status and part-time job instability made the process

much harder. Not only did she have to deal issues presented by her legal status, but she also had to help various family members with unemployment applications as well.

The theme of economic insecurity throughout the interviews was interconnected with the other problems students mentioned. This theme also illustrates how this problem was not solitary as it impacted the entire family and other aspects of the home. Parents being ineligible for aid or needing a LB, usually their child, to access aid negatively impacts their child's mental health. While the parents might be structurally vulnerable, their children are also affected through familial vulnerability and multigenerational punishment. The examples from the interviews further show this can still affect college-aged children living in and outside of the family home. Understanding this dynamic can emphasize the struggles of Latinx college students and allow for better support catered to this population.

The financial instability the participants faced during this time reflected into their mental health and overall well-being. While this may be the case for other populations during this time, taking into consideration the factors from pre-pandemic studies shows a harsher reality. In the subsequent section, I focus on steps that Stanislaus State can take to help students who are in similar situations as the participants in this study.

Recommendations

Based on the findings discussed in this article, I suggest several ways that Stanislaus State can better support this population. Some aspects have changed in the year since completing data collection. During the data collection period, instruction at Stanislaus State had been purely virtual. During data analysis and the writing of this paper, the university transitioned to mostly in-person instruction. Because of this, some of the recommendations for better support have changed or been addressed, such as the implementation of drive-through food drives. Considering the major themes from the research, I explore student support systems currently in place and how the university can improve upon them in the wake of the COVID-19 pandemic.

My findings indicated that there is room for growth within some of the support systems at Stanislaus State. In regard to mental health concerns, Counseling and Psychological Services is the main resource on campus for counseling and mental health needs for students. During the time of the interviews, students were still in remote learning which impacted their use of campus resources such as mental health counseling. Participants wanted access to these services during the pandemic, yet they were not using

them despite the offering of virtual sessions. In the case of one of the participants, this was due to misinformation on services available to graduate students at Stanislaus State.

Since the transition back to in-person learning, Counseling and Psychological Services has gone back to in-person sessions while still maintaining the option of phone or Zoom sessions. Accounting for the switch to in-person sessions, more widespread information about this change and how to make an appointment might encourage more students to use this service.

As far as food access, the Warrior Food Pantry and Food Distribution are the main resources on campus for students. In this aspect, Stanislaus State has stepped up to provide easier services to students by implementing the drive-up Food Distribution bimonthly. Now that campus is back in-person, students have access to the Warrior Food Pantry and the Food Distribution makes it easier for students to get food throughout the semester. My main recommendation is to improve information distribution to students and their families regarding food pantries in their local communities. Many students are still online or commute to school so accessing local food pantries closer to their homes might be a better option. This was one of the ideas described by participants. During remote learning, many of the students were not consistently coming to campus and wanted to know more about local services they could access. Having Stanislaus State provide information on services outside of the university will give these students more freedom to choose what service works best for them.

Expanding financial literacy is another way Stanislaus can help. Economic situations differ for everyone but having basic financial skills can give students the tools they need to tailor to their situation. Holding various workshops throughout the semester or a mandatory workshop during orientation can better prepare students. This can be helpful for everyone but especially for low-income students. According to The Postsecondary National Policy Institute, 50% of dependent Latinx students make less than \$40,000 a year. For comparison, the median income for Stanislaus County is around \$70,000 a year (Kirkeby, 2021). This means half of Latinx students would be considered low-income. As previously mentioned, Latinx students make up 57% of enrolled students at Stanislaus State. This suggests that a large portion of low-income students are Latinx, further underscoring the need for additional financial resources and availability of financial literacy workshops.

Lastly, making sure students are taken care of in these three areas is vital for their well-being and academics. These recommendations are based directly on areas of support mentioned by the participants. Furthermore, if expanding budgets is not possible,

merely providing more widespread information through already established support systems can be useful.

Steps Forward

Although this research focused specifically on Stanislaus State students in the Central Valley of California, there are many other areas for future research to explore. More generally, the identity of the students I spoke to can connect to other Latinx college student research about their life during the pandemic. There is a psychological aspect to their mental health struggles and how other sociocultural themes impact them. Other potential challenges for mental health counseling access not explored in this study could be lack of privacy in the home or other issues with virtual or phone sessions.

Overall, there is still more Stanislaus State can do to help their students. The ideal steps forward for future research projects would be to implement a new, widespread survey that incorporates the current COVID regulations and the emerging everyday lifestyle. Is increasing in-person social interaction causing more anxiety? What factors contribute to this within the Latinx population? How are their academics being impacted with the transition back to in-person? What has been the impact on their economic situation? Many of these questions stem from this everchanging period of time we are living in nowadays. They will continue to change but the importance of studying this population will remain constant in order to best serve and support their future success.

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Are We Really Just Platonic? The Study of Cross-Sex Relationships

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Abstract

The social aspect of western culture has created a normality of non-sexual relationships with members of the opposite sex. These relationships are being supported through educational institutions, workplace environments, and even online communities. When forming these platonic relationships, specific feelings of attraction may cause difficulties in remaining platonic. Past research suggests that when straight male and females form friendships it is highly likely that the male will experience feelings of physical or romantic attraction. This study will not only focus on straight male and females but will also focus on gay and lesbian relationships and the various categories of attraction that can be found when these relationships are formed. These categories include subjective attraction - feeling physically or sexually attracted to the other person. Objective attraction - thinking the other person has attractive qualities but not to oneself. Romantic attraction - wanting to form a romantic relationship and friendship attraction - feeling close as friends and nothing more. This research is examining these several types of attraction along with the incorporation of sexual orientation, gender, and their impact with cross-sex relationships. Through a constructed survey, a collection of participants will complete a questionnaire with questions focused on their relationship with an opposite sex past platonic friend. The results of this questionnaire will determine what type of attraction is present in these relationships. By conducting this research, the findings can help contribute to the study of platonic relationships and the types of attraction that are present in these relationships.

Keywords: Platonic, relationships, attraction, cross-sex, gender, sexual orientation

Introduction

The term platonic comes from the ancient Greek philosopher Plato who states that platonic love is purely spiritual and not physical. Opposite sex or cross-sex friendships can be defined as a voluntary, cooperative, non-romantic alliance between two unrelated people of differing sexes or gender identities (Werking, 1997). Kaplan & Keys (1997) state that the absence of a sexual relationship is what characterizes this type of connection, but it does not necessarily mean that the individuals in the relationship are not attracted to one another or could not start to form feelings of attraction.

Previous research suggests that romantic or sexual attraction often leads to the end of cross-sex friendships in heterosexual relationships. (Guerrero & Chavez, 2005). According to Bleske-Rechek et al. (2012) this is due to challenges that cause the maintenance of these relationships difficult. When heterosexual male and females form friendships they often have to determine the type of emotional bond shared and have to face the existence or nonexistence of sexuality in the relationship. This relates to a study done on intimacy in the work place. Lobel et al. (1994) found that when participants described their opposites sex friendship, half admitted that there was some level of sexual attraction. A theme found in most cross-sex studies is that men typically have a more sexualized perspective of cross-sex friendships than women

(Kaplan & Keys, 1997). It has also been found that the experience of attraction seems to differ between men and women, where men are more likely than women to see their other-sex friends as potential mates (Bleske-Rechek et al., 2012). Does this also apply for homosexual men and women?

Majority of past research has focused on heterosexual platonic relationships and little is known about how romantic or sexual attraction affects cross-sex friendships when at least one of the friends has a same-sex sexual orientation.

By studying cross-sex relationships between not only heterosexual individuals but incorporating homosexual individuals, specifically gay men and lesbians; we can determine if sexual orientation or gender play a role in the type of attraction present in these relationships. The interaction between gender and sexual orientation will be the predicting factor in the type of attraction present in previous platonic relationships.

The levels of attraction studied included subjective physical/sexual attraction, objective physical/sexual attraction, romantic attraction, and friendship attraction. Subjective attraction was defined as feeling physically or sexually attracted to the other individual. Objective attraction was defined as having the idea that the other individual has general attractive qualities, but these qualities do not cause any form of physical or sexual attraction.

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Romantic attraction was defined as wanting to turn the friendship into a romantic relationship. Friendship attraction was defined as feeling close and connected as friends. These four levels were used to determine attraction between gay men, lesbian women, straight men, and straight women. Based off previous research, it is expected that straight men will report more attraction to cross-sex friends compared to the other three groups.

Methods

Participants

The sample included 199 adults aged between 18 and 80. There were a total of 97 male, 90 female and 12 who identified themselves in the category of other. (51.2%) of participants were heterosexuals and (43.7%) of participants were homosexuals. Specifically, (22.6%) gay males and (21.1%) lesbians. (5%) of participants identified as other. (25.6%) of participants identified as non-European or white descent. The participants were individuals from the United States and were recruited through an online database, Prolific (<https://www.prolific.co/>). Ethic approval was obtained before recruitment began. The participants in the other categories for gender and sexual orientation were not included in the final results of this study.

Design

The research design was a between subject 2 x 2 Factorial Anova where gender and sexual orientation were the between-subjects factors, and the attractiveness score was the continuous dependent variable. This tested the interaction between gender and sexual orientation, and it showed whether the effect of sexual orientation is different for men than for women. All four groups (straight male and female, gay male and lesbians) were tested under each level of attraction.

Measures/Materials

The materials included a survey titled, The Attraction Levels Questionnaire (ALQ) (see Appendix A) and a demographics questionnaire (see Appendix B). The ALQ was designed to determine the type of attraction present in each groups platonic cross-sex relationships. The Questionnaire consisted of a 20 question 5-point Likert scale ranging from strongly disagree to strongly agree. Each type of attraction was defined by answers to several questions. Table 1 represents these levels and how they were defined. The demographics questionnaire included 4 questions designed for basic demographic information on each participant.

Table 1: Attraction Levels

Type of Attraction	Definition	Example
Subjective Attraction	Feeling physically or sexually attracted to the other	"I was physically attracted to my friend. I thought they were exceptionally good looking."
Objective Attraction	Thinking that the other is attractive in general but not to oneself	"They are very attractive, I can see that and relate to that, but I don't feel the attraction myself."
Romantic Attraction	Wanting to turn the friendship into a romantic relationship	"I think of them as really cool and I would want to make them my boyfriend/ girlfriend."
Friendship Attraction	Feeling close and connected as friends	"I adore this person and I value our friendship."

Note. These definitions were created by M.H. Reeder (2000).

Procedure

The procedure for the methods started with the recruitment of participants through an online research database, Prolific. Those who were interested in participating were able to access all parts of the study generated in Qualtrics (<https://www.qualtrics.com/>). This included the consent form, the Attraction Levels Questionnaire, demographics questionnaire and debriefing form. The study was separated into two sections on prolific to screen for heterosexual individuals in the first and homosexual individuals in the second.

Once participants agreed to participate by accepting the consent form, they were then instructed to complete The ALQ. Participants were instructed to think of a person that they had a previous friendship with of the other sex not related to them. They were told it should be a non-romantic, or platonic, friendship and to answer with complete honesty. Some example questions that were asked in the questionnaire included, "I was physically or sexually attracted to this person," which was under the subjective level of attraction. Another example was under the friendship level with the statement of, "I viewed this friend as a friend and nothing more."

After completing the ALQ, the demographics questionnaire was presented. Questions included age, ethnicity, gender, and sexual orientation. The debriefing form followed, which gave the purpose of the study. It was clarified that this study was interested in understanding the attraction levels between cross-sex relationships and that all responses for this study would be kept confidential. To end the

study participants were thanked for their time and were rewarded with a monetary value of \$1.28 upon completion.

Results

To determine the type of attraction present in heterosexual and homosexual cross-sex relationships, a two-way ANOVA was performed to analyze the effect of gender and sexual orientation on all attraction levels. Significant differences were found between heterosexual men and the other three groups. Results suggested that straight men differ from all groups and are more likely to be sexually or romantically attracted to their cross-sex friends.

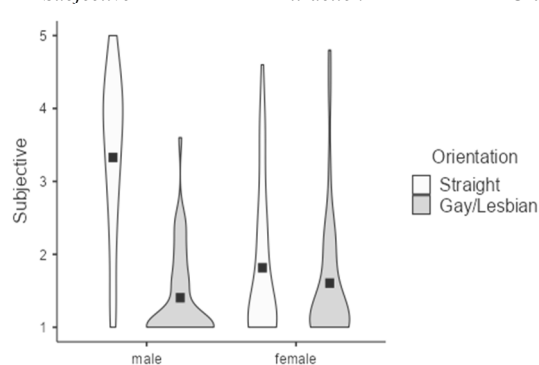
For subjective attraction a two-way ANOVA revealed a statistically significant interaction between sexual orientation and gender. $F(1,176) = 32.38, p < .001$. Simple main effects analysis showed that sexual orientation did have a statistically significant effect on subjective attraction. $F(1,176) = 50.22, p < .001$. Simple main effects analysis showed that gender did have a statistically significant effect on subjective attraction. $F(1,176) = 18.97, p < .001$.

Table 2
ANOVA - Subjective Attraction

	Sum of Squares	Df	Mean Square	F	p	η^2
orientation	50.22	1	50.22	55.33	<.001	0.19
gender2	18.97	1	18.97	20.91	<.001	0.07
orientation * gender2	32.38	1	32.38	35.68	<.001	0.12
Residuals	159.73	176	0.91			

Note. All effects had a statistically significant p level at .05. Df represents the degree of freedom. F represents the variation within each group and η^2 is the measure of the effect size.

Figure 1
Subjective Attraction Graph



Note. This violin plot represents the mean scores of subjective attraction between males, females, and sexual orientation. Straight men scored relatively higher compared to the other groups.

For romantic attraction a two-way ANOVA revealed a statistically significant interaction between sexual orientation and gender. $F(1,176) = 9.38, p < .001$. Simple main effects analysis showed that sexual orientation did have a statistically significant

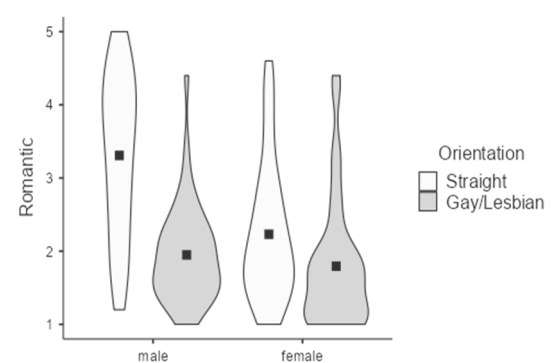
effect on romantic attraction. $F(1,176) = 35.59, p < .001$. Simple main effects analysis showed that gender did have a statistically significant effect on romantic attraction. $F(1,176) = 16.72, p < .001$.

Table 3
ANOVA - Romantic Attraction

	Sum of Squares	Df	Mean Square	F	p	η^2
orientation	35.59	1	35.59	42.57	<.001	0.17
gender2	16.72	1	16.72	0.00	<.001	0.08
orientation * gender2	9.38	1	9.38	11.22	<.001	0.04
Residuals	147.13	176	0.81			

Note. All effects had a statistically significant p level at .05.

Figure 2
Romantic Attraction Graph



Note. This violin plot represents the mean scores of romantic attraction between males, females, and sexual orientation. Straight men scored relatively higher compared to the other groups.

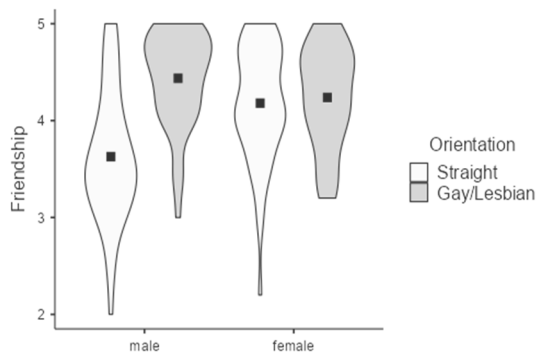
For friendship attraction a two-way ANOVA revealed a statistically significant interaction between sexual orientation and gender. $F(1,176) = 6.22, p < .001$. Simple main effects analysis showed that sexual orientation did have a statistically significant effect on friendship attraction. $F(1,176) = 8.31, p < .001$. Simple main effects analysis showed that gender did have a statistically significant effect on friendship attraction. $F(1,176) = 1.38, p < 0.045$.

Table 4
ANOVA - Friendship Attraction

	Sum of Squares	Df	Mean Square	F	p	η^2
orientation	8.31	1	8.31	24.39	<.001	0.11
Gender2	1.38	1	1.38	4.06	0.045	0.02
orientation * gender2	6.22	1	6.22	18.25	<.001	0.08
Residuals	59.95	176	0.34			

Note. All effects had a statistically significant p level at .05.

Figure 3
Friendship Attraction Graph



Note. This violin plot represents the mean scores of friendship attraction between males, females, and sexual orientation. Straight men scored relatively lower compared to the other groups.

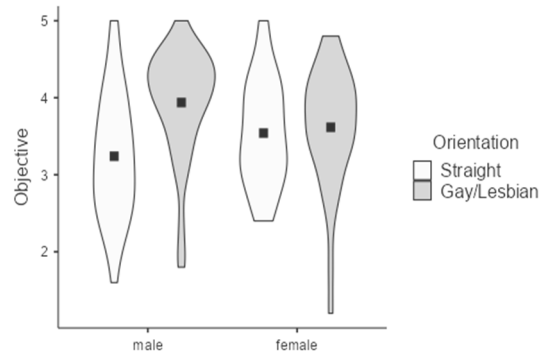
For objective attraction a two-way ANOVA revealed a statistically significant interaction between sexual orientation and gender. $F(1,175) = 4.25, p = 0.006$. Simple main effects analysis showed that sexual orientation did have a statistically significant effect on objective attraction. $F(1,175) = 6.56, p < .001$. Simple main effects analysis showed that gender did not have a statistically significant effect on objective attraction. $F(1,176) = 0.00, p = 0.928$.

Table 5
ANOVA - Objective Attraction

	Sum of Squares	Df	Mean Square	F	p	η^2
orientation	6.56	1	6.56	11.82	<.001	0.06
Gender2	0.00	1	0.00	0.01	0.928	0.00
orientation * gender2	4.25	1	4.25	7.66	0.006	0.04
Residuals	97.1	176	0.34			

Note. All effects excluding gender had a statistically significant p level at .05.

Figure 4
Objective Attraction Graph



Note. This violin graph represents the mean scores of objective attraction between males, females, and sexual orientation. Straight men and gay men were the only two groups who showed a significant difference.

Discussion

The beginning stages of this research was focused on determining why male and female platonic relationships do not last long term. It has been observed that these types of relationships stop being platonic and eventually form a romantic relationship or the opposite occurs where the friendship comes to a complete end. This is true for heterosexual cross-sex friendships with previous research backing these claims (Guerrero & Chavez, 2005). This also raised the question of, if platonic relationships end due to attraction, what type of attraction is causing their demise. Through background research it was found that there have been limited amounts of studies on if the same type of activity occurs with homosexual platonic relationships. Due to the limited information provided, it was unclear if heterosexual males and females and homosexual males and females undergo the same circumstances in their platonic relationships. This caused the purpose of the research to evolve into showing the relationship between sexual orientation and gender and their influence on the type of attraction present in platonic relationships. By determining what type of attraction is present in these relationships, this research uncovered the type of attraction existing in opposite sex friendships that could be unbeknownst to both individuals.

This study hypothesized that gender and sexual orientation will predict the type of attraction present in past platonic relationships. This hypothesis was supported for all levels except for objective attraction, which was found to not be significant enough to show whether it was present. For each level of attraction excluding objective, heterosexual males differed from gay males, straight females, and lesbians. Straight males scored the highest in subjective attraction, romantic attraction and also scored the lowest in friendship attraction. These results are consistent with previous studies (Bleske-Rechek et al., 2012; Kaplan & Keys, 1997) stating that heterosexual males are most likely to have sexual or romantic attraction towards their opposite-sex friend. With this in mind, the reason could be that straight males form these relationships due to sexual or romantic

attraction before the friendship has been established or these attraction levels could arise after once the individuals have become more acquainted.

With the formation of cross-sex relationships, it is important to note how platonic relationships are involved with the social construct of relationship development in western culture. Due to socialization being highly encouraged, these relationships are supported through community building which in turn has caused platonic relationships to become a part of everyday life. By bringing awareness to the conditions that may be involved with platonic relationships, this can be the building blocks in stronger cross-sex friendships. Through this research individuals partaking in cross-sex relationships will have more insight into how platonic relationships may not always be purely platonic but there could be some form of attraction existing in the friendship.

Limitations

This research did have some limitations due to questions on the ALQ being personal in nature. Participants may not have been truthful when completing the survey because the questions are regarding aspects of their personal lives. Feelings of attraction and sexual behavior are sensitive topics so participants may not feel comfortable with answering questions in complete honesty.

Another possible limitation would be having the participants focus on a past platonic friend when answering questions on the ALQ. A past friend was chosen because it is easier to reflect on past experiences compared to things we are going through presently. When looking and thinking about the past we are able to see things more clearly and critically. This allows us to interpret our past to provide a new meaning. This could have been a limitation because participants may not have a past platonic friendship to reflect on, in which case a screening question defining this scenario would have been beneficial. Another limitation is that participants may be currently involved in a platonic relationship and may not have been able to answer the questions in a reflective manner.

Third possible limitation would be the objective attraction level, this is due to being the only level that did not show significance. A possible explanation could be variation in the interpretation in the following questions, "I found this person to be physically attractive, but I am not interested in them" and "I am not interested in being intimate with this person even though they are attractive." For future studies these questions can be adjusted so there is no room for potential misinterpretation.

Future Studies

This research focused on cross-sex platonic relationships between straight males, straight females, gay males, and lesbians. Future studies can include a

more diverse sample by incorporating more sexual orientations and genders such as transgender individuals or bisexuals. Another adaptation could be instead of cross-sex relationships, future studies could focus on same sex relationships. By incorporating more gender identities and sexualities, attraction levels may differ from this current study as well as past studies.

Acknowledgements

Thank you to the California State University, Stanislaus Honors Program for the opportunity to perform this research study. I would like to recognize the invaluable assistance of my mentor Dr. Victor Luevano for his guidance and support. I would also like to give a special thanks to Dr. Jamila Newton, as my honors program professor her constructive criticism created the foundation of this research. This research was funded through the CSUS SERSCA Undergraduate Assistantship Program.

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Appendix A

Attraction Levels Questionnaire (ALQ)

INSTRUCTIONS: Think of a person of the other sex (not related to you) that you used to be friends with, but the friendship has ended. This should be a non-romantic, or platonic, friendship. Indicate how much you agree with each statement. Please give your initial, honest responses. You shouldn't think too much about any item.

1. I was physically or sexually attracted to this person
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
2. This friend has an attractive personality
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
3. I paid closer attention to my appearance when I knew I would be seeing this friend
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
4. I viewed this friend as a friend and nothing more
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
5. I felt butterflies when I was around this person
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
6. I found this person to be physically attractive, but I am not interested in them
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
7. I preferred to spend time alone with this friend rather than in a group
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
8. I felt relaxed and comfortable with this friend
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
9. My heart would race when I was close to this person
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
10. This friend has attractive qualities, but I could not see myself in a relationship with them
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
11. If another individual flirted with this friend, I would become jealous
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
12. I could always depend on this friend to be there for me
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree

13. I wanted to kiss this friend
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
14. I am not interested in being intimate with this person even though they are attractive
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
15. I wanted to date this friend, but I did not know how they felt about me
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
16. I am attracted to the qualities this person offers as a friend
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
17. I fantasized about being intimate with this friend
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
18. I avoided flirting with this friend, even though this friend has attractive qualities
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
19. I was attracted to this person for a boyfriend/girlfriend relationship
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree
20. I am not interested in engaging in a physical or romantic relationship with this friend
__Strongly Agree __Somewhat agree __Neutral __Somewhat Disagree __Strongly Disagree

Appendix B

Demographics Questionnaire

INSTRUCTIONS: Please complete the following demographic information. All personal information will be kept confidential and your responses will not be connected to any identifiable information.

1. What is your age?

2. What best describes your Ethnicity (or race)?
 - a. African American, Black, or of Subsaharan African descent
 - b. Native American/First Nations (USA and Canada)
 - c. Indigenous American (Mexico, Central, and South America)
 - d. Asian: East or Southeast Asian (including Filipino)
 - e. Asian: South Asian

- f. Pacific Islander (including Native Hawaiian), or indigenous Australian
 - g. White, or of European descent
 - h. Middle eastern, Afro-Asiatic, or Western Asian (including Assyrian)
 - i. Hispanic or Latinx
 - j. other, please specify _____
3. What best describes your gender?
- a. Male
 - b. Female
 - c. Transgender

- d. Other (please specify): _____
- b. Prefer not to answer

Screening Questions

1. What best describes your sexual orientation?
- a. Straight/Heterosexual
 - b. Gay
 - c. Lesbian
 - d. Bisexual
 - e. Other (please specify): _____

Using Non-Invasive Imaging to Analyze Ancient Skeletal Remains

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Abstract

Ancient skeletal remains may hold many secrets, such as what diseases affected ancient populations, trauma, and violence. Studying ancient skeletal remains has been happening for years, but due to the finite, rare resource these remains are, studying them in depth can be difficult. We do not wish to destroy remains for scientific reasons, but what else can be done to examine these remains? A way to study remains via non-invasive technologies is being used, but it is still a new process. My hypothesis looks at how non-invasive technologies such as CT scans, radiography, photogrammetry, and 3D virtual modeling can be used to examine fragile remains. If it is feasible to scan a bone using CT, uploading it to a 3D modeling program, and turning the CT into a 3D printable file so copies of the bone can be made in plastics or resins, it could possibly open a new way to study ancient skeletal remains without damaging, transporting, or possibly losing bones.

Introduction

Non-invasive imaging systems, such as computed tomography and radiography have been used to examine ancient skeletal remains for years now. These techniques provide a way to view inside and outside of bone, allowing researchers to view damage and scarring that may not be able to be seen with macroscopy.

The use of non-invasive imaging helps keep the rare skeletal remains from being destroyed; sometimes all we have is a tooth or the tip of a phalange of a skeleton and it may be one of the few examples of a species of culture group.

Sometimes we find a burial or grave site and we have no idea what killed the people buried there; all we have is their bones. Death could have been caused by disease, war, murder, or natural causes. How can non-invasive tech assist with studying disease and trauma in ancient skeletal remains?

Method

Materials

The materials I will be using for this study will be journal articles, books and studies found in peer reviewed journal databases, such as JSTOR and Google Scholar, as well as the library. I will be utilizing the library catalog and search functions for journals at the California State University, Stanislaus library. I will also be using a notebook and computer to help organize my notes, thoughts, and to help draw conclusions with the data in the journals and books to help answer my research question. Initially I will be downloading 3D software and files of already scanned fossil specimens to manipulate and

successfully print the specimens on a 3D printer. I will also be learning a technique called photogrammetry to turn pictures of specimens into 3D printable files. The physical materials I used were a cow rib bone, a Samsung Galaxy S22 Ultra phone for pictures, and Meshroom.

Procedure

I read and made notes on several journal articles after searching journal databases and library catalogs for material to study. After I gathered the data needed, I compiled it into an article of my own to answer my research question “how can non-invasive tech assist with studying disease and trauma in ancient skeletal remains?”. I am attempting to learn 3D modeling and 3D printing software to take the CT slices of a bone and present it as a 3D printed model and as a 3D model on a computer. I feel this may take some time as I will be learning new software, reading, analyzing data, and seeing how using images from non-invasive scans can be used to create digital and physical 3D models of ancient skeletal remains.

Design

I started with a qualitative design of study, focusing on the use of case studies to gather data. Due to the nature of studying ancient skeletal remains and using expensive technology such as CT scanners, being able to do research using ancient skeletal remains will be incredibly difficult and costly, so I went the route of learning photogrammetry. This turned my study into a more qualitative approach. My hope is I can take these case studies and present a 3D printed model of a

bone and a 3D model on a computer. Figures 1-5 later in this article are the current extent of my work.

Results

My results focus on the uses of non-invasive imaging for study in the lab and in academic settings. I am utilizing 3D modeling programs and photogrammetry to build digital copies of bones. The findings include how the imaging technology is used to create digital copies of ancient skeletal remains and how these images can be used to create digital renditions of a bone. I am learning how to use programs for photogrammetry, 3D modeling and rendering, and how to create files to be printed on a 3D printer, allowing for physical copies of ancient skeletal remains to be made. These methods will assist me in understanding how we can learn more about our ancient ancestors by examining their remains digitally with little to no destruction of the remains.

I am currently working with a cow rib bone, (figures 1-4), I obtained after a dinner of barbecued ribs. Photogrammetry involves taking pictures of a

Discussion

As stated, ancient skeletal remains are rare and delicate. If a researcher wishes to study something inside a bone, such as an endocast or the internal healing of bone trauma, (Wu et al., 2011, Wu et al., 2019, Wu et al., 2008), the remains will often need to be destroyed. Wu et al. demonstrates the use of CT scans and 3D models in several studies. In a 2011 study, Wu et al. uses CT scans to study a healed lesion on the cranium of an ancient human found in Maba, China. The lesion showed signs of healing and forensically the researchers discovered the wound was made by human violence. Other studies by Wu et al. in 2008 and 2011 show 3D modeling to digitally repair an ancient human skull, filling in gaps where bone is missing by mirroring bone that was found and 3D modeling an endocast after the skull was scanned using CT.

Destruction of ancient skeletal remains has several implications including loss of other data which hasn't been discovered or studied yet as well as political and social implications. Some culture groups want the remains of their ancestors returned to the land they came from for reburial. Other groups do not want their ancestors studied in a lab where their remains would be desecrated or destroyed. Collections around the world in museums and universities are caught up in legal battles between governments over who gets to house remains and artifacts taken from sites decades and even centuries ago. If anthropologists can scan bones and construct them in a 3D environment, then bones could theoretically be shipped back to cultures who want their ancestors back for reburial. This could also help

stationary object and feeding them into a program such as Meshroom to be reconstituted as a 3D image. This involves many pictures which overlap. Meshroom then compiles all the pictures and looks at them as camera angles, allowing the stitching of the images together. Figure 5 is the current extent of my work. The process is a lot trickier than I was expecting due to the quality and quantity of data required for the program to render an accurate image.

My results, I feel, are preliminary. I was honestly quite surprised I was able to get a good resemblance of the cow rib bone shown in figure 5 after only four tries. There is still more work to be done but I believe my results are a promising start to fully realizing how non-invasive technology can assist paleoanthropologists and other researchers in the study of ancient human remains. While the process is currently time consuming since I am still learning proper techniques, as I practice and hone my skills, I am confident I can become quicker with the process of 3D modeling a bone and being able to print it with a 3D printer.

with the curation crisis many museums and repositories face where they have too many artifacts and ancient skeletal remains and not enough room to properly store and study them.

There are a few implications for my study. First, I feel the implications are applied, meaning that the use of non-invasive imaging will assist with the study and preservation of fragile and rare specimens. In other words, researchers would be able to take a fossil bone, scan it using a CT machine or photogrammetry, upload it into a computer program which allows them to convert the images into 3D models which can then be stored in a virtual database. Subsequently, researchers can access this database of stored scans and either study the bone on a computer using the 3D file or getting a file of the bone which allows it to be printed using a 3D printer. I have not investigated the technology yet, but I am wanting to see if virtual reality would be beneficial to the study since one can put a headset on and bring up images that appear to be real and study the bones that way.

I am unsure of the impacts my research will do on paleoanthropology fully at this time. The ability to scan and upload bones into a database could be a boon for the academic community. Students, professors, and researchers would have access to fossils they would not be able to examine without traveling to or shipping the fossils. Travel and shipping are both costly and time consuming and shipping can damage rare and delicate fossils. Having a database, a school can access for students to examine bones they normally would not be able could allow students to go farther in their paleoanthropological studies. Imagine being able to

study Lucy, one of the most complete *Australopithecus* fossils in the world, from a dorm room in Boise, Idaho while Lucy's bones remain safe in Ethiopia.

There are limitations, of course. One of the largest is access to fossilized human remains. As mentioned before, there are legal battles going on over skeletal remains housed in museums, often by cultures who do not want their ancestors housed in little boxes in a dusty room. It is also costly to transport remains to hospitals so they can be scanned with CT machines, which is where photogrammetry may come into play more since the equipment is much more portable. A third implication, as pointed out in *Advances in Paleoimaging*, is who owns the images? There is an issue in the academic world where some people do not want to share their findings or images for various reasons. Some want to be able to be able to make all discoveries regarding a bone, others feel that since they made the scans, they own the scans. (Beckett, Conlogue, 2021) With how easy it is to access information via the Internet, one would not think this is a problem, but researchers need to pay their bills like anyone else.

In conclusion, my study has several impactful aspects to it, such as utilizing 3D imaging software to convert scans into data files easily stored and accessed in a database, allowing access for students and researchers to bones they may not be able to study without expensive travel or shipping, as well as preserving fossilized specimens in a digital format. Currently, I am working further with photogrammetry and 3D modeling. With a lot of hard work, I will be expanding on this study in the future to include 3D printing and working with CT scans.

Illustrations



Figure 1: My first attempt at photography. The computer didn't know what to make of these.



Figure 2: My second attempt at photographs. I moved the bone and myself. The computer couldn't figure out what to do with these.



Figure 3: Third attempt at photographs. I moved the bone, not the camera.



Figure 4: Fourth attempt to make figure 5. I moved the bone and left the bone stationary.



Figure 5: A view of the 3D model using Meshroom and figure 4's photographs.

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COVID-19: HOW DID IT AFFECT STUDENT'S ACADEMICS AND MENTAL HEALTH?

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Abstract

School and learning itself has evolved a lot over the years. We have gone from working only in a classroom with a whiteboard and markers to being able to learn from the comfort of our own home. However, some things go from being an option to being necessary to learn anything. The COVID-19 pandemic was one of those special events which has caused this necessary change to be required to learn anything and gain any knowledge. The purpose of this research was to explore the relationship of technology to a college student's academic achievement. This relationship is really something that requires observation as this switch could be a benefit to some because of unlimited access to information and also freedom with schedule, but for others, they were not prepared for this type of change before which may have left them unprepared to learn. This study also aims to explore how the switch from face-to-face to online classes could possibly benefit or hurt a student's performance. Self-reported mental health status from pre- and post-pandemic standpoints were examined. Participants from Stanislaus State volunteered to answer the survey which asked them to indicate their mental status and academic history from before the pandemic and during the pandemic period. They were assessed using a self-report survey in order to measure changes in mental status and academic achievement. An analysis was conducted in order to show how the sudden change from in person learning to virtual learning has affected how the students do in school and how they may be feeling from not having physical contact with peers and teachers.

Keywords: COVID-19, Academic Achievement, Mental Health

Introduction

The pandemic has forced all of us to adapt to a new online environment. For some individuals this was easily done, however many individuals endured significant disruptions to their everyday activities. With technology advancing more and more every single day, universities have taken it upon themselves to make learning environments more flexible (Kemp & Grieve, 2014). Studies have shown that online learning allows students various benefits such as a flexible schedule, focus on the students rather than the teacher, cost effectiveness, and better participation in discussions (Al-Qahtani & Higgins, 2012). Studies have shown that some learners are shown to suffer from isolation, experience a negative effect on communication skill development, experience less effectiveness of learning compared to traditional learning, and may be prone to cheating as this becomes easier to do in this type of environment (Al-Qahtani & Higgins, 2012). The focus on the effects of the switch from in person to online classes is important. Evidence suggests that in some cases the switch was effective for some students, however other evidence indicated that this may have been detrimental in that some of the benefits of the in-person classroom experience were lost.

Background

With the COVID-19 pandemic sweeping around the world beginning in 2020 and still existing in

2021, everyone has had to change in order to adapt for the safety of others and themselves by staying within their own homes. For some individuals this was easily done, however many individuals endured significant disruptions to their everyday activities. With technology advancing more and more every single day, universities have taken it upon themselves to make learning environments more flexible (Kemp & Grieve, 2014). With this switch from face-to-face to online classes, many have questioned whether or not this switch will affect a student's experience and academic results in some way but also their change of view with the new learning environment (Kemp & Grieve, 2014).

Prior research on this topic had focused on how efficient it is to use online learning, the content created from this environment, and how it is delivered (Kemp & Grieve, 2014). Earlier studies focused on the relationship of various types of classroom environments and their effect on student achievement (Al-Qahtani & Higgins, 2012). The studies have shown that online learning allows students various benefits such as a flexible schedule, focus on the students rather than the teacher, cost effectiveness, and better participation in discussions (Al-Qahtani & Higgins, 2012). These benefits help make online learning sound similar or even better to face-to-face learning solely based on ease of use for both the student and teachers. Less stress has been associated with online learning as compared to traditional learning (Al-Qahtani & Higgins, 2012).

Although there are many advantages to the switch to online learning, studies have shown that there are many disadvantages as well. It has been determined that some learners are shown to suffer from isolation, experience a negative effect on communication skill development, experience less effectiveness of learning compared to traditional learning, such as being prone to cheating as this becomes easier to do in this type of environment (Al-Qahtani & Higgins, 2012). It has also been shown that with online learning, a student's motivation to do their work increases as they are able to do their work without being told to rather than the teacher encouraging students to finish activities (Kemp & Grieve, 2014). It has also been determined that for some students, it is harder for them to learn as they must learn the material in class while also possibly having to learn the digital aspects of online learning as some are not prepared for it (Chu, 2014). With online learning, the workload that each student must complete is somewhat increased because of this, resulting in students possibly having trouble learning effectively, negating some of the benefits from the online learning experience (Chu, 2014). Finally, it was found that with the online learning environment, having to constantly try to learn materials both physically and digitally can cognitively overload the student, leading to undesirable results in their academics which can make learning this way even more difficult over time (Chu, 2014).

Description of Research

The purpose of my study was to examine the effects of the switch to online learning on academic achievement and mental health in college students due to the various consequences caused by COVID-19.

Method

A sample of 100 participants were recruited. All participants were 18 years of age or older. All participants were undergraduate college students from California State University Stanislaus. Some of the participants were recruited through the use of SONA (<http://csustan.sona-systems.com/>), and some participants were recruited randomly from other departments. Students who participated through SONA received two (2) experimental credits for their participation. Students who participated from different departments were entered to be randomly selected to receive 1 of 10 Amazon gift cards worth \$15. For those who participated, they were instructed to complete both the demographics questionnaire and the WHO-5. The students had no time limit but were asked to answer the questions to the best of their abilities and truthfully. Their data was recorded without their name or any form of identification in order to keep results confidential. They only needed

to provide their major which was the only identifier for the participant.

After the participants completed both questionnaires, they were directed to the debriefing sheet, where were thanked for their participation and were provided with an explanation of the purpose of the study.

Results

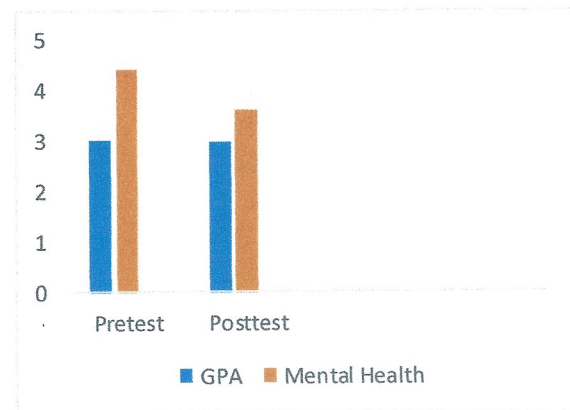


Figure 1: Effects of COVID-19 on student's academic achievement and mental health

To determine whether students' academic achievement and mental health declined due to the switch from in person to online classes, data were analysed using a repeated measures ANOVA. The research hypothesis was supported. As expected, a significant effect was found, $F(2.463, 211.848) = 77.432, p = <.001, \eta_p^2 = .474$. As hypothesized, on average, participants reported lower levels of current academic achievement as well as mental health well-being ($N=87, M=2.97, SD = 0.64; N = 87, M = 3.60, SD = 0.90$, respectively) as compared to at the beginning of the pandemic ($N = 87, M = 3.02, SD = 0.63; N = 87, M = 4.39, SD = 0.82$ respectively). These findings imply that the COVID-19 pandemic has had a significant effect on students' ability to excel academically and even more specifically has impacted their mental health and well-being.

Conclusion

After obtaining the results of the data collected from the questionnaires, it seems that students were mostly affected at a mental level rather than that of academic. My hypothesis was supported by the data provided above as the results demonstrated that students did see small a change in their overall G.P.A during the pandemic however, the biggest change was their mental health status. Students demonstrated that the pandemic did affect how they felt and were thinking in an online academic setting. This implies that some students simply were not ready for this drastic change in learning

environments leading to the results shown within this study.

Overall, I found it interesting to see that the student's academic achievement wasn't lower than what the reported data demonstrated as seen in previous research. This may have been because most participants were upperclassmen and with that, these students were likely prepared quite a bit more than lowerclassmen therefore; the overall reported G.P.A was not as low as I expected. Another reason for this could be due to the high potential for cheating in an online environment, thus reported GPA levels may not have been adversely affected.

One of the limitations with this study was a small sample size of only students enrolled in mostly psychology and child development courses from one college campus. Future researchers should recruit more participants for the study, particularly a more diverse sample in order to create a bigger picture of who was affected the most by the pandemic. Additionally, further research should focus on how students are doing now that we have moved out of quarantine and also focus on how the introduction of new variants of the COVID-19 virus could possibly affect student's mental health.

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The Effects of Art Therapy on Post-Traumatic Stress Disorder and Related Symptoms: A Systematic Literature Review

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Abstract

This project explores the effects of art therapy on individuals experiencing symptoms of post-traumatic stress disorder (PTSD) and related symptoms. My hypothesis is that art therapy will reduce the symptoms of PTSD. I have learned that art therapy is a nonverbal therapy and that individuals experiencing symptoms of PTSD are often unable to express their traumas. Thus, I hypothesized that art therapy is a logical approach for individuals experiencing symptoms of PTSD. This research is important because it will help therapists determine how to best approach their patients. The expected results for this project are that art therapy will have a positive effect on individuals experiencing symptoms of PTSD.

For this project, I used a systematic literature review design. The keywords “post-traumatic stress disorder”, PTSD, and “art therapy” were used. Thirteen clinical trials, literature reviews, and other types of studies on the topic of the effects of art therapy on the symptoms of PTSD have been collected. Six variables were collected: type of research design, number of participants, inclusion/exclusion of a control group, reduction/no reduction of symptoms, therapy type, and dropout rate. These variables helped determine if an article should or should not be included. The results indicate that art therapy does have a positive effect on individuals experiencing symptoms of PTSD. More significantly, the results demonstrate that when art therapy is integrated other evidence-based therapies, the two therapies working together are more effective than the art therapy by itself.

Keywords: Art Therapy, Post-Traumatic Stress Disorder

Introduction

Art therapy is nonverbal therapy sometimes used as a tool to approach individuals who have experienced a traumatic event. There are many different forms of art therapy including visual trauma narratives (Figure 1), changing narratives (Figure 2), portrait therapy (Figure 3), mask making, and art making, such as drawing, sculpting, and painting. Typically, art therapy sessions will occur in a group setting. Sometimes, art therapy will also be combined with evidence-based therapy. One disorder that is often treated with art therapy is post-traumatic stress disorder (PTSD).

A common characteristic of PTSD is an individual’s inability to express their trauma. It is believed that this inability is caused by the brain improperly storing traumatic memories.



Fig 1: Example of a Trauma Narrative (Campbell et al., 2016)

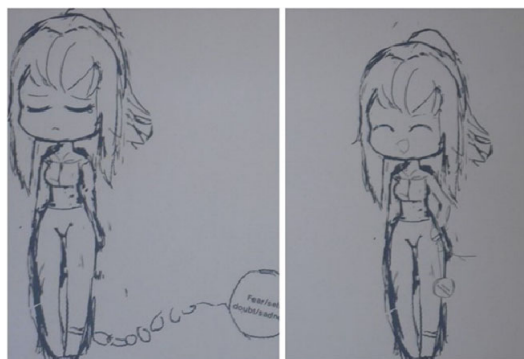


Fig 2: Example of Changing a Nightmare Narrative (Haeyen and Staal, 2021)



Fig 3: Example of Portrait Therapy (Carr and Hancock, 2017)

Some research suggests that art therapy, especially when integrated with an evidence-based therapy, may be particularly useful in revealing patients' disconnected memories and in helping them to process their trauma. Because art therapy is nonverbal, patients can express their emotions through art instead of words. Based on this information, I hypothesize that art therapy, especially in combination with evidence-based therapies, will reduce the symptoms of PTSD.

Background Information

PTSD's Nonverbal Characteristic

When an individual experiences a traumatic event, studies show that a disconnect can occur between the right and left hemispheres of the brain, causing the left hemisphere to become unable to translate the memories from the right hemisphere into verbal communication (Becker, 2015, p. 190). Campbell et al. (2016) believe that these memories may be able to be recollected through "sensory, affective, visual, olfactory, auditory, and kinesthetic elements" (p. 169-170). Carr and Hancock (2017) suggest that PTSD is an issue of memory involving "intrusive and distressing recollections" (p. 9). Carr and Hancock understand that memories are not stored in a patient's conscious awareness, therefore, some individuals are haunted by these memories, while some dissociate from them (p. 9). Haeyen and Staal (2021) found that when an individual undergoes a traumatic event, the energy sent to the prefrontal cortex is lowered and the hippocampus activates (p. 2). Because the prefrontal cortex is associated with language and logic, the memories connected to this event are stored as what Haeyen and Staal call "frozen language" (p. 2). As a result, the traumatic events are experienced through flashbacks and emotions (p. 2). In all five studies conducted by Becker (2015), Campbell et al. (2016), Carr and Hancock (2017), Goodarzi et al. (2020), and Woolett et al. (2020), researchers reported that individuals experiencing symptoms of PTSD experienced memory loss and the inability to verbally communicate.

How Can the Symptoms of PTSD be Treated?

Schouten et al. (2015) and Campbell et al. (2016) report that more than 30% of patients do not respond positively to evidence-based therapies (p. 220; p. 169). However, research suggests that art therapy may be an effective answer in connecting, understanding, and processing the nonverbal memories often associated with PTSD. According to Aktaş Özkafacı and Eren (2020), "art psychotherapy helps the images emerge from darkness to light and from the unconscious to the conscious by serving as a bridge" (p. 2). Additionally, art therapy provides a safe and enjoyable environment where an

individual's sense of threat is lowered, thus creating less patient resistance (Becker, 2015, p. 192). In this manner, previously inaccessible memories can be retrieved without rousing an adverse response (p. 192). Goodarzi et al. (2020) also suspect that art therapy, as an "indirect, non-verbal therapeutic approach," may be a better way to approach patients, because they believe that patients may prefer this nonverbal method (p. 1). Likewise, Hass-Cohen et al. (2014) report that exposure-based therapies may evoke traumatic memories and provoke symptoms (p. 72). Thus, they also suggest art therapy to regulate stress responses and carefully work toward processing traumatic memories (p. 72).

Is Art Therapy the Best Option?

Some researchers do not believe that art therapy is an effective treatment for symptoms of post-traumatic stress disorder and related symptoms. Abbing et al. (2018) writes "effectiveness of art therapy on anxiety has hardly been studied, so no strong conclusions can be drawn" (p. 2). They believe that many studies are biased because they do not include enough participants. Holmqvist and Persson (2012) refer to Gilroy when they state that the studies that have been conducted do not consider "how or why an intervention or treatment is effective" nor do they consider that they are reducing the participant to a single variable (p. 47). Furthermore, they state that each study takes place in a different context, with different participants, and with different research designs. However, a number of studies show that most participants who received art therapy as treatment indicated a decrease in their symptoms at the end of their treatment. Lastly, in studies conducted by Rhondali and Filbet and Collie, art therapy was reported to sometimes cause the patient to experience more symptoms of their disorder as well as trigger unresolved emotions (Scope et al., 2017, p. 33-34).

Method

Materials

Both primary and secondary research was used for this study. All sources are peer-reviewed journal articles from the California State University, Stanislaus library database. The types of articles that were collected were clinical trials, pilot studies, and one systematic literature review. The databases that were used were Art and Architecture Complete, CINAHL Plus, PubMed Central, and Academic Search + Omnifile. The keywords used to conduct the search were "post-traumatic stress disorder," PTSD, and "art therapy." To ensure the information collected is relevant, more recent articles from 2007-2021 were used.

Design

The type of research design that was chosen for this study was a systematic literature review using secondary research. Systematic literature reviews and journal articles with background information on art therapy and PTSD were used as sources for the literature review. Clinical and pilot studies as well as one systematic literature review were collected for analysis to answer the research question. The concept that is being examined is the effectiveness of art therapy on the symptoms of PTSD. Because the findings are both numerical and non-numerical, this study is both quantitative and qualitative.

Procedure

First, background information was collected through peer-reviewed systematic literature reviews and other journal articles on the subject of art therapy. Then, reports of clinical studies were collected for analysis. The search query was as follows: (“post-traumatic stress disorder” or PTSD) and “art therapy.” If there was an option to filter by publication or article type, “clinical trial” was selected. First, if the articles were not clinical trials, they were eliminated. Second, if the main area of interest was not the effectiveness of art therapy on PTSD, the study was eliminated. Lastly, the results of the articles were analyzed and synthesized. The points that were considered were type of research design, number of participants, inclusion or exclusion of a control group, reduction or no reduction of symptoms of PTSD and related symptoms, the type of art therapy and/or evidence-based therapy that was used, and the dropout rate of participants. This study began in Spring 2021 and was completed in Spring 2022.

Results

Art and Architecture Complete provided 61 results. CINAHL Plus provided one result with the clinical trial filter selected. PubMed Central provided five results with the clinical trial filter selected. Academic Search + Omnifile provided 88 results. Some of the results crossed over between databases. From these searches I collected 13 articles. After examining each article, I compiled the results in a table (Table 1). The number of participants for each study ranged between four and 370 participants. Six out of seven studies included a control group. All studies reported a decrease in symptoms. Eight of the studies reported a significant decrease in symptoms with *p* values of .04 or less. The remaining studies either did not report *p* values or found a reduction,

but it was not significant. More significantly, in the studies that included a control group, all six studies reported a greater reduction in symptoms in the experimental group (art therapy and evidence-based therapy) than in the control group (only evidence-based therapy). The dropout rate for nine of the studies was less than 17%. Research designs and therapy types varied.

Discussion

Implications

These results indicate that art therapy is effective in reducing the symptoms of PTSD. Based on the low dropout rate of a majority of the studies, this research supports other researchers' suggestion that patients may prefer art therapy over evidence-based therapy. Furthermore, the greater reduction in symptoms in the experimental groups than the control groups suggests that combining art therapy with evidence-based therapy may be more effective than using art therapy by itself. This research has the potential to aid a therapist in deciding if they should implement art therapy in their approach to patients in the treatment of symptoms of PTSD and related disorders. Additionally, this research may have an effect in furthering therapists' and psychologists' understanding of art therapy and the various ways it can be used and implemented alongside evidence-based therapies.

Limitations

Despite its seemingly promising results, my research does have some limitations. First, this study would have benefitted from having more clinical studies to include. Second, six out of 13 of the studies were pilot studies. Third, seven out of the 13 studies did not include a control group.

Conclusion

This project has shown that art therapy, especially when integrated with various types of evidence-based therapies, has a positive effect the symptoms of individuals experiencing symptoms of PTSD. Thus, art therapy may be a useful approach for therapists to apply in helping revealing patients' disconnected memories and in helping the patients to process their trauma. Additionally, the results indicate that patients are likely to complete treatment as shown by the low dropout rate in nine out of the thirteen studies.

Table 1

Results: This table shows the six variables examined and the data found in the 13 articles studied.

	Research Design	# of Participants	Inclusion/Exclusion of Control Group	Reduction/No Reduction of Symptoms	Therapy Type	Dropout Rate
Aktaş Özkafacı & Eren (2020)	Quasi-experimental research design with a pre- and post-test model	8 participants	No control group due to lack of participants	Beck Depression Scale: $p = 0.041$ Beck Anxiety Scale: $p = 0.027$ Beck Hopelessness Scale: $p = 0.026$ Overall positive effect and reduction in symptoms	14 120-minute sessions of marbling art	0.0%
Becker (2015)	Pilot study	6 participants	No control group	Large effect sizes on the PCL-C, BDI-II, and TSI scales	Weekly 2-hour group sessions using Becker's manual, <i>Beyond: Integrated Treatment for PTSD in Adult Survivors of Child Abuse</i>	16.7%
Campbell et. al. (2016)	Randomized controlled trial	15 participants	Control group was included	PCL-M and BDI-II scores decreased in both groups: $p < 0.001$. The experimental group had a greater reduction in depression symptoms than the control group	8 sessions of CPT in the control group and eight sessions of CPT and art therapy in the experimental group	Experimental group: 0.0% Control group: 40%
Gantt & Tinnin (2007)	Intensive outpatient treatment program	78 participants (22 diagnosed with PTSD)	No control group	Overall, 45% recovered, 44% improved, and 8% were unchanged. 77% of PTSD patients recovered and 23% improved	1–2-week sessions with 4 phases using narrative trauma processing and reversal of dissociation, art therapy, externalized dialogue process, and victim mythology	2 dropped out and 4 did not return for post-treatment testing
Goodarzi et. al. (2020)	Experimental research	18 participants	Control group was included	Post-test and follow-up scores for depression, anxiety, and shame are significantly lower in the experimental group but not in the control group: $p < 0.001$	8 2-hour sessions of mindfulness-based art therapy	2 dropped out before the study began
Hylton et. al. (2019)	Pilot study using a pre-post design	44 participants	No control group	PTSD symptoms: $p = 0.004$ Anxiety: $p = 0.003$ Depression: $p = 0.031$ Positive Effect: $p < 0.001$ Negative Effect: $p = 0.046$	8 3.5-hour sessions over 2 weeks creative arts therapy summer camp program	All participants completed the camp but only 34 filled out the post-questionnaire due to the other 10 having various planned and unplanned absences
Kaimal et. al. (2018)	Observational study	370 participants	No control group	Enjoyment: $n = 136$ Focus and concentration: $n = 72$ Relaxation and calming: $n = 52$ Socialization and opening up about their injuries: $n = 74$ Dissatisfaction: $n = 11$	Art therapy through mask making during a "comprehensive integrative outpatient assessment and treatment programme"	Unclear

	Research Design	# of Participants	Inclusion/Exclusion of Control Group	Reduction/No Reduction of Symptoms	Therapy Type	Dropout Rate
Lobban & Murphy (2018)	Pilot study	4 participants	No control group	"a reduction...of PTSD symptoms was observed from a mean score of 2.9 at admission to 2 at discharge"	Adaptive art therapy model	0.0%
Lyshak-Stelzer et. al. (2007)	Pilot study	86 participants	Control group was included	Overall significant effect: $p = 0.002$ TF-ART had a more significant effect: $p = 0.01$	Trauma-focused art therapy protocol for the experimental group and treatment-as-usual for control group	16.2% (23) discharged before finishing treatment 3.5% (5) withdrew before finishing treatment 2.1% (3) withdrawn for clinical reasons 11.3% (14) experimental patients completed treatment 10.6% (15) control patients completed treatment
Schouten et. al. (2015)	Systematic review	223 participants	Control group was included	Significant reduction in psychological trauma symptoms were found in half the studies	Various art therapy sessions in the experimental groups and art control and treatment as usual in the control groups	Unknown
van Westrhenen et. al. (2019)	Nonrandomized controlled trial	125 participants	Control group was included	Symptoms decreased more in the treatment group than in the control group	10 sessions of creative arts in psychotherapy	63.4% (47) completed treatment – 23 in treatment group and 24 in control group. Dropouts were mostly a result of lack of accessibility and the high turnover rate of children in the facility.
Wallace et. al. (2014)	Pilot study	30 participants	Control group was included	Significantly lower scores in intervention group than in control group: $p = 0.039$	3 sessions of art therapy intervention sessions	0.0%
Woollett et. al. (2020)	Pilot study	37 participants	No control group	Depression declined: $p = 0.01\%$ PTSD symptoms improved but not as significant: $p = 0.21\%$	TF-CBT combined with art and play therapy	Unclear

This research is important because it will provide a better understanding of art therapy and its impacts. The interpretation of my results will impact my field of study because artists and therapists will have more information about how art and therapy can be used together. Knowing the effects of art therapy on PTSD is important for therapists to know how to approach their patients and for patients who are experiencing symptoms of PTSD to seek the best treatment possible for healing.

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Excessive Screen Time and its Effects on Mental, Physiological and Physical Health

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Abstract

Screen time exposure can be deemed a necessity in many modern-day societies. Many children, adolescents and adults rely on screen time for school, work, socializing, entertainment and overall, just managing their day-to-day life. In this study a closer look at screen time habits were examined to gain clarity on the effects of excessive screen time usage on societies overall well-being. With technology continuing to advance, the more reliant communities are presumed to depend on it, and for this reason alone, its impact on mental, physical, and physiological health should be monitored closely. Previous research has found throughout the decades, with the establishment of the television, there has been an increase in lack of exercise, as well as aggressive behavior in children. Additionally, with current research today on the impact of the internet and smart devices many studies have linked both mental and physiological health to adverse reactions with excessive screen time consumption. Using a systematic review this study will explore how excessive screen time exposure has been impacting society over that last few decades in negative ways due to the nature of its intensity in everyday usage.

Keywords: *Screen time, mental health, internet, adversity, digital devices*

Introduction

In modern-day society technology has reached the point of necessity in our daily lives. The convenience that is received through smart devices has made it so that we rely on technology to accomplish many day-to-day tasks, and tech corporations (Google, Apples, Samsung to name a few) know this so they are continually competing for areas of advancement in computer processors to keep

up with the need for streaming speed. The rise of technology has changed how we function as a society in many ways. For this reason, we should closely evaluate how the brain is adapting to the evolution of instant gratification as we have come a long way from our hunter gathering days. The advancement in speed with digital devices allow for downloads to be made available in seconds for content such as online gaming, television streaming, as well as medical

devices and home appliances; technology has found its place in with every age group.

Smart device usage has many advantages, such as convenience; however, it's impact on mental health has been taking a toll on many. Mental health diagnosis has been rising in recent years, with many linking the effects of screen time to depression, anxiety, sleep disturbances and cognitive delays. There has also been an increase in obesity across all age spans, and children being diagnosed with developmental delays linked to excessive screen time usage. Now that we have hit a point where it's seemingly impossible to avoid using technology in some form, the effects of excessive screen time should be carefully monitored regarding its impact on the public's overall health. For the purpose of this study, the relationship between digital device usage and how it impacts mental, physiological and physical health was further examined.

Television and Mental Health

Since the introduction of televisions into the American homes in the 1950's researchers have been looking into its effects on the general population. One study that took place thirty years after tv's were made affordable to the average American family home looked at the relationship between television and behavior outcomes from television exposure. The research controversially concluded that violence on television leads to children displaying aggressive behavior (Rubinstein, E. A., 1982). Children and adolescents have been an area of focus when it comes to the rise of technology due to the findings made by Rubinstein early on. Other studies have found Rubinstein's results as speculative, yet medical findings continue till this day to implement guidelines where children aged 2 and under should have no screen time, and after the age of 2 screen time should be

limited to 1-2 hours a day to avoid risks that have been linked to early screen device exposure such as: impacting sleep at night, putting children at risk for ADHD, anxiety, depression, and developing obesity (Strasburger, V. Jordan AB, Donnerstein, E. 2010).

Internet and Mental Health

The introduction of the television led way for the computer. By 1998 close to 40% of American households owned a computer, and of those households 30% had internet access. Many scholars, technologists, and social critics believed that the internet would transform both economic and social life (e.g., Anderson, et al. 1995; Atwell & Rule, 1984; King & Kraemer, 1995). In their experimental study ninety-three families were given computer software, a free telephone line, and free access to the internet in exchange for permitting researchers to track their internet usage and answering periodic questionnaires as well as in home interviews. The study focused on how the duration of internet usage impacts stress with stress leading to forms of depression. Findings concluded that greater use of the internet was associated with declines in social involvement, size of people's local social networks, and increases in loneliness as well as increases in depression (Kraut, 1998). By 2001 the census bureau reported that by September 2001, 65.6% of the U.S. population owned a computer and over half of those people (53.9%) had the internet.

In another study the impact of internet duration/frequency in usage and mental health was observed. This study was community-based with a sample size of 935 internet users obtained via the website of a major (anonymous) news organization. Participant's age was used as a potential cofounder of duration for mental health items. It was suggested in the results based

off data that frequency of internet usage (hours spent online per week) and duration (number of months online) have a significant association with past and current treatment, suicide, and past and current behavioral difficulties (Mathy & Cooper, 2003).

Video Games and Its Impact of Physiological and Mental Health

When it comes to video games and internet usage the variable of duration, usage and addiction were investigated. Since video games have been introduced into society they have quickly grown in popularity with many self-proclaimed “gamers”. In the technological consumers market video game consumption and creation has grown immensely, so it’s important to understand how many have found themselves addicted to gaming. In a large-scale cross-sectional study, the relationship between addictive use of social media, video games and symptoms of psychiatric disorders, (Andreassen, et al., 2016), tells how modern-day screen time is affecting the population today. The study was based off a large sample size of Norwegian population with participants ranging from ages 16-88 on addictive use of social media and video games. Results found two addictive technological behaviors were significantly and positively correlated ($r = .13$)

Another study looked at associations between changes in screen time and mental health outcomes in adolescents and found that half of all cases of mental health problems develops by age 14, and excessive screen time has emerged as a possible antecedent for various mental health conditions that go untreated into adulthood (Babic, M., et al. 2017).

Excessive Screen Time and Physical Health

In regard to physical health, another study

looked at the use of excess screen time for its sedentary effects on youth aged 11-18, as a possible pre-cursor for the rise in the rate of overweight children and adolescents (Minges, et al. 2015). Researchers in this study pulled from 458 articles and included youth boys and girls from a variety of socioeconomic and economic backgrounds. In this study screen time was the sedentary behavior that was assessed, and TV watching was the primary mode of screen time that encouraged lack of physical activity.

In a more current study that investigated the effects of screen time from a physiological stance it found that screen time exposure had increased risks on brain development. Its results found that excessive screen time can have detrimental effects on cognition and development, especially amongst children and adolescents. When it came to social media usage and mental health an increase in psychopathologies were reported with anxiety, depression, and attention deficit disorders. Time spent on social networking was also associated with poor emotional regulation, poor self-control, increased psychiatric disorder symptomology and comorbid addiction to substances. When it came to learning and memory evidence suggests that early and excessive screen time exposure can have prolonged effects in attention, memory, learning, and language acquisition in infants and children (Neophytou, E., et al. 2021)

Methods

Qualitative research was used to collect, analyze and interpret all data acquired throughout this study. A systematic review design was used to generate an in-depth understanding utilizing both published, and unpublished studies, as well as primary and secondary sources. An interview with

California State University, Stanislaus Students was conducted to gain up to date data on modern day screen time habits.

Procedure

The primary data base used for both published and unpublished journal articles was through California State University, Stanislaus library along with Las Positas's community college library data base EBSCO. Google scholar was also used to retrieve relevant and scientific academic articles. A total of 17 participants were interviewed who were currently or previously enrolled at CSU Stanislaus. All Interviews were conducted through zoom once the consent form was signed. All participants were asked to enter the zoom meeting in a location of their choosing where they felt they had the privacy to speak freely. A total of 9 open-ended questions were asked as followed: 1) How much time do you spend in front of a screen per day? 2)What takes up most of your overall screen time usage? Social media, video games, television? 3)What do you consider an excessive amount of time to be in front of a device? 4)In what ways does increases in time spent on a digital device influence your mood? 5)How does screen time affect your physical health? 6)Would you prefer socializing through screen time or in-person interactions? 7)Would you consider yourself addicted to technology? 8)Have you ever felt you have become reliant on technology? 9)Is there any thoughts you'd like to share about the direction we are going with technology as a society? These questions were asked to generate an idea of how excessive screen time impacts mental, physical and physiological health in current times.

Results

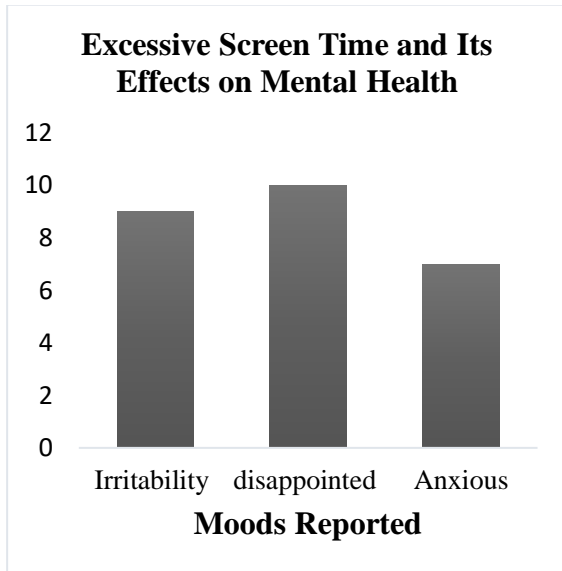
Mental Health

Results from the interviews found that excessive screen time did have an influence on participants moods. Participants reported that when binge watching content on their smart devices, they would feel irritable, and anxious if interrupted. Two participants who were parents elaborated on this by saying that they would feel guilty when on their smart phone watching Tik Tok or scrolling social media, and their children would interrupt them causing them to have irritable and dismissive attitudes with their children because of being disrupted while "sucked into" their device. Both of those participants described immense guilt when admitting how irritated they would get with their children over something as "stupid" as disrupting their screen time. Both parents also indicated that their children displayed similar behavior when being told screen time was up, or when they were disrupted while on their devices.

Ten participants also reported feeling unproductive which caused them to feel bad about themselves, and they would have feelings of regret and feeling ashamed about how long they were on their device when they felt they could have made better use of their time.

A total of six participants stated they when they were without their phone, they felt anxious, with three participants stating that if they were in public and forgot their phones they would feel "anxious" about not having their smart phone to distract them in scenarios such as waiting in line at a public place.

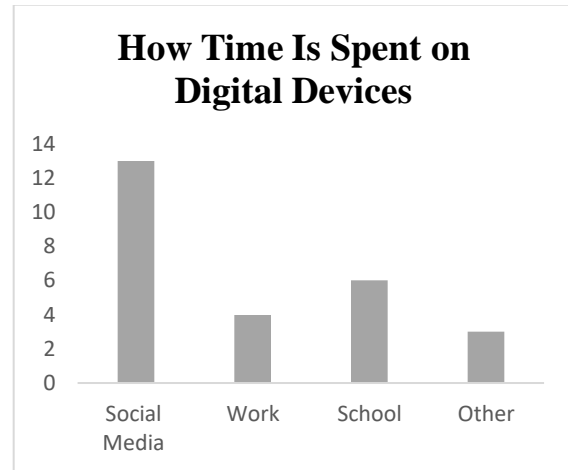
Figure 1. *Effects of excessive screen time on mental health.*



When it came to the question that asked participants how they spent their time on digital devices, over half of the responses (76%) were that social media was their go to app and what they spent the most time on. TikTok and Instagram were the apps that were named as primary social media apps.

Four participants reported that work was their primary reason for using digital devices, and six reported that school is where most of their screen time usage is from. Two participants reported television as their primary use for digital devices, bingeing on streaming apps such as Netflix and Amazon prime, and one participant reported that they miscellaneously used various digital devices for their screen time usage with all equal amounts of usage between content consumed.

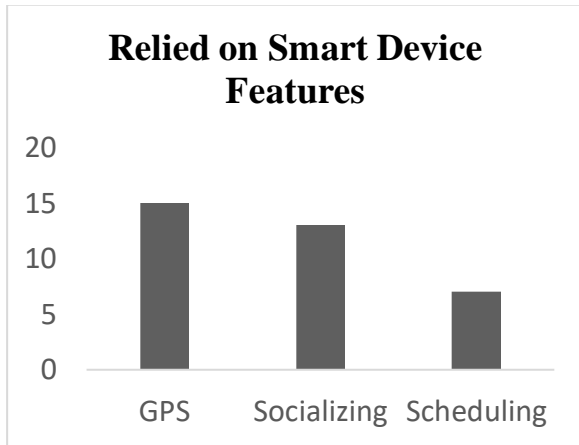
Figure 2. *Type of usage for digital devices as reported by participants.*



In response to the question about whether participants preferred in-person social interactions or if they preferred to socialize online, all participants responded with preference for in-person social interactions; however, 76% of participants did state that most of their socializing is done through social media, and that it's because after work or school they feel they have little time to connect with friends/family, so social media makes it a convenient way to maintain their social lives.

When it came to the question of whether participants feel they have become reliant on their smart devices $n = 15$ stated they rely on their GPS app to navigate throughout their day, $n = 13$ stated they relied on their smart devices as a way to keep in touch and socialize with friends and family, and $n = 7$ stated they rely on their smart device as a way to keep track of their daily schedules, as well as 2 of those participants using the alarm clock feature to wake them up in the mornings.

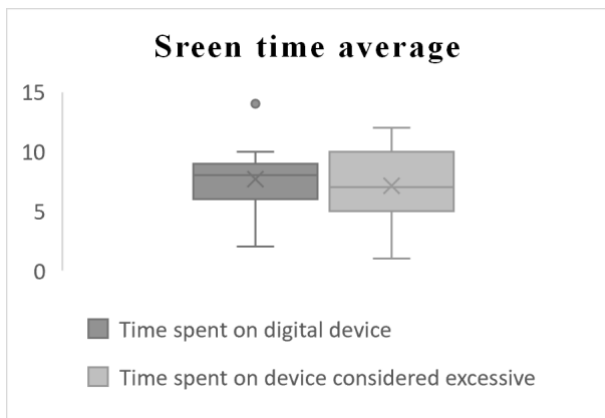
Figure 3. Features on smart devices that participants rely on to get through their day



Physiological

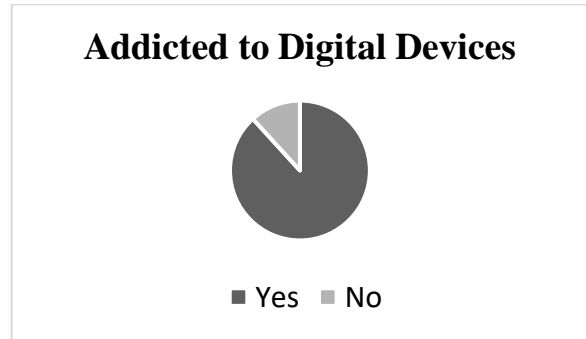
Participants were asked how many hours a day they spent on a digital device, this included: television, smart devices, and computers. Participants ($N=17$) reported $M = 7.7$ with an $SD = 2.57$ of hours in front of a digital device. When asked what considered an excessive amount of time to be in front of a digital device participants responded that $M = 7.1$ hours would be considered excessive with a $SD = 3.12$.

Figure 5. Amount of time spent on a digital device, and time considered an excessive amount of time to be on a device.



When participants were asked if they considered themselves addicted to their digital devices 88% of participants responded with yes, and 12% responded with no.

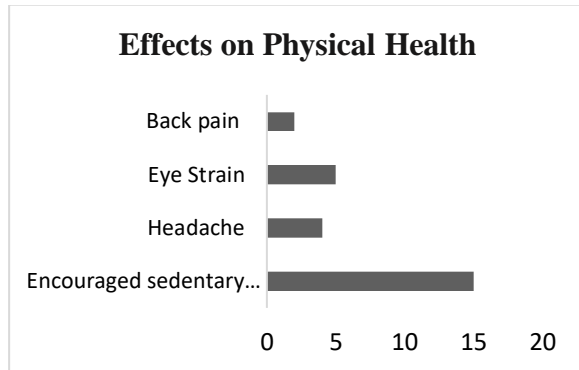
Figure 6. Self-report on addiction to digital devices



Physical Health

When it came to effects on physical health participants ($N = 17$) responded as follows $n = 2$ participants reported that when they sat for too long in front of a device and stood up, they had some back pain, $n = 5$ reported that their eyes would feel strained and burnt out after watching a screen for longer than 2 hours, and $n = 4$ reported headaches after prolonged time in front of a screen. Almost all participants ($n = 15$) stated on many occurrences that they had intentions to be active and/or productive, but once they got on their digital devices they would get “sucked into” or “zoomed in” to whatever content they began watching on a device, and they were not able to get the physical activity in they intended to, thus encouraging a sedentary lifestyle. The figure below is a representation of participants responses on how excessive screen time impacted their physical health.

Figure 7. Excessive screen time effects on physical health



Discussion

Implications of this research has found that throughout the past few decades excessive screen time has been shown to have adverse effects on mental, physiological, and physical health. The introduction of the television into the public found that too much exposure from children and adolescents leads to aggressive behaviors, as well as encouraging a sedentary lifestyle.

When it comes to results from previous studies on the internet being introduced into every day family homes it was found to decline family interaction. When it came to psychological well-being it found that people who used the internet more than not reported increases in loneliness. When it came to stress and internet usage the study showed an increase in stress (Kraut, R., et al. 1998).

Social media was found to have moderately high correlations with ADHD., anxiety, depression, and OCD. Addictive video gaming showed the same correlational patterns as addictive social media networking except with depression it showed lower scores (Andreassen, C., et al., 2017).

Results from interviews conducted for this study found that participants

considered the amount of time they spent on a digital device to be considered excessive. Participants also gave negative views with their outlooks on excessive screen time and felt uncertain about its impact on future generations well-being. Many participants felt that with the advancement in technology society will continue to disconnect from one another. They also felt that with continued disconnection it would continue to have negative impacts on mental health as well as discourage individuals from forming their own opinions and thought due to all the misinformation spread online.

All participants felt that they have come to rely on technology and their smart devices to get through their days. Though all participants preferred to socialize in-person rather than online, participants did say that they rely on their smart devices for a majority of how they socialize and keep in touch with friends and family.

These research findings can be used to bring awareness to the medical field, and mental health to expand on previous research that studies how excessive screen time can impact mental, physical and physiological well-being and lead to adverse development with constant excessive exposure. Since technology is only going to become more incorporated in the human experience it is important to relay the possible adverse effects of excessive screen time to prevent the adverse from happening.

Limitations

Limitations for this study were that data was collected from a small sample size of college students. In the future a larger sample size could be collected by not limiting participants to only students, so that a larger sample size could be gathered potentially giving more weight to the hypothesis that excessive screen time can lead to adversities.

Conclusion

This research will add on to existing research that has been keeping track on the negative side effects of technology. With technology getting ready to introduce its new development the “metaverse” society should be made aware of the impacts of screen time in mass amounts. With bringing more awareness from a scientific point of view the public can be well informed on the risks of engaging artificial stimulating ways, so that they can decision for themselves how to proceed with all relevant information. This research will have the most impact in universities/mental health fields as it will imply more research is needed for long-term effects of excessive screen time. My research is important in the field of psychology’s developmental field because screen time usage is everywhere. It’s in our homes, schools, cars, and in our hands everywhere we go. Technology has many benefits such as in the medical field to save lives, and engineering to explore the ocean and space; however, to the average persons, technology usage should be measured as accurately as possible to collect appropriate data on what may be harmful side effects from excessive screen time exposure.

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Association of Vaping and Cannabis Use with Dietary Habits and Mental Health Symptoms Among Youth

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Abstract

Use of cannabis and electronic vapor products (EVP, e-cigarettes) have a negative effect on adolescent's brain development. As use of these substances increased, so has depression among adolescents. This study examines whether the use of EVP and cannabis, individually or concurrently, is associated with adverse mental health symptoms and dietary behaviors among U.S. adolescents. This quantitative cross-sectional study uses the 2019 National Youth Risk Behavior Survey. The study outcomes were in dietary habits and mental health factors: adolescent suicide ideation, planning, attempt, injury, and depression symptoms. Exposure variables were current (past 30-days) single or concurrent use of electronic vapor products (EVP) and cannabis. Multivariable logistic regressions estimated adjusted odds ratios (aOR) adjusting for demographic characteristics. During the past 12 months, 19% of participants seriously considered suicide, 15.6% made a suicide plan, 7.2% attempted suicide and 1.5% suffered suicide related injuries. Concurrent users of cannabis and e-cigarettes had the highest odds of reporting all the mental health symptoms examined. They were also at highest risk for poor dietary habits—drinking more soda, less likely to consume three or more servings of vegetables a day, and less likely to consume breakfast.

Keywords: Cannabis, e-cigarette, adolescents, mental health, suicide, dietary habits

Introduction

Adolescence is a crucial time characterized by maturation of structural regions of the brain and neurochemical changes (Squeglia et al., 2009). As the brain continues to develop, substances like cannabis and e-cigarettes can impair brain development (Center for Disease Control and Prevention, 2021, September 08). E-cigarettes are devices that heat a liquid in order to produce an aerosol that can contain a variety of chemicals that the user inhales. Their use doubled between 2011 and 2012, with an increase from 3.1% to 6.8% for all students and from 4.5% to 10% for high school students (Schraufnagel, 2015). This doubling of e-cigarette use in one year highlights the rapid increase of popularity of these substances among adolescents. Studies have identified short and long-term effects e-cigarette use on brain development (Lisdahl et al., 2018). For example, the Centers for Disease Control and Prevention reported that nicotine found in e-cigarettes oppresses the brain's development by changing the way the neural synapses are formed (CDC, 2022, April 07).

Adolescent cannabis use has also seen an increase in recent years. Currently, 37% of adolescents reported ever use of cannabis in their lifetime (CDC, 2021, September 08). Use of cannabis is linked with impaired coordination, difficulty thinking, problem solving, and problem with memory and learning (CDC, 2021, September 08). Cannabis use has also been linked to long-lasting and

often permanent effects on developing brains (National Institute on Drug Abuse, n.d.). According to Hasin et al. (2015), cannabis prevalence increased from 4.1% in 2001/2002 to 9.5% from 2012/2013. Daily or near daily use of cannabis has been associated with disorientation and feelings of anxiety and paranoia (The National Academies of Sciences, 2017, January 12).

As substance use rates have increased, so has depression among adolescents (Hankin et al., 1998; Petersen et al., 1991; Twenge & NolenHoeksema, 2002). Depression is characterized by a persistent feeling of sadness and hopelessness. According to the United States Department of Health and Human Services (n.d.), people who have major depression are at a higher risk of death by suicide compared to those who are not experiencing depression. Depression is the most significant risk factor for suicide amongst adolescents. Adolescents experiencing depression have a 50% higher risk of suicide compared to those who were not depressed (Galaif et al., 2007).

Obesity and unhealthy dietary habits among youth remain a public health concern. There is a 21.2% obesity prevalence in adolescents 12-19 years of age (CDC, 2021, April 05). Baker (2001) found that marijuana users consumed 24-40% more calories than nonusers. In addition, users ate less fruit and vegetables but consumed more soda, beer, salty crackers and cheese compared to nonusers (Baker, 2001). Similarly, e-cigarette use has also

been implicated obesity-related dietary habits. For example, e-cigarette use among adolescent girls resulted in negative attitudes towards weight and eating (Naveed et al., 2021).

Given the relationship between depression, dietary habits and e-cigarette use and cannabis use independently, the aim of this study is to investigate the association of single or concurrent use of e-cigarettes and cannabis with depression and suicidal behaviors and dietary habits among US adolescents. We hypothesized that adolescents who engage in concurrent use of cannabis and e-cigarettes will have the highest risk for depression and suicidal behaviors compared to those who do not use any products or use one of the two. We also hypothesized single and concurrent users will report poorer dietary habits compared to their non-using counterparts.

Methods

Design and Sample

Data for this study was from the 2019 National Youth Risk Behavior Survey (YRBS). The YRBS was developed by the CDC to track adolescent risk behaviors. Detailed information about the YRBS methodology and the procedures used to obtain the data are available at www.cdc.gov/yrbs and have also been published elsewhere (Underwood et al., 2020). The YRBS is a school-based survey of health-risk behaviors and co-occurring behaviors that are common during adolescence. Students in grades 9-12 at U.S. public and private schools were surveyed using a three-stage cluster design to obtain a nationally representative sample of U.S. high school students. The school response rate was 75.1%; student response rate was 80.3%, and the overall response rate was 60.3%. The CDC's Institutional Review Board (IRB) approved the study protocol for conducting the YRBS. The data is publicly available and has been de-identified, therefore requiring no additional IRB approval. The 2019 YRBS included 13,677 respondents. The current research analysis excluded 1,276 students due to missing data on e-cigarette and/or marijuana use. The final analytic samples were 12,401 participants.

Measures

Current e-cigarette and cannabis use.

In order to determine current e-cigarette use, participants were asked, "During the past 30 days, on how many days did you use an electronic vapor product?". The YRBS dichotomized the variable into no current use (0 days) and current use as (≥ 1 day). To assess current cannabis use, participants were asked, "During the past 30 days, how many times did you use marijuana?". This variable was also dichotomized into no use (0 days) and current use (≥ 1 day).

Responses to current e-cigarette and cannabis use were combined to construct one variable with four mutually exclusive categories: (1) No-use: indicates participants who reported no use of e-cigarettes and cannabis in the past 30-days. (2) Exclusive e-cigarette use indicates participants who used e-cigarettes on ≥ 1 day and did not use cannabis (0 days) in the past 30-days; (3) Exclusive cannabis use: indicates participants who used cannabis ≥ 1 time and did not use EVP (0 days) in the past 30-days; and (4) Concurrent use: indicates participants who reported use of e-cigarettes on ≥ 1 day and cannabis ≥ 1 time in the past 30-days.

Mental health symptoms and suicidal ideation and behaviors in the past 12 months.

We assessed five dependent variables that measured different mental health symptoms and suicidal ideation and behaviors in the past 12 months. 1) Depression symptoms: the question "During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?" was asked to determine participant's depression symptoms; 2) Suicide ideation: participants were asked "During the past 12 months did you ever seriously consider attempting suicide?"; 3) Suicide plan: participants were asked "During the past 12 months, did you make a plan about how you would attempt suicide?". Response to all three questions were yes or no. 4) Suicide attempt: participants were asked, "During the past 12 months, how many times did you actually attempt suicide?". Response options were coded as no (i.e., 0 times) and yes (i.e., ≥ 1 time) for analytic purposes; and 5) Suicide attempt-related injury that required medical treatment: participants were asked, "If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or a nurse?". The original response options included yes, no and did not attempt suicide. For analytic purposes they were recoded as yes and no/did not attempt suicide during the past 12 months.

Dietary Habits.

Various dietary habits were assessed using a series of questions. To examine soda drinking, participants were asked, "During the past 7 days, on how many times did you drink a can, bottle, or glass of soda or pop?". Responses were dichotomized into yes, consumed soda, and no, did not consume soda in the past 7 days. To assess vegetable consumptions, students were asked a series of questions about whether they ate green salad, potatoes (not counting French fries), carrots, and other vegetables in the past 7 days. The YRBS used responses to these questions to construct a dichotomous variable to indicate whether students consumed 3 or more vegetables per day in the past 7 days or not. Similarly, participants were asked about their fruit and 100% fruit juice consumption. Responses were used to construct a dichotomous variable to indicate

whether they consumed 2 or more servings of fruits per day in the past 7 days. To examine breakfast eating habits, participants were asked, “During the past 7 days, on how many days did you eat breakfast?”. The YRBS used the response options to compute a dichotomous variable with 0=did not eat breakfast in the past 7 days and 1=consumed breakfast on one or more days in the past 7 days.

Demographic and other tobacco products use covariates.

The following demographic variables were included as covariates: 1) sex (male, female); 2) race/ethnicity (Non-Hispanic White, non-Hispanic Black, Hispanic/Latino, and Other (includes Asian, American Indian/native Hawaiian, multiracial non-Hispanic)); and 3) grade level (9th, 10th, 11th, and 12th). Other tobacco products use assessed (as covariates) included cigarette, smokeless tobacco, cigars, cigarillos, and little cigars.

Results

Descriptive statistics

About half of participants (n=12,401) were white (50.7%) and 51.2% were female as shown in Table 1. The participants were on average evenly distributed across the different grade levels. Among study participants, 31.8% reported using EVP only, 21.5% reported using cannabis only, and 16.4% reported using both EVP and cannabis in the past 30-days.

During the past 12 months before the survey was administered, overall, more than a third of participants (36.6%) reported experiencing depression symptoms for more than 2 weeks. 19% of participants seriously considered suicide, 15.6% reported making a plan, 7.2% attempted suicide, and 1.5% suffered an injury from their suicide attempt. More than half of students (58%) reported drinking soda, 11.4% consumed three or more servings of vegetables daily, 25.9% consumed two or more servings of fruits daily, and 27.8% ate breakfast daily in the past week.

As shown in Table 2, participants who used EVP or cannabis exclusively or concurrently were significantly different in their soda consumption ($p<0.001$), vegetable consumption ($p=0.03$), and mental health symptoms ($p<0.01$). Concurrent users reported highest prevalence of all the mental health symptoms examined ($p<0.01$) and reported highest prevalence of soda consumption. Only 11.8% of exclusive EVP users reported consuming three or more servings of vegetables daily and they also reported the lowest daily fruit consumption.

	No. (%)
Total participants	12401
Sex	
Female	6344 (51.2)
Male	6002 (48.4)
Race/ethnicity	
White	6286 (50.7)
Hispanic	2734 (22)
Black	1761 (14.2)
Asian	577 (4.7)
Am. Indian/Native Hawaiian	173 (1.4)
Multiracial non-Hispanic	593 (4.8)
Grade	
9th	3344 (27)
10th	3414 (27.5)
11th	3022 (24.4)
12th	2621 (21.1)
Past 30-day EVP use	
No	8454 (68.2)
Yes	3947 (31.8)
Past 30-day cannabis use	
No	9734 (68.2)
Yes	2667 (21.5)
Past 30-day EVP and cannabis use	
No	10362 (83.6)
Yes	2039 (16.4)
Diet	
Drank soda	7191 (58)
3 or more vegetables /day	1415 (11.4)
2 or more fruits /day	3206 (25.9)
Ate breakfast daily	3453 (27.8)
Mental health	
Depression symptoms	4486 (36.6)
Considered suicide	2358 (19.0)
Planned suicide	1940 (15.6)
Attempted suicide	896 (7.2)
Suicide attempt with injury	189 (1.5)

Analytic statistics

Dietary habits.

Compared to non-users, exclusive users of EVP and concurrent users of cannabis and EVP were more likely to drink soda (adjusted odds ratio (aOR)= 1.75; 95% confidence interval (CI)= 1.45-3.14 and aOR= 1.80; 95%CI= 1.58-2.04 respectively). In contrast, concurrent users were at reduced odds of eating three or more servings of vegetables per day (aOR=0.65, 95% CI=0.56-0.76) compared to non-users. Compared to non-users, cannabis users, EVP users, and concurrent users, were at reduced odds of eating breakfast (aOR= 0.44, 95%CI= 0.32-0.60; aOR=0.62, 95%CI= 0.53-0.72, aOR: 0.45, 95%CI= 0.38-0.52 respectively). All analyses adjust for grade, sex, race/ethnicity, and other tobacco product use (Table 3).

Table 1. Descriptive characteristics of study sample

Table 2. Descriptive Characteristics of the Analytic Sample by Current E-Cigarette and Cannabis Use Patterns

	Exclusive EVP N (%)	Exclusive Cannabis N (%)	Concurrent use N (%)	Test statistic†
Dietary habits				
Drank soda	1251 (75.5)	363 (70.3)	1263 (76)	F _{adj} =29.16, p<0.001
3 or more veg/day	197 (11.8)	74 (13.3)	257 (15.7)	F _{adj} =3.43, p=0.03
2 or more fruits/day	450 (25.5)	175 (30.3)	543 (29.5)	F _{adj} =29.16, p=0.32
Mental health				
Felt sad or hopeless	827 (43.9)	279 (45.3)	1,043 (51.8)	F _{adj} =70.13, p<0.01
Considered suicide	425 (22.5)	158 (25.4)	635 (31.6)	F _{adj} =69.20, p<0.01
Planned suicide attempt	348 (18.5)	128 (20.6)	527 (26.3)	F _{adj} =48.10, p<0.01
Attempted suicide	155 (10.3)	64 (13.0)	285 (17.3)	F _{adj} =37.65, p<0.01
Suicide attempt with injury	36 (2.7)	19 (4.7)	74 (5.5)	F _{adj} =19.87, p<0.01

†Multivariate test of differences among use categories F_{adj}= Adjusted F statistic

Table 3. Logistic regression analysis to test association of use pattern with dietary habits

	aOR (95%CI) Past 7-day dietary habits			
	Drink soda	3 or more Veg/day	2 or more fruits /day	Ate breakfast
Excl. Cannabis use	1.20 (0.96 – 1.51)	1.34 (0.93 – 1.93)	0.98 (0.77 – 1.26)	0.44 (0.32 – 0.60)
Excl. EVP use	1.75 (1.42 – 2.14)	0.98 (0.40 – 0.55)	0.95 (0.78 – 1.16)	0.62 (0.53 – 0.72)
Concurrent use	1.80 (1.58 – 2.04)	0.65 (0.56 – 0.76)	1.12 (0.97 – 1.29)	0.45 (0.38 – 0.52)

Adjusts for grade, sex, and race/ethnicity, other tobacco product use Reference group = non-use Excl.=Exclusive
Significant odds in bold, p<0.05

Mental health.

Results from the logistic regression analysis found statistically significant relationships between exclusive and concurrent use of cannabis and EVP and experiencing mental health symptoms in the past year. Exclusive cannabis users were at increased odds of reporting depression symptoms (aOR=2.10, 95%CI= 1.62-2.72), considering suicide (aOR=2.51, 95%CI= 1.88-3.36), planning suicide (aOR=2.55, 95%CI= 1.92-3.40), attempting suicide (aOR= 3.27, 95%CI= 1.98-5.40) and sustaining an injury following a suicide attempt (aOR=5.46, 95%CI= 2.43-12.27). Exclusive e-cigarette users were also at increased odds for experiencing depression symptoms (aOR=1.97, 95%CI= 1.65-2.35),

considering suicide (aOR=1.79, 95%CI; 1.51-2.11), planning suicide (aOR=1.72, 95%CI= 1.41-2.11), attempting suicide (aOR= 1.96, 95%CI= 1.45-2.67) and sustaining an injury following a suicide attempt (aOR= 2.15, 95%CI= 1.10-4.17). Similar patterns were observed among concurrent users of cannabis and e-cigarettes who were also at higher odds of experiencing depression symptoms (aOR=2.70, 95%CI= 2.30-3.16), considering suicide (aOR=3.15, 95%CI= 2.60-3.82), planning suicide (aOR=2.91, 95%CI= 2.35-3.61), attempting suicide (aOR= 3.91, 95%CI= 2.93-5.22) and sustaining an injury following a suicide attempt (aOR=6.29, 95%CI= 3.78-10.48).

Table 4. Logistic regression analysis to test association of use pattern with mental health symptoms

	aOR (95%CI)* for past 12-month mental health indicators				
	Depression symptoms	Considered suicide	Planned suicide	Attempted suicide	Suicide injury
Excl. Cannabis	2.10 (1.62 – 2.72)	2.51 (1.88 – 3.36)	2.55 (1.92 – 3.40)	3.27 (1.98 – 5.40)	5.46 (2.43 – 12.27)
Excl. EVP use	1.97 (1.65 – 2.35)	1.79 (1.51 – 2.11)	1.72 (1.41 – 2.11)	1.96 (1.45 – 2.67)	2.15 (1.10 – 4.17)
Concurrent use	2.70 (2.30 – 3.16)	3.15 (2.60 – 3.82)	2.91 (2.35 – 3.61)	3.91 (2.93 – 5.22)	6.29 (3.78 – 10.48)

Adjusts for grade, sex, and race/ethnicity, other tobacco product use Reference group=non-use Excl.=Exclusive
Significant odds in bold

Discussion

This study examined mental health symptoms and dietary habits among exclusive cannabis users, exclusive electronic vapor product users, and concurrent users of both electronic vapor product and cannabis. This comparison is an important addition to the literature because evidence shows adolescents rarely use one product (Gilbert et al., 2021); and with the emergence of EVPs that offer the possibility of product co-use/co-administration, there is a need to understand the impact of product use on other important health behaviors and mental health symptoms pronounced during adolescence. This study's main findings were that: 1) exclusive cannabis users were less likely to eat breakfast and more likely to report depression, consider suicide, make a suicide plan, attempt suicide, and sustain suicide injury following a suicide attempt; 2) exclusive EVP users were less likely to eat breakfast, more likely to drink soda, and also at increased risk to report depression, consider suicide, make a suicide plan, attempt suicide, and sustain suicide injury following a suicide attempt; and 3) concurrent users were less likely to eat breakfast and 3 or more servings of vegetables daily, more likely to drink soda, and also at highest risk to report depression, consider suicide, make a suicide plan, attempt suicide, and sustain suicide injury following a suicide attempt. These results highlight the ordered pattern poly-substance use risk with exclusive users at lower risk than concurrent users. Mental health is grouped into internalizing (e.g., depression) and externalizing (e.g., suicide ideation and attempt) problems (Ara, 2016; Brown & Prinstein, 2011). According to Duan et al. (2022), e-cigarette and cannabis use among U.S. adolescents has been linked to internalizing and externalizing mental health problems. Findings from this study is consistent with previous findings (Pedersen et al., 2018; Griffith-Lendering et al., 2011) and extends current knowledge by demonstrating the association of concurrent use of these products with much higher odds of externalizing mental health problems which have more severe and fatal consequences.

In patterns similar to findings on impact of EVP and cannabis use on mental health symptoms, study findings show that concurrent use of EVP and cannabis is associated with poorer dietary habits when compared to non-users or exclusive users. These poor dietary habits included more soda consumption, reduced vegetable consumption, and skipping breakfast. Previous studies have linked EVP and cannabis use with dietary habits (Jacobs et al., 2021) and overall risk behaviors (Dunbar et al., 2017). Consistent with these previous studies, this study findings suggest that concurrent users represent a "high risk" group who are prone to engaging in more unhealthy habits compared to their non-using or single-using peers (Dunbar et al., 2017). These findings highlight the need for targeted and comprehensive

interventions and programs to educate adolescents on the dangers and risks of poly-product use and to promote better dietary habits. By promoting healthier dietary habits, chronic conditions like diabetes and obesity, which is prevalent among adolescents, can be prevented (CDC, 2021, April 05).

Despite this study's important contribution to advancing knowledge on the impact of exclusive and concurrent EVP and cannabis use on mental health and dietary habits of U.S. adolescents, it is not without some limitations. The causal nature of EVP and/or cannabis use on depression symptoms, suicide ideation and behaviors, and dietary habits could not be determined due to the data being examined cross-sectionally. In addition, the YRBS did not use a diagnostic interview to assess the mental health symptoms, instead it was measured with a self-reported questionnaire. Another limitation is that the YRBS only included data from U.S. students who attended public or private schools which precludes the results from being generalizable to adolescents who are not enrolled in school who typically report higher rates of substance use and mental health symptoms. Lastly, the 2019 YRBS did not ask questions pertaining to the student's socioeconomic status. Future investigations are needed to identify causal effects of these behaviors as well as other possible contributing factors such as socioeconomic status and social and emotional stressors. Overall, this study highlights that concurrent users of EVP and cannabis are a higher risk group for health risking habits and mental health problems compared to non-users and exclusive product users. Interventions and programs that focus on increasing awareness on poor mental health outcomes compounding health risk behaviors associated with concurrent and exclusive use of EVP and cannabis should be implemented.

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The Relationship Between First-Generation Status and Academic Success

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Abstract

First-generation college students may face more disadvantages than their non-first-generation counterparts. According to Jenkins et al. (2013), first-generation college students reported significantly stronger PTSD symptoms and significantly less life satisfaction than non-first-generation students. In addition, previous research reports that first-generation students have lower GPAs than their non-first-generation counterparts (Eveland, 2020). Hence, the purpose of this study is to examine the differences between first-generation students and non-first-generation students regarding their academic achievement and the obstacles they encounter attending CSU Stanislaus. The survey was distributed through Qualtrics available to CSU Stanislaus students on a social media platform. Using a modified version of the Student Experience in the Research University Survey, students reported whether the obstacles in the survey had impacted their academic success. We used a non-experimental design to assess the responses given by CSU Stanislaus students and found that more than half of students reported family responsibilities, concentration, poor study behavior, and feeling depressed, stressed, or upset as obstacles to their academic success. Additionally, we found no strong association between generation status and GPA. Thus, future research should focus on and ask whether COVID-19 is an equalizing factor between these groups and whether these patterns exist in other universities as well.

Keywords: First-generation, non-first-generation, SERU, academic success, obstacles

Introduction

Attending a post-secondary institution is an important part of a person's life. Higher education not only guides people toward future careers but is also a key factor in determining financial independence, future success, life satisfaction, and comfort (House et al., 2020). Not every student, such as first-generation students, have equal opportunities nor the cultural capital to succeed academically (Pederson, 2020). Therefore, first-generation students may be impacted differently by obstacles than non-first-generation students.

When speaking about the mental health of students, we must address the differences we have seen between first-generation students and non-first-generation students. First-generation students have been found to report higher instances of feeling depressed, stressed, or upset compared to their non-first-generation counterparts (Stebbleton & Soria, 2012). They are not as satisfied with life and report significantly stronger PTSD symptoms (Jenkins et al., 2013). Moreover, first-generation students may not perform as well academically compared to non-first-generation students.

When it comes to academic success, several obstacles have been found to impact first-generation students more than non-first-generation students. First-generation students have been found to have significantly lower grade point averages compared to non-first-generation students (Eveland, 2020). They are also significantly less likely to apply to graduate school, even when controlling for factors such as

race, cumulative GPA, gender, and family income (Carlton, 2015). Additionally, they tend to report lower course grades, have less time and energy for academic work, and were found to have less personal contact with faculty members (Katreovich & Aruguete, 2017). Furthermore, financial issues may also play a role in the academic success of students as well.

First-generation students report significantly lower family incomes and rely on grants or loans to pay for their tuition compared to non-first-generation students (Mehta et al., 2011). McFadden (2016, as cited in House et al., 2020) notes that first-generation students often tend to be older, work full time, and live off-campus. They also have higher levels of financial stress and are working more hours than non-first-generation students (House et al., 2020). In addition, Britt et al. (2016, as cited in House et al., 2020) state that financial issues have been linked to decreased academic performances as well as a stronger likelihood of dropping out. Therefore, if first-generation students are reporting more obstacles to their academic success, it is important that we determine whether there is a strong association between these obstacles and generation status.

For those reasons, I chose to examine several obstacles that may impact college students to understand how first-generation and non-first-generation students are affected by obstacles such as mental health, family responsibilities, study behaviors, financial issues, and concentration. In addition, I chose to examine the Gamma value in

order to determine whether there is an association between the obstacles and generation status. However, these factors may just depend on other factors such as culture and the institutions student are enrolled in.

The experiences first-generation students face may vary depending on the institution and uncontrollable factors, but many first-generation students have been negatively impacted by the obstacles they face. Hence, it's important to understand how several obstacles impact both first-generation students and non-first-generation students to ensure that both of their needs are met. As for my hypothesis, students who are first-generation will report more instances of feeling depressed, stressed, or upset, family responsibilities, and financial issues as obstacles to their academic success compared to non-first-generation students. How does student status play a role in the difference in impact felt by first-generation students and non-first-generation students? Is there a strong relationship between generation status and GPA? Is there a significant difference between first-generation students and non-first-generation students in relation to the obstacles they encounter?

Methods

The study consisted of 64 students from CSU Stanislaus, 46 first-generation students and 17 non-first-generation students. Participants' ages ranged from 18 to over 30 years old and consisted of upperclassmen and graduate students, most of them being junior students. Most students identified as either White (Non-Hispanic or Latinx) and Hispanic and Latinx. Most participants were also women, transfer students, and half of them did not have siblings who had graduated from college or university. To gather participants, we distributed the survey through Qualtrics with a brief description of the study over a social media app that contained thousands of students and alumni from CSU Stanislaus.

The study consisted of an online survey with a demographic section and an altered version of the SERU. The survey consisted of several close-ended questions regarding self-reported learning abilities, financial wellness, sense of belonging, and grade point average adapted from the *Student Experience in Research University Survey*. Those who wish details about the survey questions may find a PDF of the survey at the SERU website located at the University of Minnesota (see *Student Experience in the Research University*, 2018). The questions were based on a 7-point likert scale as follows: "Strongly Disagree" = 1, "Disagree" = 2, "Somewhat Disagree" = 3, "Neither Agree nor Disagree" = 4, "Somewhat Agree" = 5, "Agree" = 6, and "Strongly Agree" = 7

Upon examining the variables, we decided to group the 7-point Likert scale into 3 values to make

it easier to understand: Disagree, Neutral, and Agree. As for GPA, we grouped the values into six ranges to get more specific information about the lower, middle, and higher ranges of GPA in their relation to generation status and other obstacles. Since the sample size was less than 100, we were not able to run Chi-Square Tests to determine generalizability. However, we did run Crosstabulations to look at the differences in percentages between the two groups and examined the Gamma, a type of correlation that shows the relationship between two variables, for each obstacle.

Results

Out of the 64 students that responded to the survey, 46 first-generation students and 17 non-first-generation students, 75% of participants agreed that feeling depressed, stressed, or upset has been an obstacle to their academic success and 68.8% agreed that family responsibilities have impacted their academic success. A little more than half of the participants, at 50.8%, indicated that financial issues were an obstacle to their academic success. Furthermore, when looking at these obstacles, we were able to determine how both groups were impacted by the obstacle and whether even an association between the obstacle and generation status.

Depressed, Stressed, or Upset

Upon examining the Depressed, Stressed, or Upset Crosstabulation, Table 1 shows that 73.9% of first-generation students reported feeling depressed, stressed, or upset as an obstacle to their academic success. Surprisingly, 82.4% of non-first-generation students reported this way, indicating that more non-first-generation students reported feeling depressed, stressed, or upset as an obstacle to their academic success compared to first-generation students. When examining the gamma value, a value of .306 also shows a strong association between generation status and reporting feeling depressed, stressed, or upset as an obstacle to academic success.

Table 1. Depressed, Stressed, or Upset

		What is your status as a student?			
			First-generation	Non-first generation	Total
Feeling Depressed, Stressed, or Upset	Disagree	% within Student Status*	17.4%	0.0%	12.7%
		Count	8	0	8
	Neutral	% within Student Status*	8.7%	17.6%	11.1%
		Count	4	3	7
	Agree	% within Student Status*	73.9%	82.4%	76.2%
		Count	34	14	48
Total	% within Student Status*	100.0%	100.0%	100.0%	
	Count	46	17	63	

Table 1. Feeling Depressed, Stressed, or Upset. What is your status as a student? How have the following obstacles impacted your academic success: Feeling depressed, stressed, or upset. Overall, 73.9% of first-generation students agree feeling depressed, stressed, or upset is an obstacle to their academic success compared to 82.4% of non-first-generation students.

Family Responsibilities

As for family responsibilities, Table 2 shows 76.1% of first-generation students reported family responsibilities as an obstacle to their academic success compared to 52.9% of non-first-generation students. In this case, a larger percentage of first-generation students felt that their academic success was being impacted by their family responsibilities. Overall, more than half of the participants, 69.8%, agreed that they saw their family responsibilities as an obstacle to their academic success. Additionally, the gamma value, $-.436$, shows that there is a very strong relationship between generation status and family responsibilities.

Table 2. Family Responsibilities

		What is your status as a student?			
		First-generation	Non-first-generation	Total	
Family Responsibilities	Disagree	Count	9	7	16
		% within Student Status	19.6%	41.2%	25.4%
Neutral	Count	2	1	3	
		% within Student Status	4.3%	5.9%	4.8%
Agree	Count	35	9	44	
		% within Student Status	76.1%	52.9%	69.8%
Total	Count	46	17	63	
		% within Student Status	100.0%	100.0%	100.0%

Table 2. Family Responsibilities. What is your status as a student? How have the following obstacles impacted your academic success: Family Responsibilities. Overall, 76.1% of first-generation students agree family responsibilities were an obstacle to their academic success compared to 52.9% of non-first-generation students.

Financial Issues

When comparing financial issues between first-generation students and non-first-generation students, we found that 54.3% of first-generation students and 41.2% of non-first-generation students reported financial issues as obstacles to their academic success. Therefore, a larger percentage of first-generation students reported financial issues as an obstacle to their academic success. However, when looking at the gamma value of $-.290$, we found a moderate association between financial issues and status.

GPA

When looking at the overall GPA of participants that responded to the survey, we found that most participants were in the middle range of GPAs. Surprisingly, this middle range of participants were the ones that reported more instances of feeling depressed, stress, or upset compared to students in the lower and higher ranges of GPAs. When looking at the gamma value of $.003$, we found a very weak relationship between GPA and generation status.

Discussion

Regardless of status, more than half of participants reported being depressed stressed, or upset as an obstacle to their academic success. In addition, more than half of the participants were

impacted by family responsibilities, financial issues, and feeling depressed, stressed, or upset. However, my hypothesis was not supported because a larger percentage of non-first-generation students reported feeling more depressed, stressed, or upset as an obstacle to their academic success compared to first-generation students. There is an assumption that first-generation students do not perform as well academically than non-first-generation students, but my data found otherwise. We did not find a strong relationship between generation status and GPA, which makes sense considering that first-generation students often look to their family as a source of support, even though research articles make it look like first-generation students cannot do as well as non-first-generation students (LeBouef & Dworkin, 2021). However, we see that first-generation students can perform just as well as non-first-generation students since we did not see a significant difference between the two groups after running a Chi-Square Test.

However, there were some limitations to this study. One limitation that may have influenced my data was the size and uneven distribution of the sample. Only 64 students responded to the survey and out of those participants, 46 were first-generation students and 17 were non-first-generation students. Since the sample size was small, we were not able to properly run a Chi-Square Test because the expected cell count for all the crosstabulations fell below five, meaning that the results would not have been accurate. Therefore, my data is not generalizable to the population. In addition, this study only looked at students from CSU Stan and was not accessible to students that were not part of the group on the social media app that was used to distribute the survey.

Understanding what obstacles impact first-generation students and their academic success may help post-secondary institutions create programs that will help these students reduce the existing achievement gap between them and their non-first-generation counterparts. It is important to understand how these obstacles impact academic success and to bring awareness to social inequalities experienced by diverse students. My research will enhance the existing body of knowledge in hope that it brings awareness to the experiences of first-generation college students to ensure they receive the help they need. Although my data did not support my hypothesis, future research must examine whether these patterns will continue and whether COVID-19 was an equalizing factor between the two groups. Future research must focus on analyzing these obstacles, but with a larger sample size to determine generalizability and to perhaps provide more definitive results about these relationships.

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Analyzing Single, Dual, and Poly Use of Electronic Vapor Products, Alcohol, and Tobacco by Ethnic Minority Status

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Abstract

Substance use at an early age has detrimental effects on adolescents' cognitive and physical development. Ethnic minority adolescents are disproportionately affected by substance use and use outcomes. The purpose of this study is to examine the different patterns (single, dual, or poly product use) of electronic vapor products (EVP), alcohol, and tobacco use among ethnic minority adolescents; and to also examine the patterns by sex. Data from the 2017 YRBS, a nationally representative study of U.S. adolescents to quantify odds of use patterns. Findings suggest that non-ethnic minority youth are more likely to report polysubstance use compared to ethnic minority youth. Male ethnic minority youth were also at the highest risk for substance use than females.

Keywords: Alcohol, tobacco, e-cigarette, adolescents, ethnicity.

Introduction

Alcohol, electronic vapor products (EVP), and tobacco are the leading licit substances most used by adolescents (Johnston et al., 2021). National surveys reported that in 2020, 20% of 10th and 34% of 12th graders reported drinking an alcoholic beverage in the 30-day period prior to the survey (Johnston et al., 2021). Furthermore, in 2020 nearly two out of every three students (61.5%) had consumed alcohol by the end of high school (Johnston et al., 2021). Substance use at an early age is detrimental because it affects the physical and mental development of adolescents. Use of alcohol and tobacco is also linked to development of later health problems such as heart disease, high blood pressure and sleeping disorders (Chassin et al., 2009; Gray & Squeglia, 2018; Ren & Lotfipour, 2019). The earlier adolescents begin to use substances, the greater the risk for use escalation, addiction, and developing substance use disorders later in life (Chassin et al., 2009; Gray & Squeglia, 2018; Ren & Lotfipour, 2019).

Similarly, about 53.3% of high school students reported having ever tried a tobacco product (i.e., electronic cigarettes, cigars, smokeless tobacco, hookahs, and pipe tobacco) while 31.2% reported current (in the past 30-days) use of tobacco products in 2019 (Wang et al., 2019). While there has been a decrease in the use of tobacco among adolescents there has been an increase in e-cigarette use among adolescents (Demissie et al., 2017; Johnston et al., 2021). National surveys report that e-cigarettes were the most commonly used tobacco product by 27.5% of high school students (Wang et al., 2019).

Evidence shows that adolescents who drink alcohol are more likely to encounter school

problems, social problems, physical and sexual violence, and misuse other substances, all of which could lead to adverse long-term outcomes (Abuse et al., 2016; Esser et al., 2019; Jones et al., 2020; Miller et al., 2007). Similarly, smoking cigarettes during adolescence causes significant health problems such as an increase in the number and severity of respiratory illnesses, decreased physical fitness and potential effects on lung growth and function (Elders, 1997). Moreover, individuals who start smoking at an early age are more likely to develop a severe addiction to nicotine than those who start at a later age (Farrelly et al., 2000). While evidence on long term effects of e-cigarette use is not very well established, current evidence links use of e-cigarettes to impaired brain and lung development due to nicotine, aerosol and other substances in these products (Jones & Salzman, 2020; Marynak et al., 2017). Moreover, a study that looked at adolescence and the use of e-cigarettes found that those that use e-cigarettes were at increased risks of physical fighting, attempted suicide, and alcohol/marijuana use when compared to adolescents that are non-users (Demissie et al., 2017).

Multiple studies have reported that alcohol use is more common among White male adolescents (Jackson et al., 2002; Keyes et al., 2015). White male adolescents were also more likely to report tobacco use than their non-White counterparts (Keyes et al., 2015). Furthermore, the use of EVP was higher among male adolescents than female adolescents and an association between ethnic minority status and vaping was found indicating that racial/ethnic minority adolescents had lower odds of e-cigarette poly-use than their White peers (Gilbert et al., 2021).

Engaging in polysubstance use as an adolescent is detrimental to their health, multiple studies have found that adolescents that are polysubstance users for long periods of time have increased vulnerability to a variety of negative mental and physical health outcomes such as participating in problematic drug use, relapse from drug treatment, and serious mental illness during adulthood (Barnett et al., 2007; Ciesla, 2010; Trenz et al., 2012). Furthermore, when looking at ethnic minorities they are disproportionately affected by substance use. This is because ethnic minority groups are exposed to systems and institutions of disparity and discrimination such as economic, educational, and environmental inequalities at higher levels than other ethnic groups. This suggests that adolescents that are ethnic minorities are at more risk of substance use and becoming polysubstance users.

Concurrent alcohol and tobacco and EVP use is common among youth; however, limited studies examine the relationship among EVP, alcohol, and tobacco, particularly among ethnic minority students and if there are any sex differences. We hypothesized that there will be an association between ethnic minority status and past 30-day use of single and/or concurrent EVPs, alcohol, and tobacco use. We also hypothesized that this association will be modified by sex. Specifically, we hypothesize that females who are ethnic minorities will have greater odds of being past 30-day dual substance users compared to females who are not ethnic minorities. However, in contrast, ethnic minority males would not differ in the odds for single/concurrent use substances compared to males who do not identify as ethnic minority.

Methods

Participants

The study was a secondary analysis of data from the Centers for Disease Control and Prevention (CDC) 2019 Youth Risk and Behavior Survey (YRBS). The YRBS is a national school-based survey that seeks to understand adolescent health behaviors ranging from drug use to physical activity. The YRBS reports mainly on high school students (grades 9–12), but there is also a middle school survey that is done on a local/school district level and not every state participates. In this analysis, we included data from students in grades 9–12. Students are surveyed using a three-stage cluster design, so that data obtained is a nationally representative sample of U.S. high school students. The school response rate was 75.1%; student response rate was 80.3%, and the overall response rate was 60.3%. Information detailing the YRBS methodology and sampling procedure are available at www.cdc.gov/yrbs and in other literature (Brener et al., 2013). The CDC's Institutional

Review Board (IRB) approved the study protocol for conducting the YRBS, and the publicly available data has been de-identified, hence, no additional IRB approval was required.

The total number of respondents in the 2019 YRBS was 13, 677. This cross-sectional sample included those that had complete data for race/ethnicity, e-cigarette use, and tobacco use, and alcohol use (n=13,479).

Measures

Variables of interest used for this analysis were past 30-day use of e-cigarettes, cigarettes, and alcohol. We also wanted to see if there were any differences by ethnicity, so the race/ethnicity variable was also included as a variable of interest.

Electronic Vapor Product Use Variable

Past 30-day use of electronic vapor products (EVP) was assessed using the binary variable that was recoded from the original variable “During the past 30 days, on how many days did you use an electronic vapor product”. Responses were coded as “0” no use and “1” current use.

Tobacco Use Variable

Past 30-day use of cigarettes was assessed using the binary variable, which was recoded from the original variable “During the past 30 days, on how many days did you smoke cigarettes”. Responses were coded as “0” no use and “1” current use.

Alcohol Use Variable

Past 30-day alcohol use was assessed for this study, and the binary variable was recoded from the original variable “During the past 30 days, on how many days did you have at least one drink of alcohol”. Responses were coded as “0” no use and “1” current use.

Dual Use Variables

Dual use variables were created to examine the association of dual product use in the past 30 days and other variables. Cigarettes with e-cigarettes, e-cigarettes with alcohol, and cigarettes and alcohol use were all categorized into three separate dual use variables.

Poly Use Variable

Concurrent use of alcohol, cigarettes, and e-cigarettes in the past 30 days was transformed into a poly use variable.

Race/Ethnicity Variable

The race/ethnicity variable was recoded into an ethnic minority status variable, which means that persons who identified with a racial/ethnic background such as Hispanic, Black/African American, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander, and Asian were coded as “ethnic minority”, while “White” was classified as “non-ethnic minority”.

Demographic Variables

The following demographic variables were used in this analysis: 1) sex (male/female), 2) Grade level (9th, 10th, 11th, and 12th).

Statistical Analysis

Data were weighted on sex, race/ethnicity, and grade level to allow for survey design and differences in school and student nonresponse and oversampling of ethnic minority students. Bivariate associations were assessed using chi-squared analysis. Logistic regression analyses were controlled for sex and grade. Results were considered significant when the 95% Confidence Interval (CI) did not include “1”. Adjusted odds ratio was calculated using the complex samples logistic regression procedure (CSLOGISTIC) in IBM SPSS Statistics 28.

Results

Table 1 (Appendix 1) shows the participants' demographic characteristics. Overall half of the participants were females (49.4%). Of the female sample, 50.1% self-identified as ethnic minority and 49.1% were non-ethnic minority. 49.9% of males were ethnic minority and 50.9% were non-ethnic minority. Overall, participants were evenly across grade levels: 9th grade (26.6%), 10th grade (25.5%), 11th grade (24.2%), and 12th grade (23.5%).

Table 2 (Appendix 2) shows the results from the regression analysis examining the association of use of different product patterns and ethnic minority status. Ethnic minority youth were at reduced odds for single use of EVP (adjusted odds ratio (aOR)=0.6, 95% Confidence Interval (95% CI)=0.5, 0.7) and alcohol (aOR=0.6, 95% CI=0.5, 0.7). Ethnic minority youth were also at reduced odds for dual use of EVP and alcohol (aOR=0.5, 95% CI=0.4, 0.6) and polysubstance (conventional tobacco, EVP, and alcohol) (aOR=0.6, 95% CI=0.4, 0.8).

There were significant sex differences in single use of conventional tobacco ($p=0.005$), single use of alcohol ($p<0.001$), dual use of tobacco and EVP ($p=0.006$), dual use of EVP and alcohol ($p=0.002$), and dual use of tobacco and alcohol ($p=0.017$) (see Table 3, Appendix 3). There were no statistically significant differences in single use EVP and polysubstance use (tobacco, alcohol, and EVP) (See Appendix 4).

Overall, ethnic minorities reported less single and dual use of products examined compared to non-ethnic minorities. Figure 1 shows product prevalence among non-ethnic minority students. Non-ethnic minority youth reported higher single use of EVP (38.3%), single use of alcohol (34.2%), and dual use of EVP and alcohol (25.4%). The product most commonly used by ethnic minority youth was EVP (26.9%), followed by single use of alcohol (23.9%). For polysubstance use, nonethnic minority students reported higher use (6.3%) than non-ethnic minority students (3.9%).

The aim of this research was to examine the odds of single, dual, or poly-product use of electronic vapor products (EVP), alcohol and tobacco by ethnicity and sex. Findings showed that adolescents

that were non-ethnic minority youth are more likely to report polysubstance use than non-ethnic minority youth. Furthermore, non-ethnic minority youth reported higher tobacco, EVP, alcohol, dual and polysubstance use than their ethnic minority counterparts. These findings are similar to previous research which consistently show how White youth are more likely to report substance use than their ethnic minority counterparts (Gilbert et al., 2021; Keyes et al., 2015). However, other research suggests that socioeconomic status can play a role in drug use among adolescents (Lee et al., 2018; Redonnet et al., 2012). This suggests that future research should focus on how socioeconomic status can affect the prevalence of substance use among youth and whether race/ethnicity is a factor when looking at socioeconomic status.

When comparing substance use of youth by sex there were significant differences. Male and female ethnic minorities differ in product use patterns. Male youth were more likely to report substance use than female youth. Previous research explains when comparing male and female youth, male adolescents were more likely to engage in risky behaviors such as drug use (Hammerslag & Gulley, 2016). Among ethnic minorities, more females reported single use of alcohol, dual use of EVP and alcohol, and dual use tobacco and alcohol. Given that alcohol is implicated in many cases of violence against women, findings from this study indicate that ethnic minority females are at increased risk due to their likelihood to consume more alcohol. More ethnic minority males reported single use of conventional tobacco and dual use of conventional tobacco and EVP compared to females. This finding is similar to previous literature that has found that males were more likely to use conventional tobacco products. This finding highlights the use patterns common to ethnic minority youth and extends the literature by presenting use patterns among sexes. This information is helpful for designing tailored intervention to target substances these youth are at risk for.

Limitations and Conclusion

The findings from this study should be interpreted in light of some limitations. First, this was a cross-sectional study and therefore causality cannot be established. Furthermore, the YRBS data does not assess contextual factors such as socioeconomic status. Despite these limitations, this study found that ethnic minority youth were less likely to report polysubstance use (EVP, alcohol, conventional tobacco) compared to non-ethnic minority youth. Intervention designs and policies that highlight the need to understand poly-product use patterns should be implemented.

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Appendix 1

Table 1. Participant demographic characteristics			
Demographic Variable	Overall	Ethnic Minority	Non-Ethnic Minority
		%* (n)	%* (n)
Total Participants	13,479	48.8% (6470)	51.2% (6784)
Sex			
Female	49.4% (6676)	50.1% (3229)	49.1% (3316)
Male	50.6% (6847)	49.9% (3215)	50.9% (3444)
Grade			
9th	26.6% (3614)	27.2% (1753)	25.6% (1736)
10th	25.5% (3460)	25.8% (1668)	25.3% (1715)
11th	24.2% (3291)	24.0% (1549)	24.5% (1663)
12th	23.5% (3197)	22.8% (1471)	24.5% (1657)

Appendix 2

Table 2. Results from multiple logistic regression analyses to examine odds of different product use patterns for ethnic minority students compared to non-ethnic minority students	
Product Use Pattern	aOR (95% CI)
Single Use, Tobacco	0.8 (0.6, 1.1)
Single Use, EVP	0.6 (0.5, 0.7)
Single Use, Alcohol	0.6 (0.5, 0.7)
Dual Use, Conv. Tobacco & EVP	0.8 (0.5, 1.1)
Dual Use, Conv. Tobacco & Alcohol	0.7 (0.5, 1.0)
Dual Use, EVP & Alcohol	0.5 (0.4, 0.6)
Poly Substance Use (Conv. Tob., EVP, Alcohol)	0.6 (0.4, 0.8)
Note: Models adjust for age, sex, and grade level. Bolded values indicate significant odds (95% CI does not include 1)	

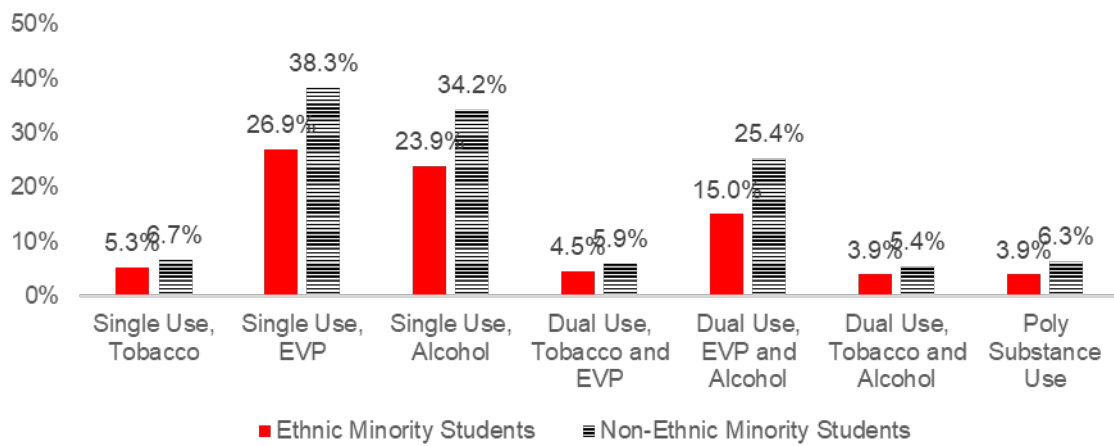
Appendix 3

	Male N, % (95% CI)	Female N, % (95% CI)	p-value
Single Use, Conv. Tobacco	203, 6.7% (4.7, 9.5)	118, 3.8% (3.0, 4.9)	0.005
Single Use, EVP	775, 26.2% (23.1, 29.6)	824, 27.6% (24.4, 31.0)	0.493
Single Use, Alcohol	565, 19.8% (17.6, 22.3)	825, 27.6% (25.1, 30.3)	<0.001
Dual Use, Tobacco & EVP	158, 5.6% (4.0, 7.9)	96, 3.4% (2.6, 4.4)	0.006
Dual Use, EVP and Alcohol	343, 12.9% (11.0, 15.0)	476, 17.1% (14.8, 19.5)	0.002
Dual Use, Tobacco and Alcohol	84, 4.8% (3.3, 7.3)	131, 3.0% (2.2, 3.9)	0.017
Poly Substance Use	106, 4.6% (3.2, 6.6)	72, 3.1% (2.3, 4.2)	0.072

Note: **Bold font indicates statistically significant differences (p<0.05) between male and female ethnic minority youth**

Appendix 4

Product use by ethnic minority and non-ethnic minority youth, 2019



The Villainization of Undocumented Latinx Immigrants

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Abstract

Today, the topic of immigration reform has sparked a lot of interest due to shifting policies on behalf of various representatives and their political outlooks. Therefore, I am interested in exposing the specific injustices undocumented Latinx immigrants have continuously been forced to face within different aspects of daily life due to challenging socio-political conditions. Furthermore, aside from being excluded from various sectors of society, this study will also examine the undocumented Latinx experience associated with “living in the shadows” of this country via in-depth interviews meant to highlight the specific challenges endured. The in-depth interviews will incorporate a multitude of approaches, the most important, however, is that of qualitative research through the lens of phenomenology. In conclusion, this study aims to affirm that undocumented Latinx immigrants are indeed more likely to live a more difficult life in the United States as opposed to their documented counterparts due to experiencing the lasting effects of xenophobia in the United States.

Keywords: Immigration, Undocumented, Reform, Latinx, Xenophobia

Introduction

The purpose of this study was to expose the intentional obstacles set in place to immobilize undocumented Latinx immigrants and uncover deliberately racist political attitudes and outlooks that ostracize this demographic.

The premise of this research is heavily connected to the System Justification Theory which was proposed by John T. Jost in 1994 to explain how people are motivated to defend, bolster, and justify prevailing social, economic, and political status quos that have been set in place and solidified over time. This is true considering the stigma that upholds prejudice against immigrants, especially if they're undocumented. However, this then places fault on the individual instead of the institution at large which has the funds, resources, and support necessary to prevent the injustices that take place as a result of living in this country without citizenship. Therefore, if citizenship were more accessible and inclusive, a lot of the problems associated with immigration policy could cease to exist.

Consequently, the United States has gotten away with discriminating against immigrants, especially those that comprise ethnic undocumented communities, but if empathy were used to alter public opinion, more people could understand all that comes with living undocumented. However, it's difficult for progressive change to be instilled since the undocumented Latinx community has limited political clout, public support, and advocacy. Hence, the United States is not prioritizing its immigrant population since they are not being protected by the law yet are continuously exploited for their labour and other contributions. Furthermore, no current

compromise or sense of reciprocity exists between the two systems.

Thus, I can infer that society is more comfortable villainizing undocumented Latinx immigrants instead of demanding progressive immigration reform from their government. Not to mention, a lot of immigrants typically flee to this country because of our involvement and consequent destruction of their homelands. For these reasons, the United States continues to have a track record of discrimination against marginalized communities, and undocumented immigrants are no exception, based on the socio-economic conditions, historical implications, and personal testaments that will be revealed through my research.

Background

Compromised Identities

A colossal struggle associated with living undocumented in this country is that of being denied an identity when you have no documentation to prove your status in this country. “Pro-immigrant campaigns are valuable and worthy of study because they pose important questions about who in the global economy has the right to have rights in the first place. They press more on the native-born to consider the exclusionary, fortress side of Northern citizenship in today's world” (Ansley, 2011). This then raises questions regarding “unlawful” presence in the United States which puts undocumented Latinx immigrants at an obvious disadvantage. Nonetheless, efforts have been made to allow undocumented citizens to qualify to get their licenses, which is meant to expand their protections and stream a sense of national consciousness. However, this has proved to

worsen problems affiliated with policing and profiling undocumented immigrants.

Mental Health Barriers

This then ties into the negative impacts on the mental health of undocumented Latinx immigrants due to the numerous implications on their livelihood. “Undocumented Mexican immigrants are an at-risk population for mental disorders, particularly depression and anxiety disorders” (Garcini et al., 2017). Such declines and vulnerabilities are affiliated with the specific post-migration effects of crossing the Californian- Mexican border, but additional consequences also exist. For example, as a result of limited housing options, this demographic is also forced to reside in high-risk neighbourhoods that not only provoke substance abuse issues, but also sexual, physical, and verbal violence. Not to mention, this population of people are also prone to isolation, criminalization, and deportation. Therefore, the mental disorders that develop in response to these prominent issues affect the day-to-day life of this demographic as well.

Immigrants and the Economy

All of these challenges are subtly placed, yet extremely testing. Moreover, immigrants continue to be undoubtedly crucial to the economy of the United States. “The criminalization of Mexican immigrants underlies their increasingly important role in the economy. The language and ideology are fear, marginalization, and exclusion which are based upon the supposed criminality of the objects of hatred and justified with repeated invocations of the colour-blind nature of modern US society. But in the case of immigrants, the criminalization justifies their location in the lowest ranks of the labour force” (Chomsky, 2014). Therefore, the work status of this population is also crucial information when it comes time to evaluate the possibility of migrating to this country. Such restraints interfere with the quality of life that this demographic experiences as a result of their lack of upward mobility. “Status has been used historically to justify forcing people defined as inferior or outsiders to work for those defined as superior or insiders. Low-status people are forced to work in society’s dirtiest, hardest, and most dangerous jobs” (Chomsky, 2014).

The Need for Resources

Furthermore, exposure to these forms of trauma creates irreversible impacts on the community at large, especially in regard to overall wellness concerns. However, with the right policies and social ties set in place, better outcomes could be achieved. The main goal of community efforts

should always be to, “Recommend public health practices to invest in community health centres and organizations to ensure access to health and social services” (Ornelas, et al., 2020). This should be the case not only because there are currently insufficient resources on federal, state, and local levels, but because progressive transformation could likely prevent negative health implications experienced by undocumented immigrants in this country.

Counter Arguments

A prevalent argument proposed by scholars Jessica Tovar & Cynthia Feliciano states that instead of compromising undocumented identities, multiple identity labels intersect for the sake of validating whichever statuses immigrants choose to uphold in this country. “The study finds that respondents born in the United States are more likely than those born in Mexico to use multiple identity labels, such as Mexican-American or Latino. This study highlights the importance of generational status and transnational experiences, social and political contexts, and educational experiences in understanding changes in ethnic self-identification over time” (Tovar et al., 2009).

However, this theory can only apply to those that thoroughly understand intersectionality and identity politics, which this study limited to predominantly college-educated individuals. And as will be revealed through my research, higher education is a privilege that foreigners seeking financial opportunity can’t feasibly afford to take on. Hence, this counterargument encapsulates a very rare collective, seeing as all other barriers previously mentioned, must first be overcome before being able to ponder the possibility of pursuing higher education.

Moreover, another counterargument that exists and has been studied by Cardona and other scholars, is the notion that integration is possible, regardless of the lack of social ties or sense of identity. “Findings from this study indicate that Latino immigrant parents want to participate in a culturally adapted parenting intervention as long as it is culturally relevant, respectful, and responsive to their life experiences. This study contributes to the cultural adaptation/fidelity balanced debate by highlighting the necessity of exploring ways to develop culturally adapted interventions characterized by high cultural relevance, as well as high fidelity to the core components that have established efficacy for evidence-based parenting interventions” (Cardona et al., 2009).

Be that as it may, this theory is again not entirely applicable to all audiences given that it requires an unconventional reaction, which immigrants are not obliged to uphold considering the taxing circumstances surrounding their respective situations.

Public Support

On the topic of strong social ties, it is also important to note the positive political impacts citizens could have on the undocumented Latinx community, in addition to the wellness benefits previously mentioned. Particularly within the Hispanic community, being made aware of the issues at hand better prepares members to vote in favour of progressive immigration reform. Utilizing social networks, increasing political engagement, and discussing identity politics are all vital when it comes time to advocate for the undocumented. “Consistent with prior research at the intersection of anti-immigrant threat and Social Identity Theory, we find Latinxs with strong ethnic identification are more likely to engage in political protest in the presence of social ties with undocumented immigrants” (Roman, et al., 2021). This phenomenon is important due to the productivity that could embody race politics, which could place undocumented Latinx immigrants at the forefront of such a movement.

Therefore, the lack of social ties and connections, presently, has very adverse effects on the behaviour and sense of “self” associated with undocumented Latinx immigrants as well as their families. “This may be particularly so in new immigrant settlement cities that may lack an established Latina/o community or the social infrastructure often needed to ease the process of social integration” (Kathleen, et al., 2021). Hence, the lack of support and resources leads to various instances of disconnectedness, loneliness, and isolation which only worsen the already existing challenges. Leaving any human this susceptible to harm illuminates the call to action required to improve societal conditions for the marginalized members that endlessly enrich our existence.

Methods

This study’s participants consist of: Participant I, Participant A, Participant, and Participant M. Thus, the sample size consists of four total participants, all Latinx individuals who currently reside in the United States. Their identities were also concealed for safety purposes as well as to guarantee the most transparency possible regarding their experiences.

Procedure

Each participant was contacted in order to schedule their interviews. Once it came time to speak and record their responses, their stories and opinions drove the discussions. There were also various backup questions prepared in order to gather all the necessary data. This process took a couple of months on and off for each individual participant.

There were several priority questions prepared, core questions, and backup questions for further clarification and follow-up. All questions are listed in Appendices A and B which enlist the different sets of questions corresponding to each participant.

However, it’s important to note that only Participant A (a U.S. citizen and immigration attorney) was asked the second set of questions included in Appendix B. All other participants are undocumented and answered the questions logged in Appendix A.

Results

In conclusion, the hypothesis which proposed that undocumented Latinx immigrants are more likely to endure a more difficult life in the United States as a result of experiencing the lasting effects of xenophobia proved to be partly accurate. However, based on the interpretations of the in-depth interviews, the specific underlying factors were that of lack of identity, lack of opportunities, and lack of benefits which all naturally exist for their documented counterparts. (See Table 1.)

These results were partly surprising seeing as specific politicians and their policies seemed to have little impact on immigrants’ day to day lives. What actually seemed to matter were the inaccessible details which could contribute to an easier existence. Therefore, with more aid and advocacy, it’s safe to say that undocumented Latinx immigrants could better their current circumstances as well as start to establish generational wellbeing for them and their families.

Table 1*Pulled Participant Quotes*

Participant	Participant Identification	Participant Quote
Participant I	38, Female, Mexican, High School Diploma, Middle Class, Undocumented, Bilingual	"I am not able to get a good job because of my current status. I've gone to interviews where I've been immediately denied the position. It's always so embarrassing. I'm almost forty years old and I'm only able to make \$18 an hour, even though I offer bilingual services at this location."
Participant A	36, Female, Mexican, Juris Doctorate Degree, Middle Class, U.S. Citizen, Bilingual	"Undocumented immigrants don't qualify for full-scale medical coverage, they can only get emergency services, and that's only if they've been a resident of the state for a certain period of time. They don't qualify for welfare, any cash-aid programs, or Section 8 housing programs."
Participant F	63, Male, Mexican, Some High School Education, Low-Income, Undocumented, Bilingual	"Too many obstacles exist for us. Firstly, we don't have social security, we don't receive proper medical attention, we don't receive fair wages, there is a prominent language barrier, and we aren't granted enough educational opportunities. Immigrants come to this country to work hard and as a result, people tend to exploit us because they know we exist in the shadows of this country."
Participant M	19, Male, Mexican, Some College Education, Lower-Middle Class, Undocumented, Bilingual	"Natural-born citizens do live an easier life because they often have generational wealth and a lot of knowledge about the country, they're from. You also automatically have better financial standing because you have a lot more support and opportunity."

Note. Interviews were transcribed and translated from Spanish to English, when necessary, with minimal editing for accuracy and clarity.

Discussion

Due to the small sample size this study wasn't measured in a large scope, nonetheless, the similarities in perceptions were still present. In the future, it'd be interesting to gauge the opinions of a larger group for the sake of comparing those results to this study. In spite of that, this research should serve as a reminder to practice empathy, have informed opinions, and widespread understanding for the sake of a more equitable tomorrow.

In these ways, the lasting effects of xenophobia endured by undocumented Latinx immigrants in this country could gradually lessen. Thus, this information is valuable for natural-born citizens in order to ensure an equitable vote in terms of immigration reform as well as domestic legislation and representation.

Acknowledgments

I would like to give a special thanks to my research mentor Dr. Erin Hughes in the Political Science Department at Stanislaus State. She was a great influence over the direction of the study as well as the value of the gathered results. Secondly, I am thankful to my four participants who took a leap of faith in being willing to let me interview them. Although they are to remain anonymous due to safety and privacy concerns, I acknowledge that it takes courageous individuals to bring this study to

life and do it justice. Lastly, thank you to the Honours Department at Stanislaus State for granting me the opportunity to conceptualize this endeavour.

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Appendix A: Interview Questions

Priority

1. How old were you when you first came to this country? Can you describe the process?
2. How long have you been undocumented?
3. What are some barriers you believe exist for the undocumented Latinx community?
4. What are some personal struggles you have overcome as an undocumented Latinx?
5. What are some of your fears associated with living undocumented in this country?

Core

1. Where are you originally from and why did you make the move here?
2. What did you have to do to prepare to immigrate? What did you need to have in place for yourself post immigration?
3. What specific struggles has your immigration status caused you?
4. How difficult is it to gain citizenship in this country? What efforts/ sacrifices have you had to make?
5. What types of school or job opportunities exist for you? Which spheres are you deliberately excluded from?
6. How helpful is DACA (if you have any experience/ knowledge with it)?
7. Have you or any of your relatives ever been held in detention camps/ been deported? Explain the experience.
8. Have you been treated like a criminal by any institutions or individuals for being undocumented?
9. Do you pay taxes? Do you pay any additional expenses to ensure your survival in this country?
10. Do you benefit from any public services or government assistance?
11. What are your thoughts on immigration reform? Do you support the current system set in place?
12. Did Trump's presidency have any negative consequences on your livelihood in this country?
13. How has the stigma surrounding undocumented Latinx immigrants affected you?
14. Describe any racist or prejudiced experiences you've had to endure.
15. What things are you NOT allowed to do because of your current immigration status?

16. What is the worst thing that has occurred to you as a result of immigrating here?
17. What are your thoughts on ICE? Have you had any direct experiences with them?
18. What are your thoughts on "illegal" immigration?
19. What have you been able to accomplish in this country as opposed to your place of origin?
20. What specific privileges do you think exist for natural-born citizens? Do you think they live an easier life overall?

Back-Up

1. If you knew what you do now about life in this country as an undocumented citizen would you still have come?
2. Do you wish to return to your home country? Why?
3. What is something you wish you could tell those against immigration reform?
4. What other difficulties has your status imposed on your livelihood? (Mental, physical, emotional consequences or otherwise.)
5. Any final comments/ questions/ concerns you want to state for the record?

Appendix B: Interview Questions

Priority

1. What is your occupation title and what is your stance on immigration reform?
2. Are you an immigrant or born from an immigrant family?
3. How long have you been a part of this industry?
4. What demographic do the majority of your clients belong to?
5. What are some potential risks or common fears associated with living undocumented in this country? (In your opinion as someone who is exposed to this happening on a frequent basis.)
6. What are some programs or policies you believe discriminate against immigrants?

Core

1. What inspired you to get involved in this field?
2. What do you think is the main reason people immigrate to this country?
3. What is your personal background? (If you are comfortable disclosing) What is your "skin in the game" as people like to say?
4. What sort of work is common for your profession? Can you describe some of the

- emotional turmoil associated with your day-to-day tasks?
5. What is considered a “loss” in your field? How often does your firm experience this?
 6. How accessible would you say the immigration process is for foreigners (financially and otherwise)?
 7. Can you provide an estimate of the total costs associated with becoming a documented citizen?
 8. What are some barriers you believe exist for the undocumented Latinx community? (Mental, physical, emotional, or otherwise.)
 9. What are some common problems people experience when beginning the application to become a citizen?
 10. Which specific factors do you think cause traumatic/ tragic scenarios for your clients? (Referencing the front page of your firm’s website)
 11. What are frequent human rights violations that immigrants endure?
 12. What types of school or job opportunities exist for undocumented immigrants considering their statuses? Which spheres are they deliberately excluded from?
 13. What government assistant programs are the undocumented not qualified for?
 14. Do undocumented immigrants not need to pay taxes?
 15. In what ways does criminal law tie into immigration law? How are the two related?
 16. What are some factors that prevent citizenship eligibility? What do you have to keep an eye out for during this process?
 17. Can you quickly touch upon asylum requests or cases related to DACA which are a bit more layered/ complex?
 18. Can you explain this quote, taken from your website, and its impacts? “During Removal (deportation) proceedings, immigrants are not afforded the right to counsel. If you desire to be represented by an attorney, you must retain one to defend your case.”
 19. What are your thoughts regarding ICE officials and their job responsibilities?
 20. What specific privileges do you think exist for natural-born citizens? Do you think they live an easier life overall?
3. Do you believe Trump’s presidency worsened the existing conditions for the undocumented? What sorts of consequences do you think will arise from his policies and rhetoric regarding immigrants?
 4. What do you think is the stigma surrounding undocumented Latinx immigrants? (Including racism, prejudice, and xenophobia)
 5. Do you think immigrants hurt our economy? Why or why not?
 6. Any final comments/ questions/ concerns you want to state for the record?

Back-Up

1. As a professional, what are some things you wish more people were aware of in regard to immigration reform?
2. Can you describe detention camps and the process of being deported? Also, the legality surrounding separating children from their families and having to represent themselves in court?

Resources for Children with LGBTQ+ Parents

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Abstract

People from LGBTQ+ family backgrounds have higher rates of bullying than people who do not come from these backgrounds. Therefore, there is a growing need to study the availability as well as the effectiveness of resources available to this population such as support systems. The present study hypothesized that support systems help the children of LGBTQ+ families overcome adversities they may face, such as bullying and peer rejection. The model for this research was the analysis of data across multiple studies to find a commonality between the resources available to this population. Another aspect of this study was finding data through an interview process from an individual who was raised in a LGBTQ+ parent headed household. This study found that access to support groups in the family and school systems helped these children overcome adversities they faced while being raised in an LGBTQ+ family. Future research would like to focus on finding more diverse groups within the LGBTQ+ community such as children of gay parents, transgendered parents, and queer parents. Future research would also like to find a variety of support systems offered to children who come from LGBTQ+ families other than school and family systems.

Keywords: meta-analysis, LGBTQ+, queer, families, bullying, support

Introduction

Research has shown that a challenge to children being raised by queer parents is not the parents themselves, but rather the negativity they experience from a society who does not accept their family type (Kovalanka, et al., 2014). Many previous studies found that children from this background are subjected to negative experiences because of their parent's (or parents') sexual orientation or gender identity. According to Peter et al., children with queer parents often faced more verbal, physical and sexual harassment at school compared to their peers with heterosexual parents (2016). These negative experiences are also amplified in children who have transgendered parents. According to Haines et al., children in families with transgendered parents had a fifty percent increase of bullying compared to the children with gay, lesbian, or straight parents (2014). Children from lesbian headed households also have experienced bullying as a direct result of their parents' sexual orientation (Kovalanka et al., 2014). Data collected from these studies found that there are many instances of bullying and negative experiences for children with parents who are lesbian, gay, transgender and/or queer.

On the other hand, previous research has shown that there are some ways to help support these types

of families in the face of adversity. In one study, a lesbian couple found out their child's school principal was openly gay which made them feel more comfortable in disclosing their own sexual identity and family structure (Nixon, 2011). Representation of queer people and queer family types is a vital tool to support these types of families.

The current study analysed the current support systems set into place for the children in these family types. This study investigated two types of support: the family system and the school system. These systems are vital to child development as well as the well-being of an individual. The current study hypothesized that access to effective support systems aids children in LGBTQ+ families overcome negative experiences they may face due to their family dynamic.

Method

A meta-analysis and an interview were conducted. The meta-analysis used published research articles with the granted access given by California State University, Stanislaus. The two articles selected were found in two databases: Taylor and Journal Online, and EBSCOhost. Common key terms between these articles were lesbian parents,

queer theory, and homophobia. Studies used had an emphasis on support systems available to a child with an LGBTQ+ parent such as a family support system or a school support system. Both studies measured the occurrence of negative experiences lived by the children of LGBTQ+ family headed households as well as the effectiveness of support found in school and family systems. Studies were organized by publication year, research design, total number of participants, findings of the study, as well as an overall summary of the methods used in the study (Table 1).

The interview was conducted on one participant who grew up in a family headed by one lesbian

mother and one bisexual mother. The participant was 18 years old. The gender of the participant was female, and their sexual orientation was pansexual. The participant was recruited by the researcher, personally. Participant's consent was given verbally, and they were aware of what the research pertained to. The interview consisted of 10 questions pertaining to the experiences of the child who was raised by LGBTQ+ parents as well as the sexual orientation of their parents (Appendix 1). After the interview, the participant was debriefed and thanked for their time. No incentives were given to the participant for participating.

Table 1

Overall Summaries of Articles and Interview

Articles and Interview	Bos and Gartrell (2010)	Cloughessy, et al. (2019)	Interview conducted by Researcher (2022)
Research Design	Longitudinal Non-experimental	Non-experimental Quantitative Survey	Non-experimental Quantitative Survey
# of Participants	78	62	1
Findings	Close relationships leads to overcoming adversities.	Positive experiences when schools accepted and embraced family.	Family system helped with adversities.
Summary of Methods	Questionnaires were given to children of lesbian parents. Asked participants about family connectedness, experienced homophobia, and their problem behaviors.	Questionnaires were given to lesbian parents. Asked participants about their experiences in school systems as well as suggestion to improve systems for LGBTQ+ families.	A 10-point interview questionnaire was given to a child from an LGBTQ+ headed household. Asked about their experiences, as well as their suggestions for improvement on support systems for youth.

Results

The meta-analysis of literature found that support systems provided to the child of an LGBTQ+ parent helped them overcome adversities they faced due to their background. Research by Bos and Gartrell (2010) supports the hypothesis that support groups help children in LGBTQ+ families. In their study, it was found that the effects of adversities as a result of being a part of LGBTQ+ family were lowered if the child had a close, positive relationship with their mothers (Bos & Gartrell 2010). Research by Cloughessy et al., (2019), supports the hypothesis that support groups help children in families with LGBTQ+ parents. In their study, it was found that lesbian families had more positive feelings toward the school system when educators asked them about their family structure and how to better support their family in the classrooms and school environment, even when subjected to negative experiences, such as family invalidation. The interview also supported the hypothesis that support groups help children in families from LGBTQ+ parents. The participant found support groups to be helpful for families who come from these backgrounds. However, the participant themselves did not have access to their own support groups during their childhood. They were part of a support during their adolescence but found that it was not LGBTQ+ family specific. The group was for people who are LGBTQ+, rather than for the children of LGBTQ+ parents. The participant stated that support groups offered to children provide knowledge of the diverse families out there, which makes children feel less alone in the negative experiences they face from being raised in queer families. The participant also stated that their parents

were a big contributor to their ability of overcoming negative experiences they faced from their family background.

Discussion

This study found that support systems found in the family and school systems are helpful in supporting children and families who come from LGBTQ+ backgrounds. Bos and Gartrell (2010) found that children in queer families who had a close bond with their parents were less affected by negative experiences they faced because of their family background. This provides evidence to the hypothesis that an effective support system, such as a family system is a valuable tool for children to overcome the adversities they may face. Cloughessy et al., found that lesbian families felt more welcomed when the school system their children were in validated their family type and were welcomed to disclose any improvements of furthering inclusivity in their child's school environment (2019). The school system is very important for a child's development and over all well-being. Having a school that accepts their family type helps these children feel more comfortable in their learning environment. With this comfort and validation from this system of support, children are able to thrive academically. The participant from the interview provided insight on the types of systems that could be beneficial to a child from this background. For example, the participant expressed that they themselves did not have access to a support group for children of LGBTQ+ headed households. Despite not having access to these groups, they stated that

these groups would be helpful in the sense that a child would feel supported and accepted by a peer group. They also stated that the more people are aware of the different types of families out there, the more they can find their identity in their sexuality and gender. Furthermore, they believed that the children who have access to support systems will be able to overcome negative experiences they may encounter from being a part of an LGBTQ+ family.

Limitations

A limitation of this research was the limited access to peer-reviewed journal articles that had an emphasis on children from LGBTQ+ families. Most of the research found was mainly focused on lesbian families. More research needs to be done on gay, transgendered and different queer identities in the future.

Another limitation of this research was finding children of LGBTQ+ parents above the age of 18 years old. This was a major deficit in interview data validity. Since the participant came from a family with a lesbian and bisexual mother, this research cannot generalize the experiences of other queer families such as gay and transgendered parents. The limited participant also contributes to the invalidity of the study.

Future studies should focus on finding a more diverse sample of participants to bring to light the experiences of a variety of queer families and not just lesbian families or families with two mothers.

Future studies should also investigate other resources that can benefit a child from this background such a community support group that involves similar peers and experts on the topic of LGBTQ+ families.

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Appendix 1

Survey for Children with LGBTQ+ Parents

1. What does your parent(s) identify themselves as?
 - a. Lesbian
 - b. Gay
 - c. Bisexual
 - d. Transgender
 - e. Other
2. Have you ever experienced bullying in school due to your parent's sexual orientation or identity expression?
 - a. Yes
 - b. No
3. Have you been to a support group for children with LGBTQ+ parents?
 - a. Yes
 - b. No
4. Were there support groups offered at your school when growing up?
 - a. Yes
 - b. No
5. Can you think of a time when a support group really helped you out? If answered yes, please feel free to write a brief summary in the box provided below.
 - a. Yes
 - b. No
- c. Not applicable
6. On a scale of 1-5, how helpful did you find these support groups?
1: not very helpful, 2: not helpful, 3: unsure, 4: helpful, 5: very helpful
7. How were you taught about the LGBTQ+ community (select all that apply)?
 - a. School
 - b. Home
 - c. Support group
 - d. Friends
 - e. Community
8. Can you think of a time when you faced some sort of bullying or adversity due to your parent's identity? If answered yes, please feel free to write a brief summary in the box provided below (optional).
 - a. Yes
 - b. No
9. On a scale of 1-5, how likely do you think a support group could help a family from your background?
1: not very likely, 2: not likely, 3: unsure, 4: likely, 5: very much likely
10. Are there any resources you could think of that could help someone from your background as a child of an LGBTQ+ parent? If answered yes, please feel free to provide resources in the box provided below.
 - a. Yes
 - b. No

Table 1

Overall Summaries of Articles and Interview

Articles and Interview	Bos and Gartrell (2010)	Cloughessy, et al. (2019)	Interview conducted by Researcher (2022)
Research Design	Longitudinal Non-experimental	Non-experimental Quantitative Survey	Non-experimental Quantitative Survey
# of Participants	78	62	1
Findings	Close relationships leads to overcoming adversities. Questionnaires were given to children of lesbian parents.	Positive experiences when schools accepted and embraced family. Questionnaires were given to lesbian parents.	Family system helped with adversities. A 10-point interview questionnaire was given to a child from an LGBTQ+ headed household. Asked about their experiences,
Summary of Methods	Asked participants about family connectedness, experienced homophobia, and their problem behaviors.	Asked participants about their experiences in school systems as well as suggestion to improve systems for LGBTQ+ families.	as well as their suggestions for improvement on support systems for youth.

Language Teaching Variables and their Effect on Student Proficiency in English

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Abstract

Schools across the United States are growing culturally and linguistically more diverse with every passing day. This explosion of linguistic diversity raises the importance of understanding the variables that influence the English proficiency of students. This study used a systematic literature review that analyzed 14 articles with years ranging from 2010 to 2021. The articles were analyzed to discover what variables within a teaching method positively influence students' English proficiency. Once the variables were identified they were cross-examined with literature further explaining their impact on English language proficiency. The variables that have been identified in this paper are limited to those that teachers can mold and implement in their personal classrooms. Through this methodology, five variables that positively affect students' English proficiency were identified. The variables that have been identified so far are as follows: the four basic language skills were met during instruction, students experienced genuine communication in the English language, students were motivated to learn English, and students were able to translate between their mother tongue and English, and they were taught in a healthy, welcoming environment. The findings of this research will inform educators of the language variables that affect proficiency so that they can tailor their instruction to the needs of the individual classroom and student.

Keywords: Language Variables, Language Learning, English Proficiency

Introduction

Educating English language learners is becoming increasingly more prevalent in the United States as more and more people are entering our country without previous knowledge of the English language. As educators and administrators begin to acquire more of these students, the need for properly educating them in the English language is becoming more important. Educating English language learning students properly will allow educators, administrators, and students to spend less time trying to teach a new language to these students and more time teaching the content the students need to succeed in the real world. With so many different students and languages represented in the classroom, teachers often struggle to help each of their students reach language proficiency. This common struggle signals researchers to study the variables that affect student success regarding English language learners. How then do certain language variables affect student success inside a classroom? And how can these variables be influenced by the teacher of these students?

Many studies have researched the success of certain methods, such as the grammar-translation method, the communicative method, and the content-based method. All of these methods have certain strengths and weaknesses that influence student success and thus these variables are identified. As Adwani and Shrivastava (2017) found, the variables affecting language methods are far more likely to influence student success than whole constructed methods. This theory allows researchers to dive deeper into the study of variables instead of focusing all of their energy on analyzing the success of certain

language teaching methods. Further, this theory demonstrates the need for a deeper knowledge of the variables that can be controlled by teachers in the classroom, thus allowing teachers the freedom to mold their own approach to language teaching that is successful for all the individual students in their unique classrooms. This study works to expand on this theory to explore the variables that will promote English language proficiency. This study expects to find and identify at least three variables that are common between all three methods and that positively promote genuine proficiency in the English language.

A lot of effort goes into teaching language learners a new language, especially when the language of instruction is their current target language. Teachers and administrators must have a plan or purpose that they follow for students to learn most effectively. The purpose of teaching English to students should be that they obtain full fluency in the language. To be considered proficient in the language, students need to be taught the four basic language skills. They are reading, writing, speaking, and listening (Arulselvi, 2016). In fact in the video *The Birth of a Word*, it is shown that people naturally acquire language over time beginning with the first step of fluency, listening to the language (Roy, 2011). However, when teaching English language learners in the United States they are most often thrown directly into learning to speak the language and must bypass the natural order of acquiring a new language. Further Boroditsky (2017) explains that language shapes the way that our brains process information. This knowledge explains the struggle of teaching

students a new language and the importance of understanding some of the best practices to teach new learners.

When teaching English first became important in the United States, the grammar-translation method was the method of choice (Natsir & Sanjaya, 2014). Since the implementation of this method, research has shown that it struggles to teach students all four of the language skills needed to be considered proficient in a language. According to this research, the grammar-translation method focuses students' energy on reading and writing in the language, usually by transcribing the target language into the mother tongue (Natsir & Sanjaya, 2014). This approach, while extremely valuable for students to develop their reading and writing skills, lacks the fundamental skills of speaking and listening. Instruction under this method is also usually taught in the student's native language focusing solely on translating from one language to another. The reason this method has become so popular in language teaching education is that the translation from one language to the other helps students to understand the language more clearly and what words mean in their target language (Mart, 2013). While this statement is true, some words do not translate accurately and could be misunderstood.

With so many students struggling to truly acquire the English language through the Grammar-translation method, teachers looked towards new methods in hopes that their students would succeed. One of these methods is known as the Communicative Language Teaching (CLT) method. In this method, the main purpose of the class is to learn to communicate with each other usually through speech (Natsir & Sanjaya, 2014). When children first acquire their language they spend quite a while simply listening to those around them before they begin to use the language orally, which is the first step in natural acquisition (Neuman & Dickinson, 2010). The communicative language pushes students straight into communication, which may discourage students because they are afraid of making a mistake. Another issue is that correcting students' mistakes is often disregarded and students often become fluent but inaccurate (Thamarana, 2014). Al Darwish (2017), found that students need to be corrected when making mistakes but it must be done in a kind way thus demonstrating the need for correction in language learning.

Another attempt to teach English more effectively was in the development of Content-Based Instruction (CBI). In this method, the purpose is to teach students the language through the content determined by the standards. One of the key components of this method is that students learn the language by listening to their teacher. A study conducted on the effectiveness of this method found that students taught in this manner had enhanced academic performance (Arulselvi, 2016). Students engaged in this teaching method often have more opportunities to engage in genuine conversations with their peers. This method takes the focus off of learning the

language and focuses on learning the content. Content-based Instruction, like a few other methods, is extremely effective in its goal of teaching a new language. However, it can lack actual communication and use of the language if the teacher doesn't emphasize communicative work in the classroom.

While language teaching methods often help students learn a new language, they are built upon variables that lead students to proficiency. These variables are the reason that many methods continue to be created as more research on proficiency becomes available. But if teachers were able to use these variables on their own and bypass the need to learn a new method, teachers would have more time to use most of the successful variables and promote student success in the classroom in terms of English language development and proficiency.

Methods

Design

The research design that was chosen to approach the research questions was qualitative in nature. The qualitative nature of this study was chosen to look at the influence that certain language learning variables have on the proficiency outcome of the students who are learning a second language. The variables that this study is trying to identify will be variables that have been seen to positively impact a student's overall proficiency in a language and will be moldable by the instructor of said students. In order to find and further research these variables, this study has used a systematic literature review. The literature that was chosen for this systematic literature review was kept and aligned to the criteria that are explained further in the materials section. The literature fell within criteria that limited the searches to a certain target population, years of publication, and database used. With this research, I will work to show that certain language teaching variables greatly affect students' success in their education. The systematic literature review has been formulated to identify such variables that have a significant influence on a student's English language proficiency in the classroom.

Materials

In order to conduct the systematic literature, articles were gathered together following a clear set of parameters. The initial search was limited to articles found in the Education Resources Information Center (ERIC) database because it focuses on articles relating to the education realm of research. The initial articles chosen were kept strictly within the parameters relating to three language teaching methods. The three methods that were chosen to explore language teaching were the grammar-translation method, content-based instruction, and the communicative approach. These methods were chosen because they are some of the more popular techniques used to teach students a second language. All of the articles chosen for this research were published between the years 2010-2021 (see Figure 1). The target population of each article remained

within high-school to college-aged students. This parameter was established to get the most up-to-date information since research on minors is usually rare.

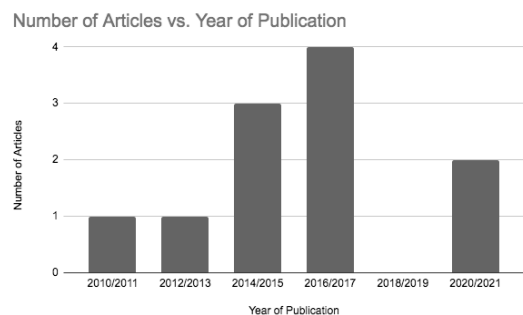


Fig. 1. Years of publication for the articles in the systematic literature review. Not included in this graph are two background articles found from the years 1978, and 2003, but these articles were present in the initial coding sequence.

Procedure

The search for the articles began from the ERIC database and followed the criteria that were established in the materials section. After establishing the parameters, the phrases to find the articles were formulated. To begin, the initial search looked for language teaching as a whole. The query used was Language Teaching. This first initial search resulted in four articles being identified that focused on previous research and while they remained within most of the parameters they were accessed out of the established year range in order to establish a clear and defined background of language teaching. The information in these articles was coded and found that a focus should first be placed on specific teaching methods. This information led to the second search, which included the specific language teaching methods established in the materials, the grammar-translation method, content-based instruction, and the communicative approach. Each of the names of these methods was searched for following the parameters established, and articles were identified from the ERIC database. Out of the identified articles, three articles were chosen to be a part of the study. Each of the articles corresponded to one of the methods that were chosen to be a part of this research. These three articles were then read and coded to establish common themes between each of the teaching methods discussed. Then the initial four articles found were read again along with the teaching method articles to find themes that connected the methods and language learning as a whole. The themes were then isolated to only include those that could be manipulated by the teachers of the students who are learning a new language. Once the themes were identified, a third search was conducted to find articles that showed the interconnectedness of these methods. The queries included the parameters established in the materials section as well as a search that included at least two of the methods discussed in the research. From these queries, two articles were identified that connected

the three methods together. The third cycle of coding consisted of further identifying themes from the original articles and the addition of two articles that were chosen to provide interconnections between the methods. The original themes were further confirmed as well as several sub-themes that were identified from the additional articles and coding sequence. Once these themes, which will now be discussed as variables, were identified in the research, a fourth search was conducted to find information on each variable identified. From this search, which included such queries as looking into motivation and language learning, and learning variables as a whole, five articles were returned. From these additional articles, all 14 (See Appendix A) articles were coded in the fourth cycle to discover further research on the variables that existed between each chosen article in the study. After the fourth and final cycle of coding was completed, the data was compiled and represented in terms of frequency mentioned in the articles and the use of the variable within one of the chosen language teaching methods (See Appendix B).

Results

The study originally aimed to find and identify any variables that promoted student proficiency in the English language. This research found that within the most popular language teaching methods used to teach language today, five variables are common within those three, and positively promote genuine proficiency in the language. While I expected to identify only three variables, it was found that five variables are common between the three methods that were analyzed (See Figure 2). After completing the analysis of the articles I included in this study, I was able to identify articles that included these variables along with the methods they used to discuss how they influence language proficiency. These variables include a) four language skills (listening, reading, speaking, and writing), b) genuine engagement, c) motivation, d) translating between languages, and e) a healthy atmosphere.

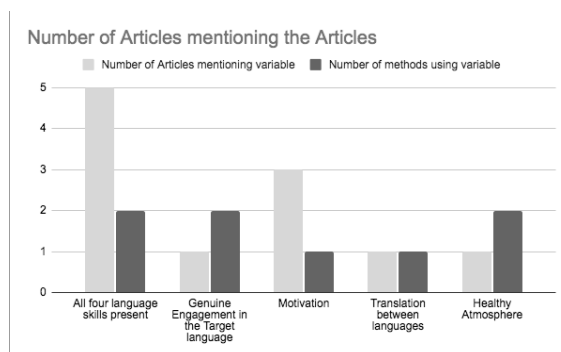


Fig. 2. Variable Identified and their Correspondence to the Articles and Methods. Variables identified and their relationship to the articles that were analyzed as a whole and their relationship to the three methods that were analyzed.

The first variable that was found during this research is that all four language skills should be incorporated into the lesson. That is each lesson should involve a portion where students practice listening, speaking, writing, and reading in the target language. With all of these skills present, students receive a more well-rounded language education as they are able to practice all parts of proficiency in the target language. This first variable was found to be in the content-based method and the communicative method, which had better success in leading students to more advanced proficiency than the grammar-translation method. The second variable that was identified during the research was that students who were involved in genuine language engagement (i.e., using/practicing the target language in real-life scenarios) were more likely to become proficient in the language. These scenarios better prepare students to practice their language skills outside of the classroom, which is the ultimate goal of language learning. This variable was also present in the content-based method and the communicative method, but not in the grammar-translation method. The third variable that was found during the study was helping students develop an intrinsic motivation to learn the target language. Students who understood why they needed to learn the language were more inclined to practice the language and better improve their chances of becoming proficient. Students who lacked this motivation rarely made it past the translation between their native language and their target language. While this variable was only clearly seen to be incorporated into the communicative approach, it is believed that students also would develop intrinsic motivation to learn the language through content-based instruction. Students who lack motivation, often give up on the difficult task of learning a language before they even begin to approach proficiency. The fourth variable that was found in this study was incorporating translation between the two languages. Students needed a way to connect and understand the meaning of words from their native language to their target language. This connection is provided through translation, which can be seen through the overwhelming popularity of the grammar-transition method. For years, this method was seen as one of the best ways to instruct language learners in a language because it connected both languages together. However, it was later seen that it was limiting the success of the method in producing students who were proficient in the language. It is inherent human nature to want to understand other languages with our own native language, and thus in order to improve this proficiency in students translation is a needed portion of this journey. The last variable that was identified is having a healthy atmosphere in the classroom. A healthy atmosphere can be defined as having a welcoming and accepting environment that promotes self-learning and community between all parties involved. That is students who are taught in a healthy atmosphere feel that they are welcomed to make mistakes and try new things without the fear of being

judged or looked down upon for not succeeding on their first attempt. This variable is present within the communicative approach and content-based instruction.

Discussion

Each of the variables that have been identified in the study was isolated to include only those that could be manipulated by the teacher. What was significant to find during this study was that not all variables that were identified to bring success in promoting English language proficiency, were present in each method. As seen from its success, each method that was chosen was not and will not be a perfect practice for promoting proficiency in students, yet it was a surprising find not that the grammar-translation method only marked one of the variables that were identified but it is still used often today to teach foreign language classes in schools. This results in the understanding of why so many of these foreign language classes do not produce students who are proficient in the target language that they are studying. As teachers begin to reevaluate their chosen approach to teaching English within their classroom, it will be advantageous for them to look towards not methods as a whole, as we can see they will always fall short of helping all students in the classroom, but to look at certain variables that may influence the proficiency of their students in the language. The variables identified here can be manipulated by the teacher in question and altered to fit the class, the environment, and even the individual student. This will allow teachers and students to learn in a more tailored environment than what is provided using some of the other language teaching approaches established. Teachers should shift their energy from focusing on picking a method that will help every student in their classroom in their language development to what aspects of language learning each of their students needs. From this, they can tailor the instruction to the whole class for individual student needs. For each variable that was identified in this study, teachers are able to manipulate them in a way that helps build their classroom environment.

As found in this research, instructing students in all four language skills is one way to improve a student's language development. However, this is not just incorporating each aspect into the lesson but making sure that the incorporation is equal in all parts and scaffolded upon (Alexandrowicz, 2021). Teachers need to provide students with equal opportunities to practice their listening, speaking, reading, and writing skills. Many times reading and writing overpower the classroom, without giving students much of a chance to practice their speaking and listening skills. These skills are vital to reaching full proficiency in any language and vital to common communication, which is a major goal of language development. The next variable identified, suggests that it is important to incorporate the engagement of

the language into the classroom, but this is not simply having the language spoken within the classroom, but having students engaged in conversations that are not scripted or planned (Chun et al., 2017). They are given the opportunity to use the knowledge they have of the language and use what they know to communicate with another person. This is the type of engagement that must be incorporated in order to achieve the positive impact on language development that teachers wish to see. Further teachers need to help their students develop a motivation to learn the language. This is not only finding a reason why students should try to learn a language, but helping them develop a personal reason as to why this language can help them or is important to learn for their specific circumstances. Telling the whole class, they need to improve their English language skills because it will help them more easily communicate will not help a student develop a personal intrinsic motivation to learn the language. This personal motivation will fuel their drive to learn the language and develop a will to continually learn what they can about the language (Adwani & Schrivastava, 2017). When teachers are working to incorporate the fourth variable of translation into the lesson that students are working in. When students struggle to understand the meaning of a word through pictures or other visuals, it is helpful to aid their understanding by having activities that translate the definitions of words from their native language (Mart, 2013). Along with all of the variables that teachers should incorporate in order to tailor the needs of their students, teachers should focus on creating an environment where students feel confident and able to practice the target language at their specific ability (Thanarana, 2014). Students should not feel pressured or forced to try to speak or write in the target language at a stage that is far above them, but teachers should challenge students to use a new word or phrase that they recently learned today so that their vocabulary expands and develop.

While teachers and administrators will be able to understand the advantages of focusing on these set variables, it is important to bring awareness to the struggle and education of the students that are learning the English language in American schools. As these students struggle and persevere to learn this language in order to communicate with the general public, they need an education that is tailored to their needs and their abilities. One that is focused on the student as an individual rather than as a whole class. The main goal of Instructing English language learners in English is so they can communicate with the general public and become a pivotal part of our society. In order to better structure our society and cultures from the inside out, more focus needs to be given to the instruction of our students, the ones that will be the next generation of our society. More specifically, as we welcome and celebrate the diversity that has been established in the United States, a commonality of language needs to be established to promote healthy communication skills

that could one day transform our society into the communities that we dream them to be.

Limitations

It should also be understood that there are some limitations to this study. The results that will be present in this study are strictly based on previous research conducted in the language learning field, no testing was conducted using the variables in a live classroom. The variables that have been identified in this study have been strictly limited to those that could be identified through the analysis of three language teaching methods. Furthermore, these variables were then limited to those that can only be moldable by teachers who were instructed in the learning of the English language. Despite these limitations, this research has shown five variables that can be manipulated by teachers that have a clear connection to positively influencing a student's proficiency outcome in the English language.

Future Research

This research shows some of the variables that promote students achieving proficiency in the English language. However, in order to further study the effectiveness of the above-identified variables, these variables should be tested within an English learning classroom. The research can explore how to affect these variables truly are at promoting students' English language proficiency. This additional research on the topic can better inform educators on the approaches and practices that should be implemented in their classrooms in order to help promote an atmosphere where their students can succeed.

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Appendix

Appendix A: Articles Used as Data in the Systematic Literature Review

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Appendix B: Coding Cycles of the Systematic Literature Review

Cycle 1 - Language Teaching	Oxford, R. L. (2003, October).	Neuman, S. B., & Dickinson, D. K. (Eds.). (2010).	Bialystok, E., & Fröhlich, M. (1978).	Gass, S. M., Behney, J., & Plonksy, L. (2013).	
Cycle 2 - Language Teaching Methods	Thamarana, S. (2014).	Mart, C. T. (2013).	Arulselvi, E. (2016).		
Cycle 3 - Interconnections between Methods	Natsir, M., & Sanjaya, D. (2014).	Al Darwish, S. (2017).			
Cycle 4 - Expansion of Variables	Khasinah, S. (2014).	Hasan, M. M., Al Younus, M. A., Ibrahim, F., Islam, M., & Islam, M. M. (2020).	Chun Lai, Xiao Hu & Boning Lyu (2018)	Adwani, P., & Shrivastava, S. (2017).	Alexandrowicz, V. (2021).

A Companies Impact and Response to the Environment

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Abstract

Throughout time companies have been the largest contributor to the environmental situation we are in. With plastic being the largest waste among companies; this will be a literature review. Going through the largest company that contributes to water pollution and water waste, Nestlé. The large Swiss water company will be the main topic of discussion throughout this paper; with thousands and thousands of water being pumped and sold to the public many must know the impact they are making to the environment. This literature review will talk about the impact that a lot of large companies have on the environment, and how they're not being held accountable for this. Mental health, overall health and the environment is constantly being polluted by these big corporations. A lot of big names that we buy from unknowingly Greenwash a lot of products, services and even themselves as a company. Greenwashing is also a big term that I use throughout the presentation, and we are affected by it unknowingly.

My research is about the impact that businesses have on the environment. The Primary participant I am researching is Nestle, they are controversial in not just the environment but also other legal matters. The Large carbon footprint that big money companies leave behind should be in the public eye. The companies should be held responsible no matter what company they are. They are a large Swiss water company that have a significant carbon footprint, I am researching this because I believe that business should be held responsible for the environmental impact they are causing.

The significance of this research is to keep these impacts in the public eye so large companies can be held responsible. My research question is, Should Business be held responsible for their environmental impact they are causing? My answer is yes, being a Business Administration major I have been taught that companies are beings alone so they should be treated as one. This research is very important to me because of the significant impact that companies make on the environment but do not have any consequences.

Research Question

My research question is "Should businesses be held responsible for their environmental impact they are causing?" With companies being a large being contributing to the environment in a negative way. Throughout time we are constantly trying to keep a small carbon footprint by relying on and reducing our intake of one-use plastics. Major companies being held responsible would make a big difference.

The purpose of my study is to hold large companies responsible for their impact on the environment and how they are responding to it. Are more companies going green to please the public

eye? Should these companies be praised for doing so? This study will provide data to back up and answer these research questions.

Background and Literature Review

Swiss water giant Nestle is under fire again after revealing its plans to largely increase their Michigan groundwater withdrawals. Even after the tumultuous September purchase of a freshwater well in a small township in Ontario, Canada, nestle still aims to nearly triple its current Michigan water supply. The agenda that came forth in early November, potentially upsetting a current accord reached with environmentalists seven years ago to protect the water table and wildlife. The plan could stir internal conflict among Flint residents, who have not had clean tap water to drink since 2014. Big companies like Nestle still use and sell water, for their personal gain. Are companies like Nestle responsible for the irreversible effects of water contamination to the residents of Flint because they are selling and bottling water nearby? Poteat, L. (2016, Dec) Nestle is taking millions of gallons from a public forest so close to home for the small price of just a permit. Wilson. (2019).

Large companies are hurting the environment and its surroundings with little to no care. Bottled water purveyors buy public water and then sell that water back to the public at rates 3,000 to 5,000 times higher than what they paid for that water. Toronto star, A13 (2016) In addition, the effects of plastic in the environment and the cost of disposal bottles are passed on to the public.

Add to this the carbon footprint and environmental effects of trucking vast volumes of water needlessly to places where billions are spent to ensure universal access to reliably clean water.

Access to water and sanitation are recognized by the United Nations as human rights, many corporations use water for personal gain and for wealth. Throughout this review I will be going over not just the importance of water but how it should be a fundamental human right. Not just for drinking but for bathing and many other needs. The world runs on water; as humans no one should have to purchase something that is a need. Many corporations like Nestle are constantly under fire for the unethical use of water. They are taking and contaminating water, the town of Flint is now permanently damaged because of the pipelines and we as Americans are letting that happen. Water should be considered a basic human right; water is not just a thing that can be marketed but something we all need. There are multiple studies citing that water is a necessity and should be considered a right. Into this review I will be going over the articles that contribute to my idea of water being classified a human right.

At the March 2009 United Nations (UN) meetings coinciding with the World Water Forum, Canada, Russia, and the United States refused to support a declaration that would recognize water as a basic human right. The special resolution proposed by Germany and Spain and endorsed by the President of the UN General Assembly, was instead rejected in favor of further examination of issues of access to safe drinking water and sanitation (2009). PLoS Medicine. Access to water and sanitation are recognized by the United Nations as human rights, reflecting the fundamental nature of these basics in every person's life. Lack of access to safe, sufficient, and affordable water, sanitation and hygiene facilities has a devastating effect on the health, dignity, and prosperity of billions of people, and has significant consequences for the realization of other human rights. In 2010 the UN declared water to be a human right.

Last year, seven decades of the adoption of the Universal Declaration of Human Rights, the main document that underlies the elaboration of several international treaties and covenants as well as serving as a model for many national constitutions, were completed. Adopted in 1948 by 48 countries and reiterated in 1993 through the Vienna Declaration of Human Rights 171 countries, it remains the basis for many international agreements. Neves-Silva, P., Martins, G. I., & Heller, L. (2019). Should water be declared a universal right where people no longer need to purchase?

Should water be considered a human right? Should water be marketed? Can water be declared a human right? Water should be declared a human right, in the Vienna declaration of human rights signed by 171 countries they declared that water should be considered a human right even throughout the years many businesses like Nestle still market and use water for their own personal goods. South Africa can thus become a "first mover" in wind-

powered desalination by investing in the most advanced levels of this technology. The country will need to build a hub of capacity and linkages through collaborations and public research institutions, which will allow it to have access to the latest research and the best human capital and capabilities to generate its own research. This is an ambitious but feasible plan for Africa's largest economy, which has the potential to tap into the large prospective market in wind powered desalination. (2009/2010): 61-70.

Big companies like Nestle still use and sell water, for their personal gain. Are companies like Nestle responsible for the irreversible effects of water contamination to the residents of Flint because they are selling and bottling water nearby? Still around the world people are dying from not having proper sanitation and proper water filtration, the private model of water delivery now entails a US\$400–US\$500billion global water industry that is dominated by three multinational companies who have, according to critics, neither proved their ability to provide sufficient or affordable water sources, nor effectively served the poor who suffer most from a lack of clean water PLoS Medicine (Jun 2009). The right to water entitles everyone to have access to sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic use. The right to sanitation entitles everyone to have physical and affordable access to sanitation, in all spheres of life, that is safe, hygienic, secure, and socially and culturally acceptable and that provides privacy and ensures dignity. ("Human Rights | UN-Water", 2021)

With water being a necessity around the world, and it being declared a human right. Companies should not be allowed to sell and market water for their own needs. Like stated earlier the global water industry makes billions but does not provide affordable water. With a lot of places around the world not having proper filtration and not having water proper sanitation. Why is water still being marketed and sold? Why are people still dying from water related deaths? Why are corporations not being held liable for the unchangeable effects like polluting water? Why are people still having to beg for clean water when there is so many companies are selling?

I believe my research can stop in business from taking advantage of the environment for their own financial gain. Throughout the years people are told to recycle and to stop our environmental impact but companies have the largest carbon footprint. Being a business major my field of study is perfect to study the impact that business is making but if I study more into the environment, I can gain a different point of view on this. But with all my research I hope to accomplish some form of stopping business from impacting the environment so greatly.

Participants

My research is over the International Swiss company Nestle; They are the participants in my research. I will not have a list of participants, but I will be going over the company Nestle and their company leaders. I selected Nestle as my primary participant because they are the main subject of my research. They are the primary subject in my research regarding if business should be held responsible for their environmental impact. I will be observing the company and their responses to their environmental impact where I will be using an observational model of research.

Materials

I needed articles, texts, and data to complete my research. My material is Quantitative/ Non-Experimental study, I will be analyzing my articles and texts I have put together for this research. I used the library databases to find peer reviewed articles and texts that support my idea that business like Nestle should be held responsible for their environmental impact. I will be using secondary research that I found supporting my research, my primary research is this article: Wilson, Janet. "Desert Sun". *Desertsun.Com*, 2019, <https://www.desertsun.com/story/news/environment/2019/06/13/nestle-still-taking-public-forest-water-its-arrowhead-label-feds-help/1362211001/>. Accessed 1 Apr 2021. Nestle is taking water so close to home, so close to our area where all they must pay is a small fee for a permit and after that all the water, they are taking is just profit.

Procedure

For this research I will analysis text and articles written by and about the company nestle. I will be going over their environmental impact and how big it is comparable to other business. I will also be going over their response to the public and what they are not responding to. I met with Tim Held and my Professor to help find and strength my research question. My research will entail scientific research over how our environment is really being affected by big business and research on how truly clean our planet is. For this section I looked online for peer reviewed articles regarding nestle, I also went through the libraries data base and found text relating to my research to strength my opinion. This research strengths my opinion that big business should be held liable for their environmental impacts.

Design

The research design I used was an observational research design, I will be observing the environmental impact and the response of Nestle. My materials are Quantitative/ Non-Experimental study, I will be observing the responses that big business have to this controversial subject of the environment. I will be going over articles pertaining

the environmental impact that big business is leaving behind. I will be going over the response and changes business are making throughout history to better their image and to stop their carbon footprint.

Expected Results

My expected results are for big companies are brought into public light so they can be held responsible for their negative environmental impact. For example, nestle a large Swiss Water company is taking millions of gallons of water Near San Bernardino, so close to home and yet they can with only a permit. My expected results are for big companies like Nestle get brought into light so consumers can truly see how their favorite companies are impacting the environment.

I will be conducting a Qualitative study so I will be analyzing and observing how companies conduct themselves in the public eye regarding the environment. The significance of this research is to hold these big businesses responsible, the countless times the environment has been damaged because a business wants to cut corners or make a quick dime is countless. This can further back up my belief that the environment is important and because money is changing hands it should not be forgotten.

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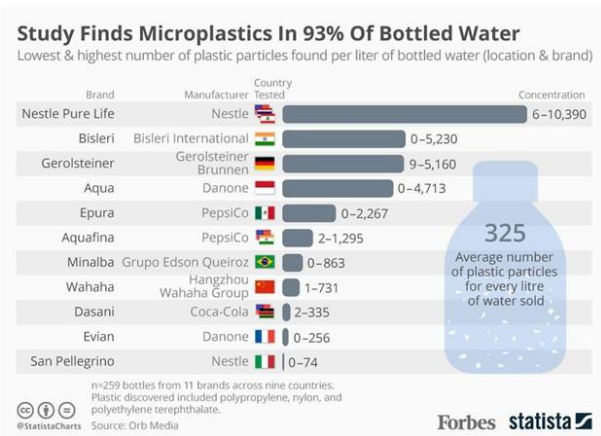
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Appendix A



COVID-19 Imposed Digital Learning Environment: The Relationship Between Perceived Educator Attitude and Student Acceptance

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Abstract

Frequent note of educator and faculty resistance or concerns regarding online education platforms is found in past research. However, because of the pandemic, both educators who champion new learning technologies and those with concerns about the efficacy and value of online learning were suddenly teaching remotely. This provided an opportunity to ask if students' perceptions of educator attitudes toward digital learning environments influence the student's acceptance of these platforms. This question was addressed via a quantitative correlational survey design to measure the strength of association between educator attitude and student acceptance as a mean across the scale measuring confidence in the platform effectiveness as implemented in two specific instances - their best and worst online course experiences. This score was used to compare to the Test of e-Learning Related Attitudes (TeLRA) scale to measure teacher attitudes towards e-learning. The Pearson's correlation coefficients were computed for the analysis of a total of 206 course evaluations. Considering all evaluations there was a strong positive correlation in the relationship between student acceptance and perceived educator attitude. There were no statistically significant correlations between acceptance, previous online course experience, or age. This suggests that students who report a positive perception of the educator's attitude will also report more positive acceptance levels relating to software platform choices and course design.

Keywords: online, education, COVID-19, acceptance, attitude

Introduction

Online learning was pioneered in the 1990s and has since been subject to persistent research and inquiry. The adoption of online teaching technologies has "expanded exponentially and touched virtually all dimensions of the higher education enterprise" (Altbach et al., 2009, p. 126). Yet, the global shift to an all-online format for most tertiary institutions was completely unprecedented. The COVID-19 pandemic caused educational, industrial, and personal disruption; such that a distinction between contexts of online learning and emergency online learning is justified. Accordingly, viewpoints and expectations for online learning outcomes supported by past research are suspect since previous studies concern teachers and students who opted to engage within digital learning environments (DLEs). Studies referenced in this work have used various terms to describe technology-mediated education, terms like virtual learning environment, and e-learning will instead be represented by DLE in this text.

Although student demand for online college classes continues to increase, many educators have resisted the adoption of the DLEs (Swan, 2003). Therefore, college educators that transitioned to online learning during the Spring of 2020 may not have had any prior online teaching experience. Even educators with some prior online teaching experience, may not have had training in their institutions' current online learning management system (LMS). So, educator attitudes, experiences, and skillsets during emergency online learning

should be regarded as more varied than those of educators studied in past research. Subsequently, the effectiveness of course designs during emergency online learning should also be regarded as more varied than typical online courses. The lack of choice for students during this atypical period must also be considered since students from in-person classes were forced to transition online during the Spring. Institutions were still remote in the Fall, so many students had online classes for courses that they would have otherwise taken in person. The 4.5% overall undergraduate enrollment reduction reported for Spring 2021, shows that some students opted for postponement instead (COVID-19: Stay Informed, 2021). It is likely that many just waited for the resumption of in-person learning, which cautiously began for some institutions during the Fall of 2021. However, the absence of both educator and student self-selection variables, brings up student acceptance of DLEs anew — in a context where the educators are potentially resistant to, or inexperienced with, the DLE as well.

Although the setting was pre-COVID-19, van Raaij and Schepers (2008) explored several aspects of student acceptance of DLEs in an MBA program. Their study applies since materials for the course were only available in digital format, so the selection of a traditional course was not an option. One of their findings suggests that for newer users, the opinions of peers and educators are significant factors contributing to the students' perception of DLE usefulness. This finding is strengthened by

Pynoo et al. (2012, as cited in Kisanga & Ireson, 2016) in which findings support that educator attitudes toward DLEs significantly influence the creation of their students' outlook on DLEs. Therefore, given the unique situation of emergency online learning, student perception of educator attitudes toward DLEs are of particular concern because of the potential to influence a large population of students who have not yet shaped their own opinion of the format.

Background

No Significant Difference versus Skepticism

A summation of past research highlights nine studies of undergraduate and graduate-level courses across a variety of subjects including psychology, nursing, technology, and business documented that despite most research outcomes supporting the viability of DLEs, many educators did not accept online learning as a valid replacement for in-person instruction. (Swan, 2003).

These findings are 18-years-old, and it is plausible that the progression of technology and the persuasion of continued no significant difference findings, may have turned the tide of educator perceptions. Since that analysis, the number of online students and courses has continued to grow. It is logical to expect that, over time, normalization would overcome educator resistance. The number of completely online students in 2014, was over 2.8 million; enrollments in distance education grew by 7% from the start of the school year in 2012 to the start of the year in 2014, while total enrollments in both public and private institutions declined (Allen et al., 2016). The study also tracked faculty acceptance levels; in 2015 DLEs were 61% favorable at institutions with over 10,000 distance learners, but for smaller schools, acceptance rates dropped below half.

More recent studies reflect that online learning is still met with skepticism and quality concerns by school administrators and faculty (Gurley, 2018; Shearer et al., 2019). Across the many prior studies, there is a commonality that is important to distinguish as different from the context of this research, the instructors of those classes had either self-selected as online educators or were at least acclimated to the learning environment being evaluated.

Changing Pedagogies

The fluctuating trends of acceptance rates, gaining ground and then suddenly losing it in 2015 that were reported in the report by Allen et al. (2016), point to an underlying cause beyond a simple aversion to change. Murphy et al. (2007) posited that, specifically in higher education, the resistance is to the greater demands that come with teaching online. This was supported by a qualitative research study that followed 12 teachers as they transitioned

to a DLE and then back into the classroom. Participants were educators at a Historically Black University with experience teaching and developing courses in both online and traditional modalities. The study noted concerns that affected acceptance were grouped around several major categories: greater time commitment, struggles related to learning the new technology, and altered pedagogies associated with digital learning environments (Andrews Graham, 2019). The participants specifically identified that within online teaching, the educator's role changes in multiple ways, moving from lecturer to facilitator, advising instead of supervising, and providing resources instead of dispensing knowledge. These studies support that online education remains one of the top concerns of faculty in higher education because effective techniques for traditional instruction do not directly correlate to effectiveness in online instruction.

As online education grows and educators increasingly transition to DLEs, the differences in teaching dynamics become more apparent. For example, online educators need the ability to teach technical literacy and the ability to navigate their specific digital learning platform (Roddy et al., 2017; Swan, 2003). Technology readiness goes beyond online etiquette tutorials and basic computer skills. Educators need to understand the implications, both beneficial and detrimental, of specific technology solution selections, plan for additional or altered course development, and understand how to accommodate student learning within the constraints inherent to the selected LMS and other course-related software. Taken together, these studies suggest that skepticism of online distance education is not really about resistance to change, but a consequence of the fundamental differences in expertise and methodologies required for online teaching within DLEs.

Of course, educators are aware of the many possibilities presented by the digital frontier and steps have been taken to bridge the divide between the diverging pedagogies. Shearer et al. (2019), set out to discover what both students and faculty desire from online learning experiences via an in-depth investigation of the current feelings and thoughts of those stakeholders. One finding suggested that educators and faculty are not satisfied with the default method of simply replicating traditional content into a digital environment. This points to a desire for focusing on new content experiences instead of just an alternate platform for delivery of the same material and pedagogical approaches used for in-person classes. According to Bates (2006, as cited in Mishra, 2007, p. 2), there are 12 golden rules to observe when employing technology in education; rules 2 and 11 are of note here. Respectively, those rules are: "Designing effective learning experience requires instructional designers who understand the technology," and "Teachers and resource persons

need training to use technologies effectively.” Research has been conducted to address educator confidence in digital learning environments via mentoring, training, and ongoing professional development specific to online learning methods (Andrews Graham, 2019; Barczyk et al., 2011).

Of particular interest to this research, is the measure of teaching presence. According to Garrison (2000, as cited in Gurley, 2018), teaching presence is a structure that creates, directs, and integrates cognitive and social processes into relevant and purposeful learning outcomes of individual students. The study found no significant difference between levels of perceived teaching presence of design and organization, and methods of preparation to teach. However, the perceived teaching presence of facilitation was significantly higher, by a mean increase of .35, for educators who had completed a certification course, than for those whose preparation to teach in a DLE was on-the-job training. Facilitation factors of teaching presence were described as methods that engage students in the course, introduce new concepts, and promote understanding and task awareness. Examples of facilitation teaching presence behaviors are, providing real-time feedback, synchronous group discussions, asynchronous group projects, as well as material assimilation in three steps: content presentation; pre-test; applied concept tasks. These findings show that while all training methods address planning, development, and organization for online educators, certification courses for online instruction provide a perceived improvement of facilitation while implementing course content and learning activities. Essentially, these examples represent new kinds of engagement that replace the motivation and direction that educators provide in person.

Thus, the methods of learning facilitation are understood as different from in-person instruction, and this is a contributor to the resistance from faculty and instructors. However, certain training and mentoring resources address these concerns through preparation. However, because of the pandemic shutdown in the 2019-2020 school year, educators — even those who had no previous experience teaching via distance learning platforms — were required to transition from face-to-face to remote instruction with very little preparation. Therefore, the confluence of events creates a mix from the early adopters to the reticent holdouts, both educators and students were forced to adapt.

Student Acceptance

Throughout a course, students assess their own ability to navigate within the learning environment and difficult or negative interactions with platform interfaces can detrimentally influence learning outcomes (Paul et al., 2020; Swan, 2003). The research conducted by Paul et al. (2020) assesses questions of how student perceptions of control over

the learning environment relate to achievement emotions and specifically investigated student content creation abilities in response system platforms. The study found that methods for students to contribute content anonymously in a format that allows educators and peers to provide immediate and ongoing feedback which result in higher achievement emotions and better engagement. That same research suggests further inquiry into student perceptions of the value that educators place on digital learning platforms. Therefore, the learning platform cannot only be evaluated in terms of content delivery, but also on its propensity to facilitate or stymie interaction with the entire course including instructors and peers. The platform interface is thus a central factor of the student's perceived control over their learning and achievements. While specific platform acceptance plays an important role in this study, general acceptance of the emergency DLE is the primary focus.

Student acceptance of emergency DLEs is mixed, according to the findings of current COVID-19 research. A cross-sectional study of student adaptability to the sudden online learning transition queried the relationship between personality and learning experiences of the transition as retrospectively compared to traditional learning environments. This survey of Israeli college students is unique because, before COVID-19, Israel had very few online or hybrid courses. As a result, few of the 1,217 respondents who weighed in after the completion of the first mandatory remote semester, had any comparisons to make with prior distance learning experiences. This study, by Besser et al. (2020), used the Big-Five Mini-Markers instrument, and overall, these markers had only small correlations with learning experiences, but the learning experiences as measured by stress, isolation, and negative mood were more negative than the retrospective self-report for traditional learning with medium effect sizes. These results support the likelihood that students without prior online learning exposure will report more negative views on the platform than those that do, regardless of personality type.

In contrast, research on undergraduate perceptions of online learning at the South Eastern University of Sri Lanka found that although 49.8% of participants had no prior online education experience before the pandemic, 50.5% of all respondents reported being happy with the method, 29.9% were undecided and 19.6% reported being unhappy (Nafrees et al., 2020). Thus, despite the acclimation to a new mode of learning, it was well-received. The most reported benefit was the ability to choose where and when to engage with the materials and complete assignments, while the biggest drawback was increased overall monthly expenditures by 40.5% citing increased internet costs for slower speeds than before the

pandemic. A qualitative study of undergraduate attitudes towards online learning identified slightly different benefits (arranged from most frequent to least): Effectiveness time and cost, safety, convenience, increased participation; and drawbacks: Distraction and lack of focus, workload, technology, and internet issues, and inadequate support (Hussein et al., 2020). Therefore, the differences in cost and speed seem to fluctuate based on local infrastructure and service reliability, but the benefits of convenience/flexibility do not. The researchers also stressed that it is important to interrogate the generalizability of any studies involving pandemic-related distance learning because the situation is unique. Therefore, the findings should not be attributed as outcomes that reflect the quality of distance learning under more optimal circumstances.

Study Objectives

Online and computer-mediated pedagogy has been well researched over the last decade. These results have skewed toward the outcome of 'no significant difference' between traditional and online learning (Swan, 2003). Yet, the lack of choice for both students and teachers are facets to consider when assessing tertiary education during the pandemic considering the evidence that a significant portion of both faculty and instructors view online learning as an inferior teaching medium (Gurley, 2018; Swan, 2003). Specifically, in higher education, research suggests that online learning is one of the top concerns and studies support that mentoring, training, and platform-specific ongoing professional development can successfully address these concerns (Andrews Graham, 2019). However, because of emergency modifications of course delivery, any educator with concerns about the efficacy and value of online learning may have been unprepared and without such intervention, still maintained negative attitudes toward distance learning at the transition occurred. It then follows that these educators' perceptions may influence interactions within the platforms. Such inquiry into student perceptions of the value that educators place upon digital course designs was recommended in previous research studies relating to digital learning environments (Nafrees et al., 2020; Paul et al., 2020).

Currently published research concerning online learning during the COVID-19 pandemic has been student-centric in the documentation of challenges, attitudes, views, and preferences. Thus, the current opportunity to study how acceptance cues from educators inform student acceptance and expectation of learning outcomes. Available studies do not address the interplay between instructor perceptions and those of students, although Nafrees et al. (2020) noted the need for a study focusing on staff awareness. Therefore, this study will ask: Do students' perceptions of educator attitudes toward digital learning environments influence the student's

acceptance of these platforms? Attitude will be considered as "...a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly et al., 1993, p. 1) where the entity refers to DELs. The term Digital Learning Environments (DLE) will be used to refer to the non-classroom-based set of services or tools that facilitate teaching and learning across multiple course components (lectures, assignments, quizzes, tests, textbooks, and other resources access) and course designs (asynchronous, synchronous, blended).

It was hypothesized that positive perceptions of educator attitude will relate to higher student acceptance scores and that there will be a stronger correlation for students with little previous online education experience.

Methods

Participants

Participants were college students 18 years or older, who have taken at least one online course during the emergency online learning period (September 2020 through October 2021). Participants were recruited through SONA, the Psychology Departments' online subject pool (<http://csustan.sona-systems.com/>) and from Amazon's Mechanical Turk Platform (MTurk) (<https://www.mturk.com/>). Individuals who took part through SONA automatically received one experimental credit for their completion of the survey. Some instructors accepted the credit earned in SONA as extra credit. Participants who completed the survey on Amazon Mechanical Turk, after bot check validations, qualified for up to one dollar as compensation. The study was administered by utilizing Qualtrics. A total of 113 participants passed verification methods including checks for impossible data, like graduation dates before COVID. Responses that failed these checks or the Qualtrics eCaptcha metric, were deleted and not used in the survey.

Respondents had a median age of 23 ($SD = 7.29$). Gender identity skewed towards women at 74.3% with 12.4% identifying as a man and 13.3% abstaining from the question. 68% of responses were from CUSUS students, while 11% were from other colleges (via MTurk), with 24% of colleges unreported. Participants were asked to gauge their level of previous online experience with a choice of four categories. Novice – no prior online classes, had 24 responses. Beginner – some previous online classes, received 21. Intermediate – several prior online courses, had 27 responses. Advanced – many prior online courses, received 26. The remaining 15 participants did not respond to the question.

Materials and Design

The student acceptance survey instrument was adapted from Likert scales validated by faculty at Abdulrahman Bin Faisal University for research

assessing the attitudes of faculty and students toward learning management systems (Alshorman & Bawaneh, 2018). Further refinement of statements used in the student acceptance scales was made based upon feedback from a pilot study that surveyed 45 undergraduates in a California State University, Stanislaus statistics class. The resulting tool used a 5-point Likert design with 12 statements, four for each category of student acceptance. An example of a statement from the confidence category is, "I want to take another online course using (name of digital learning environment platform)." The response options are: Strongly Disagree, Disagree, Neither agree nor disagree, Agree, and Strongly Agree.

The Test of e-Learning Related Attitudes (TeLRA) was developed and validated by Kisanga and Ireson (2016) and it was used to assess teacher attitudes post-emergency lockdown. That study, by Guruaja (2021), found that more negative attitudes centered on lack of confidence in e-learning skills, individuals that had no previous experience or training with e-learning techniques, and discomfort with computer and internet technology. These findings guided the selection of the most relevant of the 32 statements in the TeLRA and adaptation of them to measure the student's assessment of professor attitude toward online teaching and the specific digital platforms employed within a course. Eight statements were selected, and adjusted target beliefs related to the findings of Guruaja's study. For example, "Teaching online is tiresome" was taken directly from the TeLRA measurement scale. Response options choices remained the same as the student acceptance scale.

Procedure

The statement presentation for both measurement tools was randomized to prevent order bias. To correct for lack of attention or agreement bias, half of the statements were reverse coded. Participants that had at least two emergency online courses routed through both scales twice, for perspectives of their best and worst course experiences. Students were also asked to make judgments of what factors informed their decision for the course they defined as the best designed, or worst designed. This question listed several factors using a constant sum scale allowing for an assignment of weight to each factor. Demographic and attention check or verification information questions were also asked. These included previous online course experience, age, expected graduation date, and college name.

After joining the survey, the consent form page was presented with general information about the study and a request to confirm that they have read and agreed to take part in the study anonymously and voluntarily. After clicking "I agree" the number of online courses taken during COVID-19 was displayed. Qualtrics branched the survey options

based on the answer, ending the survey if the answer was skipped. If no online courses were taken, the participant was routed to a separate questionnaire for factors contributing to not enrolling; only two selected the option so far and that data is not included in these preliminary findings. To prevent the presentation-order effect, the survey software randomized which set of questionnaires (best/worst) appeared first to those participants with two or more online courses during the pandemic. Those that only took one online course routed through a single set of questions.

Each questionnaire set started with instructions to consider either the worst-designed, best designed, or only online course. Participants were asked to consider the accessibility of software solutions used, teaching methods, or course material usability as a basis for their selection, rather than an enjoyment of the subject. Those instructions are followed by four class design questions: course type (synchronous, asynchronous, hybrid); learning management system used (LMS); what third-party software was used, if any; and if applicable, the video conferencing or recording platforms used. These items and instructions were on a single page.

The next page of the questionnaire presented only the student acceptance scale. The instructions reminded the student which type of course, the question concerned: worst-designed, best designed, or only course. The 12 statements were shown randomly, one at a time. After a response was made, the next statement appeared. Although statement responses could be skipped, a notice was displayed, asking for confirmation to proceed without answering. The participant could move on or choose to finish answering.

The following page contained only the scale to measure perceived educator attitude. The instructions provided a reminder of which course the question pertained to (worst, best, only) and instructions for the participant to read each statement, without thinking too long, and to select the response they felt best represented the position or beliefs of the professor in that course. It was emphasized that the survey was interested in their opinion and there were no right or wrong answers. The random presentation of statements, options and skip confirmation was the same as the student acceptance scale. If the participant had only had one emergency online course, the survey was then routed to the demographic questions.

Those that took two or more classes, proceeded to the page with instructions and a constant sum scale. The instructions again relayed which course (best or worst) to provide weighted factors which described why they chose that specific course as best or worst. Available response options were numbers from 0 (having no part in the decision) to 100 (as the sole reason for deciding), but the total sum across all responses needed to sum to exactly 100. Up to 8

statements and an optional text entry field were listed as potential factors: Course type (synchronous, asynchronous, blended), Overall organization, Other, Grade received in the class, Interaction with peers, Communication or interaction with the professor, Third-party software, The video software. The last two statements only appeared if previous answers indicated relevancy. These participants proceeded to the second questionnaire, if they were assigned the worst-designed course first, they would next consider the best-designed and vice versa. This was followed by the demographic questions and the debriefing form.

Results

Pearson's product moment was used to produce a correlation between the perceived educator attitude score from the TeLRA scale and the total student acceptance score across both best and worst course categories. The results, illustrated in figure 1, suggest a strong positive relationship that is statistically significant $r(203) = .58, p < .001$, two-tailed. The coefficient of determination $R^2 = .34$, indicates that 34% of variance in student acceptance can be determined from the relationship with perceived educator attitude.

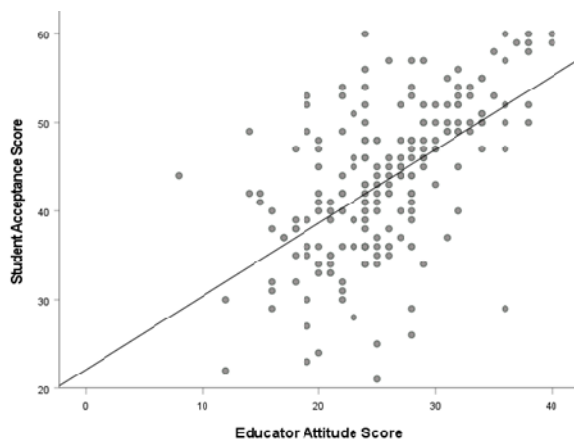


Fig. 1 Relationship Between Student Acceptance and Perceived Educator Attitude for All Course Evaluations. Each dot represents an individual course evaluation; $n = 205$

A constant sum scale was used to determine factors which contributed to the student's designation of a course as best or worst. Course Type (synchronous, asynchronous, or blended) was the largest stated factor in both designations; worst ($M = 20.33, SD = 27.14$); best ($M = 29.95, SD = 26.89$). Followed by professor communication in the worst ($M = 18.14, SD = 23.64$), and overall organization in the best ($M = 18.34, SD = 17.17$). See table 1 for complete results.

Pearson's correlations were also computed for subgroups of responses based upon the best and worst course designations. The results for the best course group (see figure 2) relationship between student acceptance and perceived educator attitude also indicate a strong positive correlation $r(90) = .57,$

$p < .01$ two-tailed. The coefficient of determination $r^2 = .32$ suggests that 32% of variability in the scores is due to the relationship between the variables.

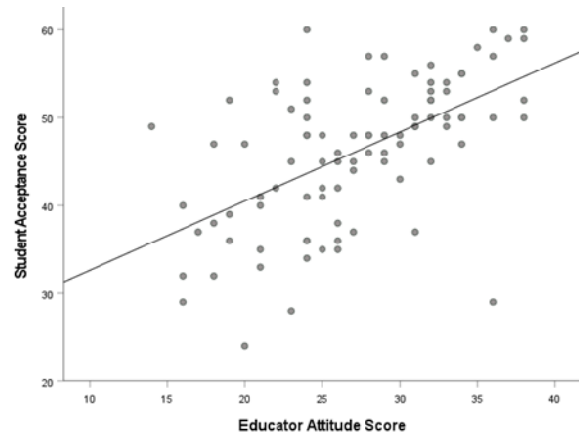


Fig. 2 Relationship Between Student Acceptance and Perceived Educator Attitude for Best Course Evaluations. Each dot represents an individual course evaluation; $n = 92$

The Pearson's correlation supports a moderate positive correlation for the worst course group relationship between student acceptance and perceived educator attitude $r(90) = .49, p < .01$ two-tailed. The coefficient of determination $r^2 = .24$ suggests that 24% of variability in the scores is due to the relationship between the variables (Figure 3). The full results and descriptive statistics for worst, best, only course and across all responsive can be found in table 2.

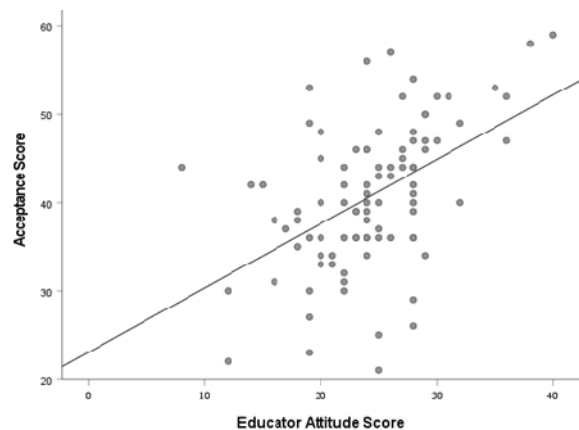


Fig. 3 Relationship Between Student Acceptance and Perceived Educator Attitude for Worst Course Evaluations. Each dot represents an individual course evaluation; $n = 92$

Although statistically significant correlations were found when assessing the data by previous online experience categories, no pattern emerged to support that experience impacted the relationship between student acceptance and perceived educator attitude (Table 3).

Additionally, due to sample skew and demographic representativeness there could be no significant correlations drawn from evaluations reported as the

participants only course taken during the pandemic, nor from age, gender identity or college attended

Table 1
Factors Weighted by Student as Reasons for Course Designation of Best or Worst

	Worst Course			Best Course		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Course Type	92	20.33	27.14	92	29.95	26.89
Grade Received	92	11.67	18.65	92	14.45	15.98
Peer Interaction	92	12.38	21.22	92	5.41	7.73
3 rd Party Software*	56	15.63	24.38	55	9.85	16.90
Video Software*	73	10.01	16.49	74	12.58	18.46
Ed. Communication	92	18.14	23.64	92	11.82	12.66
Overall Organization	92	14.26	20.35	92	18.34	17.17
Other	92	5.76	18.35	92	4.03	14.18

Note. Descriptive statistics for constant sum scale question designed to measure factors that contributed to student choice of course as best or worst. * Indicates that this factor did not apply to all courses; *n* is the number of course evaluations in which the corresponding designation factor was available to be weighed. *M* and *SD* are used to represent mean and standard deviation, respectively.

Table 2
Descriptive Statistics and Correlations with Confidence Intervals for Variables Across Course Designations

Course Designation	Variables	<i>M</i>	<i>SD</i>	<i>n</i>	1	2
Worst	1. Student Accept.	40.73	8.20	92	--	--
	2. Ed. Attitude	24.28	5.55	92	.493** [.32, .63]	--
Best	1. Student Accept.	46.16	8.22	92	--	--
	2. Ed. Attitude	27.20	5.94	92	.568** [.41, .69]	--
Only	1. Student Accept.	42.90	6.64	21	--	--
	2. Ed. Attitude	25.62	5.95	21	.749** [.47, .89]	--
All	1. Student Accept.	43.49	8.43	205	--	--
	2. Ed. Attitude	25.73	5.90	206	.580** [.48, .64]	--

Note. ** $p < 0.01$ level (2-tailed). *M* and *SD* are used to represent mean and standard deviation, respectively; *n* denotes the sample size for each course evaluation category, as well as the total course evaluations; Values in square brackets indicate the 95% confidence interval for each correlation. The sample size for the Only course group is under 30 and therefore is not considered a normal distribution sample according to central limit theorem.

Table 3
Descriptive Statistics and Correlations with Confidence Intervals for Variables by Prior Experience

Prior Online Experience	Variables	<i>M</i>	<i>SD</i>	<i>n</i>	1	2
Novice	1. Student Accept.	38.49	8.73	45	--	--
	2. Ed. Attitude	23.71	5.55	45	.572** [.35, .74]	--
Beginner	1. Student Accept.	46.44	7.71	41	--	--
	2. Ed. Attitude	27.07	5.99	41	.568** [.33, .76]	--
Intermediate	1. Student Accept.	42.98	7.80	51	--	--
	2. Ed. Attitude	24.84	6.27	51	.749** [.22, .66]	--
Advanced	1. Student Accept.	46.40	7.80	50	--	--
	2. Ed. Attitude	27.40	5.13	50	.580** [.29, .70]	--

Note. ** $p < 0.01$ level (2-tailed). *M* and *SD* are used to represent mean and standard deviation, respectively; *n* denotes the sample size for each prior experience category, as well as the total course evaluations; Values in square brackets indicate the 95% confidence interval for each correlation.

Discussion

The novel disruption of normal education methods is of widespread interest across the globe. The focus of this research is to understand students' perceptions of educator attitudes about digital learning environments during this period and to determine if this correlates with student acceptance of the platform. The hypothesis that student positive perception of perceived educator attitude would relate to higher acceptance ratings of the digital learning environment was supported. However, the data did not show that previous experience mediated the influence of perceived educator attitude. Therefore, the second portion of the hypothesis – that correlation would be stronger for students with little prior experience was not supported.

These findings enhance our understanding of the instructor's role in DLE acceptance. Both educators and faculty may benefit from a quantified expression of how the perception of their opinions and beliefs inform student behaviors. These implications are specific to universities that continue to pursue online education post-COVID-19 restrictions.

A limitation of the current study is the reliance upon student reflection. Many students had the opportunity returned to some in-person classes, and the contrast between the two methods may inform their responses. Additionally, the sample was largely female and mostly from CSUS.

In the future it would be interesting to investigate how much a student's pre-existing openness to DLE's informs both platform acceptance and perception of educator attitude. It is possible that this variable is the source of the correlation measured in this study. A study design that directly measures instructor attitudes and that of their students is also worth future consideration.

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Children's Academics, Mental Health, and Social Support during COVID-19 Remote Instruction

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Abstract

Maintaining mental health and well-being has become increasingly important due to the COVID-19 pandemic. Social distancing and remote learning have made it hard for students to get the academic help and social support they need to thrive and succeed. Research suggests that elementary school-aged children may be the most vulnerable due to their reliance on teachers for support and guidance. The present online study examined the relationship between social support and stress, anxiety, and depression in elementary school children. Based on past research, we hypothesized social support will be negatively correlated with anxiety. Social support will be negatively correlated with stress. Social support will be negatively corrected with depression. Social support will be positively correlated with academics. Participants (n=24) were randomly selected through flyers, word of mouth, and a letter sent to the child's parents outlining the procedure and study. After getting the parent's consent and the child's assent, a survey link was emailed to parents. Child participants filled out two out of the anxiety, stress, and depression measures; parents filled out the demographic questionnaire. Significant correlations were found between the following variables: stress and family time ($p = .04$). These findings show that as time with family increases, stress decreases. This may be an important relationship to help buffer some of the adverse situations caused by the pandemic. Unfortunately, the sample was small, limiting how generalizable these findings are to families at large. Future research may want to further explore specific family activities that may relate to mental health factors, such as stress.

Keywords: COVID-19, mental health, academics

Introduction

Since COVID-19 was declared a pandemic, nearly all places of business and entertainment were shut down and schools had to move towards remote learning. This was a fundamental shift in how education was conducted. While these changes affected children of all ages, elementary school aged children may be the most negatively impacted due to their reliance on teachers and classroom support for their learning. The sudden transition in schooling and children's learning environment raises concerns for their mental health, academics, and social support.

COVID-19 and Mental Health

The lack of support services in the school and community has made mental health a even more of a national public health issue as children in this ongoing pandemic have fewer ways to cope with the anxiety and stress they are facing. (Phelps & Sperry, 2020). The pandemic has worsened the psychological well-being of both parents and children. Ananat et al. (2020) found that the hardships that families have faced during this time (e.g., job loss, income loss, caregiving burdens, and

illness) have strongly influenced and affected the well-being of families. Coupled with this, stay-at-home orders and social distancing have made children restricted to their living environments, exacerbating everyday stressors. Phelps and Sperry (2020) identified that children are struggling with their mental health, anxiety, depression, child maltreatment, and physical abuse while staying at home. Cohen and Bosk (2020) further found that certain pediatric populations – LGBTQ youth, homeless and maltreated youth, those in foster care, and youth who struggle with substance use disorders – are more vulnerable in this pandemic. It is evident that physical distancing has increased the feelings of loneliness and isolation.

Mental health in this pandemic is an issue that has been illustrated in every person's life. Children are not immune to these feelings and growing up in this critical time further impacts their development and social and emotional well-being. Social support is an important aspect in maintaining mental health. Struggling to have someone to talk to and confide in during this pandemic further raises concerns on how the child develops and builds the skills they need for social support (Ananat et

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al., 2020). Recent research examined that during the early months of the pandemic, telehealth appointments increased for children and adolescents (Wood et al., 2020). Wood et al. (2020) identified that by implementing medical video visits, adolescents were able to get the clinical help they needed and decrease the existing burdens may have been placed on the family. This also allowed a slight improvement in achieving greater access to health care through digital means and enhanced feelings of social support and connectedness.

COVID-19 and Social Support

With decreased socialization and mandatory stay-at-home orders, children have fewer opportunities to express their feelings in person to those who do not reside in the same home as them. Consequently, this uncertainty and anxiety is attributable to the disruption in their education, physical activities, and opportunities for social interaction (Singh et al., 2020). For elementary aged children, abrupt changes in their learning environment and limited social interactions pose significant threats to their developing brains (Shah et al., 2020). Phelps and Sperry (2020) noted that while there are directions of delivering online instruction, there is little direction on supporting children who rely on schools for behavioral and mental health support. Nevertheless, with children being physically isolated from their peers, family time increased during the stay-at-home mandate (Ellis et al., 2020). The lack of social support further ignites increased feelings of demotivation, loneliness and depression in children and adolescents. These emotions are translated into how children proceed with their work and responsibilities in school which furthers the struggle of maintaining academic success. Having the right social support can help children's academic success.

COVID-19 and Academic Success

The transition from in-person learning to online learning has been a drastic change for children and adolescents. Teachers' instructions now include printable worksheets and online virtual classes, with parents becoming co-teachers who are assisting and educating their children. Without the traditional education style and the direct support of teachers and faculty, children are having a hard time adjusting to virtual learning and being able to do their work independently (Bao et al., 2020). Additionally, kindergarten children's reading ability decreased without in-person education (Bao et al., 2020). This decline varied with children from different socioeconomic backgrounds. In particular, low-income, Black, and Hispanic students face a learning loss as they are populations that do not have access to high-quality remote learning. (Dorn et al., 2020). These children and adolescents have a different learning environment, reliable or unreliable internet access and connection, shared or borrowed electronic technology, and even little

to no academic support from their parents (Dorn et al., 2020). It is also important to note that K-12 virtual schooling is not suited for all students and their families. Success in virtual schooling involves motivation, support, and organization therefore different learning environments and online teaching strategies affect the outcomes of student success. The learning environment is very different from what students are used to, which may influence their academic growth (Black et al., 2020). Consequently, the lack of a structured school setting has led to a disruption in routine, boredom, and a lack of innovative ideas for engaging in various academic and extracurricular activities (Singh et al., 2020). With the mandated stay at home orders, the academic success of students decreased. This may correlate with the pandemic reducing socialization and entertainment opportunities for young children (Singh et al., 2020).

A recent study illustrated the lack of fundamental reading skills that were lost or not fully learned due to the COVID-19 remote learning shift. Sparks (2022) found that students in elementary school settings fell behind in their reading. Black and Hispanic students were falling behind even further when examining reading scores and comparing them to before and during the pandemic. While it is clear that academics may have been impacted by remote learning, there may be other factors that also relate to elementary students' academic success.

Present Study

The purpose of this study was to examine the relationships among elementary school students' mental health, academics, and social support during COVID-19 remote learning.

Based on past research, this study examined four hypotheses:

1. It is hypothesized that that social support will be negatively correlated with anxiety.
2. Social support will be negatively correlated with stress.
3. Social support will be negatively corrected with depression.
4. Social support will be positively correlated with academics.

Methods

Participants. A sample of 24 participants was recruited from the local elementary schools, through their teachers, word of mouth, flyers, social media, and letters sent to the parents. The children ranged from ages 8-12, with an average age of 9.9 ($SD = 2.0$), 37.5% male and 62.5% female. The ethnic breakdown was as follows: 75% Caucasian ($n = 18$), 16.7% Latinx ($n = 4$), and 8.3% African American ($n = 2$).

Measures

Anxiety. The LEVEL 2 – Anxiety – Child Age 11-17 (PROMIS Health Organization, 2012; see Appendix A) is a 13-statement questionnaire in which children rated their responses on a five-point Likert scale to demonstrate if they had anxious feelings. Scores were totaled with higher scores indicating higher levels of anxiety.

Stress. The Parent-Stress (NIH Perceived Stress Scale; PSS) is a 10-statement questionnaire in which the parents rated their children's responses on a five-point Likert scale to demonstrate feelings of stress. Scores were totaled with higher scores indicating higher levels of stress.

Depression. The LEVEL 2 – Depression – Child Age 11-17 (PROMIS Health Organization, 2012; see Appendix B) is a 14-statement questionnaire in which children rated their responses on a five-point Likert scale to demonstrate if they had feelings of hopelessness or loneliness. Scores were totaled with higher scores indicating higher levels of depression.

Academics. Academics were measured put for the grades they received during the 2020-2021 school year. Academics was a one-item question that asked, "What grades did your child receive in the 2020-2021 school year?" and gave three options: mostly above average (A's or B's), mostly average (C's), and mostly below average (D's or F's).

Social Support. Social support was measured by parents' responses about tutoring, virtual chats/playdates, and family time. There were three questions for each topic, respectively: "How many hours a week did you child receive tutoring or outside support for school during the 2020-2021 school year?"; "How many hours a week did your child engage in virtual playdates/chats/games/interactions with friends during the 2020-2021 school year?"; and "Approximately how many hours a week did the family spend time together during the 2020-2021 school year?".

Procedure

Children were recruited through their teachers, word of mouth, flyers, social media, and a letter/email sent out to the parents outlining the procedure and study. After getting the parent's consent and child's assent, a survey link was emailed to parents. Child participants completed the anxiety, stress, and depression measures; parent participants completed the demographic's questionnaire (see Appendix D) and the PSS. After completing the survey, participants were directed to a debriefing page, which they could print for their own records. They were also able to put their email address to be entered into a raffle to win one of five \$50 Amazon gift cards.

Results

Stress and Social Support. A Pearson correlation did not reveal a significant correlation between stress ($M = 29.6, SD = 5.4$) and tutoring ($M = 1.5, SD = 2.2$), $r = -.07, p = .74$. A Pearson correlation did not reveal a significant correlation between stress ($M = 29.6, SD = 5.4$) and playdates ($M = 5.8, SD = 6.9$), $r = .17, p = .49$. A Pearson correlation revealed a significant negative correlation between stress ($M = 29.6, SD = 5.4$) and family time ($M = 40.6, SD = 50.2$), $r = -.50, p = .04$

Depression and Social Support. A Pearson correlation did not reveal a significant correlation between depression ($M = 28.4, SD = 6.6$) and tutoring ($M = 1.5, SD = 2.2$), $r = .21, p = .45$. A Pearson correlation did not reveal a significant correlation between depression ($M = 28.4, SD = 6.6$) and playdates ($M = 5.8, SD = 6.9$), $r = -.10, p = .73$. A Pearson correlation did not reveal a significant correlation between depression ($M = 28.4, SD = 6.6$) and family time ($M = 40.6, SD = 50.2$), $r = .12, p = .68$

Anxiety and Social Support. A Pearson correlation did not reveal a significant correlation between anxiety ($M = 25.6, SD = 7.7$) and tutoring ($M = 1.5, SD = 2.2$), $r = .29, p = .31$. A Pearson correlation did not reveal a significant correlation between anxiety ($M = 25.6, SD = 7.7$) and playdates ($M = 5.8, SD = 6.9$), $r = .27, p = .38$. A Pearson correlation did not reveal a significant correlation between anxiety ($M = 25.6, SD = 7.7$) and family time ($M = 40.6, SD = 50.2$), $r = -.18, p = .57$.

Academics and Social Support. A Pearson correlation did not reveal a significant correlation between academics ($M = 1.67, SD = 4.8$) and tutoring ($M = 1.5, SD = 2.2$), $r = -.31, p = .18$. A Pearson correlation did not reveal a significant correlation between academics ($M = 1.67, SD = .48$) and playdates ($M = 5.8, SD = 6.9$), $r = -.26, p = .30$. A Pearson correlation did not reveal a significant correlation between academics ($M = 1.67, SD = .48$) and family time ($M = 40.6, SD = 50.2$), $r = -.10, p = .68$.

Discussion

The purpose of this study was to examine elementary school students and how the resources and support they received during COVID-19 remote learning related to their mental health, academics, and social support. The first hypothesis that social support will be negatively correlated with anxiety was not supported. This is in contrast to previous research that found children were facing and struggling with their mental health, anxiety, depression, child maltreatment, and physical abuse while staying at home (Phelps & Sperry, 2020). These struggles along with the stay-at-home orders and social distancing made children more confined to their living environments, exacerbating everyday stressors (Phelps & Sperry, 2020). The second hypothesis that social support will be negatively correlated with stress was supported. There was a significant difference between family time and stress.

The results indicated that more family time was related to less stress in young children and vice versa. This may be because families were at home and had more opportunities for positive family interactions that helped buffer the ongoing stress of the pandemic. These findings are consistent with current research. Ellis et al. (2020) found that with children staying at home, increased family time suggested less stress and mental health concerns.

The third hypothesis that social support will be negatively corrected with depression was not supported in contrast to previous research. Research from Ellis et al. (2020) suggests that family time during the COVID-19 pandemic was related to less depression.

The fourth hypothesis that social support will be positively correlated with academics was not supported. This did not align with previous research in which Black et al. (2020) found that the different learning environment and online teaching strategies were not suited for all students and their families. They may have faced different struggles than other students.

Limitations

This study had several limitations. The first limitation is that the social support questions may have been difficult to answer accurately since it was asking for hours per week of activities that happened 6+ months ago. Though parents answered this question, they may not have been aware of all the activities their children were doing throughout the week to get an accurate number. As such, the range was very large for the sample (e.g., the range for family time during the week was 5-168 hours). The second limitation was that the measures were designed for older kids (11-17); however, it did state that they could be used for younger children. Though there were children in the sample who were in the intended age range, other younger participants may not have understood the meaning of the questions in the same way that older children may have interpreted. The third limitation was that data was collected during the transition back to in-person learning. This change in learning environment may have made it more difficult for the children to recall their experiences during remote learning.

Future Research

There is a variety of topics that future research can further examine in the area of children's education and mental health as the pandemic wanes. With the transition back to in-person learning, some schools have started to realize the importance of supporting children's mental health and how that improves academics. Future research should investigate changes to mental health programs in schools to support children's academics. Additionally, researchers could also investigate teachers' perceptions of the changes that children gone through in their academics and mental health during the transition from online to in-person learning. As teachers shifted to online instruction,

they modified their teaching strategies and support that was available in the classroom. Research can examine how teachers took note of the changes during the pandemic and if they changed their teaching methods to help facilitate students' learning and foster mental health. Finally, researchers can gain insight in what parents' strategies were for supporting their children in school during the pandemic. Examining parents' experiences through interviews may shed insight on their struggles and coping strategies, how parents helped their children study and motivated their learning, the specific kinds of activities families engaged in, and how they balanced their own work and their child's schooling.

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Public Opinion on Inmate Re-entry: Reducing Recidivism vs. Indefinite Punishment

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Abstract

Since the 1970's, the American Criminal Justice System has utilized a “tough on crime” approach to deter people away from committing crimes. Such an ideology has led to overcrowded prisons and economic strain. The United States houses more prisoners and has higher recidivism rates than any other country. Our current system is ineffective at reducing crime in communities, which is a topic that is universally important to most all Americans. The purpose of this project is to gain knowledge about public opinion regarding the American Criminal Justice System and the associated outcomes of the formerly incarcerated. The United States has shown minimal attention to the rehabilitation of inmates and their integration back into their communities to thrive after incarceration. It is theorized that when people are offered facts about high levels of incarceration, the percentage of inmates that will be released, the extreme rates of recidivism (a return to incarceration) and the associated costs of the Criminal Justice System, most people will favor a rehabilitative model that attempts to reduce recidivism. I also expect to find respondents as more empathetic towards people who commit drug-related and white-collar crimes when compared to violent crimes, considering demographical patterns. Replacing political rhetoric with facts will provide an effective starting point to this conversation. Public support of a rehabilitative model begins with an effective analysis of the facts and how those facts affect us. This study begins important and necessary public discourse on this topic, in a logical way.

Keywords: Recidivism, Rehabilitation, Punishment, American Criminal Justice System

Background

In a largely unsuccessful effort to deter crime, the American Criminal Justice system has embarked upon a highly punitive, “tough-on-crime” approach over the last several decades which has filled our jails and prisons to over-capacity (Andrews and Bonta, 2010). This system has consequences that currently need to be addressed, such as the economic strain it places on our tax system and the massive amounts of former inmates that are released, daily, into communities across the nation. The reality is this: our prisons are “built with revolving doors—more than two-thirds of individuals released from prison in California recidivate (return to prison)” (Schnepel, 2016). These statistics indicate a potential need to reimagine our current system of justice. If the goal is to create safer communities by deterring people from committing crime in the first place, through these punitive policies only increasing incarceration, then we can conclude that the system does not create safer communities. We should, therefore, consider rehabilitation as opposed to punishment.

Outcomes

This is not to discredit the need for consequences. Instead, I intend to investigate public opinion regarding whether people can be redeemed after incarceration. If I find that most of my sample believe that the formerly incarcerated can change their lives to become law-abiding, productive members of society, then we will have an effective

starting point regarding a productive conversation about reimagining our system of justice. Existing research indicates that the public does agree that rehabilitation is a possibility for people who commit drug crimes (Garland, Wodahl, and Schuhman, 2013). Since the public seems to have empathy for drug offenders and believes that rehabilitation is a possibility for this category of crime, we have at least one group of offenders that should be offered rehabilitation services. If these people can be successfully rehabilitated, their rates of reoffense and crime would, by default, decrease, thus creating safer communities.

In facing the ineffective nature of the current punitive American Criminal Justice System in terms of decreasing crime, (a very important topic to most people) we should begin to explore other options. The only way to initiate change in our current policies is to gain public support for said change. When people become more aware about the facts regarding mass incarceration, especially how it affects them personally, we may have the necessary foundation to engage in effective public discourse. To do that, a conversation based on facts—not political rhetoric—can begin. One way all Americans are affected by the criminal justice system is financing through tax dollars. Funding the current criminal justice system, including the cost of monitoring and reincarcerating the countless people who have served their sentences, has reached “unprecedented” levels (Garland, Wodahl, and Schuhman, 2013). This funding comes straight from taxpayers’ pockets. Reallocating those funds to

effective prisoner re-entry programs will have long term personal (eventual decreased tax spending) and societal benefits (decreased rates of crime).

Those who are recently released are at an increased risk of continuing to engage in criminal behavior, given the seemingly countless institutional and societal barriers that they will face upon their return to society, which include futile attempts to secure housing, gain employment, and exclusion from temporary financial assistance programs (Garland, Wodahl, and Schuhman, 2013). Our current system, therefore, continues punishment of previous offenders, indefinitely. Simply having a criminal record upon release from jail or prison alone can prevent the formerly incarcerated from succeeding when they make good faith attempts at changing. When they apply for a house or a job, they are in a situation where they must explain their criminal history and often find their applications rejected due to governing policies or the stigma that comes with a criminal record.

Rehabilitation and Recidivism

A study conducted in Missouri investigated public opinion regarding re-entry programs and found a significant majority are in favor of employment, educational, housing, and mental health programs for the formerly incarcerated (Garland, Wodahl, and Schuhman, 2013). When asked if they would be in favor of increasing their own taxes to support prisoner re-entry, the majority were opposed (Garland, Wodahl, and Schuhman, 2013). A similar trend is found when respondents were asked where the transitional housing programs should be located. Support plummeted below 30% when respondents were asked about transitional housing in their own neighborhood for drug offenders (Garland, Wodahl, and Schuhman, 2013). Only 10% were in support for violent offenders to be released into transitional housing in their neighborhood (Garland, Wodahl, and Schuhman, 2013). Overall, 89% of these participants were found to be in support of prisoner re-entry programs that helped these people overcome the institutional barriers they face (Garland, Wodahl, and Schuhman, 2013). This finding supports my original prediction: people will need to see a personal benefit first (the eventual decrease in tax dollars spent incarcerating people and lower crime rates/safer communities) to be persuaded into supporting changes from our current punitive model to one based on successful rehabilitation and eventual re-entry.

A reliable predictor of decreased recidivism rates, arguably one of the most important factors, is the ability for a formerly incarcerated person to find a good paying job (Schnepel, 2016). A California study of approximately 1.7 million people who were released from prison from the early 1990's to the mid 2000's found that the availability of "construction and manufacturing opportunities at the

time of release are associated with significant reductions in recidivism" (Schnepel, 2016). In fact, this study found a decrease in recidivism even among violent offenders when they were able find a job specifically in manufacturing (Schnepel, 2016). I would argue that most of the public are not aware of the correlation between available jobs that will hire people with a criminal record and successful re-entry. Again, the ability to successfully re-join society and not reoffend provides a societal benefit through safer communities and increased tax revenue. Existing literature indicates a shift in mentality among the public in support of assisting the formerly incarcerated in changing their lives and helping people with all types of criminal records avoid recidivism.

Punishment

Crime rates connected to the formerly incarcerated do account for a substantial portion of the crimes that we see in communities (Chen & Shapiro, 2007), so we can, with certainty, conclude that decreasing recidivism has immense public value through safer communities. Given the high rates of recidivism in the United States, we know that our current system is not working in a way that achieves less crime; in fact, Chen & Shapiro examine how increased punishment during federal inmates' confinement affects their likelihood of recidivating. When an inmate enters the federal prison system, they are assigned a score that determines their housing throughout their prison sentence (Chen & Shapiro, 2007). The higher one's score is, the higher security they will receive during their stay in prison, and vice versa. So, an inmate with a very high score will be considered more dangerous than an inmate with a very low score (Chen & Shapiro, 2007). The higher scoring inmates are housed in high security prison units, with incredibly punitive "living" conditions (Chen & Shapiro, 2007). If a punishment-based model worked to decrease future crimes, we would see offenders who experience the most severe punishment during their incarceration with the lowest recidivism rates. "We find no evidence that harsher confinement conditions reduce recidivism. If anything, our estimates suggest that moving an inmate over a cut off that increases his assigned security level from minimum to above-minimum security tends to increase his likelihood of rearrest following release" (Chen & Shapiro, 2007). Here, we have a direct examination of a punishment-based model working in a way that achieves the exact opposite of what the Criminal Justice System is intended for. In this study, punishment, therefore, is increasing crime through recidivism.

Methods

Using the California State University, Stanislaus (CSUS) library's online portal One Search, I reviewed the existing relevant literature to guide and

inform this entire project, including this article, and my 37-question survey. The survey is focused on attitudes related to three defined categories of crime: Drug related, White-Collar, and Violent offenders. I was approved to recruit survey participants by posting my survey, using Qualtrics, on my personal social media account. I also distributed it to current students in the CSU Stanislaus Sociology Department. I received a total of 105 completed surveys, all with reliable data. All the participants were required to be 18 years or older. All the participant's identities remain completely anonymous. I transferred my data into SPSS for my univariate and bivariate analysis.

My survey was broken into several parts, beginning with screening and basic demographical questions. The demographics all served as potential independent variables; I wanted to identify patterns in thought processes and attitudes, although the primary independent variable of interest to me was political party affiliation, as Republicans are known for being "tough on crime" and Democrats being "soft on crime", supporting rehabilitation and re-entry programs. The next section of questions is meant to test the first part of my hypothesis (that when people who favor punishment are presented with relevant facts, they can be persuaded to favor a rehabilitation-based model). I first asked whether drug offenders, white-collar offenders or violent offenders should be offered rehabilitation services. I then provide facts about recidivism and the financial burden of incarceration on the public, and then asked respondents the same three questions about whether each category of crime should be offered rehabilitation services. The purpose of this section is to see if learning some basic facts about the criminal justice system has the potential to change one's opinion about whether offenders should be offered rehabilitation services.

The next three sections of my survey (dependent variables) have various questions and statements that are designed to measure more detailed opinions regarding each category of crime (described above) using a five-point Likert scale. For example, "People who have a drug problem are bad people", "Is there ever an acceptable time to withhold or intentionally misrepresent financial information on tax returns?" or, "Violent criminals will always remain a threat to society" etc. These questions and statements should also align with each other from survey to survey, which will allow me to test each completed survey for reliability. Given the possibility of respondents being triggered by any of the questions, they were all instructed to only answer the questions that they felt comfortable answering. They were advised to skip any questions that they wanted, resulting in some variation in frequency throughout the responses. I used SPSS for my analysis.

Results

My original hypothesis has two parts: that when people (who support punishment) are presented with relevant facts about how the criminal justice system affects them, they will change their opinion and favor a rehabilitation-based model because it will benefit them, personally, and society in general. I also predicted that respondents in general will show higher levels of empathy for drug and white-collar offenders than they will to violent offenders.

The first part focused on people who support our current punitive criminal justice system. To test this, I first asked, "Do you think people with a violent/drug-related or white-collar conviction should be offered rehabilitation services?" and participants were asked to respond using a 5-point Likert scale, with the answers ranging from "strongly disagree" "disagree" "neutral" "agree" and "strongly agree". I presented information about how, in California, two-thirds of the formerly incarcerated will return to prison, that the American Criminal Justice System has the highest incarceration rates globally, costing over \$50 billion annually and that more than 95% of inmates will eventually be released. I then asked the same questions about each category of crime (whether each category should be offered rehabilitation services) and a follow-up question about whether the facts influenced their opinions. Figure 1 shows the results before the facts are presented and Figure 2 shows the results after the facts are presented. Figure 2 shows some slight changes in all three categories of crime. The drug offender category showed the "agree" category decrease by two responses, and the "neutral" category increase by those two responses; the median and mode before and after the facts are "agree". The white-collar category shows a slight increase in support for rehabilitation services ("agree" increased by 6) as well as a slight increase in "disagree" for rehabilitation services; the median and mode before and after the facts are "agree". The violent category had an increase in both "agree" and "neutral" by two responses; the median and mode before and after the facts are "agree". Overall, univariate analysis showed support for rehabilitation among all three categories of crime was substantially higher than initially expected, with near universal support for rehabilitation services being offered to drug offenders.

I predicted higher levels of empathy for drug and white-collar offenders than violent offenders. Table 1 shows some of the questions and statements that participants were asked to respond to using a five-point Likert scale, including the median and mode for each question or statement. Respondents continued to display very high levels of empathy towards drug offenders, but support decreased significantly for white-collar and violent offenders. While I found support for my thesis regarding levels of empathy and drug offenders, my sample displayed

the lowest levels of empathy toward white-collar offenders. The low levels of empathy towards white-collar offenders did not support my original thesis.

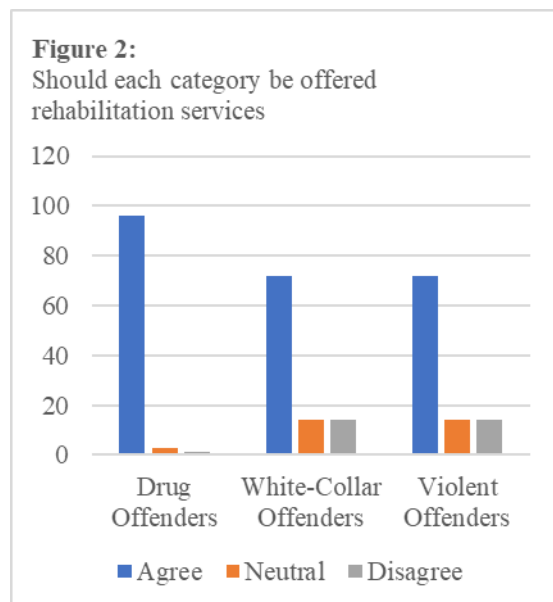
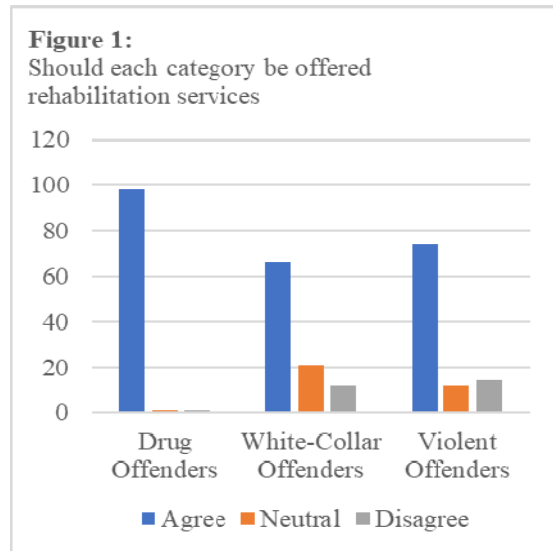


Table 2 is a crosstabulation showing the relationship between political affiliation (Independent variable) attitudes about whether white-collar offenders should be offered rehabilitation services (Dependent variable). When compared to attitudes generally held by all respondents regarding rehabilitation services for drug offenders, we see stark increase in punitive attitudes, especially among Democrats and Independents. Given my small sample size (n=105), my results do not allow for generalizability ($p = .992, p > .05$), however, there is clearly something going on. When compared to table 3, which examines political affiliation and rehabilitation services for violent offenders, there are higher frequencies in the “agree” category for both

Democrats and Independents, indicating these groups having less punitive attitudes towards violent offenders. As a result of the low Epsilon score (4.7), I did not find evidence of a relationship between political affiliation and attitudes about the type of punishment white-collar offenders should receive.

Table 3 shows the relationship between political affiliation and attitudes about violent offenders regarding whether they should receive rehabilitation services. Here we see much more variation in opinions, with every cell having a minimum frequency of 1 response. In the total column, 74% of respondents regardless of political affiliation agreed with violent offenders being offered rehabilitation services, which is an increase when compared with respondents agreeing with rehabilitation services for white collar offenders (table 2: 66.7%). Another important pattern is that Republicans feel almost exactly the same about both violent and white-collar offenders, with both categories of crime having 69.2% of Republicans agreeing with rehabilitation services. Democrats and Independents, on the other hand, are showing more empathy to violent offenders than they did with white-collar offenders. 73.1% of Democrats and 92.9% of Independents reported agreeing with rehabilitation services for violent offenders; and increase from 66.7% of Democrats and 64.3% of Independents agreeing with rehabilitation for white-collar offenders. Respondents who reported “other” for their political affiliation were more empathetic towards white-collar offenders than they were towards violent offenders. Using the percentages in the cells of Table 3, I have an Epsilon score of 39.3 which is high enough to indicate a possible relationship between my variables.

Given my high Epsilon score, I continued analysis. Taking into consideration that my independent variable is nominal, and my dependent variable is ordinal, I used SPSS to find the relevant Gamma score, which was .003. Typically, in a true probability study, a Gamma score of .003 would be considered low, indicating a weak relationship between the variables, leaving me to conclude that political affiliation is not influencing attitudes about rehabilitation for this category of crime. But, I had a very small sample (n=105), so calculating a Gamma score above 0 lead me to think there may still be a relationship here. Of course, gathering more data and increasing my sample size would help determine more about this possible relationship. The appropriate test, considering my variables, would be Chi-Square. Table 5 shows the SPSS output with a Chi-Square score of 19.385, and (under “Asymptotic Significance 2-sided”), a p-value of .004. In this case, $p < .01$; I can reject the null hypothesis. There is evidence to support a relationship between the variables; that political affiliation is influencing attitudes about violent offenders being offered rehabilitation services.

Table 2

		What is your political affiliation?				Total
		Republican	Democrat	Independent	Other	
Should white-collar offenders be offered rehabilitation services?	Disagree	0	6	3	1	13
	% political affiliation	15.4%	11.2%	10.7%	14.3%	13.1%
	Neutral	0	11	7	1	21
Agree	% political affiliation	15.4%	21.6%	21.0%	14.3%	21.2%
	Neutral	0	8	18	3	66
	% political affiliation	69.2%	66.7%	64.3%	71.4%	66.7%
Total	0	13	31	28	79	
	% political affiliation	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3

		What is your political affiliation?				Total
		Republican	Democrat	Independent	Other	
Should violent offenders be offered rehabilitation services?	Disagree	0	7	1	3	14
	% political affiliation	23.1%	13.5%	3.6%	42.9%	14.0%
	Neutral	0	7	1	3	12
Agree	% political affiliation	7.7%	13.5%	3.6%	42.9%	12.0%
	Neutral	0	9	26	1	74
	% political affiliation	69.2%	73.1%	92.9%	14.3%	74.0%
Total	0	13	52	28	100	
	% political affiliation	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5 Symmetric Measures

		Asymptotic Standard Error ^a		Approximate T ^b	Approximate Significance
		Value			
Ordinal by Ordinal	Gammas	.003	.189	.015	.988
N of Valid Cases		100			

^a Not assuming the null hypothesis.

^b Using the asymptotic standard error assuming the null hypothesis.

Table 4 Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.385 ^a	6	.004
Likelihood Ratio	18.725	6	.005
Linear-by-Linear Association	181	1	.671
N of Valid Cases		100	

^a 6 cells (50.0%) have expected count less than 5. The minimum expected count is .84.

Discussion

The first part of my thesis was based on two assumptions: the first is that I would have respondents who agree with the punitive policies that are currently informing our criminal justice system, and the second is that of those respondents who favor punitive policies, the majority would be Republican, as they are known for being “tough on crime”. For this portion of my thesis, I was hoping to persuade the respondents who favor punitive laws into, at least, considering rehabilitation. What I found was that I did not have to persuade Republican voters; they displayed very high levels of support for rehabilitation. The problem then may lie with not having a full understanding of the legislation that Republican candidates will support in office regarding the criminal justice system. Maybe respondents are willing to sacrifice their views on punishment for other Republican ideologies that mean more to them (i.e. small government, tax policies, etc.).

In terms of drug offenders, none of my respondents disagreed with rehabilitation being offered, regardless of political affiliation. In this

category of crime, since there were no respondents favoring punitive policies, I had no participants that even needed to be persuaded. These findings do offer support for part of my hypothesis (that respondents would show high levels of empathy for drug offenders). The other two categories of crime display a significant decrease in support for rehabilitation, that even after reviewing relevant facts, only show slight change in opinion and the changes were mostly becoming neutral or disagreeing with rehabilitation. Although there was a significant decrease in support, I still see a clear majority of respondents in favor of rehabilitation, despite category of crime. Overall, I did not find support for my thesis in that respect.

Political affiliation was not a reliable predictor in attitudes either. In fact, Democratic and Independent respondents gave the most responses favoring punitive approaches in terms of white-collar offenders, which was surprising, given that Democratic candidates, in general, express ideas about changing the criminal justice system to one focused on rehabilitation and successfully re-entry, and are typically at odds with harsh sentencing guidelines. There could be an explanation for these attitudes within my sample. I recruited participants from the sociology department. We, in Sociology, learn about power structures in society. We spend time analyzing (among other things) poverty, the working-class, incarceration, capitalism, and possible explanations through theory. Sociology majors, therefore, might be hypersensitive (even biased) to these topics, understanding that drug use and violence could be a symptom of larger, societal issues. I also recruited my friends on my Facebook account. Many of my friends live or have lived in poverty, some are recovering addicts, and some also have criminal records, themselves. They have been personally exposed to how poverty negatively affects families and society, working to survive. Both groups of participants might be hostile towards white-collar offenders, given their academic and person experiences.

Ultimately, I did not find evidence to support several parts of my hypothesis, but the evidence I found was encouraging. I thought I would need to persuade respondents into reimagining our current system of justice. The literature suggests, for the most part, that rehabilitation is more effective at decreasing rates of reoffending. I assumed that people support our punitive system, but my research suggests that the typical respondent does support rehabilitation (median and mode in all three categories of crime were “agree”).

Conclusion

Although my project was very informative, it was not a true probability-based sample, and my findings are not generalizable. Given my recruitment

methods, my sample was certainly biased, in favor of rehabilitation. I posted a link to my survey on my Facebook page, and my friends are much like me in their opinions. I favor rehabilitation, and I believe that my friends, even if they identified as Republican, they may still be softer on crime than a more Conservative Republican voter. Also, ideas, when presented in abstract terms, as they were in my survey may provoke more support for rehabilitation. However, when we begin discourse on the reality of implementing these programs, the abstractions become more “real”, and support may decline. Many people support ideas but tend to have the “not in my backyard” frame of mind when implementation of ideas is addressed. My research does indicate a need for a larger project, especially one focused on attitudes held by Democrats and Independents surrounding punishment vs rehabilitation for white-collar offenders.

Acknowledgements

I would like to thank Dr. Laus, who supervised my entire project. Dr. Caivano who helped immensely with my survey, and Dr. Strangfeld who was pivotal in my analysis. Dr. Newton, my honors professor, who pushed me to make this project everything I wanted it to be, even when I felt like giving up or making it smaller and more “doable”. To the Honors department, for making these projects feasible.

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Appendix A Survey

This survey intends to learn about public opinions regarding outcomes for people who encounter the American Criminal Justice System. Please only answer the questions that you feel comfortable answering; if you are triggered by any part of this survey, please refer to the informed consent for free services. Keep in mind that your identity will remain completely confidential, and your answers are used for research purposes, only.

1. Are you 18 years or older? Yes/No
2. Are you currently enrolled at CSU Stanislaus?
Yes/No
3. Have you voted in the past four years? Yes/No
-If “no”, skip question 4.
4. If yes, on a scale of 1 to 5, how important is a candidate’s views on the criminal justice system to you when you are deciding which person to vote for?
1: irrelevant
2: partially relevant
3: neutral
4: important
5: most important
5. How old are you?
a. 18-25
b. 26-35
c. 36-45
d. 46-55
e. 56-65
f. 66 +
6. Please specify your race or ethnicity.

_____ African American, Black, or of Sub-Saharan African descent

_____ Native American/First Nations (USA and Canada)

_____ Indigenous American (Mexico, Central, and South America)

_____ Asian: East or Southeast Asian (including Filipino)

_____ Asian: South Asian

_____ Pacific Islander (including Native Hawaiian), or indigenous Australian

_____ White, or of European descent

_____ Middle eastern, Afro-Asiatic, or Western Asian (including Assyrian)

_____ Hispanic or Latinx

_____ other, please specify

7. What gender do you identify with?
a. Male
b. Female
c. Trans-male
d. Trans-female
e. non-binary
f. other (please specify):
8. What is your net annual income?
a. 0-\$25,000
b. \$25,001- \$50,000
c. \$50,001- \$75,000
d. \$75,001- \$100,000
e. \$100,000 +
9. What is your political affiliation?
a. Republican
b. Democrat
c. Independent
d. Other, specify:

This section will ask you three basic questions to learn about your opinion on the criminal justice system. You will then be given a few facts, and then asked the same questions. Use the scale to indicate what level you agree or disagree.

10. Do you think people with a violent conviction should be offered rehabilitation services?
1: strongly disagree
2: disagree
3: neutral
4: agree
5: strongly agree
11. Do you think people with a drug related conviction should be offered rehabilitation services?
1: strongly disagree
2: disagree
3: neutral
4: agree
5: agree
12. Do you think people with a white-collar conviction should be offered rehabilitation services?
1: strongly disagree
2: disagree
3: neutral
4: agree
5: strongly agree

Facts/Data

- Over two-thirds of inmates who are released from prison in California return to prison (Schnepel 2018:451).
- A report in 2008 counted an increase of 1 million prison cells over the twenty years prior (Pew 2018:1).
- The United States currently incarcerates 2.3 million people, the highest rate globally, costing over \$50 billion, annually (Pew 2018:1).

- More than 95% of those prisoners will be released, eventually (Pew 2018:1).

13. Do you think people with a violent conviction should be offered rehabilitation services?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

14. Do you think people with a drug related conviction should be offered rehabilitation services?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: agree

15. Do you think people with a white-collar conviction should be offered rehabilitation services?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

16. Did the facts about the American criminal justice system change your opinion on rehabilitation?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

Over the next few sections, the survey will focus on three categories of crime: drug related crimes, white collar crimes, and violent crimes. Please indicate your answers using the provided scale. Here are some definitions to help guide your answers.

- **Recidivism:** A return to prison after being released; rearrest (Schnepel 2018:451)
- **Drugs crimes:** illegal usage/possession, and associated crimes; not sales.
- **White-collar crimes:** Financial or corporate crimes (Sutherland 1940:2)
- **Violent crimes:** Crimes with human victims (armed robbery, assault, domestic violence, murder etc.)

This section will focus on drug crime.

17. Do you know anyone in your immediate family or close friends who use or have used drugs?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

18. People who are convicted of drug crimes have a drug problem and deserve help addressing that problem.

- 1: strongly disagree
- 2: disagree

- 3: neutral
- 4: agree
- 5: strongly agree

19. It would be more productive to send people who are convicted of drug crimes to a rehab facility to serve their sentence, as opposed to jail.

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

20. People who are convicted of drug crimes have a disease and should be treated as such.

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

21. People who have a drug problem can change and become productive members of society.

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

22. People who have a drug problem are bad people.

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

The next section will focus on white collar (financial, business related) crimes.

23. Is there ever an acceptable time to withhold or intentionally misrepresent financial information on tax returns?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

24. White-collar criminals should be forced to pay what they owe instead of serving jail time.

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

25. White-collar criminals are not dangerous people and should be able to get a decent job, despite their criminal record.

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

26. People who commit white-collar crimes should be punished through incarceration.

- 1: strongly disagree
- 2: disagree

- 3: neutral
- 4: agree
- 5: strongly agree

The next section is about violent crimes. Again, if you are triggered, please refer to the informed consent for free services.

27. Do you know have any close friends or immediate family members to have ever been in street fights or engaged in some other violent act?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

28. People who have been convicted of violent crimes can be rehabilitated.

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

29. Classes, such as anger management, would provide people with violent convictions the tools they need to change.

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

30. Violent criminals will always remain a threat to society.

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

The next section are general questions and statements about the criminal justice system.

31. Do you think access to employment with decent wages would work to decrease incarceration rates?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

32. If rehabilitation lowered the amount of people that return to jail or prison after previous convictions, would you prefer a criminal justice system that emphasized rehabilitation?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

33. Do you see a benefit in a system that works to reduce recidivism rates?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

34. Do you think lengthy incarceration sentences is an effective crime prevention technique?

- 1: strongly disagree
- 2: disagree
- 3: neutral
- 4: agree
- 5: strongly agree

35. Have you ever been arrested for a crime? Yes/No

36. Have you ever been convicted of a crime? Yes/No

37. Has a friend or relative of yours ever been convicted of a crime? Yes/No

Appendix B

Table 2

			What is your political affiliation?				
			Republican	Democrat	Independent	Other	Total
Should white-collar offenders be offered rehabilitation services?	Disagree	(f)	2	6	3	1	12
		% political affiliation	15.4%	11.8%	10.7%	14.3%	12.1%
	Neutral	(f)	2	11	7	1	21
		% political affiliation	15.4%	21.6%	25.0%	14.3%	21.2%
Agree	(f)	9	34	18	5	66	
	% political affiliation	69.2%	66.7%	64.3%	71.4%	66.7%	
Total	(f)	13	51	28	7	99	
	% political affiliation	100.0%	100.0%	100.0%	100.0%	100.0%	

Table 3

		What is your political affiliation?				Total	
		Republican	Democrat	Independent	Other		
Should violent offenders be offered rehabilitation services?	Disagree	(f)	3	7	1	3	14
		% political affiliation	23.1%	13.5%	3.6%	42.9%	14.0%
	Neutral	(f)	1	7	1	3	12
		% political affiliation	7.7%	13.5%	3.6%	42.9%	12.0%
	Agree	(f)	9	38	26	1	74
		% political affiliation	69.2%	73.1%	92.9%	14.3%	74.0%
Total	(f)	13	52	28	7	100	
	% political affiliation	100.0%	100.0%	100.0%	100.0%	100.0%	

Table 5 Symmetric Measures

		Asymptotic Standard Error ^a		Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Gamma	Value			
		.003	.189	.015	.988
N of Valid Cases		100			

^a Not assuming the null hypothesis.

^b Using the asymptotic standard error assuming the null hypothesis.

Table 4 Chi-Square Tests

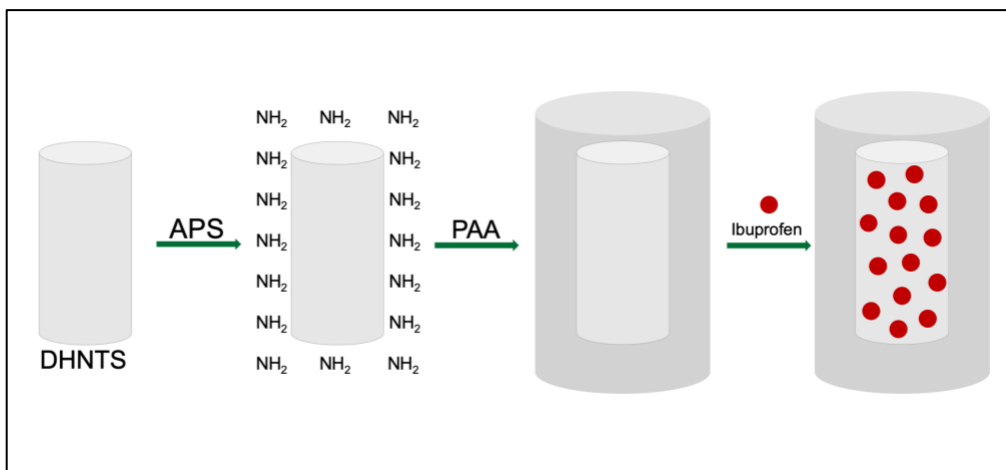
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.385 ^a	6	.004
Likelihood Ratio	18.725	6	.005
Linear-by-Linear Association	.181	1	.671
N of Valid Cases	100		

^a 6 cells (50.0%) have expected count less than 5. The minimum expected count is .84.

Synthesis and Surface Modification of Double Helical Nanotube Structures for pH-Responsive Drug Delivery Applications

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Proposed methodology adapted from [7]

ABSTRACT: The current preferred treatment for cancer is oral chemotherapy because it is the most efficient and does not have as many side effects as other cancer treatments. However, there is a lot of work to be done to improve the efficacy of chemotherapy since it kills healthy cells along with cancer cells. Targeting is an especially useful approach in cancer therapy, as most of the commonly used anticancer drugs have serious side-effects because of their adverse effect on healthy cells.¹ In other words, anticancer drugs in chemotherapy have poor bioavailability when it comes to targeting cancer cells, which greatly limits their applications in cancer treatment. Thus, to improve the drug bioavailability and avoid premature release of the anti-cancer drug before it reaches the cancer cells, the use of mesoporous silica nanoparticles (MSN) for targeted drug delivery are now being explored. Double helical nanotube structures (DHNTS) are a fairly new type of MSN in which oral drug delivery has not been studied. An experiment was conducted in which DHNTS was synthesized and was surface modified with polyacrylic acid (PAA). The drug loading capability of PAA-DHNTS was explored using ibuprofen as a model drug. The success of this experiment suggests the possible use of DHNTS as a controlled oral drug delivery system. Since most cancer cells have a more acidic environment compared to normal cells², an efficient way to control the drug release behavior is by using pH as a stimulus, therefore the next steps would be to test the drug release at different pH levels.

KEYWORDS: *double helical nanostructure, helical nanopore, micelle templating, nanoporous silica, ordered mesoporous material, ibuprofen, drug delivery*

INTRODUCTION

Approximately 39.5% of men and women will be diagnosed with cancer at some point during their lifetimes.³ There is a dire need for a solution to this devastating disease. As of now, mesoporous silica nanoparticles are widely investigated and are increasingly attracting attention because they can be used for targeted drug delivery.⁴ The pores of mesoporous silica nanoparticles (MSNs) provide a living space for drug molecules; therefore, MSNs are a perfect vessel for targeted drug delivery in the body. MSNs have gained much importance due to its unique features, such as large surface area and pore volume, high chemical and thermal stability, exceptional biocompatibility, and versatile chemistry for further functionalization.⁴ The particular type of MSN that is used in this research are the

double-helical nanotube structures (DHNTS). DHNTS are fairly new in the world of MSNs, and they have an exceptionally large pore (inner tube) diameter, providing opportunities in the immobilization of large molecules/biomolecules and in the templated synthesis of helical nanostructures.⁵ DHNTS is a great option for use in targeted drug delivery due to its well-defined ordered mesoporous silica with large (~35 nm) helical mesopores that have some degree of diameter adjustability. Not only that, but it is readily available at a significant scale using simple aqueous chemistry, without the use of expensive templating systems.⁵

In a previous study performed by Yang et al in 2011, poly(acrylic acid) grafted mesoporous silica nanoparticles (PAA-MSNs) were used in a pH-responsive controlled drug

delivery system.⁴ It demonstrated that doxorubicin hydrochloride (DOX), a well-known anticancer drug, could be effectively loaded into the channels of PAA-MSNs through the electrostatic interaction and covalent bonding interaction. The loading content of DOX could reach up to 48% and the entrapment efficiency of DOX could reach up to 95%.⁴ The drug release rate of DOX@PAA-MSN was pH dependent and increased with the decrease of pH, which means it released only in acidic environments, making it perfect to target cancer cells, since they are more acidic compared to normal cells. The *in vitro* cytotoxicity test indicated that PAA-MSNs were highly biocompatible and suitable to use as drug carriers. When the PAA-MSNs were loaded with DOX, they were particularly cytotoxic to HeLa cells (a human cervical cancer cell line) upon release of the drug and showed higher clinical effects than free DOX. These results imply that the PAA-MSNs are a promising method to create pH-responsive controlled drug delivery systems for cancer therapy.³

In another study performed by Wang et al. in 2017, they used a similar method as Yang et al. and specifically targeted colon cancer cells using a high pH stimulus rather than a low pH stimulus.^{4,6} They were able to successfully create a pH-triggered colon targeted oral drug delivery system based on PAA capped mesoporous silica (SBA-15). The results demonstrated that PAA were covalently anchored on the pore outlets of SBA-15, which acted as a gatekeeper to control the drug transport in and out of the pore channels. Like the aforementioned study, the obtained PAA/SBA-15 nanomaterial exhibited high drug loading capacity for DOX, excellent biocompatibility, and good pH-sensitivity. The *in vitro* DOX release behavior demonstrates that the drug molecules can be protected when passing through the gastric environment (pH = 2.0) and released in the target colon condition of pH = 7.6.⁶ These results indicate this system has promising application for targeted pH responsive drug delivery.

Lastly, the most important feature of MSNs is their biocompatibility. In one study, the MSN were excreted efficiently after administration into mice. Most MSNs injected into the mice bodies were excreted through urine within 4 days. Moreover, MSN and their fragments were reported to be eliminated by renal clearance, in urine, and feces.⁹

Combining the results of all studies, it can be concluded that mesoporous silica nanoparticles have promising results in targeted drug delivery using both high and low pH as a stimulus. In this study, an experiment was conducted to explore using double helical nanotubes structures (DHNTS) – a type of MSN – as an oral drug delivery system. The drug loading capability of DHNTS was explored using ibuprofen as a model drug.

The final steps of this research would be to use double helical nanotube structures in pH- responsive targeted drug delivery, since they are readily available at a significant scale using simple aqueous chemistry, without using expensive templating systems.⁵

EXPERIMENTAL SECTION

DHNTS was prepared via a method described by Kruk, et al.⁵ First, 0.650 g of Pluronic F108 (EO₁₃₂PO₅₀EO₁₃₂) and 0.350 g of Pluronic P104 (EO₂₇PO₆₁EO₂₇) were dissolved in 60 mL of 2.0 M HCl with mechanical stirring at 200 rpm in a 100 mL round bottom flask using a water reflux condenser. When the copolymers were dissolved (after~45 minutes) 3.0 mL of toluene was added while stirring and the container was sealed with Parafilm. After 35 minutes, 2.55 mL of TEOS was added under stirring, the container was resealed, and the reaction was allowed to proceed for 24 h while the stirring continued. The reaction mixture was then transferred to a polypropylene bottle, capped, and maintained at 100 °C for 24 h under static conditions. The product was filtered using vacuum filtration and washed with deionized water, followed by drying in a vacuum oven overnight. The product was calcined at 550 °C under air for 5 h. The sample was then degassed for 3 h.

To prepare DHNTS for drug delivery using PAA and DOX, a combination of the procedures from Wang, et al and Yang, et al were used^{4,6} In order to modify the surface of the DHNTS with amino groups, 0.1 g of the DHNTS sample was dispersed in 20 mL anhydrous ethanol. The solution was heated to 80 °C using an oil bath. 1 mL of 3-aminopropyl triethoxysilane (APS) was added into the solution at 60 °C to functionalize DHNTS with amino groups. The reaction mixture was refluxed for 6 h. Vacuum filtration was performed using ethanol to wash the sample. The sample was put in the vacuum oven overnight to dry. Then 30 mg of APS-DHNTS was dispersed in 10 mL of DMF, and then 10 mg of PAA (MW = 450,000) was dissolved into the mixture. The reaction mixture was stirred at 300 rpm at 140 °C for 2 h. After the reaction, the mixture was filtered using vacuum filtration and washed with copious ethanol. The resultant product was dried overnight in a vacuum oven.

For the drug loading process, a procedure derived from Kamarudin et al was used.¹⁰ First, a standard curve was obtained by running the following serial dilutions of ibuprofen in anhydrous ethanol on a UV-Vis spectrophotometer: 0.5 mg/mL, 0.25 mg/mL, 0.125 mg/mL, and 0.0625 mg/mL. For this process, a low volume quartz cuvette was used. The absorbance at a lambda max of 264 nm was obtained for each dilution and was used to create the standard curve. Once the standard curve was created, the PAA-DHNTS was loaded with ibuprofen using a 1:1 ratio of PAA-DHNTS to ibuprofen. To 33 mL of ethanol, 33 mg of PAA-DHNTS and 33 mg of ibuprofen was added. This solution was stirred for 24 hours at 40C to allow the ibuprofen to load into the PAA-DHNTS. The solution was centrifuged to ensure none of the PAA-DHNTS does not get into the cuvette when running the sample on the spectrophotometer. Using the same low-volume quartz cuvette and ethanol as the blank, the absorbance of this solution was obtained at lambda max of 264 nm.

RESULTS AND DISCUSSION

Gas adsorption was used to determine the pore diameter, pore volume, and surface area of the DHNTS. As can be seen in Table 1, the decrease in surface area and pore volume indicates the successful grafting of PAA onto DHNTS.

Table 1: Gas adsorption results comparing the unmodified DHNTS to the APS-DHNTS and PAA-DHNTS

	Surface area (m ² /g)	Pore Volume (cm ³ /g)	Pore Diameter (nm)
Unmodified DHNTS	748.837	0.17964	40
APS-DHNTS	614.628	0.10067	40
PAA-DHNTS	300.922	0.04971	40

Figure 1 displays the isotherm graph for all three samples. Table 1 summarizes what was found in these isotherms.

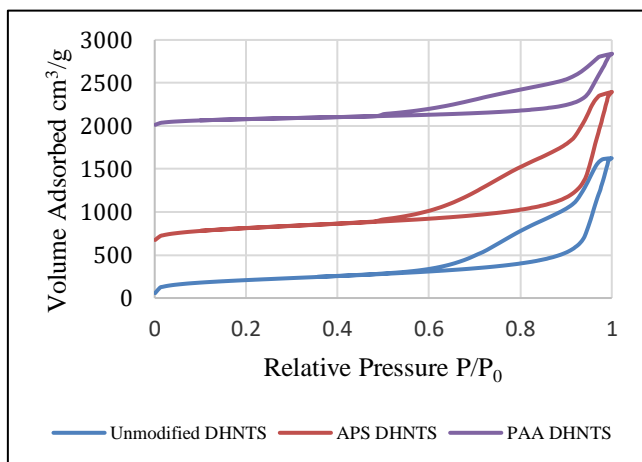


Figure 1: Isotherm graph for unmodified DHNTS, APS-DHNTS and PAA-DHNTS.

To further verify that DHNTS was successfully surface modified with PAA, infrared (IR) spectroscopy was used. The unmodified DHNTS was compared to PAA-DHNTS using IR spectroscopy (**Figure 2**). After grafting the DHNTS with PAA, it was observed that a new stronger absorption peak appeared at 1656 cm⁻¹, which can be assigned to stretching vibration of carboxyl (C=O) groups of PAA which indicates the successful grafting of PAA onto the DHNTS.

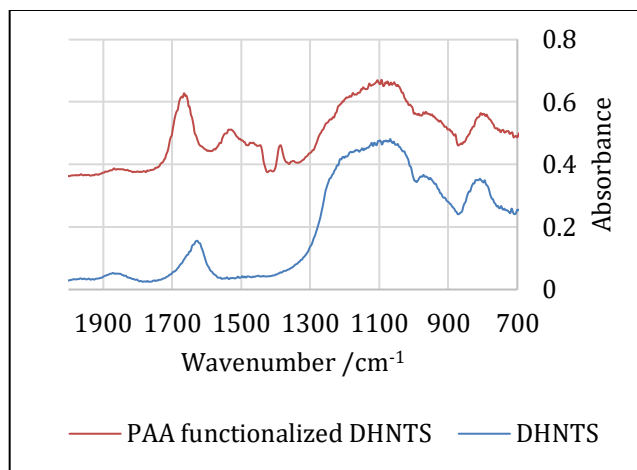


Figure 2: IR spectrum of modified DHNTS using PAA MW 450,000

The amount of drug loaded and released was determined by UV-Vis spectroscopy. To test the drug loading capacity of the PAA-DHNTS, a standard curve was created using serial dilutions of the ibuprofen and ethanol solution. Using the slope of the standard curve and Beer's Law, the equation rearranged to determine the concentration of ibuprofen in the ethanol solution during the drug loading process. Once the absorbance for the PAA-DHNTS in ibuprofen and ethanol solution was obtained, the absorbance was used to determine the concentration of ibuprofen in the solution after 24 hours using Beer's Law. The concentration of the solution began at 1 mg/mL and after 24 hours it decreased to 0.774 mg/mL, signifying that 22.6% of ibuprofen was successfully loaded into the PAA-DHNTS.

FUTURE WORK

Due to COVID-19 restrictions, there were many setbacks. These restrictions slowed down the entire research process, and the drug release behavior could not be examined due to time constraints. In future work, the drug release at different pH levels would be tested using a buffer to imitate the human cancer cell environment. The nearest TEM was at a university which did not allow outside students to access the TEM due to COVID-19. Therefore, a next step would be to obtain TEM images of the DHNTS. Lastly, the drug loading would be examined using an anti-cancer drug rather than the model drug ibuprofen.

CONCLUSIONS

DHNTS was successfully functionalized with PAA which signifies that DHNTS has the ability to be functionalized with a polymer. This entails that DHNTS may have many applications in the field of drug delivery. Furthermore, 22.6% of ibuprofen was successfully loaded into the PAA-DHNTS, which is a big step since drug loading has not been tested on this new type of MSN. The success of this experiment signifies that DHNTS have great potential to be used as an oral drug delivery system.

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ABBREVIATIONS

DHNTS, double helical nanotube structure; MSN, mesoporous silica nanoparticles; TEM, transmission electron microscope; SBA-15, a highly stable mesoporous silica sieve

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A War with No Front: Arms Trafficking in North America During the Twenty-First Century

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Abstract

One manifestation of globalization is the illegal selling and buying of firearms in North America wherein gun smugglers operate across and against the jurisdictions of Canada, Mexico, and the United States. In order to combat the unlawful trade of arms, the aforementioned countries may and have put forth gun control; however, despite their dealings with the same trafficking, the countries' approaches differ from one another. Since research has not focused on gun trafficking and gun legislation during the past five years, my study considered the current gun situation and the most significant policies that legislators in Mexico, the United States, and Canada have proposed or passed. I hypothesized that the United States is the leading policy actor in the gun policy network and that domestic preoccupations limit international cooperation between the countries. I utilized policy network analysis and comparative analysis in which I demonstrated the interactions between the policy actors in Mexico, the United States, and Canada through the lawmakers' policies and public statements, and I compared and contrasted the political systems of these countries. The results demonstrated how Canada and Mexico respond to liberal U.S. gun policy.

Keywords: policy network, comparative politics, firearms

Introduction

The underground economy of trading weaponry such as firearms is a significant topic in the realm of comparative politics¹ because numerous states are fighting against the same war on illegal arms; hence, arms trafficking is a focal point to compare and contrast different countries. In particular, Mexico, the United States of America, and Canada are the major states in North America that combat and shape the operations of gun smugglers. Accordingly, researchers have documented the causes and effects of the gun control policies in the aforementioned countries as they influence the illegal and international buying and selling of arms. With the awareness of the purpose of the indicated study, I explored how the governments of Mexico, the United States, and Canada have been responding to the trafficking of arms during the twenty-first century.

My research question is as follows: To what extent do Mexico, the United States, and Canada's gun control policies affect one another while combating the illegal trade of arms during the twenty-first century? My

research inquiry is connected to my chosen theories of policy network analysis and comparative analysis because I applied policy network analysis's principle that the relationships between policy actors are significant enough to impact how a policy is created as a basis for my study. Additionally, my research question is connected to comparative analysis because my inspection of Mexico, the United States, and Canada's contrasting governmental systems and political institutions not only provided context to the policy actors' positions, statements, and laws, but also to how the structures that the policy actors perform within restricts them in effectively addressing the international underground firearms market.

Background

Research had shown that the causes of arms trafficking in North America during the twenty-first century thus far had not been abstract. Rather, the gun control legislation and political systems of Mexico, the United States, and Canada have been the active determinants of how arms traffickers may operate and

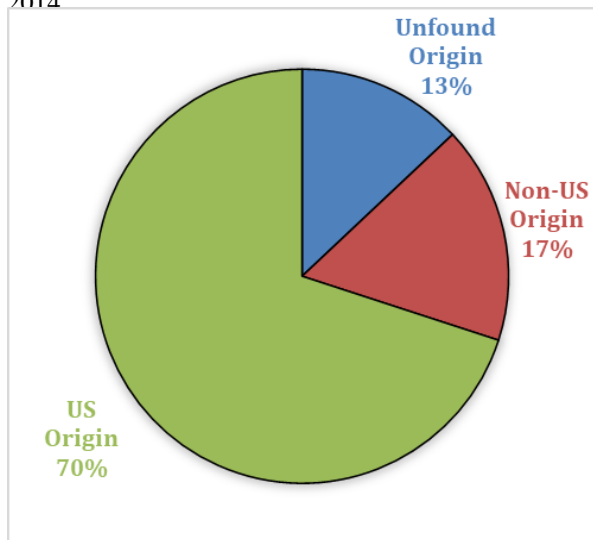
¹ A subfield in political science that compares and contrasts different states (including their societies, economies, and/or governments) with one another.

traverse the cost and risks presented by gun market regulations.

I expected that my study's findings would follow in the footsteps of previous research in which the United States' weak gun laws coupled with Mexico and Canada's strong gun laws would have continued to cause arms traffickers to simply obtain guns from the United States rather than from Mexico, Canada, or any other country in the world (Burton & Kamal, 2018; Cook et al., 2009; Eby, 2014). With that, I anticipated that my findings as pertaining to the years 2017 to 2022 so far would mirror past findings of the United States Government and Accountability Office (2016) as presented in the pie chart below.

Figure 1

Origin of illegal guns found in Mexico from 2009 to 2014



The graph shows the origin of illegal guns seized by Mexican state authorities and traced by the United States Department of Justice's Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), from January 1, 2009 to December 31, 2014 (United States Government and Accountability Office, 2016).

Since the arms policies of the United States have attracted and armed criminal activity on both sides of the state's borders, how are Mexico and Canada responding to the United States today? The objective of my research question is to examine the current state of affairs in the arms trafficking realm of North America. Based on my research question, I hypothesized that the United States is the leading policy actor in the gun control policy network of the United States, Mexico, and Canada during the twenty-first century because I anticipated that the United States' laws and lawmakers

may be more influential than those in Mexico and Canada in terms of shaping the operations of arms traffickers in North America. I also hypothesized that my study would find ingrained domestic concerns and limitations to resolving the international issue.

My thesis is that Canada and Mexico respond to U.S. gun policy to combat illicit firearm trade.

Methods

I studied the subjects of Mexico, the United States, and Canada; in particular, I examined the policy actors—whether in the federal government or the sub-state governments—and their decisions in these countries. In defining Mexico, the United States, and Canada as subjects, the sovereign territories and boundaries of these states (as generally acknowledged by one another) were analyzed as separate entities in order to delineate these countries and their policy actors. To be specific, a policy actor determines what is legal and what is illegal within its territory and boundaries (of Mexico, the United States, and Canada) in my study.

I analyzed government documents, which included the press releases of politicians or legislators, the reports that are published by government departments and agencies, as well as laws. I also referenced news articles that are especially pertinent to provide background and context if necessary. In addition, I incorporated scholarly books and governmental articles to delineate the government structures of the United States, Mexico, and Canada wherein the politicians operate. The source types that I utilized were primary sources—such as the texts produced by the state—as well as secondary sources—such as the news issued by reliable news sources, books, and articles. For example, I used statistics from the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), a U.S. government agency, to record the number of illegal firearms originating from the United States and measure how much the United States contributes to the illegal arms trade. The databases that I am used included California State University, Stanislaus Library online database; particularly, I used SpringerLink Journals, EBSCOhost, Westlaw, ProQuest, and SAGE Premier. I also used the National Archives and the Library of Congress.

Since my research question obliged me to report the connections between Mexico, the United States, and Canada on the basis of gun control policies in relation to international arms trafficking, I first explored the aforementioned databases to discover the pertinent gun policies introduced during the past five years. Upon locating the major policies, I gave context to the government structure under which the policy

makers act, I presented each significant gun policy, and I explained how the policies relate to the other countries. By explaining the relations between the gun control policies of Canada, Mexico, and the United States, I depicted how the policies have been created as a response to previous policies put forth by the neighboring countries in order to reveal the links between the countries. To be specific, I demonstrated the dynamics of policy formations as reactions to other policies by referring to the context of the particular legislation, quoting the public statements of the lawmakers, and extrapolating the effects on international relations in terms of the illegal gun trade. My study is qualitative because the information that I analyzed was categorical and non-numerical.

My research designs are policy network analysis and comparative analysis in which I demonstrated the networks between the policy actors in Mexico, the United States, and Canada, and I compared and contrasted the political systems of these states. Policy network analysis focuses on the making and shaping of a policy, the policy's impacts, and how other legislators respond to it, which may lead to the creation of another policy. Using policy network analysis's emphasis on connections, my study analyzed government documents and other primary sources to observe and chronicle the interactions between Mexico, the United States, and Canada, and conclude by inferring potential trends such as the general positions of policy actors on one another and/or which policy actor(s) is dominant in shaping the illegal gun trade. Comparative analysis focuses on the social, economic, and political similarities and differences between two or more countries. For the purposes of my study, I used comparative analysis to survey the countries' government structures, such as parliamentary or presidential, what political culture is in place, and how these domestic factors contribute to the diverse public statements and policies of the different policy actors in addressing the same problem—that is, the international illegal arms market.

Results

Canada

Canada is a parliamentary democracy, which is made up of the Sovereign, the Senate, and the House of Commons (Government of Canada, 2017). It is relatively easier to pass legislation under this system of government because the prime minister, who is the head of the government, is the leader of the majority party in the House of Commons. There is a cohesion of political stances between the prime minister and the legislative body; hence, Canada has more flexibility to respond to trafficking than states with less built-in mutual support.

In addition, Canada does not have a constitutional right for citizens to possess arms (Burton & Kamal, 2018). The absence of a right to firearm ownership in their charter indicates that Canadian lawmakers do not view guns as fundamental and indispensable. Citizens are not entitled to own guns, so strict gun regulation is not inconsistent with constitutionality.

Another finding is that in 2020, about 85% of illegal guns found in Canada traced back to the United States (Howorun, 2021). The overwhelming source of supply for arms traffickers in Canada is within U.S. territory. The root of the issue is within U.S. jurisdiction, not Canada's: even though the demand for guns is Canada's, the ability to satisfy that demand for illegal arms is within the United States' authority to either stop by changing their gun policies or to implicitly endorse the guns entering Canada. The United States' lax position on guns has a strong influence on Canada in that the majority of its illegal firearms come from the United States.

Further, Canada's laws on guns are restrictive. For example, on May 1, 2020, Canada prohibited assault-style weapons in response to the armed and deadly Nova Scotia attacks (Guardian News, 2020). According to Canadian Prime Minister Justin Trudeau, the then and continuing Liberal Party Leader, "Canadians deserve more than thoughts and prayers today" (Guardian News, 2020). Trudeau's allusion to "thoughts and prayers" is a direct nod to U.S. Congress members' frequent invocation of "thoughts and prayers" in response to mass shootings instead of passing new gun legislation. Trudeau's statement is a public criticism of the United States' lack of effective gun control to combat violence and murders committed with firearms.

With that, Andrew Scheer, the Conservative Party Leader from 2017 to 2020, proposed creating a Canada Border Services Agency task force instead of codifying an assault-style arms ban (Tasker, 2020). Scheer's proposal shows another way that Canada is responding to the illicit trade of arms trade by advancing that Canada needs special border control between its country and the United States, thereby assigning responsibility for illegal guns and the consequential armed crimes to the United States rather than Canadian citizens.

Mexico

Mexico is a federal republic; specifically, it is a federation between the national Mexican government—which is trisected into the legislative, judicial, and executive branches—and 31 state governments (Daniel F. Cracchiolo Law Library, n.d.).

Since the president is empowered to legislate, that concentrated power in the executive allows for swift action concerning internal and international problems. Additionally, since 1971, Article 10 of Mexico's Constitution sets forth the following order: "The inhabitants of the United Mexican States have the right to keep arms at home, for their protection and legitimate defense, with the exception of those prohibited by the Federal Law and those reserved for the exclusive use of the Army, Navy, Air Force and National Guard" (Constitute Project, 2021). In other words, residents may keep guns only within their homes unless the executive branch permits them to carry their firearms outside of their houses. The citizens who may carry arms, such as law enforcement officers and military personnel, are authorized to utilize the state's monopoly on violence. Mexico extends its legitimate use of force as a sovereign country to contain the access over firearms as the tools of violence. Consequently, there is a narrow scope for what citizens may own and carry and what lawmakers may legislate because the constitutional basis for guns is already limited. Further, the Directorate of Commercialization of Arms and Munitions or the Dirección de Comercialización de Armamento y Municiones (DCAM) is the only store that is legally allowed to sell arms and ammunition in Mexico (Staff of MexLaw, 2022). The demand for arms beyond what the law sanctions must be realized by an international source.

The strong gun laws in Mexico coupled with the country's geographical closeness to the liberal United States renders it ideal for people in Mexico to acquire guns from the United States. A legal case between Mexico and U.S. gun producers alleges that over 500,000 guns are smuggled into Mexico from the United States each year (Raymond, 2022). These guns are necessarily illegal and contribute to internal crime, presenting an impetus for response to the United States. Indeed, in August 2021, the federal Mexican government filed a \$10 billion lawsuit against U.S. gun manufacturers (Raymond, 2022). According to Marcelo Ebrard, Mexico's foreign secretary, "70% of the enormous supply of guns available in Mexico is due to the negligent practices and illicit arms trafficking from the United States" (Secretaría de Relaciones Exteriores, 2021). The lawsuit is a strategy to open talks between Mexico and the United States because a discussion about legislative remedies on the United States' end may assuage Mexican officials to either not seek as much compensation or not take this costly route in the future. Filing lawsuits against another country's companies could become a legitimate practice for confronting international problems if the U.S. district judge overseeing the case rules that Mexico does have standing to sue.

The United States

Like Mexico, the United States is also a federal republic, and its separation of powers with checks and balances confines how policy actors may conduct themselves. For example, the House of Representatives and Senate of the legislative branch can promote a bill, and they check each other's power by both chambers needing to approve the bill; the president of the executive branch signs the bill into law, vetoes it, or does nothing to the bill; if the bill-turned-law is ever challenged, then the case may be submitted through a judicial process to the Supreme Court, which can strike down the law upon determining that it violates the Constitution or not (Epstein et al., 2021). Hence, the policy actors of the different chambers and branches must engage in debates to pass legislation, for the institutionalized checks and balances and separation of powers have entrenched argumentation and opposition with collaboration. Consequently, the branches must agree to uphold gun legislation.

Citizens in the United States have a culture of celebrating firearm ownership as a symbol of freedom while Mexican and Canadian citizens do not view guns as being a central part of their national identities, which is evidenced by their constitutions. For example, the Second Amendment to the U.S. Constitution expresses the following proclamation: "A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed" (Epstein et al., 2021). In contrast to the constrictive right in Mexico and the nonexistent right in Canada, the right to hold arms in the United States has been interpreted to validate lax gun policy. Accordingly, the United States has been more permissive on guns than Mexico and Canada.

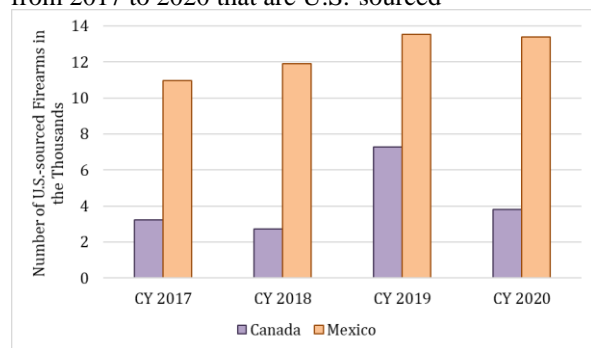
Moreover, none of the White House statement releases for the Biden administration have addressed that there is a problem with arms trafficking between the United States, Mexico, and Canada. The lack of acknowledgment indicates that the negative effects of the illegal trade are not felt in the United States as they are felt in Mexico and in Canada. Even though its neighboring countries have been prompted to react to the gun smuggling across their borders, the U.S. government has not portrayed the traffic as a priority or a public issue. With that, President Biden has urged Congress to repeal the Protection of Lawful Commerce in Arms Act, which shields gun manufacturers from liability when their products are used to perpetrate violence and commit murder (The White House, 2021). President Biden's request is not a direct response or a response at all to the international problem, but the revocation of the congressional act will have a

significant effect on Mexico because the Mexican government is currently challenging that law in court.

Still, domestic rather than international concerns inform U.S. gun laws. For instance, on April 11, 2022, President Biden announced that the DOJ is making unserialized gun parts illegal, stating that ghost “guns are weapons of choice for many criminals. We’re going to do everything we can to deprive them of that choice” (The White House, 2022). The “criminals” to whom President Biden refers are individuals who construct their own guns with unregistered gun parts in the United States. Therefore, the United States’ domestic preoccupations take precedence over the international.

Figure 2

The number of illegal guns found in Canada and Mexico from 2017 to 2020 that are U.S.-sourced



“CY” stands for calendar year.

The graph compares the number of illegal guns seized by Canadian state authorities and Mexican state authorities and traced to the United States by the U.S. Department of Justice’s Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), from January 1, 2017 to December 31, 2020.

“U.S.-sourced” includes firearms that were either manufactured in or imported into the United States.

Discussion

Due to the U.S.’s slack gun control policies and liberal position on guns overall, there have been high rewards and little risks for the arms traffickers in Canada and Mexico to circumvent their state’s stringent gun regulation by simply bypassing the border. Although U.S. citizens enjoy the Second Amendment right to bear arms and, by extension, to mass manufacture firearms, citizens in the adjacent states of Mexico and Canada must also tread the ripples of a constitutional right that they do not possess; thus, U.S. gun liberality flows both downstream and upstream.

While U.S. lawmakers may choose to not address how their gun policies affect Canada and Mexico, the latter countries must contend with how the majority of illegal guns in their territories come from the United States. It stands to reason that because the United States has been at the center of arms trafficking in North America during the twenty-first century, the regulators of Mexico and Canada have been obligated to counteract the gun policies of the United States in order to effectively counteract the illegal firearms trade as a whole. The support for my thesis included Canada’s conservative politicians calling for more border control and less restriction on Canadian citizens as well as the Mexican government’s lawsuit to combat gun smuggling through the U.S. court system.

My study contributed to the bodies of knowledge in comparative politics and international relations by demonstrating how one country’s gun policies influence another country’s gun policies while they are fighting the same “war” on arms, revealing how they may be allies—if their responses are amicable and cooperative—or antagonists—if one or more countries refuse to consider their domestic gun legislations’ international effects and proceed accordingly. The implication is that a state’s sovereignty—that is, a country’s ability to establish and enforce laws on its territory as an independent entity—may need to be a secondary factor in future creations of gun laws because arms trafficking is not isolated to a single country; rather, the illegal firearms market transcends borders and impacts multiple countries, such as Mexico, the United States, and Canada. Consequently, international considerations may need to be the most important factor in these states’ formations of gun regulation. Additionally, the comparative analysis component of my study demonstrated how each country’s prime concerns and political systems influence how each country responds effectively or ineffectively to the issue.

Furthermore, my research impacts the academic community because I took two different approaches—policy network analysis and comparative analysis—to answer my research question. The purpose of using two designs was to study both the individual trees (the policy actors) and the whole forest (the structure of their political systems) and capture a fuller picture. The impact is that the application of two research designs has proved fruitful and may become a strategy that other scholars adopt in lieu of employing just one research design.

Based on the research theories that I had selected, I can infer that a practical implication of policy network analysis is that it could help voters to elect politicians who are cooperative rather than antagonistic. For example, the approach may reveal that a certain

policy actor is at odds with other representatives, and that negatively affects the passage of a desired bill into law. Another example is that the approach could show how a policy actor, such as a lobbyist group, has undue influence on a particular lawmaker, and voters can decide how to respond from there. A practical implication of comparative analysis is that it may demonstrate which states are most democratic and least democratic, aiding the people in evaluating the extent to which their votes make a difference. Further, legislators can look at the findings of comparative studies to perceive their country's position on the global stage and how much leveraging power they have in international negotiations.

The concepts and information that I analyzed were sufficiently large enough to draw conclusions from because the concepts are rather abstract—such as policy actors, relationships, and illegal guns—which lend themselves to a wide search for enough information, and that information eventually narrowed my study's data to what was relevant. My research question involved the relationship between Canada, the United States, and Mexico in the illicit international gun trade, so my concepts were large enough to sufficiently explore my hypotheses. The information on the major gun policies, governments, and policy actors were pertinent enough to support my hypotheses.

A limitation is that not all illegal firearms are submitted to tracing by a legitimate agency, so the available statistics may not completely represent where illegal firearms in the three states are originating from. My analysis was limited to the illegal firearms that have been tracked down to a country.

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The Effect of Image Priming on Consideration Towards the Environment

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Abstract

The purpose of this study was to examine the effect of image priming on consideration towards the environment. It was hypothesized that images of people who are victimized by climate impacts would elicit more environmental consideration compared to images of climate impacts only in nature, and images that do not relate to climate change. A sample of 49 students were recruited through the CSU Stanislaus Department of Psychology online participant pool (SONA). Participants were randomly assigned to one of three conditions (Human, Nature, or Non-climate) and were presented with six images that related to their condition's theme. After viewing each image, participants were asked to rate how sad, angry, and relaxed the image made them feel on a 4-point Likert scale. After completing the image priming section, participants were asked to complete an Environmental Consideration Task where they had to distribute \$400 among 4 different charities (environment, education, health, animal). Results indicated that there was no significant effect found between image condition and the amount of money distributed to the environmental charity. These findings may have been limited by a small sample size confined to one college campus setting. Future research should have in-depth, qualitative designs that examine people's reasonings for supporting or not supporting climate change mitigation.

Keywords: Climate change, environment, image priming, psychological distance, construal level theory

Introduction

Since the Industrial Revolution, human activities such as the burning of fossil fuels have caused a 1° Celsius rise in global warming, and we are already experiencing serious climate and pollution impacts such as more extreme weather and millions of premature deaths per year caused by air pollution. The negative effects of climate change (CC) will continue to worsen and pose an existential threat to many species including humans if greenhouse gas emissions are not substantially reduced. In order to foster collective action, widescale use of green technologies, and governmental policies on CC mitigation, there must be a societal transformation in our attitudes and values—particularly, placing more value on nature conservation. Studying possible CC solutions through a psychological lens will help inform policymakers, news reporters, educators, and climate activists on how to influence public opinion toward recognizing the immediate importance of CC and to engage in pro-environmental behavior.

A common element that is employed to shape public opinion on a political issue is imagery. Therefore, the purpose of the present study is to explore the question “To what extent does priming with different climate change images affect people's consideration towards the environment?” Priming is a psychological technique where exposure to one stimulus such as an image or word can affect an individual's response to a subsequent stimulus. The

impact of priming is addressed in a meta-analysis by Loersch and Payne (2011) where they explain that priming activates “prime-related mental content” and can influence judgement when people “misattribute the primed information to their own thoughts, feelings, or impulses”. The effect of image priming on people's real-life engagement with the environment is evident in an experimental study conducted by Franěk and Režný (2017), which found that participants who were primed with photographs of trees walked significantly slower in an outdoor environment compared to those primed with photos of malls and those who not primed. Franěk and Režný (2017) proposed that priming with photographs of trees caused individuals to have an “increased interest in the environment”.

In the present study, I hypothesized that images of people who are victimized by climate impacts would elicit more consideration towards the environment than images of climate impacts in nature where there are neither people nor human development present in the photo, and images that do not relate to CC. This is because images climate impacts only affecting nature may contribute to the abstraction and perceived psychological distance of CC. According to construal level theory (CLT), the more distant an event or object is from an individual's experience, the more abstract and less concrete that event or object is perceived. Individuals discern distance based on four dimensions: spatial (physical or geographical distance), social (similarities and

differences between self and others), temporal (time-related distance), and hypothetical (how likely the event is to happen) (Bar-Anan et al., 2006). Perceived psychological distance has been shown to influence people's decision-making and risk-perception. For instance, in a correlational study by Spence et al. (2012), researchers measured participants' concern about CC and their perception of the psychological distance of CC along the four dimensions. Spence et al. (2012) determined that less psychological distance was related to more concern towards CC and more intention to act. In a similar study, Singh et al. (2017) reported that participants who perceived CC as socially, temporally, and spatially distant were less concerned about climate impacts and less likely to support adaptation policies. In contrast, an experimental study by Schuldt et al. (2018) found that localizing CC impacts among US participants did reduce psychological distance but did not increase climate mitigation policy support, which suggests that spatial concreteness alone will not increase public engagement with CC.

Maiella et al. (2020) conducted a systematic review of the literature on the relationship between psychological distance of CC and engagement in pro-environmental behaviors and attitudes. The researchers found that among the 19 studies that they analyzed, most results indicated that there is higher commitment to engage in pro-environmental and resilient behaviors when CC "is perceived as more proximal and concrete within the construct of psychological distance"; however, "the relationship between the two constructs is complex and still unclear." Likewise, visually framing climate change as more concrete does not always have a significant effect on reducing the psychological distance of CC because this distance can be modified by political orientation. Duan et al. (2021) found that concrete CC images (which featured ordinary people in the US and detailed information about the present situation) significantly decreased psychological distance toward climate change among liberals but had no effect on decreasing psychological distance among conservatives. This result supports motivated reasoning theory which proposes that an individual's established views and motivation to reach a desired end affect the way that individual evaluates new information and makes decisions.

Studies by Lenhman et al. (2019) and O'Neill et al. (2013) show a clear pattern of which images are rated as relevant to climate change (CC) and convey its importance. These images were of polar bears and natural disasters such as floods, industrial smog, deforestation, and cracked grounds. However, in O'Neill et al.'s study, participants also responded that images of climate impacts in nature did not make them feel like they could do something about the climate crisis. A possible explanation for this result is that these images made viewers feel

disempowered and psychologically distanced from the issue. In contrast with results from Lenhman et al. (2019) and O'Neill et al. (2013), Chapman et al. (2016) found that 'cliché' CC images—"polar bears, melting ice, a burning globe, fire, pollution, and coal power stations"—were viewed by participants as unimpactful and irritating due to their overuse. Images that did raise interest and concern among participants were of individuals who looked genuinely distressed by climate impacts, especially individuals who were directly looking at the camera. An explanation for Chapman et al.'s (2016) finding is that images involving distressed-looking people may have reduced the psychological distance of CC, and therefore elicited more concern. Further studying the influence of concreteness versus abstraction in climate change (CC) images will offer beneficial insight on how to frame the climate crisis in a way that elicits a behavioral response among a non-expert audience.

Method

Participants

A sample of 49 students (46 females, 3 males) were recruited through the CSU Stanislaus Department of Psychology online participant pool (SONA). The ages of the participants ranged from 18 to 40. The sample was predominantly Hispanic/Latino (68.6%), undergraduate psychology majors (79.2%), and politically Moderate (45.1%) followed by politically Liberal (31.4%). All participants were given 1 SONA credit for participating in the study, which may have counted as experimental credit for a psychology class.

Design

The research design was a one-way analysis of variance (ANOVA), between-subjects design to examine the effect of image priming on consideration towards environmental issues. One-way ANOVA is technique that's used to determine any statistically significant differences between three or more groups. The independent variable was image priming and was manipulated by randomly assigning participants into one of three groups or conditions: human, nature, or non-climate. The dependent variable was consideration towards the environment and was measured by how much money a participant hypothetically donated to an environmental charity.

Materials

This study utilized a demographics questionnaire that asked participants for their age, gender, race/ethnicity, major, and political views (conservative, moderate, liberal, other). The purpose of the demographics questionnaire was to measure the generalizability of the sample population. Each image condition contained 6 images. Imagery in the nature condition consisted of polar bears,

deforestation, forest fires, cracked grounds, cracked Arctic ice, and flooding. Imagery in the human condition contained the same themes except for polar bears, and featured people in the photos. Non-climate imagery consisted of books, ice cream, color pencils, doors, rollercoasters, and instruments. Each image was accompanied by three questions that asked participants to rate their emotional responses to the image on a 4-point Likert Scale; for example: 1 = “Not at all angry”, 2 = “A little angry”, 3 = “Angry”, and 4 = “Very angry”. The emotions that were assessed were sadness, anger, and relaxation. This study also included a hypothetical charity task developed by the author of the study to assess consideration towards the environment.

Procedure

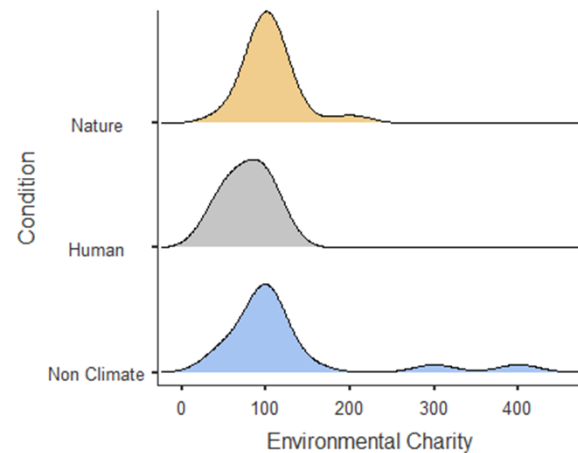
This study was conducted online through SONA. Upon opening the study, students were presented with an informed consent form and once the student gave their consent to participate, they were asked to complete a demographics questionnaire. Participants that disclosed that they were under the age of 18 were directed to the end of the study and thanked for their time. Participants who disclosed that they were 18 or older were randomly assigned to one of three conditions: nature, human, or non-climate. Participants in the human condition viewed 6 images of people that were victimized by climate impacts; participants in the nature condition viewed 6 images of climate impacts only among nature (neither people nor human development present in the photos); and participants in the non-climate condition viewed 6 images that did not relate to climate change. To make sure that participants engaged with the images, they were asked to rate how sad, angry, and relaxed each image made them feel on a 4-point Likert scale. Afterwards, participants were asked to imagine that they were given \$400 to distribute among 4 different charities (environment, education, health, animal sanctuary). Participants were asked to give the money to one or more charities. After completing this task, participants were directed to the debriefing form and thanked for their time.

Results

To determine whether participants in the human condition distributed more money to the environmental charity compared to participants in the nature condition and participants in the non-climate condition, data were analyzed using a one-way ANOVA design. The research hypothesis was not supported. No significant effect was found between image condition and the amount of money distributed to the environmental charity, $F(2, 46) = 2.67, p = .080, \eta^2 = .104$. Although not significant, participants in the non-climate condition distributed more money to the environmental charity ($n = 17, M$

$= 124, SD = 90.3$) compared to participants in the nature condition ($n = 16, M = 105, SD = 29.2$) and participants in the human condition ($n = 16, M = 77.5, SD = 23.3$). There were outliers in the data as shown by a density plot (see Figure 1).

Figure 1
Distribution of donated amounts to the environmental charity among the three image conditions.



Note. Nature Condition: $n = 16$. Human Condition: $n = 16$. Non-Climate Condition: $n = 17$

The mean number of dollars donated to each charity and standard deviation were computed for each image condition (see Table 1).

Table 1
Descriptive statistics of money donated to the four charities among the three image conditions.

Charity	Nature Condition		Human Condition		Non-Climate Condition	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Environment	105	29.2	77.5	23.3	124	90.3
Health	103	46.4	96.6	46.1	89.7	42.4
Education	106	41.5	97.8	34.8	90.6	44.1
Animal	86.6	45.0	128	59.6	96.2	67.5

Note. Nature Condition: $n = 16$. Human Condition: $n = 16$. Non-Climate Condition: $n = 17$

M represents mean and *SD* represents standard deviation.

The following four-point Likert scales were utilized to assess sadness and anger responses to each image:

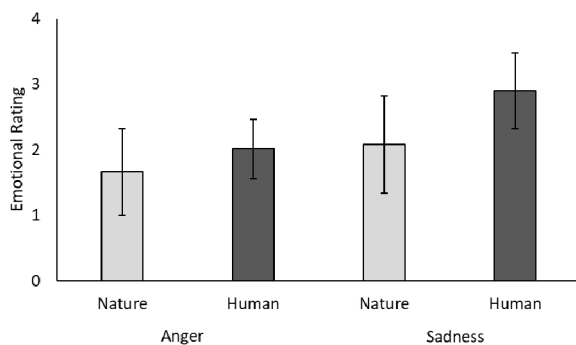
1 = “Not at all angry”, 2 = “A little angry”, 3 = “Angry”, and 4 = “Very angry”.

1 = “Not at all sad”, 2 = “A little sad”, 3 = “Sad”, and 4 = “Very sad”.

An independent samples t-test was conducted to assess the effect of image condition (specifically, nature condition and human condition) on emotion

ratings. Images from the human condition produced higher “Sadness” ratings ($M = 2.91, SD = 0.58$) than images from the nature condition ($M = 2.05, SD = 0.74$), $t(30) = 3.64, p = .001, d = 1.29, 95\% CI [0.38, 1.33]$. This test was found to be statistically significant and indicated a large effect size. Images from the human condition produced higher “Anger” ratings ($M = 2.01, SD = 0.45$) than images from the nature condition ($M = 1.63, SD = 0.66$), $t(30) = 1.93, p = .063, d = 0.68, 95\% CI [-0.02, 0.79]$. This test was not found to be statistically significant and indicated a medium effect size.

Figure 2
Mean “Anger” and “Sadness” ratings on images among the nature condition and the human condition.



Note. Nature Condition: $n = 16$. Human Condition: $n = 16$. The error bars indicate standard deviation. 1 = “Not at all angry/sad”, 2 = “A little angry/sad”, 3 = “Angry/Sad”, and 4 = “Very angry/sad”.

Discussion

The results of the present study did not support the hypothesis that participants who are primed with images of people who are victimized by climate impacts would donate more money to the environmental charity compared to participants who are primed with images of climate impacts only in nature or images that do not relate to CC. Contrary to what was expected, the mean amount distributed to the environmental charity was highest in the non-climate condition and lowest in the human condition. This may be due to the high outliers in the non-climate condition which skewed the mean. This result among the non-climate condition, which is the control group, suggests that external variables may have influenced participants’ decisions when distributing money to one or more hypothetical charities. Ideally, the only factor that should influence participants’ money distribution would be the images that they were primed with, however, other factors and personal experiences may have played a role.

With that said, participants in the nature condition did donate more money on average to the environmental charity than the human condition which implicates that images that solely focus on

destruction among nature are more closely associated with climate change rather than images of people facing natural disasters. In other words, because nature images such as polar bears on floating ice chunks are easily recognized as representations of climate change in the media, that may have prompted participants to think more about environmental issues.

Although images of climate impacts affecting people did not elicit more engagement with environmental concerns, these images did produce notably stronger emotional responses compared to images of climate impacts only affecting nature. This suggests that images of people being affected by climate impacts may be employed to have greater influence on audience’s emotions, however, these images should be coupled with a clear message that connects these images to the climate crisis and promotes mitigation actions and solutions.

Figure 3
Image that produced the strongest emotional response in the human condition with a mean “Sadness” rating of 3.69 and a mean “Anger” rating of 2.38.



Figure 4
Image that produced the strongest emotional response in the nature condition with a mean “Sadness” rating of 2.94 and a mean “Anger” rating of 1.94.



A possible reason for why images of forest fires produced the strongest responses among the nature condition and the human condition is that wildfires are one of the most significant climate impacts in California so Stanislaus state students are more intimately aware of the negative effects of wildfires or have more experience with this climate impact.

Limitations of the current study included a small sample size limited to only students enrolled in

psychology courses from one college campus, and not gathering in-depth data on why participants decided to donate to particular charities. Future studies in this field—this field being climate change (CC) imagery that is most effective at conveying importance and increasing motivation to act—should have in-depth, qualitative designs that examine people’s reasonings for supporting or not supporting CC mitigation and people’s responses to different CC images—for example, images that focus more on solutions versus images that focus more on the negative impacts of CC.

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