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Special Issue: Collaboration with the Florida Undergraduate Research Association (FURA)

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Mission Statement

The mission of the *Journal of Multidisciplinary Research* is to promote excellence by providing a venue for academics, students, and practitioners to publish current and significant empirical and conceptual research in the arts; humanities; applied, natural, and social sciences; and other areas that tests, extends, or builds theory.

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Editorial

Special Issue: Collaboration with the Florida Undergraduate Research Association (FURA)

Dear Students, Researchers and Professors,

On a wall of a trendy café in Beijing, you will find the inscription, "To create is to live twice." Well, we cannot guarantee that, but this special issue of the *Journal of Multidisciplinary Research* (JMR) in collaboration with the Florida Undergraduate Research Association (FURA), is pleased to present to you thought provoking research that undergraduate students and their professors from around Florida have created.

This Volume 12, Number 2, edition of the JMR, features 12 interesting collaborative research articles from top Florida universities. Two articles are from the University of Central Florida - one discusses general strain theory and the relationship between recidivism and secure placement, while another discusses service-learning through interdisciplinary research. Three articles are from Florida State University - one discusses simulating utility-scale solar energy profitability in Florida, another studied the Ukrainian crisis and its effect on displaced people and refugees, while a third discusses motherhood in Vietnam. An article from University of Tampa investigates language preference when learning a third language. An article from Jacksonville University discusses language, understanding, and information availability. An article from Stetson University discusses fashion advertising and body satisfaction. An article from St. Thomas University discusses personal branding in the era of COVID-19. An article from Florida Gulf Coast University examines the influence of a Mozart sonata on rhythm and spatial intelligence. Another article from Florida Gulf Coast University analyzes domestic energy in the Untied States over the past 31 years. Finally, an article from South Florida State College covers the 1926 great Miami hurricane and its effect on a small Florida town.

In our "Life Forward" section, we feature an interesting interview with Kimberly R. Schneider, the remarkable co-founder of the Florida Undergraduate Research Association (FURA). She was the founding director of the Office of Undergraduate Research from 2007 to 2020 and currently serves as the Interim Assistant Vice Provost, Academic Innovation, at the University of Central Florida. In addition, we feature a review of the book, *Social Media Marketing: A Practitioner Guide*, by Opresnik, Kotler, and Hollensen.

As we are ready to start the fall semester in these challenging times, we need not forget what C. S. Lewis once said, "Education without values, as useful as it is, seems rather to make man a more clever devil."

Wishing you a safe, productive, and successful journey!

Onward,
Hagai Gringarten, Ph.D.
Publisher & Editor-in-Chief


WE MEAN BUSINESS.
The Gus Machado College of Business at St. Thomas University coming June 2020.
The Gus Machado College of Business at St. Thomas University coming Fall 2020.
From Accounting to Marketing, STU's Gus Machado College of Business will be the training ground for our country's future business leaders. Our nationally recognized programs include our Institutes of Sports Administrations, Global Entrepreneurship, Trade & Logistics, Ethical Leadership Studies and our newly launched Center for Pandemic, Disaster and Quarantine Research.
Our new twenty-first century complex will reflect the modern workplace, have an open architecture, utilize multi-purpose spaces, and combine a robust technology infrastructure with the functionalities needed to learn real-life business practices.
When it comes to setting up our students to be the successful and ethical leaders of tomorrow, we mean business.
STU
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#1
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#1
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Is the median starting salary of a St. Thomas graduate as reported by U.S. News & World Report 2020.
25K+
Alumni will be able to volunteer and utilize university resources in our new Alumni Affairs Office that will be housed in the new business complex.
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Welcome

I have the distinct honor of welcoming readers to the current issue of the *Journal of Multidisciplinary Research* (JMR) where, herein, editors have taken the unique opportunity to underscore the vital role of collaborative research between students and their faculty, as exemplified by the Inaugural Florida Undergraduate Research Posters at the Capitol event. In fact, manuscripts within the current issue of JMR are each developed from posters presented at the 10th annual Florida Undergraduate Research Conference (FURC).

Successful faculty-student collaboration in research endeavors often serves as the pinnacle of experiential learning for one's undergraduate experience. The emerging researchers represented among this issue's authors no doubt would speak to the benefits of working closely with their mentor-collaborators; from design, to data collection, to analysis, to that first (sometimes anxious!) discussion with an inquisitive poster visitor, their faculty mentors helped shape a successful, unforgettable formative experience, memories of which will no doubt someday be shared with our students' future students.

And, remarkable promise comes from the interdisciplinary nature of such undergraduate venues in which research is shared. In the purest and most literal sense, for dialogue to happen about research in proximity to that conducted by others begging for connections to be made – both conceptual and interpersonal – maximizes the potential impact of one's work as well as that of others. The excitement of this potential impact – not only beyond one's lab, or institution, but in fact, potentially, beyond one's foundational academic discipline – is reinforcing and encouraging to these emerging scholars in ways that will show dividends as they eventually take on responsibilities for leadership in campuses, businesses, and governments. We need the scientifically-rooted to default to efforts that reach across differences to solve big problems.

You will find the promise of such collaborative, research-oriented leadership evident in the work in this issue. Enjoy!

Jeremy Moreland, Ph.D.
Provost and Chief Academic Officer
St. Thomas University

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Preface

The articles featured in this issue have all been written by undergraduate researchers from the state of Florida who have collaborated with a faculty mentor. Students who engage in research or creative scholarship, or both, refine their critical thinking abilities, enhance their communication skills, develop the capacity to work both independently and collaboratively, and learn how to deal with setbacks, developing resiliency and creativity when faced with problems. Because of these and other benefits, undergraduate research has been recognized as a high-impact educational practice that leads to deep, meaningful learning experiences and enhances student success.

The student researchers whose work is published here participated in the 10th annual Florida Undergraduate Research Conference (FURC), which is one of the nation's largest multidisciplinary research conferences, held February 21-22, 2020, at Florida Gulf Coast University. Presenting their research at FURC provided the students an opportunity to receive helpful feedback while improving their abilities to explain their findings in a clear and broadly understandable way.

As Chair of the Florida Undergraduate Research Association, a nonprofit dedicated to promoting and supporting undergraduate research in the state of Florida, I am excited by the outstanding collection of studies from a broad range of disciplines in this issue, and thank the editors of the JMR for providing a venue for these students to contribute to their fields. These manuscripts are likely to represent just one step in a productive and impactful future of scholarly work.

Eric Freundt, Ph.D.
Chair, Florida Undergraduate Research Association
Director, Office of Undergraduate Research and Inquiry
University of Tampa

FLORIDA UNDERGRADUATE RESEARCH ASSOCIATION

What is Undergraduate Research?

Undergraduate Research is an inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline (National Council on Undergraduate Research).

Undergraduate Research is collaborative between a student and a faculty mentor. Undergraduate Research follows a four step learning process:

1. Identification and acquisition of methodology
2. Setting out a concrete investigative problem
3. Carrying out the project
4. Sharing results with the broader community

Why is Undergraduate Research Important?

Undergraduate Research equips students for success while benefiting the community. Undergraduate Research:

- Enhances student learning through mentoring relationships with faculty
- Increases retention and graduation in academic programs
- Develops critical thinking, creativity, problem solving, and intellectual independence
- Strengthens written and oral communication skills
- Develops an understanding of research methodology
- Promotes an innovation-oriented culture
- Increases enrollment in graduate education and provides effective career preparation
- Benefits the community

Undergraduate Research also enhances the top four competencies that employers rank as the most important attributes of successful employees:

- Critical Thinking
- Teamwork
- Work-Ethic
- Communication

Undergraduate Research prepares students for medical school:

90%

- **9/10 successful applicants to Florida medical schools have significant research experience.** (Average of all Florida medical schools from 2016 and 2017 MSAR data.)

www.floridaundergradresearch.org fura@floridaundergradresearch.org

The Florida Undergraduate Research Association (FURA)

Supporting and Promoting Undergraduate Research

FURA is a nonprofit dedicated to promoting the understanding of research and creative activity across all disciplines. FURA promotes the creation of new undergraduate research opportunities and unites like-minded faculty and administrators across the state to support our students' success. For more information, visit www.FloridaUndergradResearch.org.

Where Can You Engage with Undergraduate Research?

FURA EVENTS:

Florida Undergraduate Research Conference (FURC)
FURC is one of the nation's largest multi-disciplinary research conferences. It is an annual event open to all undergraduate researchers in the state of Florida to present their research in a poster forum. Every year, the conference is hosted at a different college or university in the state. The conference boasts some of the best networking opportunities with fellow researchers and graduate programs across the country, as well as workshops and other professional development experiences.

FURC FACTS:

- Over 3,000 student presentations at FURC since its inception.
- 93% of students report feeling more confidence about public speaking after participating.
- 92% of conference attendees would recommend the conference to other students.
- FURC is the first conference presentation for the majority of presenters (58%)

FURC 2021 will be held virtually due to COVID-19 .

Florida Statewide Symposium: Best Practices in Undergraduate Research
For the past 11 years, faculty, administrators, and professional staff have gathered to participate in a two-day symposium that focuses on strengthening and developing undergraduate research.

Undergraduate Research Posters at Capitol
Students are provided the opportunity to present their research and interact with legislative members from their representative districts. This event, held annually in the spring, promotes the visibility and viability of undergraduate research while also providing high-achieving students a space to engage directly in the political process.

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The Ukrainian Crisis, Violence in the East, and its effect on Ukrainian Internally Displaced People and Refugees

Emma Beyar
Florida State University

Abstract

The mission of the present study was to explore the social and cultural effect the refugees and internally displaced people are having on Ukraine. The number of internally displaced people (IDP) increases as violence in the Eastern region of the country continues. IDPs, similar to refugees, flee because of persecution, violence, or war, yet remain in the nation. Through personal interviews of three Ukrainian citizens living in the West and East, the study gains an accurate and a full perspective of the Ukrainian socio-cultural changes and a detailed understanding of the armed conflict in Eastern Ukraine. During the interviews, interviewees demonstrated how their lives and surrounding communities have transformed drastically in recent years since the conflict began in 2014. As IDPs spill into the West, non-governmental organizations (NGOs) and local churches provide aid, shelter, educational grants, and recovery programs focusing on psychological traumas of individuals and military personnel. Through the interviews, IDPs and Ukrainian civilians exposed the negative reality of the conflict from the perspective of the Eastern border and Western cities as the socio-cultural dynamics continue to change within the nation.

Keywords: internally displaced people (IDP), refugees, United Nations (UN), Donetsk, Donbas

Introduction

Refugees and internally displaced people (IDP) are all over the world. According to the United Nations (UN) (2019), in 2018, there were approximately 26 million global refugees. In the last decade, a higher percentage of refugees have been fleeing the Middle East, specifically Syria. According to the UN Team in Ukraine (2019), more than 2/3 of the globe's refugees generally flee from the Middle East, West Africa, and Myanmar. In the words of the UN (n.d.), refugees have "been forced to flee their country because of persecution, war or violence" (para.

1), and these individuals flee because of a well-established fear stemming from their unchangeable or chosen identity. IDPs, by contrast, do not cross an international border, yet they seek safety within their own country because of internal violence.

The crisis of IDPs and refugees is of great importance in the Ukrainian armed conflict areas, especially since approximately 2.7 million citizens remain in these regions (UN, 2016). According to a UN (2016) report, people's basic freedom of travel in separatist areas of Ukraine faces restrictions, with increased difficulty to receive proper documentation. Civilians in separatist occupied regions lack proper human rights, and many attempt to seek refuge outside of Ukraine (UN, 2016). To establish a just and equitable society, individuals should receive their basic human rights that the sovereign state uphold and protect. Because of the violence and protests that began in Ukraine in 2013, the country has split and degraded slowly into several smaller regions that the global society does not hold accountable or recognize.

Purpose of the Study

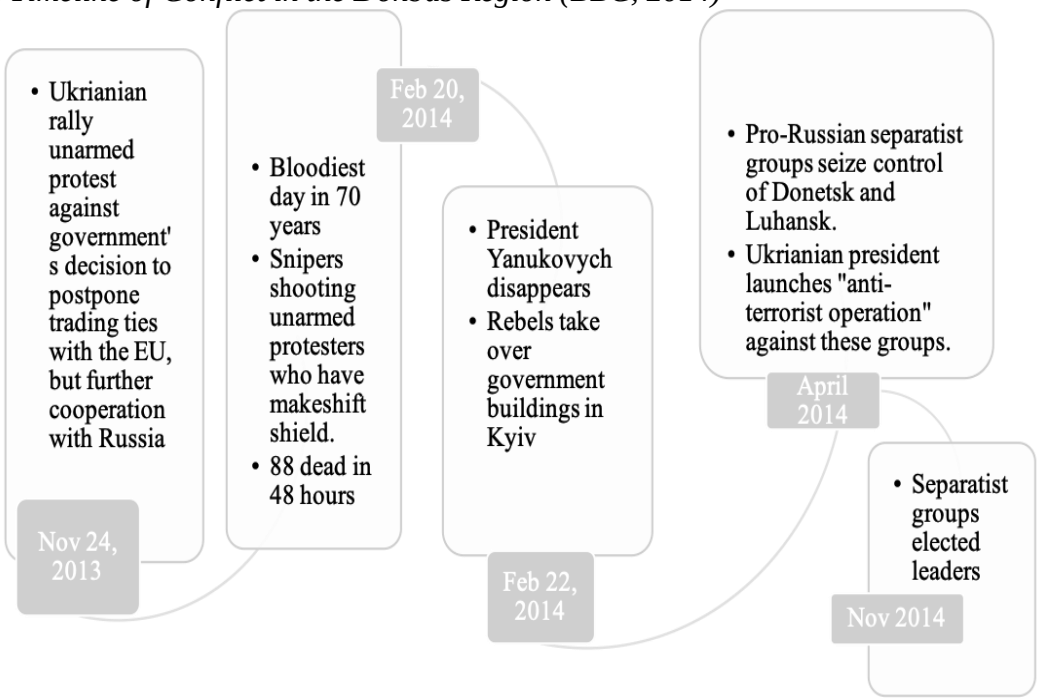
The purpose of the present study was to explore the cultural and social effects the refugees and internally displaced people are having on Ukraine. In addition, the study investigated the effect the violence in the East has on civilians and internally displaced people who are forced to, or voluntarily, flee because of the armed conflict. Some questions this researcher investigated included observing the differences in people's daily lives since the violence, people's changing political views, and how the violence affects the personal livelihoods of individuals. The research hypothesized that the violence in the East creates a massive negative impact on civilians and internally displaced people, thus causing cultural challenges and societal change for the entire Ukrainian country. Political leanings of the pro-EU citizens of Western Ukraine versus the pro-Russian East have caused rifts between individuals as well as political violence. The violence that started in early 2013 in Kiev, Ukraine, created giant ripples, causing civilians to flee into either neighboring countries or further west. The number of internally displaced people keeps increasing, and the present research study attempts to see how, over time, these individuals affect the overall culture of Ukraine. The researcher conducted this study through personal interviews of citizens living in the Western and Eastern parts of Ukraine.

Significance of Research

The global trend of refugees and IDPs specifically affects Ukrainian citizens and those living in the Eastern portions of the country. According to Spindler (2015), about one million displaced persons exist in Ukraine because of the continued violence in Donetsk. Researching conflict that socio-cultural changes among individuals and communities leads is significant for increasing knowledge and understanding of a major humanitarian crisis, which continually prevails and affects Ukraine today. After researching recent articles of the conflict, one may notice not enough researchers and scholars are observing the Ukrainian IDPs. News reports of the Ukrainian crisis were substantial in 2014 when the crisis and Russian military involvement began, yet today, a lack of understanding exists about the current situation in Ukraine and the large number of people the crisis is affecting. The crisis has become normalized, and the public generally has lost interest since the start of the conflict in 2014. Many are unsure of a resolution, yet to create a solution, individuals first must be knowledgeable about the Ukrainian crisis.

Refugees and IDPs fleeing the Ukrainian Violence in the Donbas Region

Figure 1
General Timeline of Conflict in the Donbas Region (BBC, 2014)



According to GlobalSecurity.org (n.d.), two separatist, non-government-controlled republics that contain their own governments are in place: the Luhansk People's Republic (LNR) and the Donetsk People's Republic (DPR). The LNR self-proclaimed leader Bolotov established the government in Luhansk, while the DPR government that Borodai led came into being in Donetsk. The political and military relations between Russia and Ukraine (UA) play a massive role in causing protests and sparked conflict among citizens in Kiev's main squares and city halls in February of 2014. The conflict of East and central Kiev affects the livelihoods of thousands of Ukrainian citizens.

The European Union, which will not recognize the self-proclaimed state of LNR, also called the DPR elections of November 11, 2018, "illegal and illegitimate" (GlobalSecurity.org, n.d., para. 4). This Eastern Region of UA is not a part of the country according to the Ukrainian president (GlobalSecurity.org, n.d.). Igor Strelkov, the leader of the rebel army, vetoed President Petro Poroshenko's attempt at a peace proposal, and on April 7, 2014, the pro-Russian separatist group seized control of government buildings, barricaded the outside, and announced the creation of the sovereign state in Donetsk. Rebels have asked for the support of the Russian military and the potential to become part of Russia. Recently, in 2017, 14 companies established themselves in the Donetsk region, Russia being the greatest importer of Donetsk company products at 87.5% (GlobalSecurity.org, n.d.).

In the region of Donbas, the LNR leader Leonid Pasechnik won regional elections with an overall 68% majority (GlobalSecurity.org, n.d.). The LNR is a self-proclaimed government that pro-Russian separatists established partially through declaring marital law, banning large production services, seizing checkpoints on the Ukrainian-Russian border, and gunning down any Ukrainian military planes. On April 28, 2014, the pro-Russian separatists announced the

creation of the LNR, with several days of overtaking government institutions following. In July 2014, the UA government retook the city of Slovyansk, causing the LNR to focus on defensive military operations (GlobalSecurity, n.d.).

These two self-proclaimed people's republics have collaborated on the creation of the Novorossiya Confederation, even with their differences that may potentially cause tension in the future. The LNR is more centralized and has more leftist ideologies utilizing Soviet rhetoric, compared to DNR, which is more widespread (GlobalSecurity.org, n.d.). President Vladimir Putin has taken advantage of the turmoil in Eastern Ukraine by creating the State Migration Policy for the years 2019-2025, which provides a fast track for individuals in Donbas region to receive Russian citizenship (GlobalSecurity.org, n.d.).

The General Secretary of the Collective Security Treaty Organization, Nikolay Bordyuzha, noted that 1.5 million Ukrainian refugees are established in Russia and several thousand fled to Belarus (Russian News Agency [TASS], 2016). In addition, according to Spindler (2015), Ukrainians have sought asylum in neighboring nations such as Moldova, Poland, Hungary, and Romania since 2014. According to Yuri Vorobyov, the Federation Council vice speaker, 10,000 individuals are living at refugee centers in Russia while approximately 500,000 others have found apartments or are living with Russian relatives (TASS, 2015). Yet, these refugee service centers were operational only until February 3, 2017, according to Alexander Titov, the regional government official of South Rostov. At the start of 2016, there were seven refugee accommodation establishments; one of them remained until February 3, 2017, while the other refugees were transported on February 1, 2017, because of the other refugee centers closing. Titov reassured the populous that those with "children, women, disabled, and elderly may remain" (TASS, 2016, para. 8) in the center. According to Walker (2016), many refugees have fled to the city of Magadan, Russia, where it is safer, and families have found a new way of life and a community to sustain themselves.

As the UN (n.d.) stated, Ukrainian individuals remain in a very vulnerable position even after the ceasefire labeled the Minsk Protocol of 2014. Many individuals remain on the front lines of the conflict in war-damaged towns surrounded by devastated infrastructure. There are around 3.5 million civilians in need of humanitarian aid, and around 30% of these are elderly still living in the region (UN, n.d.).

The UN Refugee Agency (UNHCR) said the number of IDPs fleeing the Donetsk area of the East was reaching about one million on February 6, 2015 (Spindler, 2015). The UA government vocalized concern for those living near the frontline of the armed conflict, especially with large amounts of shelling. The government is evacuating people to government-controlled towns of the northern Donetsk region, even if the only accommodation is the railway station in Slovyansk. Besides the government organized evacuations, many individuals face dangerous treks toward safety through desolate cities with insufficient belongings and many without winter clothes (Spindler, 2015). Local non-governmental organizations (NGOs) have sprung into action as IDPs travel into central, southern, and western parts of UA by providing basic necessities such as blankets and warm clothes. Yet, for those who remain in the East, urgent humanitarian aid is necessary, yet limited, and it is becoming increasingly difficult to transport and distribute these resources (Sorokopud, 2015).

On June 20, 2019, Pablo Mateu, the UN Refugee Agency representative for Ukraine, mentioned that statistically, at the end of 2018, 70.8 million individuals were displaced (UN Country Team in Ukraine, 2019). Approximately 41 million were IDPs who had sought refuge within Ukraine and to the West. The UNHCR continually coordinates with Ukrainian authorities

to establish a system for asylum seekers, which can increase protection and support long-lasting solutions. Specifically, some developments UNHCR promotes is requesting the Ukrainian Government process asylum requests at international airports, offer appropriate funding, utilizing interpreters, and preventing detention of asylum seekers. The refugees should have free access to medical care and a smooth assimilation and employment process once they have settled in their destination (UN Team in Ukraine, 2019).

Efforts to Assist IDPs and the Affected Communities

The International Organization for Migration (IOM) has collaborated with the Government of the Federal Republic of Germany on a project initiated in October 2017 to aid in developing self-sufficient employment opportunities through grants and microbusiness startups for IDPs and communities accommodating fleeing individuals. Out of this project initiative, the IOM created the National Business Exchange Platform, which aims to develop the long-term business environment in Ukraine through an online platform containing many resources for new businesses (IOM [International Organization for Migration], n.d.). In addition to IOM's economic support, there are social cohesion projects where a "Call for Partners" has been tasked with selecting initiative group members and communities to implement these projects. The group members take part in extensive three-day trainings learning and developing social interactions, utilizing resources, development, and using effective communication. As stated by the IOM (n.d.), they use activities that include both IDPs and the locals to create projects that in turn improve social substructure, specifically establishing schools, playgrounds, and improved health care services, which all could potentially lead to the enhancement of individuals' quality of life (IOM, n.d.).

Data and Methods

The present researcher (Primary Investigator) determined that personal interviews achieved through the researcher's personal contacts was best in representing an accurate and full perspective of the Ukrainian socio-cultural changes and the armed conflict in the East. The interviewees could demonstrate how their lives and surrounding communities drastically transformed in recent years since the conflict began in 2014. The researcher interviewed all the interviewees via the computer using Skype.

The researcher created questions specifically for each interviewee because these individuals live in different areas of the country and have experienced different sides of the crisis. Each interview had some specific achievable goals involving respectfully and accurately demonstrating the effect the conflict has had on these individuals and the recent overall cultural atmosphere of Ukraine. The researcher asked about the interviewee's daily life, how their family handled the conflict, if they had done or are doing anything to help other IDPs or refugees, and why they decided to flee or stay in the armed-conflict area. Some specific questions the researcher asked of the interviewees included, "How do you see culture or society changing because of these new people moving into your region? In your opinion, is there an effective way to house all these new internally displaced people, or are many becoming homeless? What is people's perception of all the citizens and IDPs fleeing that area?" – all of which aim to explore the cultural and society impacts the IDPs and refugees created escaping the conflict in the Donbas region. The study included more varied questions depending on the interviewee's

background and family situation (see Appendix A-C for all the questions the researcher asked of the individuals; the generic Russian translation is in Appendix D).

The researcher requested the Florida State University Office of Human Research approve the study. That Office approved the study as number STUDY00000531 on November 14, 2019 (see the finalized approval document in Appendix E).

Findings from Personal Interviews

Through personal interviews, the researcher was able to analyze data and see the general impact IDPs have on Western Ukraine and how citizens are aiding IDPs in resettlement and recovery processes.

The first interview the researcher conducted asked questions involving their relatives who remain in the Eastern Ukraine, even with heavy Russian influence and conflict in the area. The interviewee was a student in Donetsk, where the student's university peers were very affluent and generally pro-European Union (EU), while the professors' rhetoric usually leaned more pro-Russia. The student left the East and moved to Kiev in 2001 after university. The student's parents, ages 61 and 65, remain in East, yet the father understands the potential for the media to broadcast biased and untruthful details. To combat the faulty news and prevent himself from being brainwashed, the father secretly listens to Ukrainian news while living in Russian-occupied territory. For a short period, the interviewee's parents lived with him in Kiev, yet moved back because their entire lives are in the East; they could not leave behind the home they built with their own hands. The individual sees the conflict in the East as dangerous, so; in turn, he helps IDPs escape the East and facilitates local efforts that aid IDP resettlement.

As more than a million IDPs fled into the West at the start of 2014, churches opened their doors, some citizens were willing to host IDPs, and the government became heavily dependent on NGOs. Churches created psychological workshops hoping to aid IDPs in recovering from trauma such as post-traumatic stress disorder (PTSD). Ukraine has strengthened its military defenses within the years of war. Yet, the interviewee believes the armed self-proclaimed separatist groups are means for Russia to continue its imperialistic conquest of Ukraine.

The researcher was able to interview another individual who lived in Donetsk for 11 years and whose in-laws remained in the East, even when the violence began. The interviewee's family moved to Kiev in 2011 before the conflict erupted in 2014 yet kept in contact with many individuals who remained in Donetsk, where the self-proclaimed separatist group has established dominance. The individual was able to assist a family with two children to move from their city, which the Russian militia was bombing, to Kiev by helping them to find an apartment, figuring out logistics and financially supporting them. Some families who have relocated have been able to reestablish their business, while others have taken up various jobs unlike their former occupations.

Similar to this study's first interviewee, the individual's retired in-laws, aged 60, remain in Donetsk because their entire livelihood and everything they need for retirement is in the city, and food, money, and shelter are provided. For them to move and resettle would be more complex than for them to remain. The situation in the East has become normalized in Kiev, as the interviewee commented, and businesses and life seem to operate as usual. Yet, every day, Ukrainian news sites report the number of causalities on the front lines and more military personnel visible on the streets. The Eastern portion of the country seems to be almost completely cut off from the rest; for example, only Russian currency circulates in the East. Also,

the border checkpoints have become more difficult and dangerous to cross. Every two months. civilians living in the East must check-in at a Ukrainian army-controlled station on the border and self-identify to receive pension money from the Ukrainian government. If these individuals do not come, no matter how difficult it may be to travel, they are regarded as dead, and their social security is cancelled. As the conflict continues, the Ukrainian government has limited its funds for humanitarian aid, placing more regulations on the people and on the usage of government money, and increased funding for the military.

The third interview was with a Ukrainian officer who was in the Ukrainian army for a year until 2014. The individual found society's unified passion, commitment to military aid, and support waned as the conflict in the East continued and normalized, and only families with direct relatives in the army are concerned. The officer grew up in the West, where everyone believed Russia was an enemy. So, when the conflict started in 2014, there was an expectation for strong, young men to register into the army. This individual's battalion was stationed in the West. Yet, while an officer, he saw a distinction between mannerism and language with the Eastern battalions, which speak Russian, not Ukrainian. In contrast, the military training and artillery is standardized for all, so it is easier to train across borders.

When asked about the atmosphere in Western Ukraine that the IDPs cause, and the measures they have implemented to support IDPs, the officer mentioned the lack of IDPs within large cities such as Kiev. Many IDPs lack the financial funds and a suitable education to afford living costs and to find a job. Yet, the individual said the IOM provides educational grants for IDPs and service projects that give resources to start microbusinesses. In addition to this aid, the Ukrainian government gives around $120 and merit-based scholarships for IDPs resettlement processes once they register. Both these individuals and veterans receive support. The officer described the creation of psychological programs from 2014 and 2015 to current programs as a drastic transformation. In 2014, no one knew the psychological effects of war on the military personnel, and it was culturally uncommon to seek help from a counselor. Now, veterans receive encouragement to participate in recovery workshops and seek support from a counselor.

Analysis of Findings

The researcher was hoping to observe and draw concrete conclusions from the personal interviews relating to the social and cultural impacts the IDPs and refugees fleeing the violence in the East create. As the researcher noted, in general, the interviewees had greater understanding about the effect of the violence in the East in relation to their families, compared to the overall cultural changes within the nation.

Since the crisis and influx of individuals, NGOs and local churches have attempted to provide adequate housing – even if that means sleeping on the floor of the church for a night – and recovery programs. One interviewee helped families fleeing from the East and aids in recovery workshops focusing on physical and psychological traumas of military personnel. When the war began in 2014, individuals in the military and general society did not realize the psychological effects of war and trauma. In recent years, a shift of cultural norms has encouraged individuals to participate in counselor sessions and psychological therapy, whereas before it was strange to go to a counselor or psychologist. Just as in the case with IDPs, veterans have begun to find support with the process of resettling back into normal life.

Some other cultural effects are visible through the larger number of IDPs living in the suburbs and towns, versus the cities in the West. The Ukrainian government and the IOM are

attempting to provide IDPs access to education through scholarships and grants, which has created a presence of younger IDPs within the public education systems. Yet, as the crisis continues, the number increases, according to Ukrainian statistics, and currently there are around 1.4 IDPs and about half remain unemployed. In turn, the competition for jobs has increased and IDPs grasp at any potential occupation, even if very different from previous occupations.

Both of the first interviewed individuals have relatives living in the Eastern region. When the violence was the most dangerous in 2014, the relatives sought shelter in the West as a temporary arrangement. Yet, these relatives, native Ukrainians, see their lives in Eastern Ukraine as a new kind of "normal" and believe it to be more difficult to move and leave everything behind, while many younger individuals and families have sought refuge in the West, attempting to assimilate and begin a new life. The way some native Ukrainians have normalized the violence reflects the way most Ukrainians and the international community normalize the conflict. In some sense, it seems the violence in the East does not touch the West because IDPs seem to be assimilating successfully. Two interviewees commented that the capital, Kiev, has mostly remained unchanged and somewhat Westernized, while the East continues to be transformed into a semi-socialist Russian state.

The interviewees believed the Ukrainian Crisis should not be labeled as a crisis; more so, it should be regarded as a war between the two sovereign states. Ukraine's sovereignty is not being respected as Russian military forces move into the territory, aid the pro-Russian self-proclaimed separatist groups in Luhansk and Donetsk, give out Russian passports (Deutsche Welle, June 2019), and circulate only Russian currency within the region. Also, there have been violations of human rights, which have become normalized. For example, border checkpoints are extremely dangerous to travel to, and any movement of individuals is suspicious, and the freedom of movement is inhibited. Yet, the Ukrainian government requires pensioners to travel to these checkpoints every two months to identify themselves and receive money. The interviewee considers these separatist groups as means for Russia to gain an upper hand on the Ukrainian military, and to spur on the Russian imperialist mindset, which drives their actions of occupation and domination over the East. Yet, some individuals live and flock to the cities where the separatist groups reside, because the living conditions are better and safer than in other areas in the East.

IDPs and these Ukrainian interviewees confirmed the hypothesis by demonstrating the negative reality of the conflict from the perspective of the Eastern border and Western cities as the socio-cultural dynamics and their daily lives continue to change within the nation because of the influx the violence in the East causes, pushing out IDPs.

Summary

The research study hypothesized that the armed conflict in the East negatively affects IDPs and civilians, leading to cultural and societal changes and alterations pushing the West beyond its capacity. The research study has potential for future investigation of the Ukrainian crisis as relations between Ukraine and Russia wane, IDPs continue to pour into the West, and foreign powers influence the government while aiding Ukrainian citizens and IDPs. The three interviewed individuals were willing to provide personal connections with IDPs, which would allow the researcher to observe further the effects the conflict in the East has on these IDPs and how they perceive their resettlement affecting Ukrainian citizens residing in the West. If the researcher conducts more interviews, the analysis and resulting observations may add to a

broader and deeper understanding of the Ukrainian crisis from new and various viewpoints. Yet, with the present information, there may be concerns of reliability by the present researcher. The Ukrainian Humanitarian Crisis is extremely complex, with multiple layers and viewpoints, some of which did not have representation through the three individual interviews. In conclusion, the analysis demonstrates the massive chain reaction starting with the war in the East, forcing IDPs out of their homes and, in turn, altering the socio-cultural foundation of the entire nation. The difficulty of contacting the interviewees, finding time for interviews, and receiving approval from the IRB all became limitations to the overall research study, as the researcher could have conducted more interviews and analysis if the researcher resolved these obstacles earlier.

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The present researcher conducted interviews with three Ukrainians over Skype using her personal computer. She saved all recordings on the computer and removed them once she concluded research for the safety of the interviewees. She conducted all the interviews between October and November 2019. The interviewees remain anonymous for reasons of personal safety and security.

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Appendix A

Interview Questions for Ukrainian Male Soldier

1. Where are you from originally? How and when were you recruited into the UA military?
2. When was the first time you heard about the Russian military forces?
3. As a UA Soldier is it difficult being in an armed conflict against other Ukrainians?
4. What does the military situation look like presently in comparison with the first stages of violence in 2013?
5. How is your family reacting and handling your association with the UA military?
6. How do media portray the conflict? What is the military's perception of all the IDP fleeing that area?
7. How do they see culture or society changing within the military and Ukraine because of these people coming in and many feeling the East?
8. How is the Ukrainian government handling the conflict and internally displaced people?
9. What is your opinion on the issue, how can the armed conflict be resolved?
10. Have you or the military done anything to help these people fleeing the Eastern portion?

Appendix B

Interview Questions for Lady with Parents living in East

1. Where are you originally from? 16km away from Ukrainian crisis
2. When did your family move away from the rebel areas and Russian military forces in the East?
3. How has daily life changed for your family in Donetsk? How did it affect the education for their children?
2. Were they even afraid for their life and saw something that prompted them to potentially leave?
3. Why did your family decide to stay in the Donetsk region?
4. How has your family in the East been feeling about the continuation and the unresolved military presence in their region?
5. How do media portray the conflict in the East versus the West? What is people's perception of the citizens and IDP people fleeing that area?
6. Is there an effective way to house all these new internally displaced people or are many becoming homeless?
7. How do you see culture or society changing because of these new people coming in? How does your family see society changing in the East?
8. How is the Ukrainian government handling the conflict and internally displaced people?
9. How can it be resolved in your opinion?
10. Have you done anything to help these people fleeing the Eastern portion?

Appendix C

Interview Questions for Husband living in the West

1. Where are you from? When did you and your family move away from the rebel areas and Russian military forces when the conflict started?
2. How was daily life changed? How did the conflict in the East affect your family and the education for your children? Where you even afraid or saw something that prompted you to leave Ukraine?
3. Why did you decide to stay in the Western region?
4. How do media portray the conflict? Have you met people or have family in the Eastern region? What are people's perception of all the citizens and IDPs fleeing that area?
5. In your opinion, is there an effective way to house all these new internally displaced people or are many becoming homeless?
6. How do they see culture or society changing because of these new people moving into your region?
7. How is the Ukrainian government handling the conflict and internally displaced people?
8. In your opinion, how can the conflict in the East be resolved?
9. Have you done anything to help these people fleeing the Eastern portion?

Appendix D

Russian Translation

1. Откуда вы родом?
2. Когда ваша семья ушла из районов повстанцев и российских вооруженных сил на Востоке?
3. Как изменилась повседневная жизнь вашей семьи в Донецке? Как это повлияло на образование их детей?
4. Вы боялись за свою жизнь и видели что-то, что побудило их потенциально уйти?
5. Почему ваша семья решила остаться в Донецкой области?
6. Как ваша семья на Востоке ощущает продолжение и неразрешенное военное присутствие в их регионе?
7. Как СМИ изображают конфликт на Востоке против Запада? Как люди воспринимают граждан и вынужденных переселенцев, покидающих этот район?
8. Есть ли эффективный способ разместить всех этих новых внутренне перемещенных лиц или многие становятся бездомными?
9. Как вы видите, как меняется культура или общество из-за прихода этих новых людей? Как ваша семья видит, как общество меняется на Востоке?
10. Как украинское правительство справляется с конфликтом и вынужденными переселенцами?
11. Как это можно решить по вашему мнению?
12. Делали ли вы что-нибудь, чтобы помочь этим людям бежать из восточной части?

Appendix E
IRB Approval
FLORIDA STATE UNIVERSITY
OFFICE *of the* VICE PRESIDENT *for* RESEARCH

APPROVAL

November 14, 2019

Emma Beyer
ebeyar@fsu.edu

Dear Emma Beyar:

On 11/14/2019, the IRB staff reviewed the following submission

Type of Review:	Exempt (2)(iii) Tests, surveys, interviews, or observation (identifiable); and for which limited IRB review was conducted via expedited review
Title:	The Ukrainian Crisis, Violence in the East, and its Effect on Ukrainian Internally Displaced Persons and Refugees
Investigator:	Emma Beyar
Submission ID:	STUDY00000531
Study ID:	STUDY00000531
Funding:	None
IND, IDE, or HDE:	None
Ocuments Reviewed:	• Ebeyar_information-sheet.pdf, Category: Information Sheet; • Sveta Q_.pdf, Category: Survey/Questionnaire; • Updated Ebeyar Protocol, Category: IRB Protocol; • Updated Verbal Consent Form, Category: Consent Form; • Verbal Consent Form in Russian, Category: Consent Form;

The IRB staff approved the protocol, effective on 10/30/2019.

You are advised that any modification(s) that would affect the exemption determination of the protocol for this project must be reviewed and approved prior to implementation of the proposed modification(s). Federal regulations require that the Principal Investigator promptly report any new information related to this protocol (see Investigator Manual (HRP-103)).

In conducting this protocol, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system.

Sincerely,

Human Subjects Research Office
humansubjects@fsu.edu

About the Author

Emma Beyar (emmabeyar@gmail.com) is a senior at Florida State University studying Russian, Spanish, and International Affairs with a concentration in Public Administration. She is currently pursuing certificates in Emergency Management and Homeland Security, and received the Global Citizenship Certificate in fall of 2019. As part of the Garnet and Gold Scholar Society, she pursues excellence in her academics, leadership positions, and employment with The Center. As a Residential Assistant with University Housing, she aims to be a consistent resource for university residents and creates a loving community atmosphere within housing. Through training, teamwork, and skill development, she supports her coworkers and students in achieving their goals, overcoming challenges, and finding appropriate resources on campus. Emma, previously and currently, is very active with her Cru campus ministry as the Outreach Team leader, and she consistently volunteers at her church. In the past, she worked with vulnerable populations and provided hands-on care for those in need overseas during mission trips and during her overseas residence as a child of a missionary family. She understands the value in representing vulnerable populations and conducted this research to give those in the midst of the Ukrainian Crisis a voice.

Discussion Questions

1. Can international organizations or outside countries act to further prevent Russia's actions in their continual supplying and support of the Easter separatist groups?

2. Is there anything the IOM could provide or improve in their efforts to aid in IDP assimilation process?

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Simulating Utility-Scale Solar Energy Profitability in Florida

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Abstract

Is solar energy an economically competitive option for Floridian consumers? By 2028, Florida Power and Light (FPL), the leading electricity provider for the State of Florida, projects to source nearly 15% of its electricity supply from solar power. As an Investor-Owned Utility serving the electricity needs of approximately half of Floridians, policy changes to its energy portfolio greatly impact consumers through base rate increases to subsidize the technological transition. The present study investigates the potential profitability of FPL's solar projects by conducting a cost-benefit analysis (CBA) and a sensitivity analysis to determine how varying generation parameters impacts profits. This research simulates 110,880 CBA scenarios with only 2.4% of scenarios showing profit while holding base rates constant. Among scenarios with a time-period of 30 years, this study finds approximately 19.5% are profitable. However, this study shows that FPL's solar projects are profitable, but likely not within the regulatory rate of return. Simulations in this study show less than 1% of scenarios are profitable. This research suggests that consumer base rate increases are likely to enable FPL to achieve its allowable rate of return for its future solar projects.

Keywords: solar energy, utilities, renewable energy, electricity, energy pricing, sensitivity analysis, cost-benefit analysis

Introduction

Florida's population is growing and with that growth comes with an increase in consumer energy needs from utility providers. An estimated 21.1 million people lived in the state of Florida as of April 2019 (Florida Office of Economic and Demographic Research, 2019b), and that number could increase to between 23 and 24 million in 10 years (Florida Office of Economic and Demographic Research, 2018). As a result, utility-scale energy providers will need to properly plan for the growing electricity needs of current and future residents. Florida residents consume an overwhelming majority of their electricity from natural gas, followed distantly by nuclear, coal plants, and nonhydroelectric renewable sources (U.S. Energy Information Administration, 2019). Currently, the State's energy generation profile has a much smaller percentage of electricity from renewable alternatives than nonrenewable sources. As Florida's present leading renewable energy source (Florida Public Service Commission, 2018), experts predict solar energy will grow significantly in the coming decades. The Florida Public Service Commission (FPSC) (2018b) expects the installed capacity of solar to increase nearly tenfold by 2027. While, the FPSC predicts the capacity of other renewable energy sources will remain nearly constant during the same time period

Over three-fourths of residents in the State of Florida are served by Investor-Owned Utilities (IoUs) (Florida Public Service Commission, 2018a; Florida Office of Economic and Demographic Research, 2019a). The largest IoU, Florida Power and Light (FPL), will provide a leadership role in determining the future energy portfolio for the State. The present article makes the following new contributions concerning the profitability of utility-scale solar:

- We identify the industry cost trends, policy supports, and regulatory processes impacting the adoption of solar-based utility projects.
- We explore the economic prospects for FPL implementing utility-scale solar projects by conducting a cost-benefit and sensitivity analysis of 110,880 scenarios. FPL is the largest utility provider and serves the current electricity needs of approximately half of Floridians.
- We identify under what specific scenarios and conditions solar projects become profitable.
- We discuss how transitioning to solar can impact electricity base rates for Floridian consumers.
- We offer recommendations for future solar energy research to include the other Investor-Owned Utilities (IoUs) serving more concentrated urban areas and expand to include Municipally-Owned Utilities serving low populations.

Background

Cost Trends in Solar Power Generation

Utility-scale solar is becoming more cost competitive to its nonrenewable counterparts due to technical advancements and policy stimulus. The utility sector has been the fastest-growing sector of the photovoltaic (PV) market since 2007 (Bolinger, Weaver, & Zuboy, 2015) and has led the overall U.S. solar market in installed capacity since 2012 (Bolinger & Seel,

2018). The cost to construct utility-scale solar plants has dropped leading to increased implementation across the United States.

The cost to install equipment for generating electricity from solar is decreasing. Among projects completed nationally in 2017, research shows that median installed PV project costs have fallen by two-thirds since 2007-2009 to $\$2/W_{AC}$ (Bolinger & Seel, 2018). Among Power Purchase Agreements, in which solar installers enter into a contract with a purchaser of electricity (usually utilities), levelized Power Purchase Agreements prices for utility-scale PV have fallen to at or below $40/MWh (in real 2017 dollars) (Bolinger & Seel, 2018). Only two years prior in 2015, industry reports were questioning if $50/MWh would be possible (Bolinger, Weaver, & Zuboy, 2015). In 2017, solar constituted 31% of all U.S. capacity additions behind natural gas (42%) (Bolinger & Seel, 2018). Between 2010 and 2018, total costs for utility-scale PV installations decreased 66% (International Renewable Energy Agency, 2019). The levelized cost of energy for coal is $36, and for natural gas is $41 (Lazard, 2018).

In 2017, the southeastern United States was the leading region adding solar capacity. Florida was the fourth-ranking state in the southeast region (Bolinger & Seel, 2018). Florida's solar development is behind other states as it does not have a renewable portfolio standard and does not allow power purchase agreements (Solar Energy Industries Association, 2019). Nevertheless, researchers predict PV penetration will be cost competitive in Florida within the next decade (Hale, Stoll, & Novacheck, 2018). In all but the most pessimistic of assumptions, solar could provide approximately 10-24% of the state's annual electricity generated.

Investment Tax Credit

The Energy Policy Act of 2005 introduced the federal Investment Tax Credit (ITC) (Strokes & Breetz, 2018). The federal government extended the ITC multiple times including, most recently, in December 2015 (Bolinger & Seel, 2018). The government's recent extension allows residential and commercial installers of solar to claim a 30% federal income tax credit on solar projects, which began construction on or before December 31, 2019. The latest extension is an improvement over previous years. Commercial organizations that install solar may deduct 30% of a project's total cost from corporate income taxes. In order to receive the full 30% credit, the project must have begun construction on or before 2019. Beginning in 2020, the 30% credit decreases to 26% (Bolinger & Seel, 2018). In 2021, the credit decreases to 22%, and in 2022 the credit drops to 10%.

Research shows that state and federal policy have been significant in supporting solar PV capacity growth (Crago & Koegler, 2018; Herche, 2017). Researchers attribute the cost-competitiveness of solar to other sources of energy, including coal and natural gas, to policies including ITC, renewable energy credits, and net metering (Comello, Reichelstein, & Sahoo, 2018). As recently as 2017, a study reported that utility-scale solar without the ITC was not as cost-competitive as other generation sources (Comello, & Reichelstein, 2016). This indicates that solar may not be competitive without subsidies.

Nonetheless, the utility-scale solar system literature points to declining average installation costs and levelizing electricity costs. Researchers expect in the near future that solar may become cost-competitive to other energy generation sources with no ITC at all (Lazard, 2018; Comello, Reichelstein, & Sahoo, 2018). Solar is already naturally cost-competitive in states with high insolation, such as California (Comello, Reichelstein, & Sahoo, 2018). By 2025,

research predicts solar will be generally cost-competitive across the entire United States (Comello & Reichelstein, 2016).

SoBRA Mechanism

In Florida, the Solar Base Rate Adjustments (SoBRA) mechanism allows the IoU to construct new electricity-generating solar power stations and recover a set amount of these costs through increased base rates charged to their customer (Florida Public Service Commission, 2018b). Each IoU undergoes multiple hearings and discussions with the Florida Public Service Commission, which is the public agency tasked with exercising regulatory authority over utilities in the key areas of base rate and competitive market oversight (Florida Public Service Commission, 2019b The SoBRA mechanism enabling the IoU to recover costs from solar projects also sets the base rates the IoU charges its customers for the next four-year period.

Through the SoBRA mechanism, each IoU must demonstrate a reduction in cumulative present value revenue requirement (CPVRR) that signifies a solar project is more beneficial to consumers than if the IoU did not implement the project. This process involves formally petitioning the FPSC and proceeding with public hearings where the IoU presents evidence supporting their CPVRR argument. IoUs must submit a 10-year site plan for review that estimates each utility's power-generating needs and the general location of its proposed power plant sites.

The FPSC allows construction of up to 300 MW of solar capacity per calendar year (Florida Public Service Commission, 2016). Post-facility construction and the launch of operations, the IoU can recover incremental annualized base revenue requirement for 12 months via base rate increases. In order for this process to occur, the utility must prove implementing the solar projects are cost effective. Formally, the cost effective calculation answers if the project lowers the projected system Cumulative Present Value Revenue Requirement, compared to each CPVRR without the solar project. As part of the SoBRA process, the utility presents its own CPVRR analysis and generates its own cost estimations and considers the factors of solar revenue requirements, avoided generation costs, and avoided system costs (Florida Public Service Commission, 2018c). This research assesses how current conditions in the solar market could affect FPL's net profit given that the FPSC regulates its rates and the corresponding SoBRA mechanism. The research also assists in investigating the utility of the SoBRA mechanism in present market conditions.

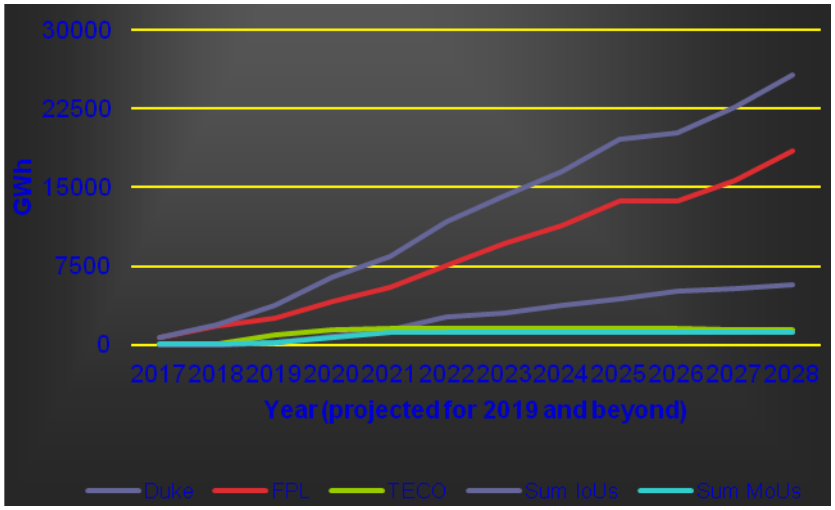
Methodology

Case Study: FPL

FPL serves as the single critical case for this analysis as it is the largest energy provider in Florida and plans to install the most solar among all its competitors within the next ten years. IoUs serve approximately 78.5% of Floridians (Florida Public Service Commission, 2018a; Florida Office of Economic and Demographic Research, 2019a). Among projected energy sourced from solar, FPL represents the majority of growth (Figure 1). We chose FPL because it plans to implement considerable additions of solar capacity to its existing network under the SoBRA mechanism (Florida Public Service Commission, November 2018).

Figure 1

Projected Energy Generated from Solar by Utility (Adapted from TECO, 2019; FPL, 2019; Duke Energy Florida, 2019; Arnold & Yildiz, 2015)



We are analyzing FPL's solar profitability as it received the most lenient SoBRA mechanism cost-recovery parameters, compared to the other Floridian IoUs. The SoBRA mechanism caps FPL's eligible cost of the components, engineering, and construction at $1,750/kW. Meanwhile, Duke's limit is $1,650 and TECO's is $1,500. In addition, the FPSC caps the IoUs' return on equity (ROE): FPL's is 10.55%, Duke's is 10.5%, and TECO's is 10.25%.

We use CBA to investigate the economic viability of FPL's solar projects without the proposed SoBRA base-rate increases. The CBA projects if FPL could gain benefit from installing the solar projects with no change in base rates. The CBA evaluates net profit by taking the difference of revenue and costs. If revenue is greater than costs, then net profit is positive. If revenue is less than costs, then net profit is negative.

We use a sensitivity analysis to vary inputs into the CBA to determine under which scenarios, if any, the CBA finds FPL still receives benefit via net profit. We alter various variables including year time period, module efficiency, insolation, total capital cost, and operations and maintenance (O&M) cost. We held other variables constant, such as the following: the ITC credit (at 30%), constant base rates, project capacity added annually, degradation rate, and no state-level subsidy nor carbon tax.

The sensitivity analysis can conduct repeated simulations and evaluate the net profit by varying input parameters. For example, assume one desired simulation calculates net profit when each of the variables are set to their lowest value. Then assume one wishes to find net profit when module efficiency is set to its highest value while the other variables remain the same. In addition to these two scenarios, we used the sensitivity analysis to calculate many other scenarios. The revenue is the financial value of electricity FPL would receive from selling to a consumer at the current base rate. Our methodology borrows from research by Arnold and Yildiz (2015) that applies Monte Carlo Simulation methods with nonconstant probability density functions of variables to measure economic risk associated with renewable energy systems. Our research assumes constant probability density for changing variables. Due to pricing uncertainty, we do not consider future state-level charges to sources of carbon generation (such as fossil fuel

plants). We used MATLAB programming software to conduct calculations. Table 1 introduces the variables in our analysis. We explain each of the variables in the following section.

Table 1
Variables in the CBA Model with Range and Iteration Sizes

Variable	Range	Iteration Size
Module Efficiency (kWh produced / kWh insolation)	.16 - .21	0.01
Insolation (kWh/(m2 * day))	5 - 6	0.1
Years	1 - 30	1
Capital Cost ($/kW installed)	950 - 1,300	50
Operations and Maintenance Cost ($/(kW installed * year)	9 - 12	0.5
Base Rate ($/1,000 kWh)	98.56	N/A
Degradation Rate	0.992	N/A
Installed Capacity (kW)	298,000	N/A

Revenue Parameters

Generation parameters link to revenue as FPL gains revenue from the electricity it sells to its customers. Generally, the higher the value the parameter takes, the more electricity FPL can generate and revenue it can receive.

Module Efficiency

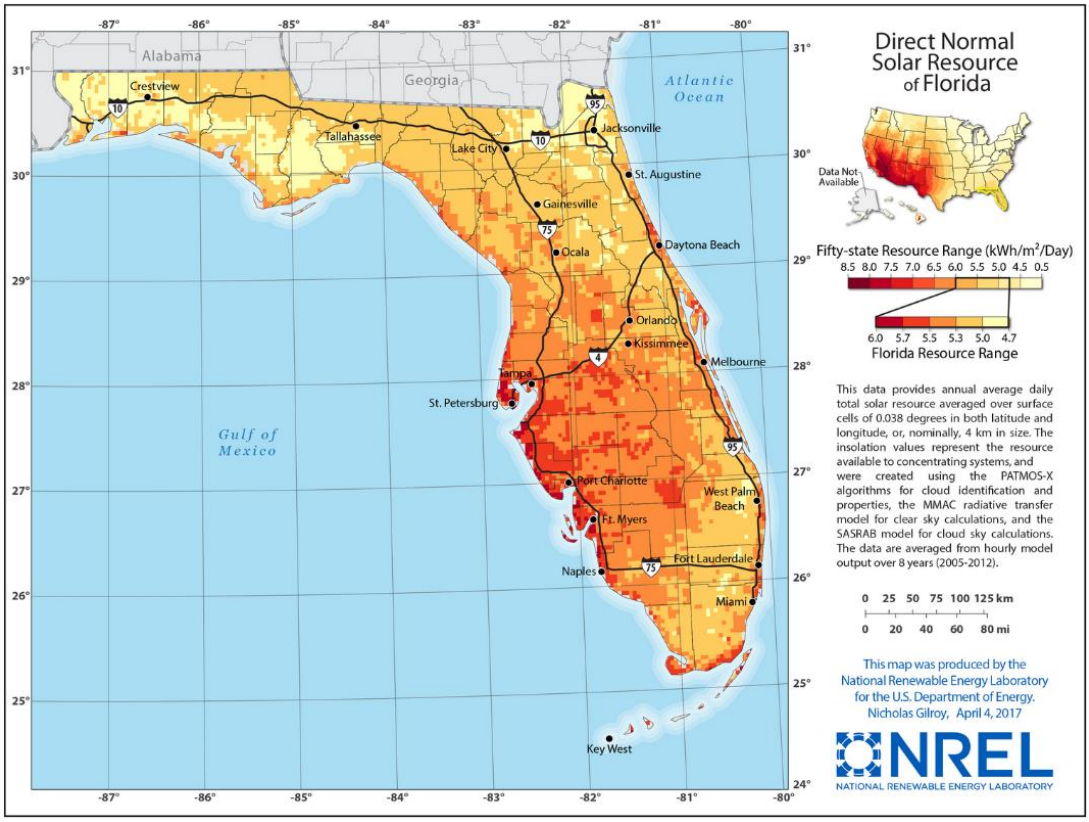
This represents the efficiency that a solar module can convert solar energy to electricity. Most industry reports claim utility-scale projects often install crystalline modules. The National Renewable Energy Laboratory (2019) organizes a database of record-holder manufacturers by module type. Recorded efficiencies from this database for crystalline range from 20.4% to 24.4%. In addition, average PV efficiency rose to about 17% (Fraunhofer Institute for Solar Energy Systems, ISE, 2019). Our range for this research is 16 to 21% to simulate average module efficiency as well as those that may be close to achieving the record efficiencies in real-world conditions or within the next few years. The simulations evaluate the range in 1% increments.

Insolation

Insolation represents the annual average daily total solar resource in kWh per square meter per day. The National Renewable Energy Laboratory (2017) maintains a graphical database of all 50 states in the United States. Insolation values from Florida's map range from 4.7 to 6 (Figure 2). We start our insolation rate at five for this research. FPL's service area ranges throughout south Florida, along the east coast and stopping short of Jacksonville. In Figure 2, FPL's service area does include 4.7 territories. However, due to their rare occurrence, FPL is

likely to find a suitable area nearby to install the solar plant. The simulations evaluate the range in 0.1 increments.

Figure 2
Map of Solar Insolation in Florida (National Renewable Energy Laboratory, 2017)



Years

This represents the number of project years. FPL (2019) estimates solar projects have a lifespan of 30 years. The simulations evaluate the range from 1 to 30, in 1-year increments.

Revenue Formula

The product of module efficiency, insolation, and years represents the total amount of electricity FPL generates from solar at the end of years. However, a portion of the solar product becomes obsolete annually. In reviewing worldwide projects, researchers estimate degradation at 0.8% annually (Jordan & Kurtz, 2015). Therefore, we use the following equation to calculate the electricity generated, in kWh, in year x:

Electricity Generated (year) = Insolation*Module Efficiency*Capacity

Where Capacity = Installed Capacity (kW) * $(.992^{(Year-1)})$. .992 represents the portion of capacity that remains usable from one year to the next.

The total electricity generated from year 1 until the end of year x is the sum of annual production of all years prior to and including that year.

Total Electricity Generated = Electricity Generated (year = 1) + Electricity Generated (year = 2) + … + Electricity Generated (year = x)

We held base rates constant for the purpose of the present research. The total revenue available to FPL through the generation of electricity is the following:

Revenue = Base Rate * Total Electricity Generated

Where base rate equals $98.56/1,000. This is different than the $66.88 value because the base rate is only one component of the per unit consumption charge. $98.56 is the price per 1,000 kWh. We divide the above expression by 1,000 to determine the value of electricity FPL can receive from revenue per kWh.

Revenue is the first term for calculating Net Profit.

Cost Parameters

We associate the following parameters with the cost of supplying electricity from solar energy. We link cost parameters to profit as FPL must pay a cost to fund these solar projects in order to generate revenue.

Solar Module Cost

This represents the total capital cost per kW installed. Researchers project this cost to range from $950 to $1,250 (Lazard, 2018; Fu, Feldman, & Margolis, 2018). The cost could be as high as $1,250 (Fu, Feldman, & Margolis, 2018). We added $50 to the model to yield a final upper bound of $1,300. The simulation evaluates in $50/kW increments. Similar to research by Varghese and Sioshani (2020), each simulation's capital cost relates to the fixed capacity and, therefore, is fixed.

Operations and Maintenance Cost

This represents the annual cost per kW to maintain proper functioning of infrastructure in relation to solar generation. Researchers project this cost to range from $9 to $12 (Lazard, 2018). Our simulation replicates this range and evaluates simulations in $0.5/kW increments.

Results

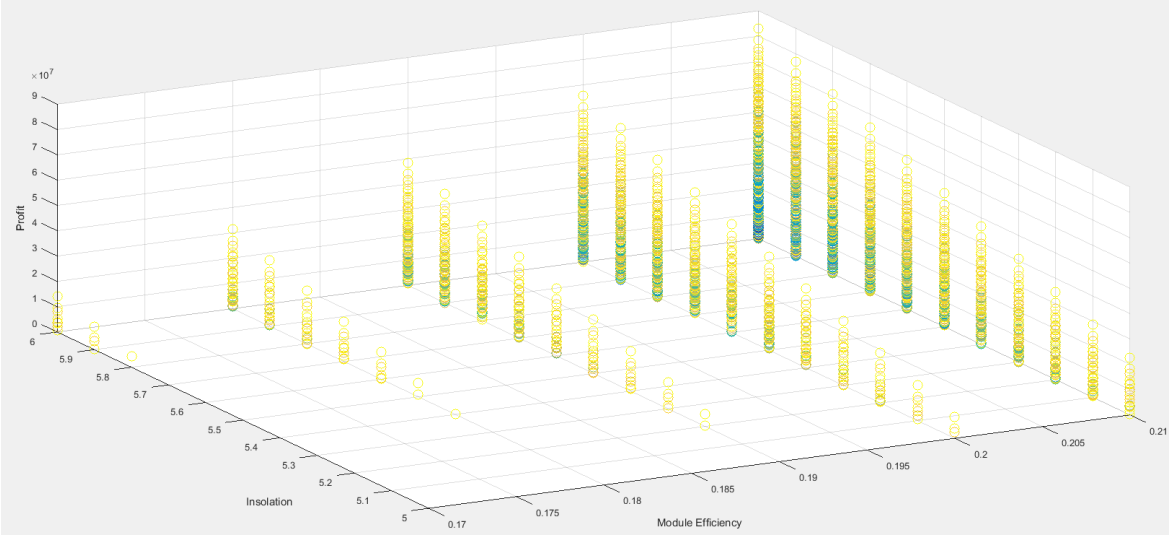
Of 110,880 scenarios, we found only 2,619 yielded an economic profit for FPL. This is 2.4% of all scenarios. Figure 3 plots the revenue generation parameter combinations for each of the 2,619 profitable scenarios as well as the resulting profit. The numbers below represent the lowest values of the profitable scenarios:

Years = 21
Module Efficiency = 17%
Insolation = 5

We did not find any profitable scenarios less than 21 years, a module efficiency of less than 17%, or insolation of less than 5 kWh. Figure 3 shows only profitable solar scenarios illustrating FPL's profit projections in relation to module efficiency, insolation, and years.

Figure 3

MATLAB-generated Graph Displaying Simulated Profit versus Insolation and Module Efficiency Combinations for All Profitable Scenarios. Yellow dots indicate scenarios in later years (toward year 30) while blue dots indicate scenarios in earlier years (toward year 21)



We conducted an analysis on those scenarios in which the revenue parameters are equal to the lowest profitable values. The range of profit for FPL is approximately -$45 million to $-137 million. This range of values further substantiates a requirement for relatively high values for two of the revenue parameters when one of the parameters is relatively low.

We found that, having a relatively low value for one of the revenue factors would require a relatively high value for the other factors. For example, there were only five scenarios in which solar was profitable at the end of 21 years of operation. These scenarios require the module efficiency to be 21% (the maximum in the range) and the insolation to be at least 5.9 (the second highest iteration in the range). FPL's maximum profit in these simulations was approximately $7.59 million.

Additionally, we examined the median of parameters that lead to positive profitability. The numbers below represent the medians of the revenue parameters in the profitable scenarios:

Years = 28
Module Efficiency = 21%
Insolation = 5.8

Of the 56 scenarios with the above median parameters, 32 returned a profit at a rate of approximately 57%. The average profit was approximately $6.4 million.

FPL projects the lifespan for solar modules to be approximately 30 years. There were 722 profitable scenarios at the end of 30 years. In particular, one scenario is profitable when insolation is only 5.4 kWh and module efficiency is 18%. This insolation rate is encouraging considering FPL's service territory generally receives at least 5.4 kWh. Moreover, the 18% module efficiency is the median parameter from our simulation. However, this outcome depends on having minimum cost parameters.

Even in scenarios in which revenue parameters are high, FPL could still fail to make a profit. Profitability depends crucially on cost parameters. Among scenarios in which year, module efficiency, and insolation are set to their maximum values, profit ranges from -17 million to 83 million with an average profit of 33 million. We analyzed all the 3,696 scenarios of 30 years and found an average profit of approximately $21.9 million. However, 722 profitable scenarios out of 3,696 possible scenarios is a rate of approximately 19.5%. FPL may recover the cost of its investment at the end of its usable life if the cost parameters remain low.

Figure 4

MATLAB-generated Scatter Plot of Mean Module Efficiency vs. Insolation Parameters for Profitable Scenarios by Year. Darker colors represent earlier years (dark blue is for year 21) and lighter colors represent later years (yellow is for year 30)

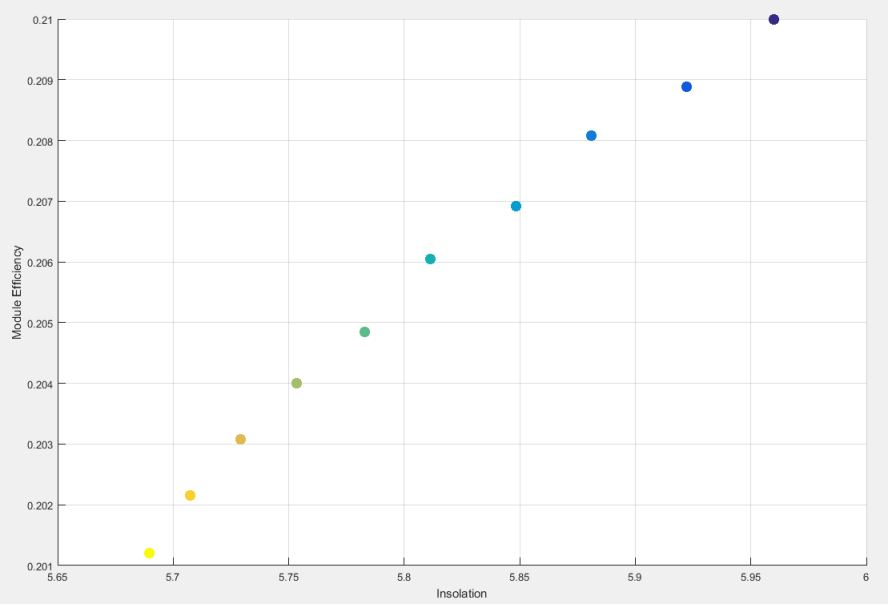


Figure 4 indicates a trend of lower insolation and module efficiency combinations as years increase. This is reasonable since as time increases, there are more occurrences of scenarios in which revenue is greater than cost. For example, the marginal profit for some scenarios is positive regardless of time. However, the large capital cost has a greater relative effect when the number of years is low. New scenarios that become profitable after a certain year generally have lower revenue parameter values than those that were profitable in fewer years. These new scenarios gradually decrease the mean of revenue parameters.

We analyzed scenarios within FPL's allowed rate of return. The FPSC authorizes a rate of return between 6% and 7%. We found 908 scenarios yielded a rate of return greater than 7%, and another 165 had a rate of return between 6-7%. Less than one percent (0.97%) of scenarios had a rate of return within FPL's allowed range.

Discussion

Our simulations suggest that FPL can potentially yield economic profit at the end of a utility-scale solar project's lifespan of 30 years. Even with approximately 19.5% of 30-year scenarios being profitable, the average profit for all 30-year scenarios was $21.9 million. It is nonetheless crucial that the solar projects generate their electricity projections consistently throughout a long period. We projected only about 2.4% profitable scenarios out of 110,880 possible simulations. The earliest time to reach profitability is in the 21st year of operation.

Should one of the revenue parameters be relatively low, the other two revenue parameters must be relatively high. Our minimum projections for profitability were 21, 17%, and 5, respectively. Our median number of years, module efficiency, and insolation rate among profitable scenarios was 28, 21%, and 5.8, respectively. Although 21% module efficiency is the upper limit for that parameter, this is encouraging since 5.8 kWh daily insolation is available in FPL's service area, and two additional years can supplement profitability.

We did not find any profitable scenarios without the ITC. For now, subsidies need to be in place for solar profitability. There is extensive literature available on the agent-based models of consumer solar PV system adoption including neighborhood effects (Bollinger & Gillingham, 2012; Graziano & Gillingham, 2015) and consumer preferences (Schelley, 2014; Wolske, 2020). Instead of a public utility providing solar, residents chose to adopt and install rooftop solar panels. Consumers of this solar option are often high-income individuals, homeowners (Wolske, 2020), and retirees (Schelley, 2014). In a California study, low-income households that received their PV system for free shared some similarities to their high-income counterparts including attraction to novelty and environmental values (Wolske, 2020). In most cases, renters and low-income individuals are unlikely to be able to make a long-term investment in rooftop solar. These residents rely heavily on public utilities to provide the most cost effective and sustainable source of energy. If trends of increasing module efficiency progress in the near future, there are better prospects for FPL to make a positive profit through solar projects and provide low-income Floridians a renewable energy source.

Limitations

In order to assess the SoBRA policy mechanism, we only considered financial impacts in the present analysis. The present study differs from FPL's CPVRR analysis, as it does not include avoided system generation costs and environmental compliance costs. As a replacement for a solar project, FPL notes a combined-cycle plant would be brought online one year earlier than under the current schedule. The avoided system generation costs are valuations and are not direct expenditures or revenues. Comparing the solar projects to other forms of electricity generation is not within the scope of the present research. For a detailed comparison of wind versus solar energy storage systems, researchers Zakeri and Syri (2015) conducted a detailed life cycle cost-benefit analysis. Environmental compliance cost forecasts vary (Florida Public Service Commission, 2018c), and the uncertainty of public regulation does not give a clear valuation. A limitation of excluding environmental compliance costs in this study is a potential overestimate of profitability.

Solar projects must have begun construction before 2020 to receive the full 30% credit. The present research uses a static ITC valuation by applying the full credit, regardless of the

start-time on a project. By applying less-beneficial credits, we would have found a majority of scenarios with lower net profits.

Conclusion

The ITC is currently subsidizing Florida's solar future. Without the credit, we did not find any profitable scenarios. Solar projects still need subsidies to be profitable within the regulated rate of return. Along with the ITC, improvements in solar technology in recent years is pushing costs down and making solar a more competitive utility-scale energy source. The present study examined FPL, Florida's leading electricity provider. FPL benefits from economies of scale and a more favorable cost recovery environment over its competitors from the SoBRA mechanism.

Can FPL gain financial profitability without base rate increases? We found that nearly one-fifth of 30-year scenarios yielded positive profit for FPL. However, we also found that less than 1% of all scenarios reached FPSC's allowed rate of return. Since our simulations held base rates constant, utility providers may need to raise consumer rates to achieve the FPSC's profitability standards. Although future improvements in module efficiency are foreseeable on the horizon, there is still some lag time for solar cost-competiveness in the market. We found that more than 85% of scenarios were not profitable and that 90% of all scenarios did not reach the regulated rate of return.

A subsequent question is "Why should Florida residents incur higher bills to support technology that is not yet economically competitive?" Changes to the energy portfolio are likely to impact low-income residents first as they are highly sensitive to rate increases (Cai, Adlakha, Low, De Martini, & Chandy, 2013).. In terms of policy, the ITC credit needs to remain in place until solar technology becomes a more competitive cost option. Additionally, policymakers can reexamine the FPSC's allowable rate of return to redefine what a profitable scenario entails. Broadening this definition will allow utility providers some regulatory flexibility that may prove beneficial to the consumer.

In addition to examining Florida's largest IoU, future research could investigate the two other major IoUs in Florida using the SoBRA mechanism in order to compare and assess solar profitability. With IoUs serving more populous areas, studies also can examine Municipally-Owned Utilities serving more rural populations. Future studies can examine the valuation of non-financial benefits including reduced environmental and health costs from pollution or carbon emissions.

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Discussion Questions

1. What are the economic prospects for FPL when utility-scale solar projects are implemented?

2. Under what scenarios do solar projects become profitable?

3. Are base rate increases necessary to maintain legislated profitability?

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Plain Language and the Paradox of Understanding and Information Availability

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Abstract

In this era of technology and information, people lose faith in their ability to carefully select, and process, the great availability of data because of grading amounts of misinformation and failure to fact-check. The present study explores the phenomenon of information overload by following its communicative implications in the four areas of psychology (a study of neurological processing limitations), technology (a deep dive into the effects of machine efficiency on humans), politics (a reveal of the cultural exacerbation of the phenomenon), and language (a consideration of language simplification). Logically, the establishment of the issue prompts an ultimate examination of its possible solutions, which circle around the recalibration of human tools of reception, modification of human approach to information, and, finally, reduction of institutional standards of expectation.

Keywords: information, communication, technology, tools of perception, institutional standards

Introduction

As one stands to provide a valid explanation to the many facets of human communication, the deep complexity of the subject matter materializes as a tall and insurmountable layered wall. Vocal and non-vocal interactions have been a part of human history for as long as civilization functioned as the glue of human societies; arguably, it was the birth of communal interaction that sparked the intuitive need to associate with others. Still, it is difficult to describe an instinctual process, as it is discovering what makes an activity automatic and

effortless, including the feeling that our bodies eventually develop for it, like a worker has for the chain line, or a runner for the sprint. We aim to explore a similarly complex question rooted in process: What is communication? Without delving too deep into the philosophical ramification that it entails, we can render our job easier by reducing it to its most mechanical function, thus describing communication as the passing of information among persons. In fact, we can say that, so far as we ignore the poetic aspects of self-expression and realization, its precepts first essentially serve the need to pass on what we possess internally and understand what we do not possess externally. To this extent, one can visualize the wetware model that gained popularity in conjunction with George A. Miller's research in information processing (1956), discussing how the brain functions like a computer, designed to download data and upload files to other systems, or the internet; although credited with designing this concept, George A. Miller did not specifically mention wetware. Similarly, we have understood that communication may define itself primarily as the tool of information processing, and we gather that, given the length of usage, it has developed enough shadings and inflections to accurately allow us proper processing, regardless of adverse environmental factors (i.e., lack of sources, inaccuracies, unavailability). One would neither be wrong in saying that, despite the extremely intricate system that it causes, much like a Gordian knot, the automaticity, resulting from recurrent use, allows for detection of regularities "evolving, bottom-up, from language as it is used" (Ellis, 2008, p. 234); we absorb sets of rules unconsciously during the process of learning and apply them effortlessly in its expression. Therefore, the system can withstand both the possible perceptual blockage of exterior information and the impossible complete expression of interior information, since humans exist in a plane of existence that limits them physically (omnipresence), sensorially (omniscience), and mentally (omnipotence). However, the modern human is, by all means, different from its past counterparts. The ascendance of modern means of communications, such as phone lines, video messages, and the web, posits us into a state that is no more in deficit. Verily, when engaging in modern communication, few elements are stopping us, and, instead, the system promotes efficiency. While it would be interesting to explore the causality of this culturally influenced technological advancement, a worrying pattern instead necessitates closer inspection. As a matter of fact, despite the enhancement in our communicative capacities, we find ourselves in most divided times, seemingly unable to understand each other, and the persistent influence of misinformation plagues factual transmission. Faced with so much available information, we still prefer digestible and easy to read formats that are perhaps not as accurate, and such a paradoxical situation provides a fair reason to delve deeper into the issue at hand.

Method

The present project uses a multimethod approach: the exploration of key theories through a literature review of four areas of communication: psychology, technology, politics, and language; and a semi-structured interview with an expert in Information Technologies, with more than 20 years of experience in the business, holding a master's degree in Human-Computer interaction, and a Ph.D. in Technical Communication. As part of the Institutional Review Board conditions of interview, the participant's identity remained hidden, ensuring no personal data collection or divulgation. The semi-structured interview method allowed for a more discussion-based format.

Psychology

Since the communicator himself is a participant to the process of communication, it is obvious that he is also a core principle of its execution and analysis. In particular, considering that the physiological concepts are not what interest us (vocalization, pronunciation, etc.), understanding the mental processes that follow communication inevitably opens the doors to understanding communication itself, and, most assuredly, the issue that affects it. With that being said, we start with the idea that human cognitive processes have limitations and, while computers are comparable in the procedures by which they work, the mind further delineates the optimum amount of total assimilated information and the optimum rate of assimilation. To provide a baseline for these claims, we rely on John Wixted's (2004) research on memory and forgetting, in order to understand the formal implications of neurological limitations in communication. Verily, while the psychochemical and neurological variables of the individual can affect mental capacity and the ability to sustain increased mental exertion, the latter's degree of intensity stabilizes on par with the physical capabilities of the hippocampus to form new memories in a limited amount of time; overloading the organ with excessive amounts of inputs will induce decay of the most recently formed memories (Wixted, 2004). Further proving this point are the determined tendencies for memories, and thus information, to consolidate over time and then decay progressively rather than exponentially from the start, in a relationship that is curvilinear.

We could surmise then that humans are not entirely capable of engaging in multiple activities, which does not limit itself to the simple accomplishment of physical activities, and that, contrarily, there exist cognitive inabilities originating from physiological halts of information processing. In a study concerning the effects of consumer media on decisions, Naresh Malhotra (1982) states that "differentiation and integration in cognition and behavior increase with increasing environmental input until an optimal information-processing level is reached" (p. 419). Miller's (1967) work additionally sustains this argument with the idea that humans cannot hold on to more than seven chunks of information, with chunks being conceptually similar pieces of data collected. Upon reaching that level, we achieve a state of overload, and we are unable to make sound decisions and react accordingly to the situation, in some cases even making these wrong choices while unaware of our state of confusion. Apart from the confirmation of this level's presence, Malhotra's research (1982) also reveals that the number and degree of "compensatory" heuristics and shortcuts employed in a state of overload does not directly correlate to the number of escalating cues, nor the additional chunks of information after failure, but to the state of overload itself and how it is confronted from individual to individual. Wixted (2004) further sustains the idea of a "short-circuit" given that "ordinary forgetting may not be a cue-overload phenomenon as much as it reflects the nonspecific effects of mental exertion and memory formation" (p. 246). In accordance with this, we can immediately disprove a common counter to the negative effects of uncontrolled information availability and input, often straw-manning caution to a desire of censorship: exceeding amounts of information do not directly damage an individual's decision-making ability, rather it increases potential for failure. In a way, we return to the computer-brain model: overclock the system, and it will go faster, but it might break down more than when it was at its efficient state.

Now, can we improve the means of providing information, to limit the effects of overload, without sacrificing content? Research shows that the main catalyzers of the former state are excessive information relics, again the famous "seven chunks," and complexity, which

we can associate with Wixted's (2004) idea of mental strain. To be specific, the use of "plain language" and further sensorial cues, like images or graphics, can improve a person's factual and emotional understanding of the material (van Weert, van Noort, Bol, van Dijk, Tates, & Jansen, 2011), due to the funneling of data inputs into accumulated and digestible chunks for the hippocampus to convert. Nevertheless, while avoiding the overload effect, the implications of plain language, thus presumably less nuanced information, on the content itself require clarification, and there is a need to delve deeper into this argument with the aid of the health information in government regulations (Standards for Privacy of Individually Identifiable Health Information [April 2001]), which followed the 1996 Health Insurance Portability and Accountability Act (HIPPA).

HIPAA's Privacy Rule

Terms and agreements are the bane of any reasonable consumer determined to be as informed as possible on the services and products one enjoys. One of the main reasons is the incredible complexity that legal jargon can befall on the untrained reader, as well as the necessity to regulate all possible situations and applications related to the consumed service or product, which ordains considerable documentation length. Here, we find fertile breeding grounds for the phenomenon we are studying. Pollio (2005) discusses the requirement of public regulations to utilize "plain language," as it "can save money by enhancing efficiency and reducing confusion" (p. 602); yet, he further notices the progressive decay of the quality of information, while shifting to simpler terms. As it stands, information that was not intended for a certain kind of trained cognitive system (i.e., the consumer vs. the lawyer), cannot change form without changing its content. Moreover, the simplification of the text, and so its loss of details, can actually lead to less understanding than the writer anticipates, and, as the author suggests, a training of the agent might out-benefit the modification of the content. In fact, as countless other psychological theories, and the article itself, describe, "a person seeks clarity by drawing inferences from what has been read previously or from what is known from prior experience" (Pollio, 2005, p. 616); training provides the prior experience necessary to fill in the gaps when assimilating a complex piece of data. Although a complete understanding of the material, both past and present, is impossible, it still aids in situations in which the agent is able to control the pace of assimilation and has ascertained the amount and type of information that needs interpretation.

Technology

It is imperative to judge whether people are able to actively control the flow of information that they face, or if they are victims of a personal subconscious need for excess, an environmental culture of speed, or an instrumental trait of strain. While we already have discussed the impossibility of the first due to the human incapability to deal with excess, the other two sit in partial conjunction provided we assess them through the lenses of technological advancement. Quite so, technology has unarguably become the delivery mechanism of information in the world, and its steady presence in all aspects of human life positions it as a mundane, fixed step of analysis for any serious research. In the context of our issue, technology serves as a tool to achieve practical goals of individuals and communities; the "more in less time" idea of production and consumption often encompasses these goals. Nevertheless, the idea works economically, not psychologically, and, although it has been around since the rise of the

Industrial Revolution, the exponential accumulation of innovative communication means has caused an exacerbation of the modern strife for efficiency, compared to the previous century; the emergence of service economies in the new millennia has especially rendered it a dominant force. Edmunds and Morris' literature review (2000) further explains that most of the received information is not only overwhelming, but predominantly unnecessary, since no distinction is made in the output of data, often causing people to go into overload. While personalized results and ad hoc browsers exist, the information presented tends to try to expose multiple facets of the same search items. One can verify this by writing more ambiguous, not readily recognized, terms or seeking results too specific for a general search. Still, trained efficiency in the sorting of data can counter the "paradox" of obtaining no information in a sea full of it, an idea Pollio (2005) already brought forward: constructing a filter between the user and the provider of information either in the form of personal administration, the employment of personal information management (PIM) technologies, or a system of information collection that may put relevant data in an easy to retrieve form such as electronic (PDAs, archives) or physical (memos, diaries) storages. Another notable filter option is artificial intelligence (AI) capable of properly identifying the personal needs of the user (Edmunds & Morris, 2000). Regardless, the given amount of information is not the actual problem of the cognitive short-circuit, nor are the chunks that Miller (1956) talked about, but it is the inability to handle the successive data that we encounter. As Edmunds and Morris note, "it is possible to have data overload but not information overload" (2000, p. 19), since we are talking about the achievement of a state, not a collection of negative stressors. While the filtering systems might apply in the sorting of information, what truly induces the state of overload is the situation itself, and the rushed atmosphere accompanying the efficiency of machines; see Appendix A for information regarding Edmunds and Morris' conditions.

In fact, if we take into account two of the most prominent aspects of information technology, the internet and e-mail, their presence in the workforce is generally useful, enabling improved means of connection among people with few costs, interruptions, or blockage as well as an uncensored source of infinite available information. However, luddites still lament the strain that this "liberality" causes on the human mind, a system that enslaves the user through sensory bombardment of the logic and reasoning parts of our brains, causing technostress, which clinical psychologist Craig Brod (1984) describes as "stress or psychosomatic illness caused by working with computer technology on a daily basis" (p. 16). In reality, the answer to the question of technology's stress on the human mind can be both positive and negative. While it is correct that technology can induce a feeling labeled technostress (Ayyagari, Gover, & Purvis, 2011), which greatly increases the possibility of entering overload, research leans toward an indirect explanation of the latter; factually, fingers point toward a wide-spread cultural cognitive framework, which caters adaptation of the person to the tool (and not the reverse), and expectations of mechanical efficiency on par with the latter. In our case, common stressors such as role ambiguity induced through uninterrupted connection, work overload by production goals and workflow, as well as work-home conflict, job insecurity, and invasion of privacy, together with linkage maladaptation, could be the identifiable sources of cognitive strain. However, it is more likely that the engagement of users with their tools manifest these stressors into the workforce. To put it simply, "our conceptualization of IT [information technology] artifacts is based on individuals' perceptions about ICTs [information communications technology]" (Ayyagari et al., 2011, p. 849), meaning that the introduction of technological standards of speed and efficiency into our modern culture has caused a paradigm shift of the human standards,

seeking a level of production that is incompatible with our physiological restrictions. The interview subject for the present research project further confirms the presence of an "online culture," in the form of stimulation anxiety resulting from the missed supervision of the delicate ages of childhood. In other words, being born into the era of technology does not make people automatically able to handle its demands, such that the absence of the reoccurring inflow of information, inducing anxiety in some individuals, can lead to a relapse toward excessive amounts that induce overload. Now, it would not be fair to make comparisons with drug addicts, yet similar to rehabilitation programs, certain system designs reinstate the fundamental division between technology and the person, perhaps then allowing a more rationalized selection of information. For example, on January 2017, a French law banning work-related e-mails during weekends dramatically decreased stress levels in the workplace, with a similar law following its steps in the State of New York. By no means should we attribute this result to the physical separation between technology and individual; the user remains connected throughout the holiday to engage in other activities. On the contrary, it is the conceptual and mental disconnection between workplace expectations and personal actions that allows for room to breathe, as such reducing stress and potential for overload. Then, we have established that it is not technology, and its overarching possibilities, that cause our issue, other than the way that we engage and utilize this tool, namely in the counterproductive selection of requested data. Yet, what happens when we short-circuit and we do not realize it? What are the consequences of its effects?

Politics

When it comes to the discussion of human relations, and the way interaction and communication occurs in the interim, no single answer is completely correct. In fact, the complexity and variability of human beings, thereupon of their engagements, limits entire areas of knowledge to the realm of alpha levels and statistical doubt, to the point that external validity of some theories might be doubtful for the sole reason of approaching social issues. Even so, one could say that there exists a fair representative aspect of society that could adequately serve as a generalist counterpart to common communication exchanges and information processing; none could find a place more apt to the passing of adequate information, as well as the guarantee for the intended interpretation of that information, other than the world of politics. In the earlier section, we stated that it is more plausible to infer that it is not human hubris or tool malevolence that induces states of overload, but it was the creation of a psychologically demanding ICT culture. The overload that follows, therefore, is an effect of the unconscious obsessive search for information without the required training to engage with extensive sources of information such as the internet. In entering this state, we can, for good measure, explore how this failure can affect political decision making, as well as how humans tend to compensate psychologically and socially. Needless to say, it would not be useful to go on into this analysis without providing a valid and researched reason behind the shift toward the political realm. The reason revolves around the idea that most people are not as efficient in molding a proper multipartisan and justified political stance, sharing parallels with the communicative short-circuit (Fernbach, Rogers, Fox, & Sloman, 2013), since they tend to overestimate their capabilities, to a point where the above-mentioned IT users would naively confront database references without preparation. This overconfidence makes us ignore the effects of cognitive failure, as well as fulfill the need to feel good about ourselves through the realization of our expectations and

predictions; if we cannot see that we have made an error, there would be no reason why we should feel sorry for anything. Ironically, when confronting an error, a change in perspective allows the person to additionally confront one's overload state, and perhaps change one's views, consequently affecting the decisions one makes (Fernbach et al., 2013).

Albeit, the confrontation itself is difficult to achieve when both media sources and personal actions, intentionally or unintentionally, create the conditions for the maintenance of a state of overload and reception of prepackaged information. Young Mie Kim and John Vishak (2008) provide an intriguing point of view by differentiating two types of common processing in the evaluation of political information: a memory based one, tied to the consolidation of long term memories discussed before, and the effect of news media on consequent retrieval of them during judgment; an online-based one, focusing judgment on present evaluation of information without further long-term cognitive processing, whereupon entertainment engages with "no bearing on political knowledge compared to hard news" (Kim & Vishak, 2008, p. 340). In fact, entertainment media, which in itself is much more widespread and popular compared to news media, is less motivated to provide comprehensive amounts of political information to its viewers, along with a satisfactory analysis of it. Nonetheless, the phenomenon of knowledge overconfidence makes the viewer convinced of having assimilated the right amounts of information, posthumously influencing the operating side of decision-making. As Kim and Vishak (2008) note, "Citizens are still competent enough to make political decisions after exposure to entertainment media, but the influences of the entertainment media might be relatively marginal in making 'correct' decisions" (p. 357). Hypothetically, the attitude derives from the simplified and digestible format that entertainment media assumes, compared to the more engaged news media, combined with the preeminence of automatic, or low-effort thinking, against controlled, or high effort thinking. A person's own effort to not encounter less gratifying information exacerbates this association, which again drives to avoid a state of overload by addressing data that one is able to command. Huckfeldt and Sprague (1987) present that "citizens choose with whom to discuss politics, they re-interpret dissonance-producing information, and […] misrepresent their true opinions" (p. 1199). As such, the creation of a network bubble ties to the original informational context: with the availability of great amounts of information, the selection of accommodating information is more likely to occur. Our subject matter expert validated this and mentioned a user-generated web after the first years of the new millennia; specifically, 9/11 and the reaffirmation of individual expression throughout the 2010s that were a catalyst to this modification (Huckfeldt & Sprague, 1987). For this reason, as information increases, and the cognitive strain rises, the more potential grows for a selection of "safe" data, compared to "correct" data. And so, the network of people grows larger, expressing similar erroneous interpretation of the data, and providing not only sources of self-affirmation to those already in that network but also means of misinformation for those outside. The latter is a very generalist explanation of the creation of a political majority, if so including the more modest stance that minorities engage; faced with prevailing information that contradicts their point of view, minorities are more apt to confronting their status quo in a critical way.

Encapsulating all these claims, we have now a clear idea of what the current climate's issue really is, far from the overly cited instinctual stupidity charged upon the common person due to the association with the anonymous crowd, or the stigmatization of technological advancement behind a disharmony of human and machine. Instead, it is the fulfillment of a potential through mismanagement of resources, which resides in the common physical inability to deal with too much information, the successive cultural obligation to directly confront such

disadvantageous situation, and the application of accordant defensive mechanisms. Justification of the use of the latter resides on primitive priorities of immediate satisfaction, only present in pieces of data that humans can effortlessly interpret (late night shows, rallies, propaganda), but in which the content suffers for the sake of form, because of the unavoidable loss of depth that simplification entails. An issue arises when the person does not disengage with the cultural atmosphere that produced the overload in the first place, therefore creating the conditions to justify the overloaded state, in turn becoming the pillars that block a person from ever exiting it, and continuing to prefer simpler, satisfying, but incorrect pieces of information; a continuous state of compensation that never provides a solid solution. It is not part of this research to determine if, first, people actually engage in malicious activities of misinformation through overload, and, second, if those affected are aware of the possibility of it. Yet, as people select form over matter, anyone could induce disguised selective facts and manipulate the victim's preferences and decisions, without the latter ever noticing. Further, a person's entire processing system has to adapt to accommodate the new receptors of information, concentrating on quick evaluations tuned with the speed of modern communication inflows, as well as changing filtering systems to be more tailored toward quantity control in lieu of quality control.

Language

It would be remiss to omit the possible consequences of overload on language, since it is the principle means by which the overload happens in the first place. Through language, we pass, transmit, and interpret information in forms that vary depending on the needs of the user. In fact, the chancing variety of language, which has also a cultural dependency other than situational and personal, makes it a surprisingly meek factor of communicative solidity, or, rather, the universality of language makes it more susceptible to changes in agent needs and manipulation. To provide a notable example, one of the first things that Orwell (1949) specifies in his work *1984* is the modification of language following the instatement of the new world order, borne from the necessity of preventing dissident speech, conflicting opinions, and guaranteeing party unity of the majority. Now, the intent of this comparison is most certainly not to perjure the application of the Orwellian model onto the modern system of society; the survival of free speech negates any kind of intimacy with censorship on par of that of the big brother. On the contrary, it denotes how language is the underbelly of communication, and can prove a point of no return if left to the contortions of excessive manipulation. As a matter of fact, while the cognitive and receptive organs may fail human interpretation of data and communication, the external position of language and its intrinsic value of objectivity allows for a chance of remission from overload. Having said that, language tends toward simplification, lost by its frequent usage and, as such, the need to increase its efficiency with everyday activities. The learning of a second language can open one's eyes to the complexities of this system of "simplification," or "optimalization of grammatical rules" (Muhlhausler, 1974, p. 75), as well as to the progressive regularization of grammatical terms, lexicon, and morphosyntax. The number of restrictions a language has is characterized by how long they existed and how encompassing their usage is; older languages are less bound to the grammatical rules that constitute them, and can present a wide variety of exceptions. However, we should not confuse this concept with impoverishment, which admittedly would be a term much more apt to the aforementioned search of simpler concepts and data in a state of overload. Indeed, while impoverishment would imply a complete loss of the capability to convey more complex ideas and allow for a better informative

understanding of the inputted information, simplification is instead a voluntary elision of the rules of language out of inability or habit of certain language users, whose invisibility is increasing progressively through prolonged use. To appease the question of the present research, we can interpret, respectively, one as a process that occurs inside a language, for reasons of censorship that are not a center of immediate focus, and the other as a phenomenon that builds through the external transmission of a language either for edification or performance. Relating to the latter, Ellis (2008), in discussing the complexities of language modification, indicates that most language users, as well as language learners, operate under the principle of minimal effort or, in his words, "minimize articulatory effort and hence encourage brevity and phonological reduction" (p. 234). Verily, while Ellis' research centers on the cycle of linguistic change, he indirectly observes this cognitive tendency: the simplification of form for the better absorption of information. Now, the standard upon which people decide if certain grammatical or lexical terms and concepts may be convenient for simplification comes from the frequency of usage that renders these terms less noticeable in their everyday use. As a matter of fact, the importance of these terms and concepts to the processing of a language makes their presence in the construction of phrases and sentences almost always mandatory and expected, ironically framing them as less remarkable aspects of linguistic construction. Still, when native speakers communicate with acquired speakers, we do not assume an instinctive knowledge of such linguistic principles. In fact, the receptor onto which the language is ultimately posed is the difference between a first-language user and a second-language user: the early age of acquisition of a natural user creates alongside it a neurological and cognitive system capable of better administering the many language inputs, whereas the extraneous user is stuck with the original language system, still capable of acquisition of inputs, yet to a lesser degree.

Therefore, we come to the conclusion that the degree of simplification depends on the control that a person has on the transmission of the linguistic principles; the transmission means adapt to the necessities of the user, whilst modifying what passes through them. The results are dialect languages such as creole, that people internalize, reinforce and spread to future generations, further changing the original base language. Languages change as "large amounts of external contact and adult language learning select out the less functional linguistic overdevelopments" (Ellis, 2008, p. 239). Accordingly, the conditions of overload are a direct effect of the logistic mismatch of cognitive transmitters and contextual input data, plus other environmental effects. In particular, one can detect stress on a psychological and sociological level in individuals of another culture or language due to differences in class, rituals, and association. While the whole point of language spread is interaction, many immigrant members of society lack the necessary social connection for the acquisition of the proper forms of language. Now, this may come from economic, cultural, or even personal reasons, yet we know that, without the motivation to engage with a culture that feels estranged to the individual, the absence of a conscious effort to engage with the complexities of its language eventually will lead to creolization (Schumann, 1976). Further, we still must take into account the difficulties that the replacement of the birthplace linguistic rules entails; a combination of culture shock, complete language reacquisition, and the varying levels of social connection and motivation that the language learner experiences translates into the form that the communicated language eventually elects. Again, by knowing the level of stress a cognitive system is put into, we know how distorted the incorporated information will become.

Discussion of Solutions

The painted image is sort of grim. The human mind is naturally incapable of handling information that surpasses its processing limits, and often does not differentiate between the initially intact information and the later compacted information. Around the issue, a culture that aggravates the chances of entering such conditions engulfs modern society and preludes it from exiting it or alleviating its symptoms; individuals with selfish intentions of manipulation might not want to let the problem sort itself out anyway, since the cognitive failure affecting society creates terms favorable to communicative tampering. In the wake of all this, we must come up with a solution, or, at least, a proposition, that will allow for others to come up with creative and universal ideas on the matter of societal information overload. That is why, before proceeding forward, we must lay down the foundations of the proposed solutions by identifying the specific sectors of information processing failure that our four-layered study uncovered. Hence, this article so far has found three: flexibility of reception tools, user-generated attitude toward communication, and cultural expectation of information.

Flexibility of Reception Tools

Motivation to do good and conscious effort to act correctly sometimes are not enough without proper means to achieve these objectives. Besides, natural human performance does not determine most of the activities that we find normal today; a person cannot move at the speed of a cheetah, but stepping into a car reverses the odds considerably. As such, a good rule of thumb to lessen the possibility, and effects, of overload is to take care of the tools nature has given us, as well as be mindful of the self-imposed limitations that we may add. After all, our cognitive devices are first and foremost physical organs located in our brains, incredibly receptive of the conditions of our bodies and the psychological state of the person. Getting these devices out of stressful situations and gauging the point at which they are not able to handle processing anymore are both excellent proactive methods to avoid demanding atmospheres. Otherwise, simple care of our physical wellness through sleep, avoidance of abusive substances, and introduction of appropriate nutrients in the form of proteins and vitamins (i.e., Omega-3) will improve the base rate of processing of our cognitive regions (Hallowell, 2005). On a final note, bringing back research on second-language learning, Schumann (1976) mentions the presence of an "ego permeability, i.e., the ability to partially and temporarily give up their separateness of identity" (p. 135). Specifically, it is the subconscious refusal to integrate certain kinds of information with other data clusters, creating thus separate concepts that are processed individually. Perhaps, the distinction among pieces of data spawns the labeling of certain receptors for the specific purpose of receiving those categorized chunks, further limiting our already small cognitive capacities. Maybe the creation of conditions favorable for accurate interpretation would imply the abandonment of this tagging system.

User-Generated Attitude toward Communication

During our informational journey, we mentioned the possibility of training humans to handle their cognitive processes and thus compensate their limitation through communication techniques. "Cognitive science tells us that people draw inferences from their experience and prior knowledge to help them interpret what they are reading" (Pollio, 2005, p. 608), with

experience being what they already know about the material and how it is formed. Though professional knowledge of the materials is impossible in the limited time prior to contact, the encouragement of the institution of a base level acquaintance with the subject matter can improve quality of interpretation in reducing the receptive power needed for sufficient understanding; Edmunds and Morris (2000) propose a concentration on the principles and concepts behind the material, rather than detailed research. Plus, the reevaluation of antecedent information, that people store for support, might reveal the maladaptive application of evaluative processors in a state of overload, and allow for a recalibration of the instruments of judgment set for the processing of the current information (Fernbach, 2013). A baseline of this kind of attitude is to keep a conscious idea of the process one is about to perform, since the automatization of information processing and the relinquishing of its responsibility to the sole capacities of the brain was what caused the problem in the first place. Highlighting the complexity of the brain and its role, Ellis (2008) contends, "Consciousness is the publicity organ of the brain" (p. 241). When engaging with any kind of data-related activity, the individual must have presence of consciousness; this holds true in all instances of communication, except when not in direct contact with the process itself. Alternatively, organization of the information and timing are what the individual ought to be conscious about. For example, allotting specific times of day to manage specific tasks and data, prioritizing activities that need more attention, or are lengthy, as well as isolate them from other distracting obligations (Hallowell, 2005). Clearly, we also should consider the viable strategies in the presented ideas, regarding distraction and converting procrastination, or multitasking, with sections of concentrated effort. Overall, although we are not in control of the information we receive, we are still in control of the information we select, that is, until we reach the state of overload. For that reason, as a preventive activity, we should stop cognitive short-circuits and engage in conscious maintenance of information inflow.

Cultural Expectation of Information

Last, the elephant in the room is the natural habitat of this dysfunctional way to process information. Now, there would be no grounds to account any of the proposed sites of failure as the original genesis of a cultural information overload. Nevertheless, people cannot deny their role in the exacerbation of the condition itself, again not considering or judging the possibility of intention among its main perpetrators. Mainly, the trouble is the uncontrolled dumping of exceeding amounts of information to the user and the belief that people should be able to process the same amount as machines and interpret it in the same time span. We know that people are not machines and that they will fail much earlier than the latter. To prevent this, organizations and institutions can de-load members and citizens by middle-manning the transmission of information, which provides separation between instances of cognitive effort and respite, and adapt their own expectations to be more in line with biological restrictions. To aid users in the navigation of the immense data library, businesses or institutions specifically build filtering programs, both virtual and bureaucratic, within browsers, academic archives, and user accessibility departments.

When it comes to non-virtual environments, the appointment of information specialists (Edmund & Morris, 2000) allows for a hands-on contribution to the education and aiding of regular users, thereupon delegating the already demanding task of administering information to a single professional, who will concentrate individual efforts to its correct performance. In contrast, overload is possible when the bombardment of information is minimal but constant. As

a counter, specialists propose a more demarked separation between effort and rest ("managers should promote individuals with strong work-home boundaries as role models," Ayygari, Grover, & Purvis, 2011, p. 852); the French law banning weekend work obligation is a good example of this. All in all, when a person is ready to perform a certain task, or to not perform at all, the brain inevitably will underperform if diverting its efforts to engage with another task, with consequent worse results. This connects with the abolishment of the "person-computer" myth, and the expectations that businesses, institutions, families, and connections attribute to persons other than themselves. Simply put, people are people, and as people, they fail frequently; the real strength of a person does not come from inability to fail, but from ability to commit. That is why no deadline should surpass the human limitations to proceed with a task at a comfortable pace, in fear that the agent might get lazy and not perform at the standards set. On the contrary, "by managing expectations, individuals might perceive lower demands on their resources, leading to lower perceptions of work overload" (Ayygari, Grover, & Purvis, 2011, p. 853), thus maintaining the same level of production at a slightly longer time cost, in exchange for the dramatic decrease of failures and increase of user satisfaction.

Conclusion

Information, communication, language, relationships, and cognition control the way we see, and interact with, the world around us. Our mind, with its natural limits, can only select bits of the computable data that it encounters among the countless droves of information available. However, that comes at the cost of the shades and highlights of a carefully measured inquiry, and so the result is a paradoxical shallowness, which our surroundings support as a result of the adaptation of technological standards on regular human beings. Such attitude leads to erroneous expectations of performance, and a maladaptive adaptation of the necessary cognitive and linguistic tools to confront this sort of overbearing scenario. For this reason, we must preemptively prepare the personal and instrumental methods to confront information, allowing us to properly extrapolate what we need, without compromising excessively in its quality and usage. In addition, a comprehensive reevaluation of the standards set on modern information reception, as a result of the acceleration of societal activities, is imperative for an improvement in the mechanisms of information processing.

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Appendix A

Factors Leading to Informational Overload

The following is a list of factors that have been described, in Edmunds and Morris (2000), to lead towards cognitive short-circuit of managerial business associates. The main source is Helen Butcher's 1998 book, *Meeting Managers' Information Needs*. The list, while not corroborated by other sources, is below:

- Collect information to indicate a commitment to rationalism and competence, which they believe improves decision-making;
- receive enormous amounts of unsolicited information;
- seek more information to check out the information already acquired;
- need to be able to demonstrate justification of decisions;
- collect information just in case it may be useful;
- play safe and get all information possible; and
- like to use information as a currency to not to get left behind colleagues.

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Discussion Questions

1. How does the area of technology contribute to and yet complicate communication?

2. What strategies can individuals use to control or navigate the inflow of information?

3. Following the spring 2020 quick, en masse shifts to work via online platforms, what additional strategies may workplaces enact to balance productivity with reduction of information overload?

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The Impact of Fashion Advertising on the Body Satisfaction of Collegiate Women

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Abstract

Previous research on the impact of fashion advertising on women's body image has been inconclusive. The present study examined the relationship between body satisfaction and different body types of models in fashion advertising, with and without priming effects. This study employed an experimental design with an online sample of 52 participants. Data analysis utilized Univariate and Repeated Measures ANOVAs and Paired-Samples T-Tests. This study found no significant effects of models' body size on participants' body satisfaction or agreeance with positive statements about the item. This study provides no support for the argument for better representation in media. Results of this study did not imply a significant effect of fashion advertisements on body image.

Keywords: fashion, advertising, body satisfaction, women's media

Introduction

Body image is a social and psychological construct defined by the way one feels and thinks about the appearance and functionality of one's body. This issue seems to be sociocultural in origin, especially regarding the portrayal of women in media (Cash & Henry, 1995). Research by Orbach (2011) has especially noted the impact body image has on various aspects of the women's daily lives. This especially includes eating and exercising behavior and appearance-related concerns.

Body dissatisfaction is a relevant issue in the United States. One survey reported high levels of body dissatisfaction in nearly half the women involved – this entire group expressed some fear or preoccupation with being or becoming overweight (Cash & Henry, 1995). Another survey found that a majority believed that half or over half of all American men and women expressed concern with their appearance (Tantleff-Dunn, Barnes, & Larose, 2011).

Previous studies identified exposure to fashion advertisements as a factor in increasing body dissatisfaction (Tiggemann & Slater, 2017). A cross-cultural study by Tiggemann, Verri, and Scaravaggi (2005) explored how fashion magazines come into play in these Italy and

Australia. The participant sample consisted of 235 female undergraduate students in humanities or psychology courses. Researchers collected participants' age, height, and weight and later calculated BMI. They also completed the Figure Rating Scale of Fallon and Rozin and a Likert scale rating themselves, from 1 (extremely underweight) through 4 (normal weight) to 7 (extremely overweight). They reported dieting behavior, fashion magazine usage, use and perception of style and clothes, a questionnaire similar to the Self-Objectification Questionnaire of Noll and Fredrickson rating the importance of nine body attributes, the Sociocultural Attitudes, The Impact of Fashion Advertising on the Body Satisfaction of Collegiate Women, Toward Appearance Questionnaire, and three scales (Drive for Thinness, Body Dissatisfaction, and Bulimia) from the Eating Disorder Inventory. The study found similar levels of body dissatisfaction across Australian and Italian samples, and greater disordered eating in Australians (Tiggemann, Verri, & Scaravaggi, 2005).

Regarding the pervasiveness of this issue, research has found evidence that both mainstream and independent media outlets conform (at least, to an extent) to a similar portrayal of models. A study of street-style fashion blogs examined the difference between independent blogs and mainstream media. Researchers chose the blogs in this study from a list of the top 10 streetstyle blogs, because users were able to post comments on images. Evaluation of the features of the models considered their demographics, "pedestrian versus professional" status, body size, feminine touch, ritualization of subordination, licensed withdrawal, and faceism ratio. The models in the streetstyle blogs were not coded as remarkably different than mainstream models (Kraus & Martins, 2017). The research truly highlights the fact that in the eyes of advertisers, the "average" woman still conforms to traditional Western standards of beauty and thin ideals. It also poses the question of whether realistic depictions are truly the answer. This gives a perspective on how pervasive the thin ideal has become, where the image of the "average woman" often is skewed toward thinness.

Research has suggested that there are little results from exposure to positive messages or disclaimers. A study on disclaimer messages about digital alteration on fashion advertisements assigned participants to one of four groups, viewing fashion advertisements with: neither pre-exposure message nor disclaimer label, pre-exposure message but no disclaimer label, disclaimer label but no pre-exposure message, or both pre-exposure message and disclaimer label. Disclaimer labels did not reduce levels of perceived realism, social comparison, or body dissatisfaction. The alteration message did not reduce perceived realism, social comparison, or body dissatisfaction, nor increase the effectiveness of disclaimer labels. Exposure to "thin ideal" advertisements resulted in increased body dissatisfaction. This study identified social comparison as a predictor the increase in body dissatisfaction (Bury, Tiggemann, & Slater, 2017).

Body image issues are pervasive in the fashion industry, affecting more than the consumers. Eighty-five fashion models completed an online survey about unhealthy weight control behaviors, pressure from agencies concerning weight loss, and the "perceived impact and feasibility of seven potential policy actions." The study found that these models experience increased odds of engaging in detrimental weight control behaviors, as well as report great pressure within their industry to lose weight. Overall, they supported employment protections promoting healthier work conditions (Rodgers et al., 2017).

Diedrichs and Lee (2010) researched how the exposure of fashion advertisements featuring average sized female fashion models impacted body image, as well as advertising effectiveness. When shown advertisements displaying an "average body," reactions to the average-sized models were just as positive as to images with thinner models and no models at

all. The exposure to average-sized models also yielded a more positive body image on young women (Diedrichs & Lee, 2010).

Similarly, a study by Clayton, Ridgway, and Hendrickse (2017) indicated that upon viewing a series of photos of fashion models, participants reported greatest body satisfaction as well as the least amount of social comparisons when presented with plus sized models. The study also reported that as the body size of the model decreased, the body satisfaction of participants decreased and social comparisons increased. This study was only interested in those who had actual-ideal self-discrepancy, or discrepancy between actual body size and ideal body size. Therefore, data from participants not indicating a desire to be thinner were not included in data analysis (Clayton, Ridgway, & Hendrickse, 2017).

The concept of actual-ideal self-discrepancy is an important aspect of the study, as it further backs the findings of Tantleff-Dunn, Barnes, and Larose (2011), and Cash and Henry (1995). While not every person has the same origin of their insecurities, it is important to identify the "problem areas," the parts of society that are detrimental to large groups of people. In this case, these magazines could be a major problem area for a lot of people to whom magazines are a significant part of their growth.

Ferguson (2018) noted the inconsistencies and flaws in previous research around media effects on body image. He recommended modifying the rhetoric around media effects from "Media causes X behavior" to "Media may influence people to perform X behavior under Y circumstances." Also noted is the concept that consumers and media constantly influence each other; thus, media will continuously adapt to the consumer (Ferguson, 2018).

In all previous research, many terms vary in operational definitions – thin, average, and plus-sized are all approximations and thus, ultimately subjective. Similarly, in much of the research where participants viewed images of advertisements, the models in these advertisements typically conform to Western standards of beauty. That factor is taken into consideration in this study and future researchers should consider this as well.

Method

Participants

This study employed convenience sampling and utilized the Stetson University Participant Pool for recruitment. Participants received research credits (half a credit at the rate of one credit per 30 minutes) as compensation for their time. Any female Stetson University undergraduate students over the age of 18 were eligible for this study. Only women were eligible to participate in this study in order to avoid gender interacting with other variables. Additionally, much of the previous literature focuses on women. The minimum desired sample size was 40; 52 individuals participated. Participants ranged in age from 18-29; the average participant was age 20. Distribution between academic year was relatively even. The majority of participants reported their race as White or "other."

The Stetson University Institutional Review Board reviewed and approved all procedures in this study.

Materials

Participants viewed three selected advertisements, portraying either a thin-ideal model or a plus-size model. Advertisements are similar to one another in style of clothing, vibrancy (or lack thereof) of colors, models' pose, and background. The only variances were the models' body type and slight differences in the outfits and poses. As thin-ideal and plus-sized are subjective terms, American size 2 represents thin-ideal and American size 14 represents plus-size. It is also worth noting that none of the advertisements feature models in lingerie or swimwear. As there is an aspect of sexuality attached to both of these clothing categories that this study did not explore in order to isolate the variables as much as possible. Therefore, the researcher did not include such clothing styles in this study.

Measures

Body Satisfaction Visual Analogue Scale (BSVAS.) Participants reported their responses on a 1 – 5 Likert-response scale and gives an idea of the participants' baseline body satisfaction. Internal consistency was high (Cronbach α=0.960).

Figure rating scale (FRS.) This is a visual scale used in several body image studies to represent several different body types, allowing participants to identify which shape they feel most resemble them. (Stunkard, Sorensen, & Schulsinger, 1983). Internal consistency was high (Cronbach α=0.866).

Positive statements about item. Participants viewed three positive statements per advertisement about the item. Participants answered yes or no regarding their agreeance with the statement. Additionally, they reported on a 1- 5 Likert scale how likely they are to purchase the product in the advertisement.

Demographics. Participants reported race, age, and class standing, which helped to determine if there is any significant difference between any of these categories. Additionally, participants in the primed condition self-reported height and weight. BMI calculations from reported height and weight supplement the answers given on the FRS.

Research Design

This project utilized a 2 x 2 repeated measures experimental research design. Independent variables were models' size condition (plus-size or thin ideal) and priming condition (primed or unprimed). Dependent variables were agreeance with positive statements and BSVAS scores.

Participants were randomly assigned to one of four groups and asked to complete a survey of close-ended questions. The primed group responded to the FRS and reported height and weight measurements before viewing advertisements in order to evaluate priming effects on body satisfaction. The unprimed group took the FRS after viewing advertisements.

Procedure

Before data collection, participants gave informed consent. This project subjected participants to slight emotional risk, as body satisfaction can be a difficult topic, especially if the participant currently has or has had body image, or eating issues, or both. However, participants may end the study at any time. Additionally, information for Stetson University Student

Counseling Services was available to the participants at the end of the study. In order to avoid issues with internal validity, this study employed passive deception to cloak the true nature of the study.

Participants were then asked to complete the BSVAS. Afterward, both the primed and unprimed groups viewed fashion advertisements and responded to a series of yes or no questions based on how they feel they would look and feel wearing the item. For each item, participants reported likely they were to purchase this product. In order to avoid issues with internal validity, this study utilized passive deception. Endorsing their likelihood to purchase a product on a Likert scale was a distractor meant to mislead the participants, so they believe the purpose of the study is to better understand marketing and answer the body image scales more honestly. After viewing advertisements, the unprimed group completed the FRS. Afterward, the researcher asked both the primed and unprimed groups again to complete the BVAS. The researcher fully debriefed and dehoaxed participants at the end of the survey.

Data Analysis

Calculations performed on participants' reported height and weight provided BMI. This accompanies the answers given in the FRS, to identify which models most resembled the participants.

Based on past studies, the hypothesis was that there would be an increase in body satisfaction after viewing the advertisements, and that the group that did not experience priming will have higher body satisfaction scores overall than the group that did. The hypothesis regarding the positive statements was that participants would agree more with positive statements about the advertisements containing body types more like their own during the interview portion. It is also hypothesized that participants would be more likely to purchase items on models that most resemble how they view themselves.

Results

This study collected 54 responses from 52 participants. Two participants reported having taken the survey twice; however, due to the anonymity of the survey, these additional responses were not identified, or removed, or both. Nine participants were excluded due to failing attention checks. In total, this study utilized 45 of the collected responses for analysis.

Body Satisfaction Visual Analogue Scale

The hypothesis predicted that BSVAS scores would increase after viewing plus-size advertisements rather than thin-ideal advertisements. Paired-samples t-test found insignificant difference between BSVAS scores in all conditions [t(44)=0.230, =p0.819]. A repeated measures ANOVA of the effects of condition on BSVAS scores found insignificant results [F(1,41)=0.919, p=0.022]. Calculations of interaction between condition and time also yielded insignificant results [F(1,4)=0.568, p=0.639.] These calculations do not support the hypothesis.

Effect size tests of BSVAS, priming effects, and size condition found that the effect is not statistically significant. Wilks' Lambda found F(1,41)=0.919, p=0.978.

Agreement with Positive Statements

The hypothesis regarding agreeance with positive statements supposed that participants were more likely to agree to positive statements about products worn by models that more closely resembled their own body type. A univariate ANOVA compared the effects of condition on likeliness to purchase. Results were not significant results and did not support the hypothesis [$F(1,4)=2.399$, $p=0.086$].

Figure Rating Scale

The FRS acted as a priming tool, thus, this study has no hypotheses regarding FRS results. A univariate ANOVA finding the effects of condition on FRS results yielded insignificant results level [$F(1,4)=0.958$, $p=0.422$]. The mean self-reported body shape was Body Type 4. Meanwhile, Body Type 3 was overall rated the ideal body type for self, most attractive body type, and body type most romantic-sexual partners desire. There was little deviation from the mean on FRS questions referring to ideal body type, no matter the participant's own reported body type (RBT) on the scale (SD = .696).

Discussion

Previous research has identified a possible relationship between fashion advertising and women's body image; however, the results have been inclusive. There is comparatively little research on how advertisements featuring diversely-sized models impacts body image in women.

The current study sought to evaluate the relationship between exposure to fashion advertising and body satisfaction as well as the impact of priming effects on that relationship. The hypotheses in this study speculated participants would react more positively to images containing a model more closely resembling their own body type and would feel more body satisfaction after viewing advertisements with a plus-size model. Results did not support these hypotheses.

Body Satisfaction Visual Analogue Scale

The researcher hypothesized that body satisfaction would increase after viewing plus-size advertisements, rather than thin-ideal advertisements. A paired samples t-test comparing the overall means of pre-advertising and post-advertising BSVAS scores found statistically insignificant results. Results of a repeated measures ANOVA the researcher performed on the BSVAS responses, both pre- and post-viewing advertisements, implied that the null hypothesis is true.

The researcher also hypothesized that unprimed conditions would have higher overall body satisfaction scores overall than primed conditions. In the PS-P condition, the change was more significant than the PS-U condition; however, in the TI-P condition, the change was less significant than the TI-U condition. This does not support the hypothesis.

The hypothesis regarding the products themselves speculated that participants agree more with positive statements about the product when viewing advertisements containing body types more closely resembling their own. The researcher also hypothesized that participants would be more likely to purchase items on models that most resemble their own body type.

Figure Rating Scale

While the researcher made no hypotheses regarding the FRS, analysis of FRS scores found that one particular figure represented the most idealized body type. There was no significant change in idealized body type as BMI increased (SD = 0.686.) This suggests a general consensus of a standard of physical attractiveness that participants hold, or see, or both, in society – a univariate ANOVA [$F(1,4)=0.958$, $p=0.422$].

Practical Application

The extent to which media affect their consumers has been a subject of research and debate. The current study did not find any results suggesting that media directly influences behaviors or feelings. If a similar study recruited a larger participant pool and found statistically significant results, this could indicate to marketing and advertising professionals in the fashion industry that inclusion of plus-size models. While there is still much to evaluate about this topic, those advocating for more plus-size representation in media should currently refrain from using causal claims and evaluate the necessity of plus-size representation based on other factors.

Limitations

This article is not without limitations. For one, participant pool members reported their race largely as White, and there was not enough data to evaluate any differences in demographic groups. Additionally, recruitment was limited exclusively to undergraduate Stetson University students; thus, the researcher cannot reasonably generalize the results to a larger audience. Only participants who identify as women were eligible to participate in this study. Finally, data were not statistically significant, which could be due to any number of reasons, including sampling error or the small participant pool.

Future research could expand upon this by including qualitative responses, increasing the number of size conditions, or using different forms of media. Additionally, future research could evaluate the impact of plus-size media on men, either specifically or as part of an effort to evaluate gender differences in responses to plus-size media.

Conclusion

This study found no evidence supporting the hypotheses. As previous research has noted, those advocating for better representation in the media should not use direct causal claims, but should seek other arguments to support their claims.

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Appendix A
Index

Body Satisfaction Visual Analogue Scale—Adapted Version

Do you feel satisfied with your body?

Do you feel comfortable with your body shape?

Do you feel satisfied with your appearance?

Do you feel like an attractive person?

Do you feel satisfied with your weight?

Note: Likert-response scale, 1 = never, 5 = very often.
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Figure Rating Scale
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Advertisements

Thin-Ideal:

Plus-Size:

About the Author

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Discussion Questions

1. What factors may explain the inconsistent findings in research on body image and media?

2. Body image is a subjective ideal. How can body satisfaction be generalized and operationalized for consistent research?

3. How will the increasing availability, accessibility, and presence of media impact self-perception?

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"Feline"
2018

Painting by Terhi Kalliola.
Helsinki, Finland

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Mẹ, Myself, and I: Multifarious Motherhood in Vietnam*

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Abstract

The Socialist Republic of Vietnam is a country with a deep appreciation for family and community. Although motherhood is highly praised, single motherhood often holds a stigma, particularly for women who are from an ethnic minority group and/or a rural area. Our study investigates the experience of being a single mother in Vietnam and its impact on identity, access to human capital (i.e., education) and social capital (i.e., social relationships, social connections). Three common themes that emerged from the study include motherhood as a central identity, socioeconomic constraints and the emergence of negative societal perceptions. (*Mẹ is the Vietnamese word for "mother.")

Keywords: Vietnam, Coins for Change, single motherhood, education, support system, family structures, gender, ethnicity, stigmatization, acceptance.

Introduction

Vietnam is a country brimming with cultural and ethnic diversity, picturesque landscapes, and lively cities. Officially the Socialist Republic of Vietnam, the country is located in southeast Asia. Bordered by China to the north, Laos, and Cambodia to the west, and the South China Sea to the east, Vietnam hugs the coast of mainland Southeast Asia. Vietnam is a country that captivates many who travel within its borders. Those who have the opportunity to explore the country past the tourist destinations get to experience what this enthralling country truly has to offer.

This article explores the challenges of being a single mother in Vietnam and how their access to resources such as education and social support systems shape their experiences. In order to better understand the cultural context of modern-day Vietnamese society and the experience of single motherhood in Vietnam, in what follows, we first provide brief background information about Vietnamese society, including its history, ethnic groups, and education. We then provide a brief description of Coins for Change, the organization that provided the resources which made this project possible. Next, we present a description of our data and methods. Then,

we present the findings from our study regarding the experiences of the four single mothers we interviewed.

History

Vietnam can trace its history back to the Red River Delta region, located in the north of the country, and runs through the capital of Hanoi (Jameison et al., 2019). Vietnam has thousands of years of history filled with notorious legends and lavish kingdoms. One of Vietnam's earliest rulers, Trieu Da, controlled a land empire that stretched as far north as modern-day Southern China (with a capital near modern-day Guangzhou) and as far south as modern-day Da Nang, Vietnam (Jameison et al., 2019). In 111 BCE, the ruler of the Han Dynasty, Wudi, extends his rule over "Nam Viet," Vietnam's name during this time period (Jameison et al., 2019). The Trung Sisters orchestrate the first major uprising against the Chinese occupation of Nam Viet in 40 CE. The Trung Sisters successfully overthrew the Chinese strongholds in the region. They proclaimed themselves queens of the independent Vietnamese Kingdom until they were overthrown by the Chinese army three years later (Jameison et al., 2019). In 939 CE, Vietnamese commander Ngo Quyen was the first leader of the newly independent Vietnamese state. In the early 11th Century, the fragments of Vietnamese provinces unified and established the country's capital, Thang Long, in the "heart of the Red River Delta" (Jameison et al., 2019).

The Tran Dynasty succeeded in this era, with the Ming Dynasty following closely behind in the 15th century (Jameison et al., 2019). In 1471 CE, the Vietnamese army starts to push south past Da Nang in the Mekong River Delta, which the country of Champa (modern day Cambodia) occupies during this time (Jameison et al., 2019). Vietnam reached its present-day size in 1757, seizing modern-day Ho Chi Minh City almost 60 years prior (Jameison et al., 2019). In July 1857, the French invade Vietnam and "loan" the country to Japan during World War II. Vietnam gained independence in 1954, which resulted in the country being split horizontally at the 17th parallel until the communist victory on July 2, 1976 (Jameison et al., 2019). During this time, Vietnam participated in the First and Second Indochina War, known as the American War in Vietnam, to fight for their independence (Jameison et al., 2019). After winning independence, the country changes its name to Socialist Republic of Vietnam.

Coins for Change

Coins for Change is a leader and driving force in bridging the educational and gender divide in Vietnam. Coins for Change is a non-profit organization founded by CEO Hong Tang in the winter of 2015. In December 2020, Coins for Change will celebrate its fifth year in aiding disenfranchised women and children through community connections and sustainable change.

The programs that Coins for Change offer are Teach for Change and the Empowerment Plan.

What does Teach for Change do?

Teach for Change is a network of female-led schools and English centers in Vietnam that work to reduce the education gap between rich and poor Vietnamese children. English is a global language, which means learning English is vital to increasing professional and social

opportunities for disadvantaged children in Vietnam. Teach for Change provides low to no-cost and easy-access English language courses for children who otherwise may not be able to obtain these resources.

Vietnam is a country that considers learning English a critical investment in order to compete in the global marketplace. Due to a lack of resources, some children do not have access to English classes that would help sharpen their English language skills in a way that would allow for easier career attainment and broader access to educational opportunities.

Teach for Change also helps support women through expanding access to resources for single or entrepreneurial women in Vietnam, a predominantly male-dominated country with influences from its traditional roots. Programs include business training, network training, and Integrated Human Resourcing. The goal of Teach for Change is to positively change the outcomes for Vietnamese women in the field of education.

What is the Empowerment Plan?

The Empowerment Plan is a program under Coins for Change that works to help disadvantaged women from multiple demographics in Vietnam. The Empowerment Plan includes demographics such as low-income women, single mothers, differently-abled women, ethnic minority women, and domestic violence survivors (Coins for Change, 2019). HerCraft and HerAcademy are two main programs that provide women with support through entrepreneurial and educational practices. Their projects focus on building life skills and providing training that increases independence and fair opportunities (Coins for Change, 2019).

Background

Marriage, Motherhood, and Womanhood

Traditional Vietnamese family structures are typically dominated by patrilineal and patriarchal influences, with women getting married at a younger age than men (Klingberg-Allvin et al. 2008). In rural areas, many individuals grapple with the expectations placed on them to conform to traditional mores, such as getting married or having children early, while also having to adjust to influences from the modern world (Klingberg-Allvin et al., 2010). In Vietnamese culture, there is an expectation of married couples to have a child within one to two years of marriage (Klingberg-Allvin et al., 2010). Things are changing in Vietnam, and resources are more accessible to women for family planning, such as legal abortion and contraceptives, which about 78% of women of childbearing age utilize for family planning (Klingberg-Allvin et al., 2010). In Vietnam, the age at which a woman gets married is crucial and typically occurs around her mid-20s.

Previous studies conducted on young married women in Vietnam show that many women face pressure from their families to marry and have children early on in their marriages (Klingberg-Allvin et al., 2008).

Alterations to the timeline of marriage can occur based on where a woman lives. For example, in rural areas, people expect women to follow traditional customs and have children as soon as possible (Klingberg-Allvin et al., 2008). Some women may find it embarrassing if they do not have a child within a specific time frame (Klingberg-Allvin et al., 2008). The age of marriage also correlates to a woman's education level, ethnicity, and family income (Klingberg-

Allvin et al., 2010). For example, women from low-income communities tend to marry earlier. Additionally, fertility rates in low-income ethnic minority communities across Vietnam are 25 percent higher than in Kinh (ethnic Vietnamese) and Hoa (ethnic Chinese) groups (Baulch, 2007). According to the 1998 Vietnam Living Standards Survey, only 30 percent of ethnic minority women have a doctor or nurse assist them during birth compared to 80 percent of Kinh women (Baulch, 2007). These differences could be due to the inadequate access to medical resources in remote and mountainous areas as well as the inability to access higher education, whether it be due to the community's perception of the institution or limited access to the financial resources needed to complete a degree.

Ninety percent of people in Vietnam ages 35 to 39 have a spouse, which makes single mothers a small portion of the Vietnamese population. Vietnamese society is slowly shifting to a more favorable outlook of single motherhood and out-of-wedlock pregnancies (De Loenzien, 2016). Some young women choose to move to bigger cities such as Hanoi and Ho Chi Minh City to get an opportunity to work for themselves without the constant family pressure to get married and have children (Peters, 2016).

Single Motherhood

Single motherhood is not well documented in Vietnam. In 2009, around 11 percent of women ages 15 to 49 are spouseless and have one child below the age of 17 (De Loenzien, 2016). Single motherhood seems to be on the rise in Vietnam as well as in other parts of the world. Several factors contribute to this rise, including an increase in divorce and separation as well as a rise in migration (De Loenzien, 2016). Divorce rates seem to be slightly higher for women, around 2.0 percent, compared to men, around 0.9 percent, with higher remarriage rates among men (De Loenzien, 2016). Migration also plays a significant role with men typically migrating, either domestically or internationally, in pursuit of better occupational or educational opportunities (De Loenzien, 2016). Women may migrate for educational and occupational opportunities as well as for autonomy (Peters, 2016).

Ethnicity

Vietnam's diverse geographical locations breathe life into the cultural and ethnic diversity found throughout the country. Minimal academic sources discuss the history surrounding ethnic minorities in Vietnam (Hays, 2014). Available documentation of ethnic minority groups within Southeast Asia shows numerous groups have intermingled and interacted with one another over the last 4,000 years (Pischedda et al., 2017). Although many minority groups live in close contact with another, these groups still retain their unique cultural characteristics, ranging from their language and religious practices to vibrant traditional attire (Jameison et al., 2019; Pischedda et al., 2017).

Vietnam recognizes 54 ethnic groups, with the native Kinh making up 87 percent of the population as of 2017, around 77 million people (Jameison et al., 2019; Pischedda et al., 2017). Many ethnic minorities in Vietnam occupy the highlands, or mountainous regions, of the country (Jameison et al., 2019). Ethnic minority groups such as the Nung, Tho (Tay) and Miao (Hmong) occupy the northern, mountainous, regions of the country near Laos and China (Jameison et al., 2019). Many ethnic minority groups, such as the Champa and Khmer (ethnic Cambodians), still reside in areas that are remnants of the older kingdoms that once occupied Central and Southern

Vietnam (Hays, 2014). The largest ethnic minority group in Vietnam is the Tho (Tay), which has a population of 1.7 million people, around 2 percent of the population (Pischedda et al., 2017).

Ethnic minority groups in Vietnam tend to be more impoverished, have more limited access to health care as well as lower school enrollment levels compared to ethnic Kinh households (Baulch, 2007). If comparing between ethnic minority groups, northern highland groups - such as the Nung and Tho (Tay) - tend to assimilate more successfully to the Kinh majority, compared to Khmer and Miao groups in central and south Vietnam (Baulch, 2007).

Education

Education plays a crucial role in Vietnam. Elementary education in Vietnam usually begins around six years of age and lasts five years until the age of eleven (Trines, 2019). Lower Secondary education starts right after this and lasts for about four years. Grade 9 and below is compulsory, or required, in Vietnam (Trines, 2019). Students who continue after this point have to take an exam in order to proceed to a higher level of education (Trines, 2019). Upper secondary education usually lasts around two years (Trines, 2019). Elementary education is typically free of charge, but schools charge a variety of other fees for items such as books and uniforms. For secondary school, on the other hand, there is typically a small tuition fee, and well-off families often supplement these classes with private lessons (Trines, 2019).

Vietnam is in the process of reforming its education system. In the 2000s, the Vietnamese government established a "Comprehensive Reform on Higher Education in Vietnam" that claims to bring monumental changes, such as better access to English education (Trines, 2019). However, according to 2009 statistics, only 6.7 percent of people over the age of 25 have a tertiary degree (Trines, 2019). Students must take an entrance exam in order to gain admission to a university. In 2012, around 30 percent of students passed their university entrance exams (Trines, 2019). Although Vietnam's higher education system has expanded dramatically over the last few decades, many students are turning to degree programs abroad in countries such as the US, Japan, and Australia (Trines, 2019). Data regarding the university enrollment of single mothers in Vietnam is not widely collected. Additionally, there does not seem to be English translations available regarding the marital or parental status of university students. The effects of single motherhood on educational attainment is the topic of discussion in the interviews below.

Support Systems

Stigma often negatively affects single mother's access to social supports and occurs because single motherhood to society deviates from traditional family and marriage norms. In this respect, being a single mother becomes a binding status (Hughes 1984) for these women; lone mothers feel suspended from developing relationships. Financial difficulties are also a noteworthy issue for lone mothers because they are the sole provider for their family. Support groups are hard to find but still exist for single mothers through online messaging boards or through their local communities that are becoming more accepting of the idea of single motherhood. Ethnic minority women may face additional challenges finding a support system outside of their ethnic group or home community due to cultural or linguistic barriers (Baulch, 2007). As the women we interviewed highlight, removing the stigma of single motherhood through conversation and acceptance is crucial for social support.

Methods

The concept of this project originated in December 2018. A combination of curiosity and circumstance sparked our desire to pursue research in this field. We chose to work with Coins for Change because of its unique history and dedication to working with not only single mothers but women from multiple marginalized groups. During this time, we tried to independently research the topic of ethnic minority single mothers in Vietnam but could not find any information about this topic in English. Geographical proximity and language barriers limit information about single mothers in Vietnam. This lack of information on the topic further fueled our desire to learn more about the experiences of single mothers in Vietnam. In January 2019, we started working with a faculty member, a former postdoctoral fellow at our University's Center for Demography and Population Health, on making this project a reality. We fine-tuned our proposal and spoke to the External Relations Manager of Coins for Change, to make sure the type of research we were thinking of conducting was feasible, ethical, and necessary. After getting approval from Coins for Change, we formulated our project proposal and moved forward in the research process.

We arrived in Vietnam in May 2019 and chose to take the time to adjust, learn more about Vietnam, and get more familiar with the area we were volunteering in. In early July, we started interviewing mothers about educational opportunities and attainment and their support systems. We refrained from conducting interviews in June due to the Lychee season. Lychee season is a vibrant time in Bac Giang, which frequently meant slower traffic and busier schedules for local business owners and farmers. Our host mother offered to assist us as an interpreter and helped us find our first interviewee. The following interviews is conducted with assistance from Vietnamese volunteer [name removed to maintain the integrity of the review process]. Their assistance consists of contacting and scheduling interviews with the single mothers that share their stories in this study. Translation between the English and Vietnamese language causes periodic rewording of certain interview questions.

The methodological issues that have arisen during this process stem from the language barrier. Since we do not speak Vietnamese, we could not directly communicate with the participants. We had to utilize extremely helpful interpreters, but this also meant that we only knew what the translators chose to tell us. Some concepts may be challenging to translate into English from Vietnamese, or certain Vietnamese words may not have a direct English translation, and the original concept may go through alterations for translation.

Another methodological issue that arose was the use of a voice recorder during interviews. The participants may alter their responses due to the presence of the voice recorder. Participants may feel uncomfortable going into detail about topics such as their romantic or family relationships in a recorded conversation. Additionally, some participants may be unwilling to disclose information to an interviewer who is not native to Vietnam and does not know the Vietnamese language due to cultural or linguistic barriers.

Continually another element that may have caused complications during the interviewing process was conducting interviews online as well as in-person. Conducting interviews online sometimes caused problems due to communication clarity being disturbed by an inconsistent internet connection. On the other hand, there are advantages to conducting online interviews, such as reaching a larger possible participant pool, which allowed us to expand our project to include a more diverse population. This population pool is more representative of single mothers because they span from Northern and Southern Vietnam, two contrasting regions.

Audio recordings are saved on a project flash drive. At the same time, handwritten field notes and interview notes are in a secure and confidential location both during our time in the country, and when we returned to the US. Due to the sensitive nature of this topic, all respondents' names are confidential with pseudonyms used to maintain privacy, as shown in Table 1.

In what follows, we present our findings regarding the experiences of the four single mothers we interviewed in Vietnam. These are personal records of what being a single mother has been like for them and how they navigate the world. They described their situation and experiences of being a single mother and how society-family has treated them. Although all single mothers face negative stigma in Vietnam, their experience of such stigma varies in regard to factors such as ethnic group, educational attainment, or geographic location (rural or urban).

Table 1

Single Mother's Demographics

Demographic Information of Participants. Chu Town is in Bac Giang, Vietnam. To protect the confidentiality of our participants, we use pseudonyms.

Pseudonym	Age (Vietnamese Age)	Ethnic Group(s)	Location	Occupation	Education Level
Hai	46 years old	Nùng	Chũ Town	Teacher	College
Linh	63 years old	Kinh	Chũ Town	Farmer	7th Grade
Thang	28 years old	Nùng	Ho Chi Minh City	Gardener	Some College
Sen	37 years old	Nùng	Ho Chi Minh City	Business Owner	University

The Mothers' Perspectives

Figure 1

Single Motherhood in Vietnam. The Three Main Issues all the Mothers Discuss. We include an Expansion of these Topics are in the "Mother's Perspective" Section

Hai

Our host mother's close friend, Hai, greeted us with a tender smile as we approached her home. We sat with Hai in her living room on a warm summer afternoon and gazed around her home at photos of her daughters. Hai is a 46-year-old schoolteacher from the Nung ethnic minority group. Hai lives in Bac Giang province, which is a sparsely populated agricultural district located in Northern Vietnam. She has two daughters that are currently married and starting families of their own. We wanted to talk to Hai about her experiences being a single mother and how it affected her perspective and experiences with education.

Hai has a college degree in education. She values education and sees it as an excellent way to gain knowledge that more positively changes our worldview. Hai found obtaining a college degree difficult because she became a widow at a young age. With two daughters to care for, she did not have the time or money to continue her desired education level, as stated in *Figure 2*. Hai had dreams of obtaining a master's degree. Although Hai has not attained her desired degree level, she is very proud of how much her daughters have accomplished and the opportunities they have to continue their education beyond her own.

Hai hopes to see changes in the perception of single mothers in Vietnam as well as more educational opportunities for them and their children. Hai's perspective and experiences provided insight into how education affects single mothers. Even when single mothers cannot continue their education, they continue to achieve their dreams generationally through their children.

Linh

On a quiet July afternoon, we were able to meet with Linh, who works in agriculture. Linh has raised her son alone for over two decades and wanted to share her experiences regarding how her education affected her aspirations for her son's education.

Linh is a 63-year-old farmer from Bac Giang province in Vietnam. She discontinued her formal education in the 7th grade. Coming from a family of farmers, Linh is happy with her educational level because she can provide for herself and her son. She is the mother of a son who has graduated from university. Because most of her salary went to pay his tuition fees, as stated in *Figure 3*, she found his education financially challenging. However, she is glad he graduated and has a lucrative career.

Figure 2

Socioeconomic Constraints. Shows the Socioeconomic Constraints Linh and Hai Experiences as Single Mothers

She is very proud of her son and is glad he was able to pursue the highest degree possible for himself. Her education has not affected her parental status since she finished her courses before she started her family, but Linh still values education because it provides immense opportunities and carries prestige in many Vietnamese communities and families.

Linh wants other mothers to be able to provide their children with quality education as well as give their full support. Linh's story and experience as a single mother are notable because it shows how she prioritizes her son's education over her own. She believed in the need for her son to get a better education and go further academically than she has, which is a sentiment often shared by parents. Linh saw her financial sacrifices as an investment in her son's future and is proud to see him succeed in his aspired field.

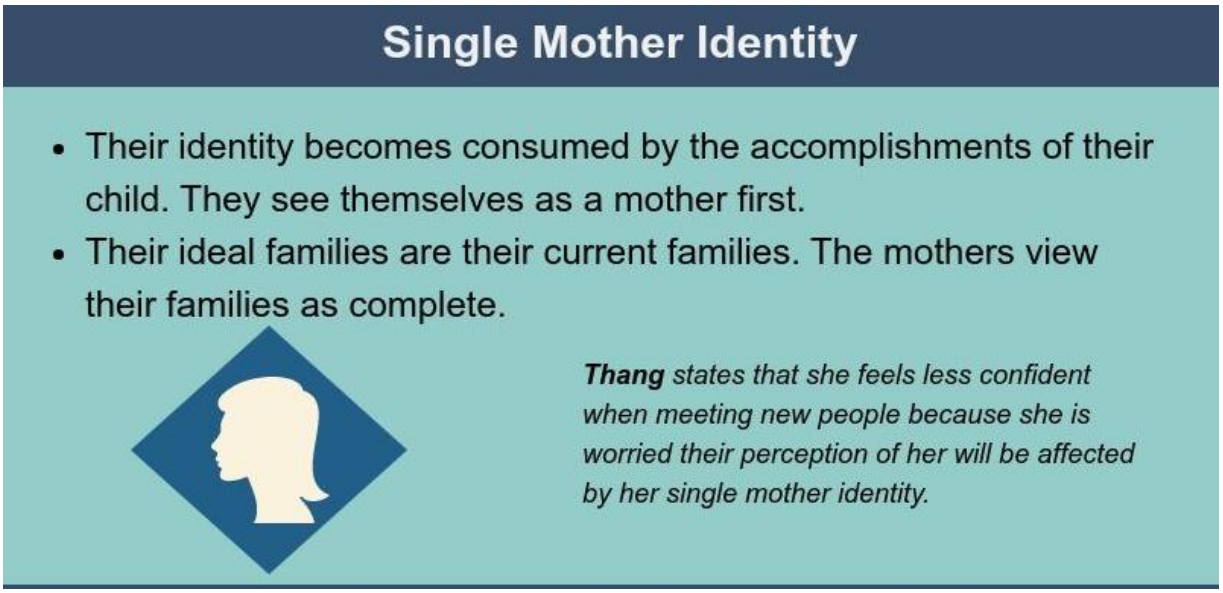
Thang

Thang is a 28-year-old gardener from Ho Chi Minh City. Ho Chi Minh City, formerly known as Saigon, is a large metropolitan city located in Southern Vietnam. Initially, our research focused on ethnic minority single mothers in Northern Vietnam due to our location. To our surprise, an overwhelming number of women who wanted to speak with us and share their stories were from all over Vietnam, including Southern Vietnam.

Thang identifies with the Nung ethnic group and speaks the Nung and Tay ethnic languages as well as Vietnamese. Thang has completed college but desires to continue her education by completing another degree program. She is unable to complete more of her education due to the time constraints of working and being a single mother. Even before having her son, Thang worked long hours and often did not have time to pursue her hobbies or interests. Due to Thang's busy work schedule, she is unable to be with her son as much as she had hoped. While at work, her parents often take care of her son; she is grateful for their support. Thang has mentioned that the support she has from her family is not very common in the single motherhood community in Vietnam.

Thang has spoken to many Vietnamese single mothers through social media who have not had familial support and have struggled to find community. Thang finds it challenging to maintain relationships outside of her family due to her lone parent status, as shown in *Figure 4*. Her son is less than two years old and requires a lot of time and attention. She hopes to pursue a degree but does not see any option past a college degree because of the need to take care of her young son. Thang does place a high value on education but financially cannot support both a degree program and her family.

Figure 3
Single Mother Identity. Illustrates the Centrality of the Single Motherhood Identity



Thang's experiences show the challenges of being a new mother as well as a single mother. Thang looks for community online with other young single mothers because they can relate to her through a shared experience. Offline, she struggles to find support beyond her family. Although Thang wants to continue her education, her aspirations realign to taking care of her son and supporting her family.

Sen

Sen is a 38-year-old businesswoman from Ho Chi Minh City, Vietnam. Sen identifies with the Nung ethnic group. Although she does not speak the Nung ethnic language, she speaks both English and Vietnamese.

Sen is a university graduate with a degree in tourism. Sen canceled her enrollment in a Master of Business Administration program because she had to discontinue taking courses. She says she has difficulty continuing her education because she does not live by her family, so they are unable to help her financially or help her take care of her daughter.

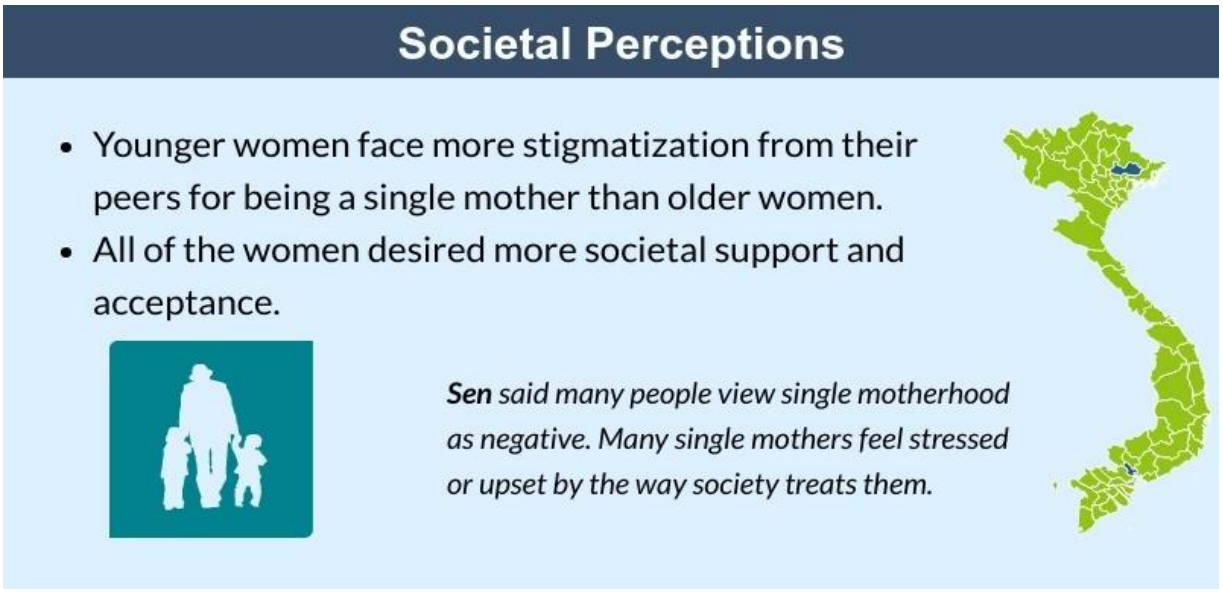
Ideally, Sen wants to continue her education by learning more English, along with another language, while also taking more business classes to further her business. Sen values education because it helps her run her business more efficiently, and learning fascinates her. Subjects such as Psychology allows her to get into the mind of her customers and understand how human beings perceive certain situations and events. Psychology courses have also affected her parenting style and have helped her see the benefits of creative activities, outside of academics, for children.

Sen has a 10-year-old daughter and hopes she can pursue higher education in her future. For single mothers in Vietnam, Sen sees the value of having a positive mindset when dealing with the challenges of being a single mother. Additionally, she hopes to see an investment in education for single mothers and their children across the country. Sen stresses the importance of mental health resources for single mothers who may be feeling lonely or alienated within their

communities. Sen acknowledges that being a single mother can be emotionally taxing, especially if a mother has limited community or financial support. She recognizes the negative perception of single motherhood in Vietnam, as shown in *Figure 5*, and encourages mothers to take care of themselves, both mentally and emotionally.

Figure 4

Societal Perceptions. Highlights Vietnamese Society's Perception of Single Motherhood



Sen offers a perspective that focuses on continuing her education because of her interests, family, and business. Although she has a university degree, she wants to continue furthering her education soon.

Conclusion

Vietnam's colonial past gave the country a unique history full of hardships in the pursuit of its independence. This rich history gives context for what the country experiences today. Vietnam has only been independent since September 2, 1945, so the reconstruction of the nation has taken precedence over specific societal issues. Of course, Vietnam is pushing to change the stigma around single motherhood. However, this will take time because Vietnam is still recovering from the atrocities brought forth by the American War and is crafting a name for itself on the world stage.

Family dynamics play a huge role in why the stigmatization of single mothers occurs. There is an expectation for Vietnamese people to marry around the age of 25 and have children within the years following matrimony. Families often pressure loved ones in new marriages to have children. This pressure to adhere to cultural and societal norms contributes to having children when people may or may not be ready. Even with contraceptives being more accessible today, people are having children when they do not feel ready, by accident, or with people they do not want to be with. Single motherhoods, regardless of the cause, are not exempt from stigma; even widows can face the same stigma as other single mothers.

Change is happening in Vietnamese society to counter single mother stigma, but it will take time, patience, open-mindedness, as well as having difficult conversations about traditional values and customs. It may take longer for rural and ethnic minority communities to change their norms around relationships, marriage, and single motherhood. Reasons for this include less connection or involvement in social movements occurring in bigger cities, lack representation in societal or political circles, and the continuation of practicing traditional values. Ethnic minority communities, in particular, have unique customs and practices different from the majority, and it will be harder to change the various norms around lone motherhood. Regardless of the opposition around a conversation about single motherhood, it is currently happening. Many lone mothers are willing to speak about their experiences. With this gradual shift, it is only a matter of time before the stigma shatters and single mothers are just as mothers.

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About the Author

Arria Hauldin (She/Her/Hers) (arriahauldin@gmail.com) is a recent alumna of Florida State University. Hauldin is a first-generation American and first-generation college student with a passion for education and social change. She studies Anthropology with a focus on culture, education, and identity. Hauldin is a South Florida native with familial roots from the island country of Jamaica. The inspiration for Hauldin's research on single mothers came from her own upbringing. Hauldin's past research include the experiences of LGBTQ+ students, and Haitian and Jamaican students at Florida State University. Some of Hauldin's research interests include intersectionality, race and ethnicity, ability, socioeconomic status, gender and sexuality, and societal representation. After her undergraduate career, Hauldin will serve with the U.S. Peace Corps in Mongolia as an education volunteer. She hopes to continue research by enrolling in a graduate program and pursuing a Ph.D. with a focus on sociolinguistic or medical anthropology.

Discussion Questions

1. How can we continue the conversation on single motherhood, both in academia and in the global narrative of motherhood?

2. How is the perception of single mothers in your culture?

3. How does the intersectionality of identities such as ethnicity, ability, age, and socioeconomic status affect the treatment of single mothers in your culture?

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Personal Branding: An Essential Choice in the COVID-19 Era?

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Abstract

Everyone has a personal brand, whether one knows it or not. Understanding what a brand can do will help one to figure out what one's brand is and take control of it. The development of a personal brand does not come over night, and there are steps to create a true, strong brand. At the core of this is knowing what drives the person, including his or her values and passions in life. The job market is changing, and employees are switching jobs more frequently. COVID-19 changed how employers, employees, and consumers view work, leisure, and consumerism. This underlines the importance of personal branding. In the future, not having an established personal brand may not be an option.

Keywords: personal branding, COVID-19, personal branding mavericks

What is Personal Branding?

Personal branding is a misunderstood art. To understand personal branding, one needs to understand the idea of branding in general. The American Marketing Association defines brand as, "a name, term, design, symbol or any other feature that identifies one seller's good or service as distinct from those of other sellers" (2020, n.p.). According to research from the Kellogg School of Management, "a brand is the psycho-cultural associations linked to a name, mark or symbol associated with a product or service" (Kellogg, 2010, n.p.).

This means that every person already has a brand. What they do to build, change, and add to it is up to that person. Rangarajan et al. (2017) asserted that a personal brand results from personal qualities, past experience and development, and communication with others. For this article, we define personal brand as someone's reputation and image with a unique value proposition, and personal story. Tom Peters first coined "personal brand" in his article *The Brand Called You* (1997). He suggested that people learn from consumer brands, on what it takes to stand out and prosper in the marketplace. Peters helped the world see that a well-known brand functions the same way that someone's personal brand would work, like brands such as Coke, Pepsi, and Apple. A good way to start thinking about a personal brand is to ask the same questions brand managers of these top brands are asking themselves. For example, "how can we make our product or service different?" Peters (2016) argued that companies have been able to create their brand by using a model called "feature benefit": every feature they offer in their product or service yields an identifiable and distinguishable benefit for their customers. In the end, he tells us that being the head marketer for the "brand called you" is the most important job that has become inescapable.

Importance of a Personal Brand

The defining moment for brands arrived in 1988 when Philip Morris purchased Kraft for 12.6 billion U.S. dollars – six times what the company was worth on paper. "The price difference, apparently, was the cost of the word – Kraft" (Klein, 2001, pp. 7-8). The Chief Executive Officer (CEO) of Sunkist Growers summed it up perfectly when he stated that, "An orange…is an orange…is an orange. Unless, of course, that orange happens to be a Sunkist, a name eighty percent of consumers know and trust" (as cited in Aaker, 1996, p. 1). Due to the complexity and the rapidly changing marketing environment, no matter how strong brands are, personal, companies, or consumer products, it is getting harder to sustain brand competitive advantage (Gringarten, 2018), especially today, with the once-in-a-life-time event of COVID-19. More than four million people around the world reportedly had been infected, and more than 280,000 died by May 13, 2020 (McKinsey, 2020). This has led to rising unemployment and a drastic effect on the economy. Economists predict a drastic decline in the U.S. gross domestic product, which is reminiscent of the Great Depression. Others predict that the unemployment rate will be as high as 32%, much higher than the 25% during the Great Depression (Huddleston, 2020).

Currently, many businesses or professions are being redefined as 'essential' or 'unessential.' Making sure to be an essential employee is pivotal. Having a personal brand is becoming more important than ever before. Being able to highlight the characteristics and strengths of someone's personal brand either will help them show they are essential to a job or will market them to future new employers or customers. During times of uncertainty, a brand – and its reputation – needs to speak for itself.

Having a good personal brand is very important and can create a competitive advantage. The social media examiner states, "The process of personal branding involves finding your uniqueness, building a reputation on the things you want to be known for, and then allowing yourself to be known for them" (Stelzner, 2019, n.p.). A strong personal brand will "advertise" a person to a future employer, customer, friend, or stranger and show all the reasons why investing time, money, or energy with that "brand" would be a great benefit. Once people understand the idea of having a personal brand, they find that many steps exist to get to the final product. Even

then, a personal brand is ever changing and evolving. Personal branding has many phases. Each stage is as important to the next. The importance of a personal brand is visible through the journey to develop it, the decisions that individuals and organizations will make because of it, and the connections that it will create.

Developing a Personal Brand

Successful branding, personal or otherwise, depends on differentiation and positioning of the product. Kotler and Keller (2016) define positioning as arranging for a product "to occupy a distinctive place in the minds of the target market" relative to competing products (p. 275). Avis is a classic example of successful positioning. Prior to launching its "We try harder" campaign in 1962, Avis had been a money-losing operation during the previous 13 years. By relating itself to industry leader Hertz, while proclaiming it tries harder because it was "number two" in the car rental business, Avis was able to make a profit and triple its market share (Ries & Trout, 1986). Many times, when embarking on developing a personal brand, people may feel they know who they are and what their brand is. It is difficult to define what someone's own personal brand is, although everyone has one, whether they know it or not. According to Chritton (2014), "Your personal brand is your legacy, it's the way others remember you through your actions, your expertise, and the emotional connections you make" (p. 8). Someone's personal brand is what is being said about them when they leave a room. It is the energy the person brings, in everything he or she does. A personal brand comes out in professional and day-to-day activities. A personal brand needs to be authentic to each person and what they value in life. If someone tries to create a brand that exudes love for healthy eating and positive vibes but he or she does not care about what food he or she eats and is constantly in a bad mood, eventually that will shine through. Taking the steps to discovering your brand is the first phase of developing a good personal brand.

Castrillon (2019) asserted that in order to grow a brand's reputation, the first step is to establish the strategy and message. Then, the brand has to show its "proof" as to why it should be trusted, which, in turn, builds the brand's reputation in the long run. These "proofs" need to be consistent for as long as the brand is "alive." When developing a brand for a company, that company emphasizes the qualities and differentiators to the public. The journey of defining the brand is key to the process. Knowing what gives people purpose and drives their passions will help to define what is important to them and what they value. This is the "why." Next, a person must spot his or her target audience. Chritton (2014) asserted that, "not everyone needs to know about your personal brand" (p. 41). This is important to understand. Just because a personal brand is developed and understood does not mean the person's "brand" is targeted toward, or has any influence on, or relations to, a specific target market. Hence, certain people. An example could be how a young mother decides she wants start to volunteering at her child's school and wants to make sure the other parents and teachers trust her and give her this responsibility. She will want to make sure she creates that brand of love, trust, and care not just for her child but also for children in general. She wants to make sure to target the parents as well.

The next step is getting to know your competitors. Knowing the target and who is also targeting them can help define what to highlight to make the brand stand out. It is always important to know and analyze your competition, hence, other "competing brands." The brand is not going to be the best in every category, but knowing the competitive advantage it has, compared to another product, will help to build that brand's sustainable, competitive advantage.

Next, constructing a personal brand profile is important and useful for making decisions dealing with the brand. Having this, "will help pinpoint your unique promise of value and write a statement that succinctly expresses your brand" (Chritton, 2014, p. 22). This profile truly will become a document for reference whenever making brand decisions. Knowing what drives someone and what is important to them will help make decisions about what truly expresses the brand. Knowing the target market will help define where to spend money or effort investing to build a following or best show the brand. Last, knowing the competitors and how this brand is different will help guide the person in building and sustaining his or her brand mantra. This brand profile takes all the steps of development and makes it a polished, easy way to express and handle the brand.

Social media and the internet are connecting the world as never before, and market forces influence is light speed. Ideas of success and happiness are constantly on everyone's mind, and this can sway someone's decision. Knowing what your driving force is will help to make better "your brand" and personal decisions. For some, having a job that pays the bills and allows them to travel and do nice things is their driving force. For others, thinking they need to have a certain job to prove they are successful is important. The idea of defining a personal brand can help in this situation. If people realize what their driving force is and what they value, they can choose a career that will go hand-in-hand with their values and eventually make them successful not just within their career but also in life. The core of developing a person's brand is figuring out his or her values and passions (DMI, 2019). Even if a personal brand never yields a monetary profit, it is important to know these values and passions in order to live a fulfilled, happy life.

Examples of Personal Branding Mavericks

The next section showcases four personal branding mavericks who have shown over time how to start, develop, and grow a personal brand. In the end, all of them have found their passion and have created a career out of that. Their brand stays true to who they are, so their audience can relate to, and trust, the brand.

President Trump: "Make America Great Again"

Donald Trump's presidential campaign took a different approach than many. Although most would have never thought he would get as far as he did, let alone win the presidency, President Donald J. Trump is a great example on how to create such a strong personal brand. President Trump has always been consistent with his voice. Although he has gone back and forth on issues in the past, his delivery has stayed constant (Patel, 2016). For a personal brand, the audience needs to know what to expect, and he has established that. President Trump knows how to stay relevant and talk to his audience, whether they are supporters or not. Having people talking about a person, or his or her brand, brings awareness and causes others to create their own content about the brand. This helps to enhance the brand as well. Last, he is authentic. A lot of people in the U.S. have resonated with this atypical candidate and president because he does not sugar-coat his points (Patel, 2016). The world knows he will share his thoughts and mind, and we can expect that day in and day out. Being real for your audience makes them trust what you are saying, whether they agree or not. Brands need to be authentic, and President Trump is as authentic an American brand as they come. His brand continuously represents the image of God, family, and country, and this resonates well with the U.S. public.

Michael Jordan: "Air Jordan"

Known as the greatest basketball player of all time, Michael Jordan changed the way the game was played with his "winning" mindset. He was going to do whatever it took to win the game, whether that was with his teammates or alone. This helped him get a contract with Nike for a sneaker line called Air Jordan (Legends Profile, 2017). His personal brand was so strong that consumers believed if they had his shoes, they could be "like Mike." In the ESPN documentary *The Last Dance,* Michael Jordan talks about why he did not endorse a politician during his playing career. He said, "Republicans buy sneakers too" (n.p.). Although he says that this was probably selfish, he felt that he was not an activist, he was a basketball player. He was focusing on his craft and his brand, and knowing that his audience was bigger than just supporters of this politician, he felt that to not tarnish the brand, he had to stay neutral (Washington, 2020). This is a true example of a focused personal brand that truly was just Michael playing his game and perfecting his craft that turned him into an inspiration and role model for many.

Richard Branson: "Virgin Empire"

Richard Branson truly has helped to define what a personal brand is. From the beginning, he has been fun and adventurous, and has had a daredevil attitude (Joshi, 2018). He has put this energy into all he does, and this has helped to create the brand that is Richard Branson. He knows who he is and what his followers like to see. With more than 400 companies, we cannot define Richard Branson by one accomplishment (Joshi, 2018). He has proven that whatever he puts his name to, people can trust it, and it will be successful. People like to know that there is a real person behind a brand they can relate to. By Richard Branson having such an active role in the media presence of the Virgin companies, he is associating his brand with the Virgin group, while helping sustain an image of fun, adventurous, and personable, "a champion for innovation and disruption" (Joshi, 2018, n.p.). Branson has found a way to positively change and disrupt industries, and that has been consistent. Whether he is starting a new company, posting in media, or leading a conference, his energy and voice are consistent, and that is what keeps his audience coming back for more.

Elon Musk: "Tesla"

Elon Musk is a perfect example of how to create and maintain a personal brand. Although people may know him most now for Tesla, he also was an engineer with PayPal. Someone who is intentional about his or personal brand knows that what he or she does cannot define him or her. A career can change at any moment. A strong personal brand will "speak to who you are and what you do" (Sutton, 2017, n.p.). What Elon Musk does is find passion projects that he can focus on and change the world with. Because of this, the personal brand that is Elon Musk is relatable and inspirational, and it makes his audience want to engage with it. His most recent passion project has been with NASA. As the CEO of SpaceX, he made history as a private enterprise, working with NASA, to resurrect the space program and to launch two astronauts into Earth's orbit (Duffy, 2020). By aligning his brand with his companies, and converting exciting vision into reality, while executing highly successful and innovating projects, along the way, he helped create the tremendous brand named Elon Musk.

Decisions Made Because of a Personal Brand

Consumers today are overloaded with information and rely on brands to minimize the decision making process and to simplify their lives. In essence, branding is more important than ever when it comes to making decisions (Gringarten, 2018). In life, individuals and organizations make decisions constantly, and every moment of life is filled with decisions. Having a personal brand will not mean that people will make all the "right" decisions, but knowing what the "right" and "wrong" decision is and knowing its effect on the personal brand is important. Knowing that one decision versus the other will have a positive or a negative impact is key. Knowing a brand and its strategy will help the decision-making process going forward.

Each industry, job, and company looks for different traits in someone they want to work with. Whether someone is looking for clients or interviewing at a company, having his or her personal brand shine through is important. According to Castrillon (2019), the average person switches jobs every two to three years, and by 2020, freelance and contract workers will make up 43% of the U.S. workforce. He asserted that workers need to be able to "clearly communicate who they are and what they do to stand out to prospective clients and employers" (Castrillon, 2019, n.p.). Workforce requirements, demographics, and requirements are changing rapidly, and the way to be able to secure the work they want is by having their personal brand show they are the right person for the job. Nowadays, because of search technology and social media, internet presence is very important. A personal brand does not need a resume showing all the accomplishments, but to show more the energy and value this person will "bring to the table." It is important to show that someone is hardworking, dedicated, and invested in their success.

Having the purpose and mission is what will help drive the right choices for the brand. Each person needs to know who they are speaking to and what will resonate with their target market. Knowing this will help guide decisions they make when posting, how they spend their time, and what they decide to identify with. If someone's brand is trying to communicate that they care for the environment and helping protect it, they should align their work and leisure time with their brand message. Showing that this person volunteers and takes action to help the environment, and pushes others to do the same, will show this person is true to what his or her brand is showing.

Every decision a person makes defines his or her personal brand. Everyone already has a personal brand. If thought goes into every decision they make and the choices truly reflect the person, they will have all the tools they need when they are trying to position their personal brand. Every person and his or her brand is unique, with its qualities and skills they offer, but in the end, staying "on brand" is one of the most important factors to being successful.

Digital Personal Branding

Many ways exist to look at personal branding, but in the end, it is a way to connect with others. Social media has become a way for people to develop and grow their personal brands. Often, people do not realize what they are putting out on social media can help to define their brand or hurt it. Putting the control in the hands of each person can either be a kick start to a great brand or too much power given to someone who does not know how to use it correctly. The array of platforms available such as Twitter, Instagram, and LinkedIn present the opportunity or threats for all the different audiences and type of content that people can share with the world. Burns (2019) asserted that with almost 4.4 billion users on the internet, it is obvious now more

than ever that having a presence on the internet, represents opportunities and threats. These opportunities or threats can be with new customers, partnerships, and business growth. Having this presence will allow for individuals and organizations to make these connections. Knowing the brand and the target audience will help to define some digital brand strategies. Each social media platform has its features that, if individuals and organizations use correctly, will help the brand. Creating the right content and engagement is also important to note for digital strategies.

If there is a strong personal brand that a company identifies with, many times, it will want to work with this person to grow his or her brand as well. These partnerships are just one of the ways to connect. Having a following, whether on social media or other media outlets, can make that person very attractive to a company that wants others to know they believe in the same things. On another note, this strong brand can help secure a job offer. A personal brand "needs to be consistent in how you communicate" (Orlic, 2016, n.p.). If part of someone's brand is being professional and respectful, this will translate in the clothes they wear and their posture and body language. People can make connections virtually but also physically. Making sure to own the personal brand, and show that, in everything one is doing will help to create connections along the way. These connections can come from someone identifying with the brand or because they respect what the person is doing with his or her brand. Having this reputation online and in person will generate these connections and opportunities to connect with others who can help future successes. In the end, a personal brand is all about how well you control your brand, hence, your destiny.

Conclusion

In conclusion, many reasons exists as to why developing a personal brand is important. There are the obvious ways, which would be to help grow a business or get clients for a personal business; then, there are other ways that will apply to a person's life in general. The process of this development goes further than "success" in a business. Knowing the core of someone's persona will help him or her decide what to dedicate his or her time to and make the right connections in his or her life. Tom Peters (2016) reminded us that we are all "a brand." He talks about how everyone has his or her own brand, and that is the best part about this idea of personal branding. The story will always be unique and different if the person is authentic to whom he or she is. Everyone loves a story, and the best part about a personal brand is that the story never ends. Every day is a new chance to make a new change and grow the brand. Your brand!

A personal brand evolves with the person. As people mature, they change their opinions because of experiences or learning new things or information. Being authentic and showing these changes will help make others relate to the brand.

In the end, whether someone uses his or her personal brand as a tool knowingly or unknowingly, knowing who you are and what you bring to the table is important. Over the years, a person's personal brand has become more and more accepted practice and important. As Tom Peters, the father of personal branding, said, "It's that simple – and that hard. And that inescapable" (p. 120). In the future, not having an established personal brand may not be an option.

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Discussion Questions

1. What is your definition of personal brand? Compare it to existing definitions.

2. What are the main personal brand elements that can help differentiate your brand from others?

3. Do you think personal branding is important? Rationalize your answer.

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Analysis of Domestic Energy in the United States in the Past 31 Years

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Abstract

Over the last century, we face a rising problem in energy availability for the modern world. Currently, the United States is producing more energy than it ever needs, but is this enough to successfully fuel the country? Throughout the last 31 years, alongside the population expansion of the United States is a rising need for energy. The United States is consuming more energy, and there might even be a disconnect between how much energy the United States produces and how much it consumes. An even greater disconnect is evident between the type of energy the country is producing and the global trend of producing and using renewable energy methods. This study analyzes the data on consumption and production of total primary energy, total fossil fuels, and total renewable energy sources between 1988 and 2018 from the United States Energy Information Administration (2020) website. The analysis shows that based on t test sample mean comparisons, renewable and non-renewable energy sources consumption and production vary significantly. Through regression analysis, all variables show an increasing trend over the past 31 years. The results of the study show that the United States still is greatly dependent on the energy methods of previous generations, instead of cleaner energy methods of the future.

Keywords: domestic energy, renewable, non-renewable, energy consumption, energy production, energy source

Introduction

Is consumption of energy sources in the United States the same as domestic production of energy? We believe that in the last 31 years, the consumption of domestic energy is equal to domestic production. If these do not show themselves to be equal then the United States could be facing a problem in the future. With consideration to changing political climates, a shortage of available energy could exist, leaving the United States in the dark. Most of the usage of energy in the United States is between the transportation and industrial sectors. Using a combined 54.6 quadrillion British Thermal Units (BTU) in 2018, these two sectors result in 72 percent of the energy use in the United States. What would happen if we no longer had easily accessible transportation, or no longer had the ability to power all other domestic industries that rely on our energy? These are problems the United States could potentially face if it relies on imports and external energy producers, especially with the world moving away from nonrenewable sources, and transitions to using renewable energy production (Davey, 2017).

The present research could help society, and potentially open its eyes to the future. It could not only refocus the energy sector to alternative sources of energy but also have it create more energy in-house and be sustainable. As for the general community, this could cause a shift in consumer energy production, meaning there would be more everyday people creating and using their own energy for residential and personal use. We note these trends even today (Energy.gov, March 21, 2020). Electric and hybrid cars are noticeable in the market, and while this does not make the people who use them energy independent, if consumers started to produce their own energy with the increasingly popular solar option (especially in southern states) then they can be well on their way to reducing their dependence on external energy. Based on these promises, this study analyzes the non-renewable and renewable energy consumption and production in the United States from 1988 to 2018. The following section describes previous studies on the topic. Then, our own research, hypotheses, methodology, results, and discussion of the findings for future studies follow.

In this study, Primary Energy represents both renewable and non-renewable sources, before any transformation occurs. The Fossil Fuels variable includes coal, petroleum, nuclear, and natural gas, and is an integral part of Total Primary Energy. It is the largest subset inside of Total Primary Energy. Renewable Energy includes sources such as solar, hydroelectric, and wind energy.

Literature Review

Several studies exist relating to energy. As the population grows, energy needs of the United States grow over time, and a market share opens for domestic producers, or foreign exports, to fill. With advancing technology, the present is an optimal time to fill the gap with renewable energy sources. However, due to the decentralized federalist government of the United States, it is a more difficult process. State policies are easier to implement though, and innovation emerges at the state level before it normalizes at the federal level (Karapin, 2019). An example of this is evident around the 2016 election in the United States. Before the election, from mid-October to early November, the stock prices in the renewable energy industry held stagnant. Immediately after the election, with an upcoming change in the political climate, the industry saw a rough 2 percent drop in its stocks across the board. This same drop was not evident across other industries, though, as we observed increases in major stock indexes over the

next few days (Aklin, 2018). While it is important to note that political conditions can limit both renewable energy policy and energy policy entirely, this study focuses on the economic implications.

The political climate influences energy imports and exports that are a variable in the United States economy and can have a towering effect on how much energy the country produces domestically, and how much it brings in from elsewhere to meet demand. This study analyses the historical data involving just production and consumption domestically, and this information can be valuable when analyzing how much energy the United States will gain or lose with international trade. At the beginning of 2020, the United States set a record reaching back four decades, in which the value of energy exports exceeded energy imports for the first time since September of 1973 (EnerKnol Pulse, 2020). Going forward, the United States can become a self-sustainable entity in terms of energy.

Consumption is often a driver of production of any good or service, hence supply and demand. In 2018, the consumption sector for energy in the United States increased by 6 percent, reaching a value of $1,560.6 billion. Looking ahead, the forecast is that this number will reach $1,972.7 billion by 2023, rising 26.4 percent from 2018. Similarly, in the year 2018, the power generation industry in the United States reached a value of $521.9 billion, a 5.3 percent increase. The industry projection is for this number to increase by 5.7 percent between 2018 and 2023, arriving at $551.8 billion (MarketLine, 2019).

These studies indicate that analyzing the past consumption and production of energy sources is valuable for consumers as well as policy makers. So, the research question is whether a gap exists between consumption and production of non-renewable and renewable energy sources and how future direction can help to develop policies to mitigate the gap.

Thus, we develop the following research hypotheses.

Research Hypotheses

With a rise in population, realistically there should be a rise in the amount of both energy consumption and production. If the United States wants to be self-sustainable, it should be producing at least the same amount of energy it is using. Comparing Total Primary Energy Consumption and Total Primary Energy Productions, the study seeks to test if these two variables are the same; however, previous studies may indicate otherwise.

Thus, the following.

Comparing Consumption to Production

H1: A significant gap exists between the mean production and the mean consumption of Total Primary Energy (renewables and non-renewables).

Total fossil fuels constitute a large portion of total primary energy sources. So, like total primary sources, the expectation is for a gap between consumption and production of these sources. Therefore,

H2: As Fossil Fuels take a large portion of the Total Primary sources, the mean production and the mean consumption is expected to differ.

Renewables, in contrast, constitute a small portion of total primary energy sources. Is there a balance between consumption and production of renewables?

So, we compare the production and consumption for renewables.

H3: The mean production and consumption of renewables is the same.

While it is well known that countries have yet to transition totally to renewable energy, has the United States reached a level of consuming the same amount of renewable energy and fossil fuel energy? As literature suggests, the expectation is for a gap. Hence, the following.

Comparing Consumption of Renewable and Non-renewables

H4: The mean consumption of Total Fossil Fuels (non-renewables) is not same as the mean consumption of Total Renewable Energy.

The United States would be unable to consume renewable energy sources or fossil fuel sources if it is not producing a similar amount. Over the past few decades, renewable energy sources started to roll out across the United States. From hydroelectric dams to windmills across the plains of the United States, evidence of a growing renewable energy production industry is present, but is it as prevalent as the production of fossil fuels?

Therefore, the following.

Comparing Production of Renewables versus Non-renewables

H5: The mean production of Total Fossil Fuels (non-renewables) is not same as the mean production of Total Renewable Energy.

Finally, if the United States still is relying on fossil fuels to fulfill its growing energy needs, is it at least producing the amount it needs by itself? So, the expectation is for an increasing trend.

H6: Total Primary Energy Production and Consumption increases over time.

In contrast, with the innovation and social problems in the world today, most countries transition from using the fossil fuel sources from the last century to the renewable energy sources of this century. With the promising changes in the most recent years, the expectation is for renewable energy production as well as consumption to rise. So, we test the following.

H7: Total Renewable Energy Production and Consumption increases over time.

Methodology

This study uses secondary data, curated through online databases and government websites. The data for legacy fuels goes back into the 1970's, and even the late 1950's for some fuels. All data came from www.eia.gov (2020).

Data for these fuels are available in yearly increments, but in recent years, the price reports are quarterly, monthly, and weekly for some fuel sources. To create a uniform data point, we use yearly data. Nonrenewable resources, such as fossil fuels, have more data available. Renewable energy, such as wind, water, and solar, data go back the past few decades.

When comparing across renewable and nonrenewable, the "Kilowatt-Hour" (kwh) variable is most viable, as the costs that go into producing each unique energy source is different. Using kwh, one can see how much it costs to produce a kwh, which is a unit of measurement that assumes a kilowatt is transmitted at a constant rate of power over the course of an hour (equal to 3.6 megajoules).

Analysis uses descriptive and predictive analytics methods. We used descriptive statistics, t test, ANOVA along with regression analysis for predictions. We generated outputs with Microsoft Excel, in conjunction with the Frontline Analytic Solver and Data Mining (Analytic Solver for Excel, Frontline Solvers, Version 17).

Results

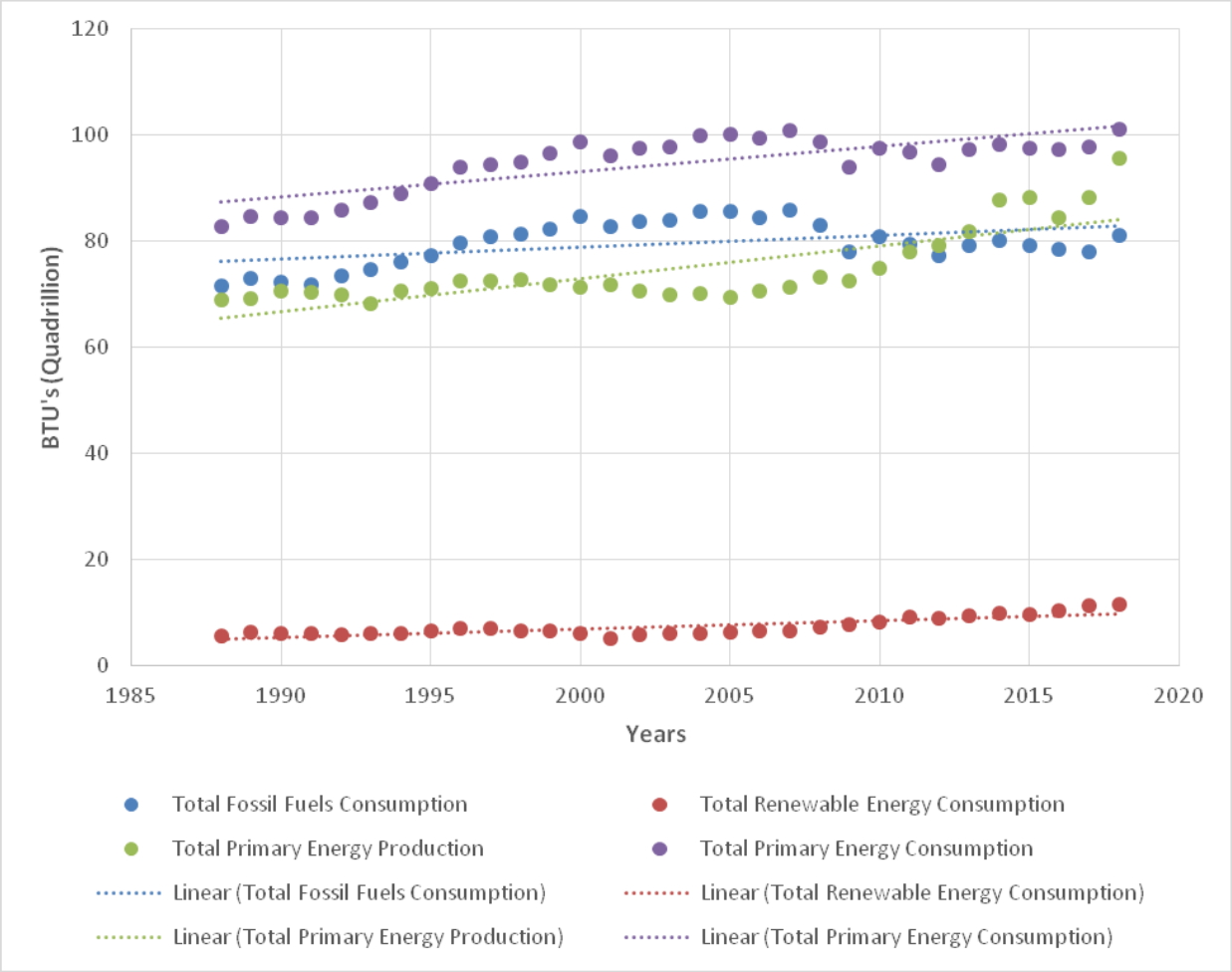
The following sections show descriptive analytics, hypothesis testing based on t test, and regression analysis results.

Descriptive Data Analysis

Before the testing of the hypotheses, we organize data, and check and remove outliers. Figure 1 shows the past 31 years (1988-2018) consumption and production of the total primary, total fossil fuels that is large portion of total primary and total renewables. While total renewables consumption and production is significantly lower than the other energy sources, we also observe that total primary energy production is catching up to the consumption.

Figure 1

All Energy Sources Consumption and Production for 1988-2018



Figures 2-5 show the frequency diagrams of consumption and production of all energy sources for the past 31 years (1988-2018). According to Figure 2, Total Primary Energy Production is positively skewed, with about 75 percent of the data being represented between the 65-74.9 Quadrillion BTUs. Total Primary energy source consumption, in contrast, is negatively skewed, with most of the data falling into the 95-94.9 bin (see Figure 3). This shows high frequency of high volume of consumption, versus production of total energy. Breaking down further the total primary source consumption to fossil fuels and renewables, fossil fuel consumption is slightly left skewed (see Figure 4). Renewables consumption, in contrast, is positively skewed, with over half of the data being attributed to lower volumes (between 5 and 6.9 Quadrillion BTUs) (see Figure 5).

Figures 2-5

Frequency Diagrams of Consumption and Production of All Energy Sources for 1988-2018

Figure 2

Total Primary Energy Production

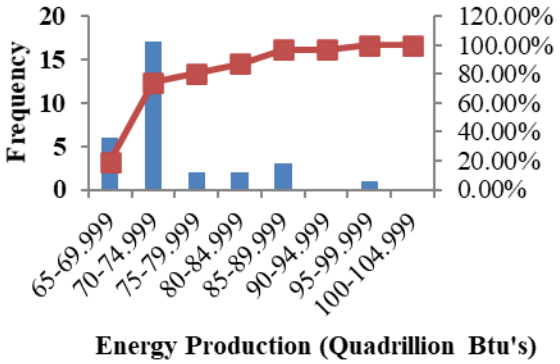


Figure 3

Total Primary Energy Consumption

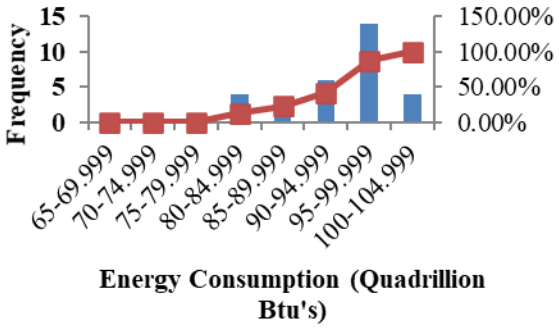


Figure 4

Fossil Fuel Consumption

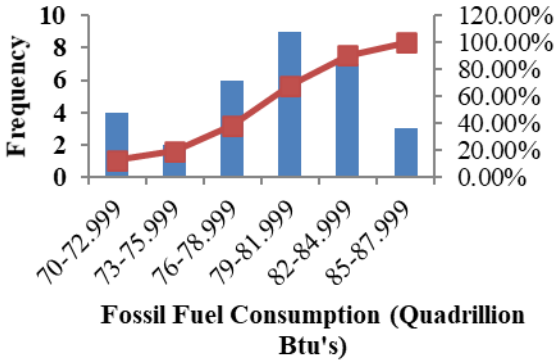
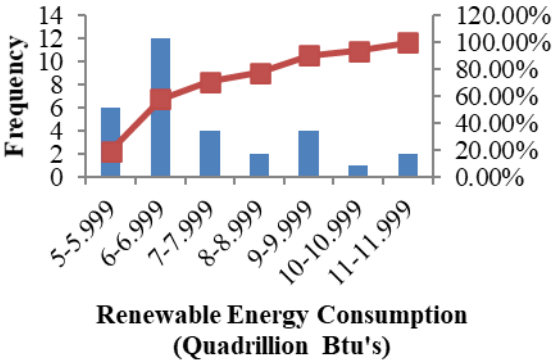


Figure 5

Renewable Energy Consumption



Tables 1 and 2 show the descriptive statistics for Total Primary Energy, Total Fossil Fuels and Renewable energy sources consumption and production values. All data points are in quadrillion BTU. The mean of Total Fossil Fuel Consumption makes up a very large part of Total Primary Energy Consumption. Based on what larger countries, especially the United States, are experiencing now, fossil fuels still are powering most of the country. As Table 1 shows, Renewable energy is still a small amount of Total Primary Energy Consumption; however, when we compared standard deviation to the mean, we found that Renewable Consumption fluctuated more (Coefficient of variation; 0.2430 than the variation observed for fossil fuels or all primary energy (Coefficient of variation: 0.0583).

With respect to production, as Table 2 shows, we detect a disconnect between the Total Consumption and Total Production variables. The mean production of Fossil Fuels and Primary Energy is about 20 (quadrillion BTU's) off comparing to consumption. Additionally, Total Renewable Energy production makes up less than 10 percent of Total Primary Energy Production. This shows a lack of self-sustainability. Similar to consumption, Renewable

production varies more than the production of Total Primary sources. We also detect an overall higher variability in production than the consumption of energy sources. This may be due to the differences among the renewable energy sources as well as the differences over the years, most years, especially after 2019, we observe a slight increase in the production.

Table 1
Descriptive Statistics of Energy Sources Total Consumption

(Quadrillion BTU's)	Fossil Fuel	Renewable	Primary Energy
Mean	79.56	7.31	94.59
Median	79.76	6.53	96.95
Standard Deviation	4.29	1.78	5.51
Variance	18.42	3.16	30.40
Range	14.33	6.36	18.53

Table 2
Descriptive Statistics of Energy Sources Total Production

(Quadrillion BTU's)	Fossil Fuel	Renewable	Primary Energy
Mean	59.88	7.33	74.81
Median	57.87	6.52	71.73
Standard Deviation	5.01	1.81	7.10
Variance	25.13	3.29	50.38
Range	20.56	6.56	27.46

Hypothesis Testing

Based on t test for two samples assuming unequal variances, results show support for H1 with respect to significant difference between consumption and production of primary energy sources ($t=12.25$, $p<=0.00$). Data show that mean consumption of primary energy sources is significantly higher than domestic production of these sources. This proves that we need significant imports.

Comparing the consumption and production of Fossil Fuels alone, data support a significant difference as well ($t = 16.67$, $p<=0.00$). Thus, results show support for H2.

Continuing with Hypothesis 3, analyzing the difference of consumption and production for renewables, t test shows an insignificant difference, as expected ($t = 0.03$, $p>0.10$). Thus, results show support for H3.

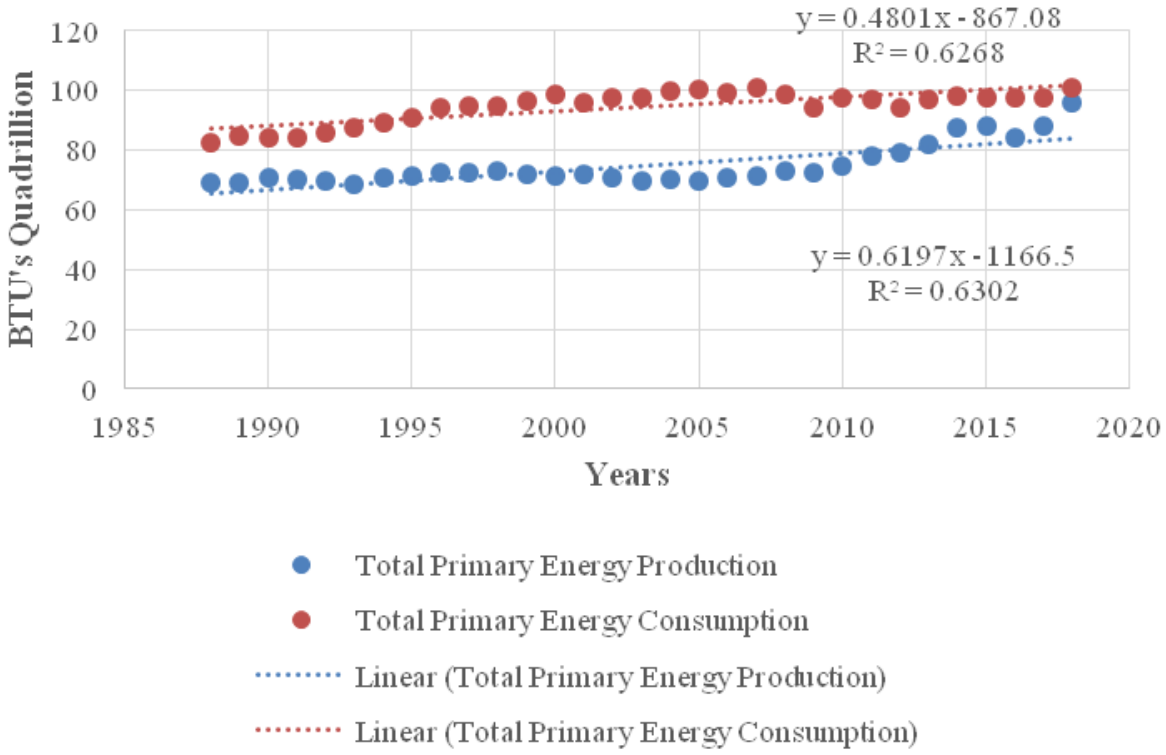
Focusing on the consumption of energy sources, H4 compares total fossil fuel sources to total renewables. T test proves a very significant difference between the mean values (t=86.59, p<=0.000). Thus, results show support for H4.

Comparison of the production of total fossil fuels and renewables for the years 1988-2018 shows a similar outcome as the consumption figures - a very large, significant difference between the non-renewable and renewable mean production values (t=54.89, p<=0.000). Thus, results show support for H5.

Last, the increasing demand for energy calls for an increase in the use of all energy sources, specifically fossil fuels. This also means supply tends to increase. A simple trend analysis showed the significant increase of consumption and production of the primary energy sources (Production: F=49.91, p=0.00%; R-square: 0.63, Consumption: F=48.70, p=0.00%). As Figure 6 shows, for every increase in years, Total Primary Energy Production increases by 0.6197, and Total Primary Energy Consumption increases by 0.4801. Thus, results show support for H6.

Figure 6

Total Primary Energy Production and Consumption Over Time



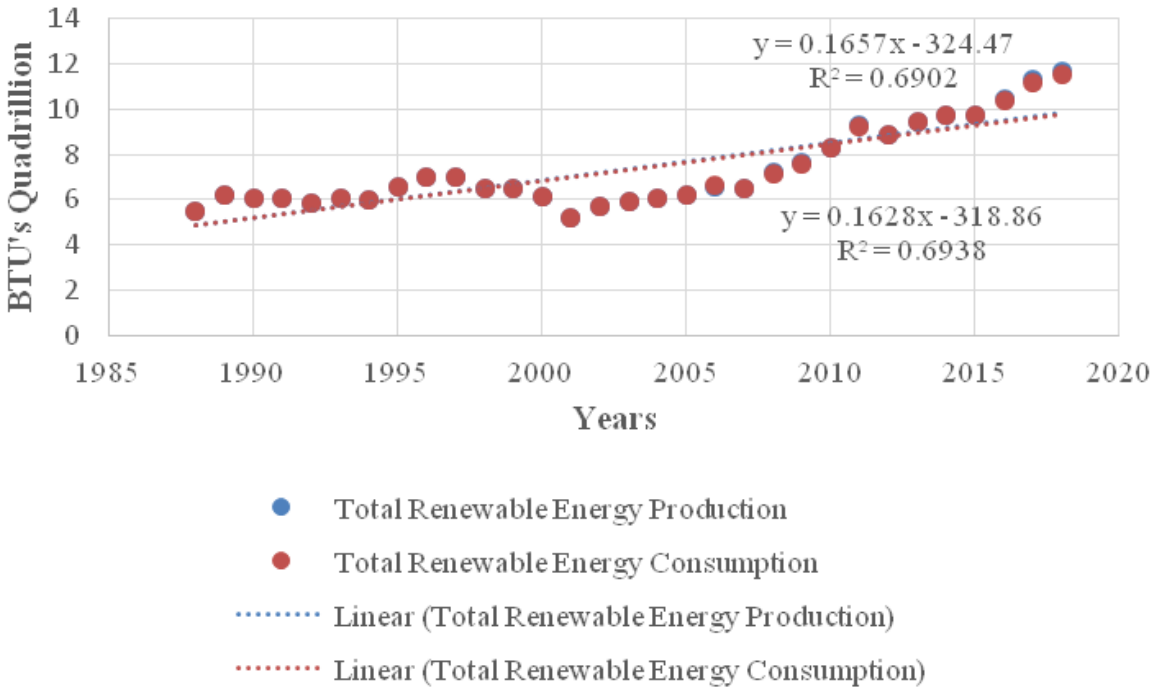
The promising rise of renewables around the world and increasing innovation in renewable technologies is an indication of an increasing trend of the consumption and production of renewables. The simple linear regression proves this. As we see in Figure 7, total Renewable Energy Production and Consumption both increase gradually over time for the last 31 years. Total Renewable Energy Production increases by 0.1657 per year (with R^2 of 69%, F= 64.61, p<=0.00%). Similarly, total Renewable Energy Consumption also increases by 0.1628 for every

increase in year (R^2 of 69%, F: 65.72, p<=0.00%). Thus, results show support for H7.

Comparing to primary energy sources, beta values are much smaller, showing that primary energy sources consumption and production is very disproportional to renewables.

Figure 7

Total Renewable Energy Consumption and Production for 1988-2018



In summary, both regression models proved to be good predictors in respect to year. This included Total Renewable Energy Production and Consumption as well as Total Primary Energy Production and Consumption. As R^2 for all four trend models are over 60 percent, with positive betas, all four models show gradual increases in production and consumption across the board.

Conclusions

This study demonstrates the energy gap is real: The United States is consuming more than it is producing. Thus, the United States relies on imports to fill its needs for energy. Furthermore, instead of relying on more renewable energy sources, the United States still is using more fossil fuels than renewable energy sources. In similar fashion, the United States is producing less renewable energy than fossil fuel energy. Domestic production of fossil fuel energy is lagging consumption as well. With always changing political climates domestically, and around the world, it can be a safety net for a country if it is self-sustaining in terms of energy. If self-sustainable, a country is immune to import and export regulations from its political leaders and other political climates of its trade partners.

Further research may include imports and exports and may explore reasons why there is a deficit in the United States in terms of energy production. Future study can include additional data following 2018 as it becomes available. For the first time in a decade, in late 2019, the United States exported more petroleum energy than it imported. The question is whether this

leading trend will continue beyond 2019. Equally, it is worthy to discover the difference between imports and exports by all energy sources. Researchers can investigate the effect of the political climate in the United States after the 2016 election, and implications in the following years toward incentives for renewable energy.

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Discussion Questions

1. Is the United States trending towards using more renewable resources than non-renewable resources?

2. Has the United States been using imports to sustain their energy usage, or have they been self-sustainable?

3. Is production and consumption of renewable sources generally the same historically?

4. Has energy production and consumption increased as population growth in the United States occurred?

5. Does the United States produce or consume more energy?

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Can General Strain Theory be used to Explain the Relationship Between Recidivism and Secure Placement?

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Abstract

Extensive research has studied recidivism among serious juvenile offenders. The present study examines juvenile recidivism through the lenses of General Strain Theory (GST). Previous studies have used GST to explain recidivism. However, secure placement and its effect on juvenile mental health are not the subjects of much of the literature. The purpose of the present study is to test for a relationship between emotional responses like anger and hostility and secure placement, utilizing the Pathways to Desistance data. I also will examine if anger and hostility act as a mediator between secure placement and recidivism. Pathways to Desistance was a prospective study of serious juvenile offenders in Phoenix, Arizona (N = 654), and Philadelphia, Pennsylvania (N = 700). Specifically, I examined if secure placement, as measured by the length of time spent in a secure facility (i.e., detention center), affects self-reported offending and criminal history. I measured anger and hostility using the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). If results suggested that assigning juveniles to a secure placement does evoke negative emotional responses, which in turn increases the likelihood of recidivism, society needs policy reflecting a more effective deterrent and rehabilitation for juveniles.

Keywords: recidivism, secure placement, juveniles, mental health, general strain theory

Introduction

High rates of recidivism plague the juvenile justice system. This is particularly evident for those youth who are in secure facilities. Research shows that 70-80% of juveniles get re-arrested within two to three years after being in secure placement (MST Services, 2018). Several theories exist that explain these somewhat counterintuitive findings. Differential association theory suggests that juveniles with an assignment to secure placement learn and improve their criminal deviance from the accompanying peers to whom they have exposure. Sutherland,

Cressey, and Lunkenbil (1992) give us four factors related to deviant behavior our peers influence: duration, intensity, frequency, and priority. This theory tells us that the likelihood of deviance relates to one's peers and with whom they associate.

Labeling theory says there are two stages in becoming deviant (Ballantine, Roberts, & Korgen, 2018). The first stage is primary deviance – the first time someone commits a deviant act. In the second stage, secondary deviance, a person continues this behavior as others come to know his or her deviance. At this point, they receive a label, as such, and after receiving this label, the individual continues in his or her deviance. Also, because society members now view the youth differently, conventional opportunities become blocked, and they are at an increased likelihood of seeking out criminal opportunities. Labeling theory, while giving reason for recidivism, does not consider why the person committed the crime in the first place. According to Ballantine, Roberts, and Korgen (2018), it only focuses on why individuals are more likely to be caught and punished for deviance. These two theories concentrate on one's deviance as it relates to his or her relationship with people and his or her position in society resulting from juvenile justice involvement. However, these two theories do not address the possibility that high rates of recidivism may be due to a person's mental or emotional response to secure placement.

One theory people do not typically use to explain high rates of recidivism among youth experiencing incarceration is general strain theory (GST; Agnew, 2006). Importantly, GST also may help to explain the role that negative psychological responses play in the link between secure placement and recidivism. In his theory, Agnew says that offending results from inappropriate coping mechanisms due to negative experiences (i.e., sources of strain). Therefore, anger-hostility would be the response to the negative experiences of a secure placement (e.g., poor treatment, mental and physical abuse, separation from family and friends), and recidivism would be the coping mechanism. Thus, it seems somewhat intuitive to apply this theory since incarceration might place undue strain on juveniles.

On the one hand, research consistently finds that mental health diagnoses are high among juvenile justice-involved youth (Alessi, McManus, Grapetine, & Brickman, 1984). While many of these youth come into the system with mental health issues, Lambiei and Randell (2013) also suggest that system contact can have adverse effects on the mental status of youth. In turn, this may be one reason for the high rates of recidivism among juvenile offenders. For instance, research has found that youth with higher rates of mental health diagnoses (e.g., bipolar disorder, depression, and conduct disorder) are more likely to recidivate (Yampolskaya & Chuang, 2012).

GST proves to be applicable in the explanation of recidivism along with the high rates of mental disorders reported among juvenile justice populations. However, few studies have directly tested this as a possible explanation for why secure placement lead to higher rates of recidivism (Ackerman & Sacks, 2012). The current study attempts to examine this among a sample of serious juvenile offenders. The goal of the present research is to identify mental health and emotional responses, namely anger-hostility, as a mediator between the duration of secure placement and its effect on the likelihood of a justice-involved youth recidivating**.**

Literature Review

The Effects of Secure Placement on Recidivism

Various ways of experiencing secure placement can affect one's likelihood of recidivism. Secure placement could be a strain on the offender to which youth have an emotional response

that, in turn, causes them to recidivate. Plenty of research has centered on the negative influences of secure placement on juvenile justice outcomes such as subsequent offending (i.e., recidivism). According to Fagan and Piquero (2007), because adolescence is a developmental period in which psychological, social, and biological changes occur, secure placement can have serious consequences on youth development. In their study, they examined factors, like legal socialization, that influenced recidivism among adolescent felony offenders. Legal socialization is the internalization of law, rules, and agreements among members of society. The legitimacy of authority to deal fairly with citizens who violate society's rules and includes two distinct dimensions that reflect different perceptual frameworks for how adolescents evaluate law and legal institutions (Fagan & Piquero, 2007). Legal sanctions and punishment, such as receiving an assignment to a secure facility, also influence it. Fagan and Piquero (2007) found that receiving placement in a secure facility will affect a juvenile differently than a fully developed adult with regard to legal socialization. Fagan and Piquero's sample included the 1,354 adolescents, ages 14 to 18, (1,170 males and 184 females) that were part of the Pathways to Desistance study. Pathways to Desistance was a prospective study of serious juvenile offenders in Phoenix, Arizona (N = 654), and Philadelphia, Pennsylvania (N = 700). Specifically, the researchers examined if secure placement, as measured by length of time spent in a secure facility, affects self-reported offending and criminal history. They also examined if mental health, maturity, and substance dependency modified these associations. Modification is the idea that the characteristics of an individual in the sample has an impact on the way the independent variable affects the dependent variable. By controlling for these measures, Fagan and Piquero are accounting for individual differences among participants that could otherwise skew results. According to their results, processes of legal socialization influence patterns and trajectories of self-reported offending and are a significant predictor of aggressive offending. The way criminal justice actors treat juvenile offenders directly affects the variation of their offending patterns over time. Thus, their findings establish a relationship between secure placement and recidivism.

The Effects of Secure Placement on Mental Health

Secure placement also can be a factor in an offender's mental health development. Being cut off from family and friends would be what Agnew (2006) says is losing something he or she values. Bonds with people we care about help shape who we are as a person and reinforce our sense of self. Youth in secure facilities are likely to feel cut-off from those to whom they are close to (e.g., family, friends, teachers) while experiencing negative treatment by others (e.g., correction officers, judges, and possibly their fellow offenders). These experiences are likely to result in negative emotions (e.g., anger, sadness, anxiety, etc.). A study by Alessi, McManus, Grapetine, and Brickman (1984) focused on the identification of depressive disorders (major and minor) in a sample of juveniles incarcerated for serious offenses. They also examined the relationship between diagnosed depressive disorders and several measures of severity of delinquency. Their sample comprised of juveniles, ages 14-18, housed in the training school system in the State of Michigan (male, 40; female, 31). Researchers then compared the sample to the results of a previous study by Strober, Green, and Carlson (1981) to provide a psychiatrically hospitalized comparison population (40 subjects; male, 12; female, 28). Researchers evaluated both samples using the same methodology. Alessi, McManus, Grapetine, and Brickman (1984) used the Schedule for Affective Disorders and Schizophrenia (SADS; Spitzer and Endicott, 1978) and the Research Diagnostic Criteria (RDC; Spitzer, Endicott, and Robins, 1977) to

diagnose depressive disorder. The SADS and RDC tests contain a collection of psychiatric diagnostic criteria and symptom rating scales. Researchers often use them in conjunction with each other and find them to diagnose affective disorders in adolescents reliably. Of the juveniles with major depression disorder in each sample, one third of the hospitalized population was endogenously depressed, versus one half of the incarcerated population. The findings of Alessi et al. (1984) indicate that significant differences exist in the way in which major depressive disorders find symptomatic expression in delinquent versus psychiatrically hospitalized adolescents (p. 14). Researchers also found that secure placement, even compared to other forms of placement, can have detrimental effects on youths' mental health. With these results, it is safe to assume some connection exists between secure placement and mental health and emotional response.

The Effects of Mental Health on Recidivism

Emotional responses to secure placement, such as anger and hostility, could be a significant predictor of an offender's likelihood to recidivate. According to GST, crime can be a coping mechanism for certain strains, especially when anger is an emotional response. Juveniles are already higher in negative emotionality, quick to anger, or easily upset (Agnew, 2006), which increases the likelihood of a negative emotional response, versus an adult. Also, research already has established that a longer time in secure placement can increase the negative effect it has on one's mental health development. This increased anger and hostility could be the link connecting the strain of secure placement and the response of recidivating.

Yampolskaya and Chuang (2012) also examined the influence of mental health on recidivism with juveniles placed in out-of-home care. The sample of juveniles came from reports of maltreatment in the Florida Statewide Child Welfare Information System (Home SafeNet) and the Florida Medicaid claims databases. The goal of the study was to identify predictors of juvenile justice involvement and recidivism. These 5,720 juveniles had a placement in out-of-home care, and researchers followed the youth in the study for a 24-month period beginning from the point after which the child was removed from his or her home. Researchers found that those who did not have a mental health diagnosis had a 3.6% chance of experiencing a first secure placement (a detention center or a juvenile justice facility), and those that did had a 16% chance. Mental health disorders measured included bipolar disorder and substance abuse disorder (85% more likely), depression (72% more likely), and conduct disorder (5 times more likely). This suggests a positive correlation exists between a juvenile's mental health and his or her chance of becoming involved in the juvenile justice system. They also found a positive correlation between mental health disorders and recidivism. There were 250 (81%) juveniles sentenced to secure placement who subsequently exited that placement during the study period. Researchers used this group as the cohort, to identify the factors influencing recidivism. Of this subset, 59% recidivated, and 42% had a mental health disorder. Researchers found those with a mental health disorder were more likely to recidivate than those without. Overall, their results concluded that, compared to children who did not have an identified mental health problem, children who did have mental health disorders were 81% more likely to recidivate. This establishes a juvenile's mental health as a significant predictor of his or her recidivism as it relates to receiving an assignment to a secure placement.

Does Anger Mediate the Association between Secure Placement and Recidivism?

The literature this researcher reviewed previously examined the connections between secure placement and recidivism and mental health. Without question, all three are connected. However, few studies have looked at mental health and emotional responses as a mediator between secure placement and recidivism. Although not analyzing a sample of juvenile offenders, Ackerman and Sacks (2012) assessed the recidivism of sex offenders in the context of General Strain Theory. Using OLS Regression, their goal was to predict overall recidivism, as well as sex, violent, drug, and property recidivism, with two models each. While controlling for age, gender, and time on the registry, they also measured for anger and depression and how that influences the effect of strain for each prediction model. The results for general recidivism found that those high in anger were more likely to recidivate and those who were high in depression were less likely. Strain was a significant predictor for recidivism, which was more likely among those reporting higher levels of strain. The sex crime results were similar to general recidivism in that strain increased the likelihood of reoffending. For violent, drug, and property recidivism, the results suggested the same thing. The first models showed that stain increased the likelihood of recidivism, and the second models showed anger to be a positive and significant predictor for recidivism. Overall, Ackerman and Sacks (2012) established a positive correlation between strain and recidivism, with anger being the link between the two.

Current Study

The goal of the present study is to examine the mental health and emotional responses of serious juvenile offenders and to link that to recidivism using GST. The literature this researcher reviewed has established positive correlations between secure placement and recidivism, mental health and recidivism, and secure placement and mental health. Mental health and emotional responses have shown the mediation between secure placement and recidivism. However, the application of this has been either to adult offenders or to juvenile offenders in a context that does not include secure placement as a strain itself. Research and theory suggest that juveniles, compared to adults, are more vulnerable to the negative emotional responses of strain, such as anger (Agnew, 2006) and, in turn, may be more likely to recidivate.

Hypothesis

Based on the research above and GST, I have formulated four hypotheses:

1. Those individuals who experience more time in secure placement will have higher rates of recidivism, compared to those who experience less time in secure placement.
2. Those who experience more time in secure placement will have higher levels of anger-hostility, compared to those who experience less time in secure placement.
3. Those with higher levels of anger-hostility will be more likely to reoffend.
4. Anger-hostility will mediate the relationship between secure placement and recidivism.

Methods

Sample

The data included in the present study comes from the Pathways to Desistance study. The juvenile offenders in the sample are serious offenders (N = 1,654) who range in age from 14 to under 18 years (1,170 males; 184 females). Serious offenses refer to those who predominantly have one or more charges of felonies, with a few exceptions for some misdemeanor property offenses, sexual assault, or weapons offenses. The secure placement facilities to which they have an assignment are in Maricopa County, Arizona (n = 654), and Philadelphia, Pennsylvania (n = 700). In the Arizona sample, male juveniles accounted for 86.4% (565) of the population and female juveniles 13.6% (89). The largest racial-ethnic group representations were Hispanic (347, 53.1%) and White (202, 30.9%). The Pennsylvania sample consisted of 605 males (86.4%) and 95 females (13.6%). Slightly differing from the Arizona sample, the largest representation of racial-ethnic groups was Black (503, 71.9%) and Hispanic (106, 15.1%). For the total sample, the mean age was 16 years old.

Measures

The following are the research study measures. The distribution of the sample on each of these measures is in Table 1.

Secure placement. Time in all settings – Researchers asked participants how much time in the previous six months they were incarcerated. The researchers took this measure at wave one and wave two. Time in without community access – Researchers asked participants how much time in the previous six months they spent incarcerated in a facility that did not grant them community access (e.g., group home, probation). The researchers took this measure at wave one (i.e., the 6-month follow-up).

Outcome. The Self-Report Offending scale (SRO; Huizinga, Esbensen, & Weihar, 1991) – The SRO is a self-report measure of offending based on 24 different types of offenses. Researchers used it to measure the adolescent's report of being involved in antisocial and illegal activities (e.g., in a fight, shoplifted, carjacked). The calculation of this measure is as a proportion. The numerator is the number of different types of acts endorsed, regardless of when it was committed. The denominator is the number of items for which the subject gives either a "yes" or "no" answer. The researchers do not include in the denominator all items the subject refused to answer, replied "don't know," or was not asked. The closer this figure is to "1," the greater the variety of offenses the youth is committing. The researchers took this measure at wave three (i.e., 18-month follow-up) and asked the youth to reference the previous six months.

Mediator. The Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983) – The BSI is a 53-item self-report inventory in which participants rate, from 0 meaning "not at all" to 4 for "extremely," the extent to which they have been bothered in the past week by various symptoms. Its nine subscales assess individual symptom groups including depression (DEP; e.g., "Feeling no interest in things") and hostility (HOS; e.g., "Having urges to break or smash things"). The BSI also has three scales to capture global psychological distress. The researchers gave this measurement test at the beginning of the 'offenders' term, at the end of the term, and at follow-up measurements every six months starting from November 2000 to January 2003. In the current study, the researchers included the 6-month follow-up version in the analyses.

Control variables. Researchers will include several empirically and theoretically relevant variables in the model to rule out other factors.

Demographics. The researchers used four demographic indicators from the baseline interview in this study: age, gender, site, and race. Age is the continuous variable coded as the subject's age at the time of the interview. The researchers coded participants as either male (1) or female (2), and used two sites, Philadelphia (1) and Phoenix (2). I created four individual dummy variables to capture each race-ethnic group: Black (1, else 0), White (1, else 0), Hispanic (1, else 0), and "other race-ethnicity" (1, else 0). Thus, the White category served as the reference group.

Depression. This six-item subscale of the BSI measures signs and symptoms of clinical depressive syndromes (e.g., dysphoric affect and mood, withdrawal of interest in life activities, and loss of energy).

Delinquent peer association. The Peer Delinquent Behavior items are a subset of those the Rochester Youth Study (Thornberry, Lizotte, Krohn, Farnsworth, & Jang, 1994) used to measure the degree of antisocial activity among the adolescent's peers. In this current study, I used the peer antisocial behavior measure. This contained 12 items (e.g., during the last six months how many of your friends have sold drugs?). Scale responses were on a 5-point Likert-type scale ranging from none of them to all of them. The researcher then summed up items to create a total score for peer delinquency.

Parental Monitoring. The researcher adapted the Parental Monitoring inventory (Steinberg, Dornbusch, & Darling, 1992) for this study to measure the parenting practices related to supervising the study participant. The researcher asked preliminary questions to establish the presence of an individual (X) who is primarily responsible for the youth. The respondent's answers to items about his or her current living situation, specifically whether he or she lives with the identified caretaker, establishes the skip pattern followed in the parental monitoring items. The scale consists of 9 items. Five items measure parental knowledge (e.g., How much does X know about how you spend your free time?), and youth answer them on a 4-point Likert scale ranging from "doesn't know at all" to "knows everything." Even if a youth does not live with the person identified as his or her primary caretaker, the researcher asked the youth these questions. If the youth lives with the primary caretaker, the researcher asked four additional items to measure parental monitoring of the youth's behavior (e.g., How often do you have a set time to be home on weekend nights?). Youth answer these on a 4-point Likert scale, which ranges from "never" to "always." The researcher used the average of two sub scores to calculate the scores for this measure.

Maternal Warmth. The researcher adapted the Quality of Parental Relationships Inventory (Conger, Ge, Elder, Lorenz, & Simons, 1994) to measure the affective tone of the parental-adolescent relationship variable in this study. Items the researcher included were parental warmth - mother (e.g., "How frequent does your mother let you know she cares about you?"), parental hostility - mother (e.g., "How frequent does your mother get angry with you?"), parental warmth - father (e.g., "How frequent does your father let you know that he loves you?"), and parental hostility - father (e.g., "How frequent does your father throw things at you?"). The scale contains 42 items to which participants respond on a 4-point scale ranging from "Always" to "Never." There are 21 items to assess the maternal relationship and 21 to assess the paternal relationship. The researcher reverse coded and then summed items to calculate the composite scores. Higher scores on the warmth scale indicate a more supportive and nurturing parental relationship. Higher scores on the hostility scale suggest a more hostile relationship.

Analytical Plan

First, the researcher examined descriptive statistics and bivariate associations between all study variables using correlational (i.e., Pearson's zero-order correlation coefficient) or comparison of means tests (i.e., t-tests, ANOVAs). Second, the researcher tested mediation by following Baron and Kenny's (1986) causal steps approach using regression analysis. The researcher first did this without controlling for other variables and then again controlling for demographic variables, depression, parenting, peer delinquency, and prior self-reported offending. First, the researcher conducted a regression model in which BSI anger-hostility was regressed onto secure placement. The researcher conducted a second stepwise regression model to assess the mediation of BSI scores on the relationship between secure placement and recidivism. In the first step, the SRO at the 1.5-year follow-up was regressed onto secure placement.

Then, scores from the BSI stepped into the model. In order, to determine if mediation occurred, I observed the change in the coefficient and p-value of secure placement from step one to step two. If the p-value was reduced to non-significance in the second step then full mediation was the outcome. If the coefficient for secure placement was still significant, but the size of the coefficient was reduced, then the researcher determined partial mediation to be the outcome. However, if the coefficient remains the same, then I concluded that no mediation occurs. The researcher then repeated this procedure while including control variables at each step.

Results

Descriptive Statistics

Table 1 gives a summary of all the measures in the study and at what point the researcher measured them, in six-month periods. At baseline, I measured all my variables, except those in the recall period. The average score for the parental measures was 2.802 for parental monitoring and 3.208 for parental warmth, both on a scale of 1 to 4. When measuring delinquent peer association, I found that overall, the sample's average for antisocial behavior of his or her peers was 2.321 on a scale of 1 to 5. For total variety offending, the juveniles in the sample committed on average 32.8% of the acts ever and 14.9% of the acts in the past six months. Using the BSI, the anger measurements showed high levels of hostility. The average BSI score for depression was .596, meaning that on average juveniles in the sample were experiencing almost none of the symptoms associated with clinical depression according to the BSI.

At wave one and wave two, I measured hostility, and time incarcerated without community access (secure placement). At wave one, hostility levels slightly decreased. On average, juveniles reported committing 6.6% of the offenses in the prior six months.

Table 1

Descriptive Statistics

	Baseline					Wave 1					Wave 2					Wave 3				
Measures	n	%/M	SD	min	max	n	%/M	SD	min	max	n	%/M	SD	min	max	n	%/M	SD	min	max
Age	1354	16	1.143	14	19															
Sex																				
Male	1170	86.4		0	1															
Female	184	13.6		0	1															
Ethnicity																				
White	274	20.2		0	1															
Black	561	41.4		0	1															
Hispanic	454	33.5		0	1															
Other	65	4.8		0	1															
Parental																				
Monitoring		2.802	.861	1	4															
Warmth – Mother		3.208	.696	1	4															
Peer Deliquency		2.321	.926	1	5															
Total Offending Variety																				
Ever		.328	.209	0	.95															
Past 6 Months		.149	.153	0	.91															
BSI																				
Depression		.596	.745	0	4															
Hostility		.746	.778	0	4		.637	.704	0	4		.631	.722	0	4					
Recall Period																				
Time in w/o Community Access							.479	.439	0	1		.426	.432	0	1					
Total Offending Variety																1228	.066	.107	0	.73

Zero-Order Correlations

The correlations among all the study variables are in the Table 2. This table shows the main study variables (secure placement, hostility, and delinquency) all correlated in expected directions. Specifically, secure placement and hostility measured at wave one positively correlate with the total variety offending at wave three. Additionally, secure placement was positively correlated with hostility. Based on these associations, there is reason to properly test for a mediation process as I proposed. Additionally, I found several control variables to be positively correlated with the main study variables.

Several of the control variables correlated with the main study variables. For instance, age was positively correlated with secure placement suggesting that older youth spent more time in secure placement. Being White or Hispanic both were negatively correlated with secure placement, while being Black was positively correlated with secure placement, suggesting that Black youth spent more time in secure placement, compared to White and Hispanic youth.

I also found parental monitoring to be negatively correlated with delinquency, suggesting that the less a juvenile's parent monitored him or her, the more likely he or she is to commit crime. I found the same for my maternal warmth variable. However, I found the opposite for the peer delinquency variable. The more delinquent peers a juvenile had, the more likely he or she himself or herself would be delinquent.

Table 2
Zero-Order Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	–													
Ethnicity														
2. White	-.042	–												
3. Black	.036	-.424**	–											
4. Hispanic	-.019	-.358**	-.597**	–										
5. Other	.037	-.113**	-.189**	-.159**	–									
6. Sex	-.019	.063*	-.036	-.026	.022	–								
Baseline														
BSI														
7. Depression	.103**	-.018	-.134**	.123**	.071*	.066*	–							
8. Hostility	.052	.070*	-.047	-.015	.010	.148**	.500**	–						
Parental														
9. Monitoring	-.259**	.108*	-.071*	-.016	-.005	.115**	-.064*	-.047	–					
10. Warmth - Mother	-.042	-.114**	.125**	-.014	-.046	-.131**	-.071*	-.143**	.153**	–				
11. Peer Deliquency	.098**	-.074**	-.076**	.128**	.031	-.089**	.321**	.359**	-.246**	-.043	–			
12. Variety Offending, Past 6 Months	.012	.054*	-.131**	.079**	.026	-.107**	.164**	.263**	-.189**	-.084**	.505**	–		
Wave 1														
13. Secure Placement	.089**	-.151**	.198**	-.075**	-.003	-.204**	.197**	.100**	-.190**	.156**	.203**	.167**	–	
14. BSI: Hostility	.035	.076*	-.032	-.025	-.017	.056	.293**	.467**	-.073*	-.111**	.237**	.224**	.073*	–
Wave 3														
15. Total Variety Offending	.005	.049	-.079**	.045	-.013	-.118**	.098*	.145**	-.088**	-.032	.302**	.288**	.058*	.192**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Regression Models

Following my analytical plan, I created three regression models. For the first model, using the data from wave one, Table 3 shows secure placement to be a significant predictor of hostility. Specifically, the more time that youth spent in secure placement was associated with higher levels of hostility. I conducted this model to establish that secure placement positively related to hostility.

Table 3
Regression Model Assessing Secure Placement as a Predictor for Hostility

	Model 1			Model 2		
	B	SE	*b*	B	SE	*b*
Secure Placement	.014	.008	.059†	.011	.008	.046
BSI: Hostility				.029	.005	.187***

*p < 0.05; **p < 0.01; ***p < 0.001; † = marginally significant

The results in Table 4, Model 1, show the influence of secure placement at wave 1 on delinquency reported at wave 3. The results suggest that secure placement had a marginally significant positive effect on delinquency at wave 3. Specifically, more secure placement at wave one was a marginally significant predictor (b = .073, p = .063) of higher delinquency at wave three (Model 1). Higher levels of hostility at wave one predicted more delinquency at wave three. However, secure placement was no longer marginally significant once I included hostility

in the model (b = .046, p = .138; Model 2). Additionally, the size of the coefficient for secure placement was slightly reduced. Based on these findings, I conclude that hostility partially mediated the effect of secure placement on delinquency.

Table 4

Regression Model Assessing the Mediation Role of Hostility on the Relationship between Secure Placement and Delinquency

	B	SE	*b*
Secure Placement	.116	.049	.073*

*p < 0.05; **p < 0.01; ***p < 0.001; † = marginally significant

In my third regression model, as visible in Table 5, I included all the control variables as well as the variables measured at baseline and wave one. In Model 1, age (b = -.105, p = .001), sex (b = -.080, p = .015), depression (b = -.068, p = .045), peer delinquency (b = .122, p = .005), and total variety offending (b = .318, p = .000) were significant predictors of delinquency at wave three. Specifically, being older, experiencing more symptoms of depression, and having more delinquent peers, was associated with more delinquency. In Model 2, secure placement was included in the model. With the exception of depression, all the variables that were significant in the previous model remained significant. Additionally, secure placement (b = -.115, p = .001) significantly predicted delinquency. However, the sign was negative, suggesting that less time in secure placement predicts more delinquency.

In Model 3, hostility was included as a predictor of delinquency. All variables significant in Model 1 were significant in Model 3, including depression. Both secure placement (b = -.112, p = .001) and hostility (b = .172, p = .000) were significant predictors of delinquency at wave three, and the coefficient only slighted changed, suggesting that no mediation occurred once I controlled other factors. However, it is important to point out that the sign for the coefficient associated with secure placement changed to a negative sign once I controlled other variables (see Tables 3 and 4). As I explained in my analytical plan, there is no mediation because, even though secure placement is significant predictor, its coefficients from Model 2 (b = -.115) to Model 3 (b = -.112) saw virtually no reduction once one takes into account other variables.

Table 5

Regression Model Assessing the Mediation Role of Hostility on the Relationship between Secure Placement and Delinquency with Control Variables

	Model 1			Model 2			Model 3		
Measures	B	SE	*b*	B	SE	*b*	B	SE	*b*
Control Variables									
Ethnicity									
Black	-.020	.011	-.082	-.015	.011	-.060	-.014	.011	-.056
Hispanic	-.006	.011	-.024	-.007	.011	-.025	-.001	.011	-.005
Other	.003	.020	.004	.003	.019	.005	.007	.019	.012
Age	-.012	.004	-.109**	-.012	.004	-.109**	-.012	.004	-.105**
Sex	-.028	.011	-.080*	-.033	.011	-.097**	-.036	.011	-.105**
Baseline									
BSI: Depression	-.011	.006	-.068*	-.007	.006	-.044	-.014	.006	-.083*
Parental Monitoring	-.004	.005	-.027	-.006	.005	-.042	-.006	.005	-.044
Parental Warmth	-.009	.006	-.050	-.005	.006	-.029	-.003	.006	-.017
Antisocial Behavior	.016	.006	.122**	.017	.006	.124**	.014	.006	.105*
Total Variety Offending: Ever	.191	.026	.318***	.202	.026	.336***	.186	.026	.310***
Wave 1									
Secure Placement				-.032	.010	-.115**	-.031	.010	-.112**
BSI: Hostility							.030	.006	.172***

*p < 0.05; **p < 0.01; ***p < 0.001; † = marginally significant

Discussion

Research shows that 70-80% of juvenile offenders recidivate within two or three years of release from incarceration (MST Services, 2018). Many reasons could cause this, including the state of the juvenile offenders' mental health and emotional responses to being in secure placement. The purpose of the present study was to examine the relationship between secure placement and recidivism through those emotional responses. Since anger and hostility are the emotions closely associated with delinquency, I decided to create a research model testing hostility as a mediator between secure placement and delinquency. This was not at random. Agnew's (1992) general strain theory (GST) gives a theoretical framework from which my research model can work. His revision of Merton's classical strain theory assumes strain as either the prevention of goal-seeking behavior or pain-avoidance behavior. One can consider secure placement as both. Following the theory, this kind of behavior prevention can invoke negative emotions (anger, hostility) in the offender, thus causing him or her to commit crime as an escape from the strain itself or the emotions it causes in them.

Previous research has positively linked secure placement, mental health, and recidivism together and even found anger-hostility to be a mediator between the two. However, my research was a unique continuation of them. My study included longitudinal research with a diverse sample of serious juvenile offenders. It was important to create a research model in this way because it gives light to secure placement's lasting effects. Also, adolescence is a very important period in human development, especially psychologically. With my selected sample, I can test

for secure placement's impact on an offender at this stage in life, while accounting for ethnic and gender diversity. This separates my study from that of Ackerman and Sacks (2012) whose sample included only adults, who most likely would react differently to strain than a juvenile.

Generally, my findings suggest that hostility does not mediate the relationship between secure placement and delinquency. However, my findings did suggest a positive relationship between the two. So, while my research model may show no mediation, one can assume that secure placement is a significant predictor.

Implications

Taking a practical approach to GST, secure placement would not be an effective prevention of crime for juveniles or adults. Research has established that secure placement causes increases in delinquency. My research also has found this. My regression models found secure placement to be significant in predicting both hostility and delinquency. Knowing this as well as juvenile recidivism rates, society should consider an alternative to secure placement. Research has established a negative relationship between length of time in a secure facility and psychological development for adolescents. So, society should take community-based prevention measures. While my research did not find mediation or completely model Agnew's theory, it does suggest hostility to be a significant predictor of delinquency. Giving a juvenile offender a constructive and non-isolating way to learn from their ways and reroute from a life of crime will have a better impact on youth and society as a whole. For example, the Texas Juvenile Justice Department has the Second Chance program. Focused on gang-related youth, this program supports services tailored to the individual's needs. This includes employment, education, cognitive behavioral therapy, and anger management (CSG Justice Center, 2016). Much like drug court gives drug offenders a second chance at a crime-free life, the criminal justice system could adopt a similar program for juvenile offenders, especially the serious ones. A study of the program participants found that about 80% had no further contact with the juvenile justice system within four to six months of release (Fox, Webb, Ferrer, Katz, & Hedberg, 2012).

While my research did establish a positive relationship between hostility and delinquency, it is important to note that my study found only hostility as a mediator between secure placement and delinquency without my controls accounted for. This suggests that while the circumstances my research model created did not find mediation, there could be a situation in which mediation does occur between secure placement and delinquency. The overall goal of this study was to apply the knowledge gained from it to better the way we treat juveniles in the criminal justice system.

Further Research

While my findings have important implications, it also highlights areas that others can expand upon in future research. If I were to expand on my established research, I would start by modifying the sample. I would include juvenile offenders from various communities, despite the charges against them. Studying juvenile offenders as a whole would give better understanding to their emotional responses to the criminal justice system itself. This makes room for two new variables and addresses other parts of GST.

The two variables, perceived procedural justice and environmental influences, would give the study more items to control for, or test as a mediator. With perceived procedural justice

accounted for, researchers can address GST more thoroughly. As a control variable, it would weed out those who do not experience negative emotions in secure placement. As a mediator, it would just be a more specific source of those negative emotional responses. With environment as a control variable, it would expand on delinquent peer association. So, instead of asking, "How many of your peers do ____?" it would be "How many people in your life do ____?" This accounts for other pressures and influences that would lead an adolescent to commit crime. With an expanded research model, this study would better give reason to the positive relationship between the secure placement and recidivism rates of juvenile offenders.

My research findings are important because they shed light on the issue of how juvenile offenders react to the criminal justice system. As it currently stands, those without a diverting path end back up in secure placement. High levels of hostility also have linked to recidivism. The purpose of my study was to unpack all that and look for a deeper cause through mediation. Although only one of my models found mediation, I tailored the one that did not to a particular sample. This opens up the opportunity to modify my research model or even take it a few steps further. Future research should evaluate all possible causes and solutions for juvenile recidivism.

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About the Author

Alessia R. Shaw graduated from the University of Central Florida in criminal justice with honors. A native of Tallahassee, Florida, she is the oldest of three daughters, with career aspirations of being a lawyer. Her academic interests include juvenile justice, mental health of offenders, and racial and gender equality.

Discussion Questions

1. What other control variables would contribute to juvenile recidivism?

2. What are some alternatives to secure placement that would help reduce juvenile recidivism?

3. How would you change the research model to yield more accurate results?

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Re-Examining the Mozart Effect: The *Sonata in D Major, K.448* and the Influence of Rhythm on Spatial Intelligence

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Abstract

In the 1990s, experiments that attempted to "retrain" the brain using music began to emerge. Alfred A. Tomatis, a French otolaryngologist, was one of the pioneers in designing listening tests and using music to promote healing and development of the brain. His particular usage of the music of Wolfgang Amadeus Mozart led to the term "Mozart Effect." In 1993, a study by Frances Rauscher, Gordon Shaw, and Catherine Ky showed that participants who listen to ten minutes of Mozart's *Sonata for Two Pianos in D major K. 448* experienced a temporary boost in spatial IQ reasoning. Subsequently, numerous studies replicated the original experiment in an attempt to prove or refute the "Mozart Effect." Though these studies took a scientific approach, they neglected musical analyses that may have provided greater insight regarding the outcomes they reported. What is lacking in all previous studies using *Sonata in D Major* is an actual understanding of the music itself. Drawing on score evidence, literature journals, and scientific publications, I argue that it is the unique usage of rhythmic pattern in the first movement of Mozart's *Sonata in D major* that induces a temporary boost in spatial-task abilities.

Keywords: Mozart Effect, spatial intelligence, rhythm, entrainment, Gestalt Law of cognitive organization, figure-ground

Introduction

The human brain is responsible for all elements of life, but how it works has yet to be fully understood. For decades, neuroscientists have attempted to decode how the brain processes information. With advancement in technology, understanding how the brain processes music has also gained tremendous interest. In the 1990's, experiments emerged to "retrain" the brain using music. Alfred A. Tomatis, a French otolaryngologist, was one of the pioneers in designing listening tests and using music to promote healing and development of the brain, claiming that the music of Wolfgang Amadeus Mozart could alleviate a variety of ailments, a phenomenon he

termed "Mozart Effect." Between 1993 and 1998, a series of three studies by Rauscher, Shaw, and Ky opened a whole new page in the world of behavioral neuroscience. In the pilot study by Rauscher, college-aged participants experienced each of three listening conditions: (1) ten minutes of Mozart's *Sonata for Two Pianos in D major K. 448*, (2) verbal relaxation instructions, and (3) silence. The results demonstrated that participants had a temporary improvement of spatial IQ reasoning after listening to Mozart (Rauscher et al., 1993, p. 611). In the subsequent year, Rauscher and colleagues conducted a second experiment that expanded the pilot study to include a larger sample size and for a longer duration of five days. These results indicated that Mozart's sonata only boosted spatial-temporal reasoning and not general brain function. This finding refuted the notion that the Mozart effect is merely an artifact of arousal, for general arousal would increase general brain function and not just spatial-temporal reasoning alone (Rauscher et al., 1995, pp. 44-47). The third study extended their findings to young children whose cortex is still maturing. The results suggested that music training (private keyboard lessons) of young children lead to long-term enhancements of spatial abilities but not spatial recognition or memories (Rauscher et al., 1997, pp. 2-8).

Although the study by Rauscher et al. only addresses the effect on "spatial intelligence," the results were misinterpreted by the public, as an increase in general IQ. Subsequently, popular claims developed, such as "listening to Mozart makes you smarter." In 1997, author Don Campbell's book *The Mozart Effect*, discusses the theory that listening to Mozart can produce many beneficial effects on mental development. According to Campbell (2001), since Mozart was a prodigy who "saw, spoke, and listened to the world in creative patterns, his music has a sense of order and clarity that creates a unique effect on the listeners" (p. xiv).

In 1998, the governor of Georgia even appropriated funds to provide a Mozart CD for every newborn baby in Georgia. In addition, others who value the music of Mozart have used the Mozart effect as evidence to dethrone Beethoven as the "world's greatest composer" (Ross, 1994). The idea of "Mozart Effect" elicited tremendous controversy and naturally lead to a surge of scientific experiments to replicate the pilot study.

Discussion of Evidence

Researchers continue to argue the "Mozart Effect" through controlled testing and empirical evidence. Although researchers have debunked the claim that "listening to classical music makes you smarter," they found evidence that college students who listened to the first ten minutes of Mozart's *Sonata in D major, K.448* will lead to a temporary boost in spatial task performances (Rauscher et al., 1998, pp. 835-41). A meta-analysis study by Hetland that analyzed 36 studies with 2,465 subjects (using any kind of spatial measures) and 31 studies with 2,089 subjects (using spatial-temporal outcomes) concluded that there is a Mozart effect, but it is limited to specific type of spatial tasks (Hetland, 2000, pp. 105-48).

Though these experiments took a scientific approach, they were mostly implemented by neuroscientists, physicists, and psychologists with little understanding of music. The experiments were designed to see a result (whether there is a Mozart effect or not), but could not specify the properties of music that enhance spatial tasks. They treated music as a whole unit, a one-size-fits-all "pill." This macroscopic approach neglected the complexity of music- an artform that combines rhythm, melody, harmony, timbre, tempo, dynamics, form, and structure. Each element is unique, and like a jigsaw piece, contributes to the overall mosaic we call "music." What is lacking in these experiments using *Sonata in D Major* is an actual understanding of the

music itself. It is the particular organization of musical elements that leads to the improvement in spatial task performance seen in the Rauscher et al. studies.[1]

Rhythm is a fundamental life process. Everything in the universe has an intrinsic rhythm. At a macroscopic level, the sun is in a constant vibratory state, making it ring like a bell. NASA has discovered sound waves from a black hole ("Chandra hears," 2019). At a microscopic level, there is rhythm inside us. Our brains constantly monitor the oscillations in our body at an unconscious level, such as undulation in body temperature, cell count, and blood pressure (Hodges & Sebald, 2011, p. 34). Each single cell has its own vibration. Researchers are even able to turn the vibration of DNA into music. These microscopic and macroscopic rhythm work together to create a rhythmic environment we live in. The seasons of the year and hours of the day all follow a regular, timely pattern. Even the rustling of the leaves caressed by the wind plays its own rhythm. Our body operates on rhythmic patterns; heart and breathing rates, brain waves all contribute to our rhythmic experience.

Our ability to integrate into our environmental rhythm begins at birth as we develop rhythmic breathing. The rhythmic cycles of the world condition our social rhythm and shape our experience. Studies have shown that the rhythmic aspects of human behavior and physiology are so powerful, and they could lead to entrainment, the synchronization of cognitive mechanisms and behaviors to an external perceived rhythm. For example, when two people are in a conversation, they produce brain wave tracings so identical as to emanate from the same person (Hodges & Sebald, 2011, p. 33). In fact, the human body consists of oscillators that create the rhythms that drive the body and control behavior (Hodges & Sebald, 2011, pp. 32-34).

The above findings are evidence that our cognition and behaviors are rhythmic and time-ordered. The 1994 experiment by Rauscher tested the hypothesis of highly repetitive music on spatial-temporal reasoning. The results, however, did not show an impact. Other studies that tried to replicate the Mozart effect using other classical music pieces also did not show a correlation. This suggests that there is something unique about the Mozart's *Sonata in D major* that led to the boost in spatial-temporal reasoning. Hence, we will examine the rhythmic element in the first movement of Mozart's *Sonata in D*.

Scientific Reports recently published a systematic study that examined the role of rhythm in inducing the Mozart effect Xing and colleagues isolated the fifth and sixth measure of the *Sonata in D major* (Figure 1A), dividing them into two rhythmic stimuli. The first stimuli (Figure 1B) consists only of the rhythm from measure five and six, and the second stimuli is the retrograde (presented in reverse order) of the two measures. These two stimuli are played to two groups of laboratory rodents for 12 hours a day for a total of 98 days. Subsequently, researchers tested the two groups of rodents, along with a third control group, using the Morris water maze[2]. Results indicate that rodents in the Mozart Rhythmic Group showed improvement in spatial cognition, and the Retrograde Music Group showed deterioration as compared to the Control Group.

[1] Some replica studies even utilized the music of Bach, Haydn, Beethoven, Wagner, Stravinsky, and other famous composers of classical and modern music. The meta-analysis by Hetland found that only Mozart's music shows a consistent boost. This suggests there are certain variable(s) within the Mozart *Sonata in D Major* that led to the temporary boost in spatial performance. Therefore, determining these precise variable(s) is an important step missed in previous studies.

[2] Morris water maze is a behavioral procedure mostly used with rodents in behavioral neuroscience to study spatial learning and memory.

Figure 1A
Mozart, Sonata in D Major, *mm. 5-6*

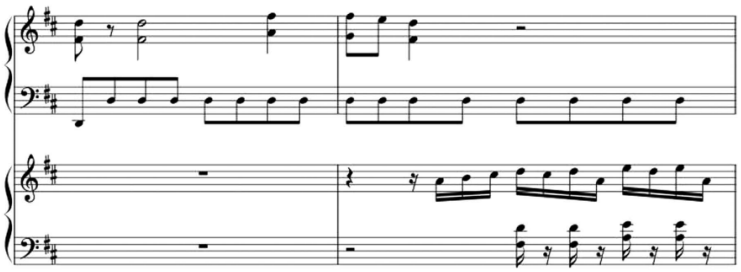
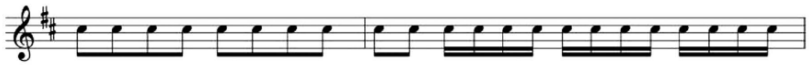
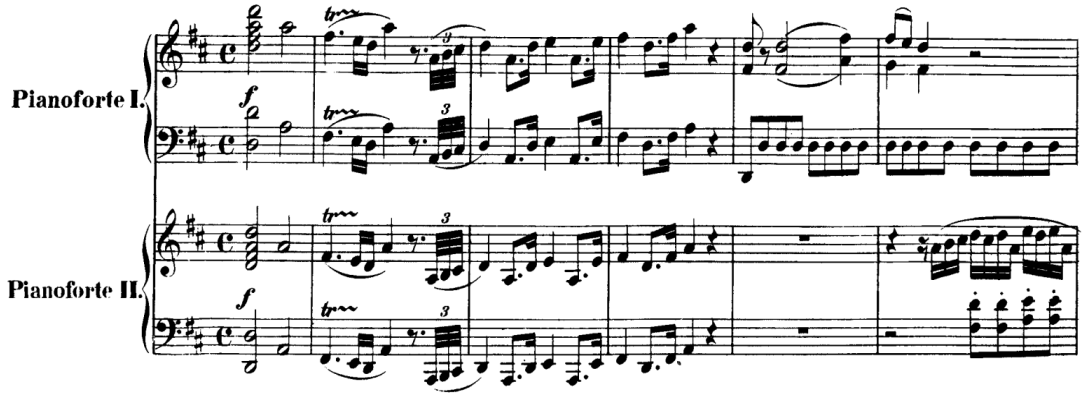


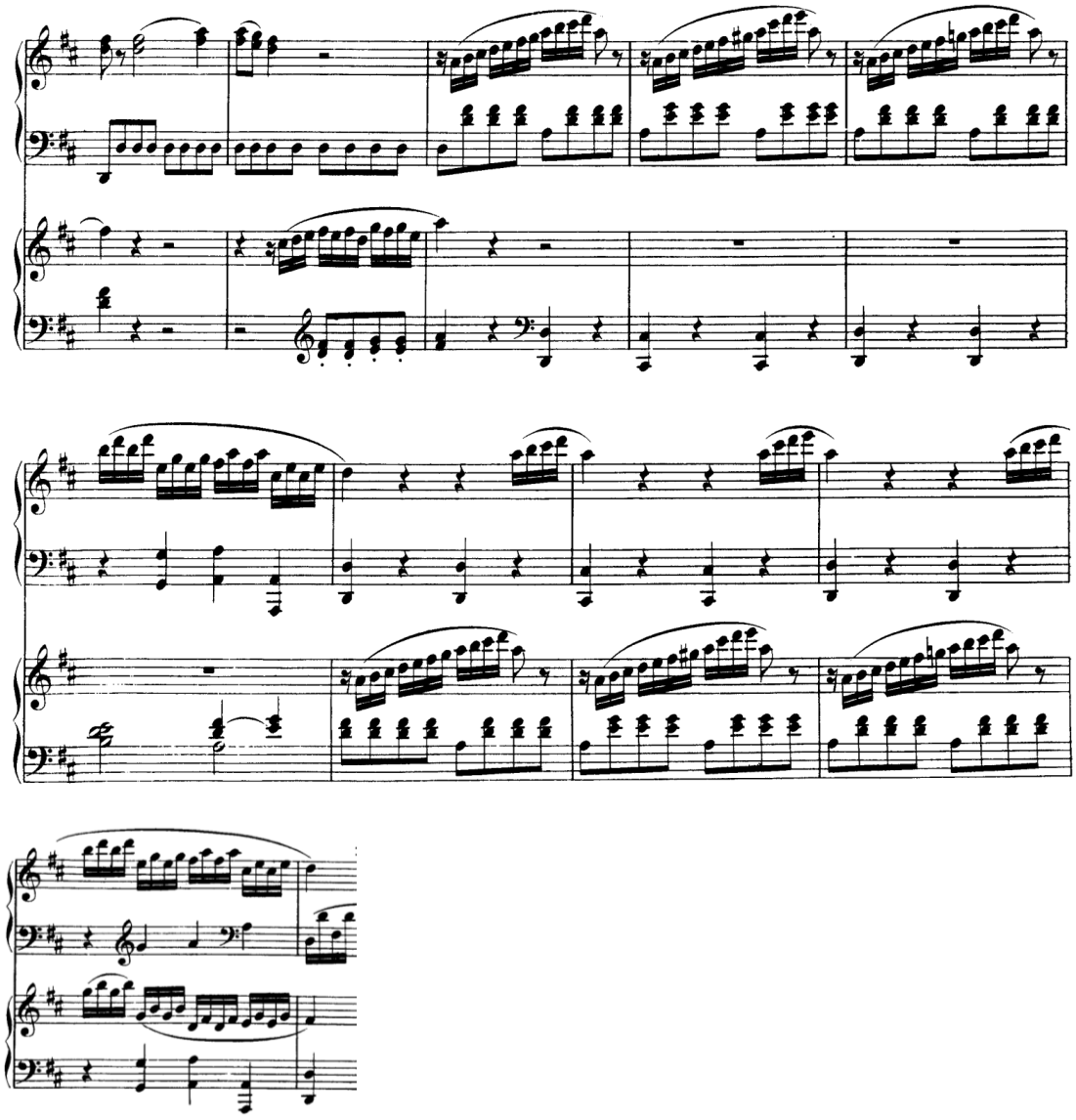
Figure 1B
Extracted Rhythm of mm. 5-6



The study by Xing suggests that rhythm leads to positive cognitive effects. However, the techniques used are questionable. First of all, the experiment lacks an understanding of the sonata itself. The *Sonata in D major*, being the first movement of a sonata cycle, follows the sonata-allegro form. It begins with an exposition that introduces a primary theme (mm. 1-16), followed by a transition theme (mm. 17-33) that leads to a secondary theme (mm. 34-80). The exposition is repeated before moving on to a development section (mm. 81-109). Subsequent to the development section is the recapitulation, which reintroduces the primary theme (mm. 110-125). The entire first movement of the sonata consists of 194 measures and uses a variety of rhythms, yet the experiment focused exclusively on measure five and six, which consists of the most basic eighth, quarter, and half notes. A more complete experiment would at least extract the rhythm from at least the primary theme (mm. 1-16, see Figure 2).

Figure 2
Mozart Sonata in D major, K.448 *First Movement, Primary Theme (mm. 1-16)*

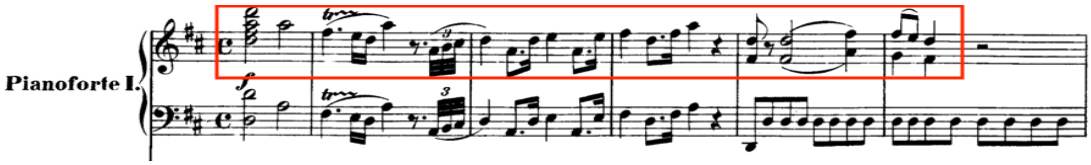




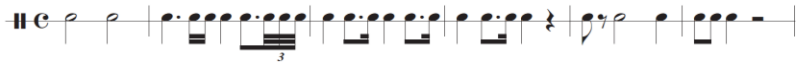
Another shortcoming of this experiment is how researchers from the Xing study extracted the rhythm. The *Sonata in D Major* is a duet, and it is to be played by four hands. The melody will switch from hand to hand during various parts of the sonata, while the other three hands play the accompaniment. In the Xing study, they combined all notes played by the four hands to extract the rhythm (see Figure 1B), therefore failing to fully recognize that our brains are wired to detect and organize patterns in its attempt to make sense of what we hear. The Gestalt Law of cognitive organization states that we unconsciously organize smaller units into a coherent whole in our attempt to understand our surroundings. When we perceive something, certain features stand out while others recede into the background (Hodges & Sebald, 2011, pp. 130-133). This is called the figure-ground relationship. Applying this concept to the *Sonata in D major*, the melody is the *figure*, the primary focus of our attention (see Figure 3). The accompaniments will recede into the background as our selective attention focuses on the melody.

Figure 3
Melody Extraction and Rhythmic Representation of Mozart Sonata in D major *(mm.1-16)*

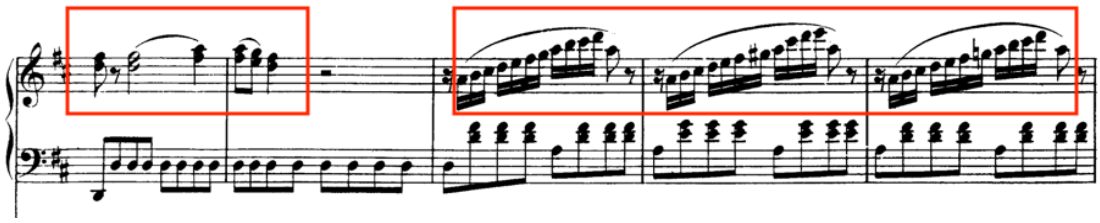
3a. Melody extraction mm. 1-6



Rhythmic representation mm. 1-6

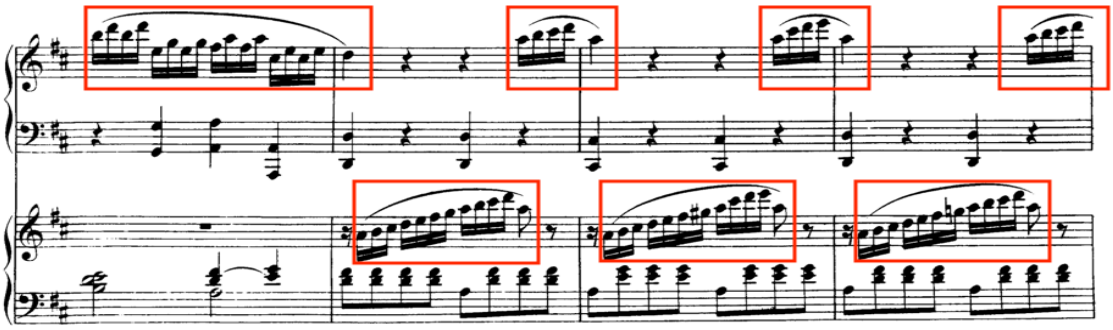


3b. Melody extraction mm. 7-11

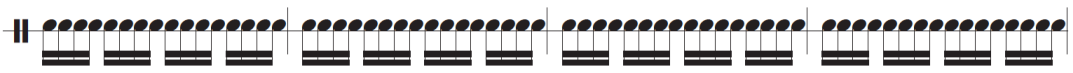


Rhythmic representation mm. 7-11

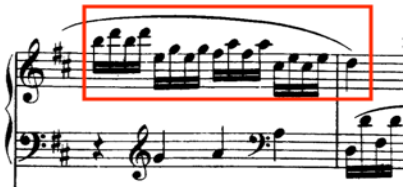
3c. Melody extraction mm. 12-15



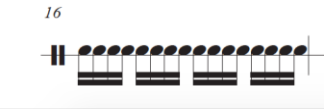
Rhythmic representation mm. 12-15



3d. Melody extraction mm. 16



Rhythmic representation mm. 16



Hence, I extracted the rhythm of the melody from the primary theme (mm. 1-16). As seen in Figure 3, the piece begins with two half notes. The musical motif of dotted quarter notes immediately followed by a 16th note (mm. 2-4) creates a sense of motion and lays the foundation for what is to come. Quarter rests (mm. 4), eighth rests (mm. 5, 7), and half rests (mm. 6, 8) immediately succeeded this musical motif. The accompanying parts played by the other hands reinforce listener's expectation of where the beat should fall. Everything leading up to measure 9 helped create a sense of pulse. Yet as soon as the listeners have established an anticipation of the beat's consistency, measure 9 thwarts that expectation by introducing a 16th rest, which is repeated in measure 10 and 11, thereby creating a metrical confusion to the listeners. But the introduction of a series of consistent 16th notes in measure 12-16 brings back metrical recognition and confirmation.

This ostinato cycle expands five measures in the primary theme.[3] The primary theme is then repeated by the player before the start of the development section. The rhythmic motif of consistent 16th notes occurs throughout the following sections: in the transition (mm. 18, 20, 22, 23, 30); in the secondary theme (mm. 50, 52, 54, 55, 60-64, 71), in the development (mm. 90-93, 106, 107), and in the recapitulation (mm. 122-125, 128, 130, 132, 145-150, 152, 154, 156, 162-165, 173, 179-181, 193).

Conclusion

The re-occurrence of the same rhythmic usage (Figure 3) in the first movement of the *Sonata in D major* suggests that the rhythmic pattern in the sonata drives a series of attentional peaks that enhances the performance of spatial-temporal tasks. In an unpublished study, Parson and colleagues observed activation in the cerebellum when participants used selective attention to rhythm and when they performed tasks requiring mental rotation (Hetland, 200, p. 109). When we perform mental rotation tasks (a form of spatial task reasoning), we trigger the same brain center as when we actively pay attention to an externally perceived rhythm. This finding suggests that there is a strong correlation between our spatial task ability and our perception of an external rhythm. It is highly plausible that the rhythmic pattern in the *Sonata in D major, K.448* cultivates a certain neuron firing pattern, along with associated behaviors which are relevant to spatial reasoning, therefore inducing the "Mozart Effect."

Music is not a universal language but a universally innate trait. Of all the music elements, rhythm is the most fundamental, as everything in the universe has its own intrinsic pattern. Atoms that build up this world are in a constant state of motion. Sound is also a vibration and so are our thoughts. There are accumulating behavioral and neural evidence that suggest that

[3] It is also interesting to note that this unique rhythmic pattern is presented to the listeners 3 times: twice in the exposition (including the repeat), and once in the recapitulation (mm. 110-126).

auditory rhythms have the potential to entrain (synchronize) attentional processes (Miller, Carlson & McAuley, 2013, pp. 11-18).

A study by Miller et al. suggests that auditory rhythms can drive a periodic series of attentional peaks and troughs that occur at equal temporal intervals, roughly. Task-irrelevant auditory rhythm can serve to orient visual attention to time.

Although the Xing study takes rhythm into consideration, it is flawed in how and where it extracted rhythm. Future experiments should utilize the rhythm from the entire first movement, or at least that of the primary theme. Now that I have extracted the rhythm of the *Sonata in D major*, assessing the influence of the rhythmic usage in this sonata is a new direction for future research. Once we identify the correlation between rhythmic usage and spatial intelligence, we can further use that knowledge to create new opportunities to "retrain" the brain using music. Scientists never just seek to explain, but they also seek to predict and to change. As additional research hints at these possibilities, it could lead to a new direction in the world of behavioral neuroscience as mankind continue to push the limit of what the brain is capable of.

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Discussion Questions

1. What are the myth and truth regarding the "Mozart effect?"

2. What induces the "Mozart effect?"

3. How does rhythm affect human cognition and behavior?

4. What are potentially new approaches to future experiments on the "Mozart effect?"

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"Tropical Yard in Bloom –
Jacaranda mimosifolia, Jacaranda cuspidifolia, Delonix regia, Peltophorum pterocarpum, featuring *Adonsonia digitata*"
2018

Photography by Scott E. Gillig.

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University Herbaria as Community-Based Resources: A Case Study of Service-Learning through Interdisciplinary Research

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Abstract

The literature surrounding the modern role and function of small natural history collections lacks information related to increasing the impact and engagement of small natural history collections in academic settings—yet this information is pertinent to ensuring the sustainability of such natural history institutions as resources that advance science and society. We employed methods of semi-structured interviews and participant observations within a conceptual framework of interdisciplinary research to analyze the linkages between the University of Central Florida Herbarium (FTU) and its surrounding university and community networks. Our analysis resulted in a network map of linkages between FTU and the community and a service-learning project to build a key linkage. The findings of our study provide a theoretical and applied model for furthering support for, and the impact of, small natural history collections in academic settings.

Keywords: herbaria, natural history, community-based, outreach, engagement, service-learning, interdisciplinary research

Introduction

Natural history collections provide knowledge of the fundamental characteristics of organisms and their interactions with the environment and within ecosystems. This knowledge makes significant direct contributions to the advancement of science and society. From improving genomic studies to advancing public health and increasing our understanding of complex human-environment systems on a global scale, studies in the many disciplines under the realm of "natural history" are vital to scientific and societal progress. Despite these contributions, support for natural history collections in economically developed countries has declined significantly over the past four decades by a variety of measures (Tewksbury et al., 2014). Though support has waned, the investment of time, personnel, and monetary resources required to properly collect, curate, and maintain these collections has, of course, remained.

This situation presents a serious issue for small natural history collections in academic settings, which tend to curate primarily local collections. Such collections rely on funding from university allocations or from limited private and public foundation funds. Regardless of recent technological advances in disseminating local collection data to accessible web formats, there seems to be less donor support for the many small, local natural history collections, as a smaller group of larger, more commercially oriented collections with high visibility attracts the lion's share of donor and popular public interest.

Herbaria, collections of preserved plant specimens, provide an array of valuable services and practically visible applications. For example, curation of specimen collections provides an unparalleled and accurate reserve of flora for research projects, such as those regarding longitudinal climate variability (Meineke, Davies, & Davis, 2018) or environmental health concerns. The well-developed list "100 Uses for an Herbarium" exemplifies the utility of herbaria (Funk, 2004). Specifically, small herbaria with collections of less than 50,000 specimens serve as valuable treasuries and sources of information.

Small herbaria generally store collections and process plants collected locally, preserving crucial information about a region's local biodiversity, and its critical impacts on regional economic and environmental health. This function is also highly significant in a long-term view, as preserved biological specimens are a leading source of data for the monitoring of ecosystem health over time (Snow, 2005). Research endeavors in this realm include tracking the spread of invasive species (Miller et al., 2009) and evaluating the effects of climate change on flora (Von Holle, Wei, & Nickerson, 2010; Hart, 2014). Herbaria resources address worldwide appeals for interdisciplinary research efforts aimed at understanding and solving environmental health issues, especially as the effects of human development and environmental degradation give rise to unprecedented health concerns on local to global scales (Myers & Patz, 2009).

The University of Central Florida Herbarium [hereafter abbreviated as FTU, the officially designated acronym for the University of Central Florida (UCF) Herbarium by the Index Herbariorum (Thiers, 2020)] is a small natural history collection the UCF Department (Dept.) of Biology supports, and it contains more than, containing more than 28,000 specimens, including 25,657 Vascular Plants; 1,766 Bryophytes *sensu lato*; 1,115 Fungi (including lichens); and 282 Macroalgae. We employed methods of semi-structured interviews and participant observations within a conceptual framework of interdisciplinary research to analyze the network of multifaceted relationships between FTU and the UCF and Central Florida communities. Our analysis of these relationships identified high-priority linkages within FTU's network, offering target investments through which FTU may significantly contribute as an educational and

informational community-based resource.

Literature Review

Funding Small Natural History Collections in an Academic Setting

Societal relevance is the key for obtaining sustained support and funding for a small natural history collection in an academic setting. Snow (2005) suggested several strategies for developing societal relevance, starting with establishing many horizontal linkages to other institutions and organizations, internally and externally. Snow's secondary proposed strategy involved "marketing" the collection by maintaining updated collection Web and print resources; hosting open houses, and offering tours to community and school groups, logging a record of visitor activity; creating opportunities for work study and student research positions, and research by local scientists; and carefully tabulating all academic and community-related activities for a yearly report made available to the public and circulated to relevant university administrators.

A case study by Timby (1998) suggested Department-Herbarium relationships can be viewed within the context of current and historical timescales, two-temporally evolving driving factors upon which the relationship depends. This study would suggest FTU's relationship with the UCF Biology Dept., in the context of the historical dynamics within the Dept., influences allocations of support and funding alongside influence by perceptions of FTU's societal relevance. This is an intuitive conjecture, but, nonetheless, offers valuable insight regarding the degree of influence of department dynamics in relation to FTU's support. The fundamental relationship between FTU and the Dept. of Biology, in the context of historical department dynamics, may demonstrate institutional support is based on more than sole evaluations of societal relevance.

While Snow (2005) and Timby (1998) demonstrate general strategies for increasing an herbarium's community influence, the literature lacks case studies or specific methods by which small collections may practically identify high-priority investments of their limited time and resources to engage with and expand their network of community linkages in significant ways.

Societal Relevance of FTU

As a small, Central Florida-oriented collection, FTU has a high degree of local relevance, as it preserves historical and current information about local floral population dynamics and distributions. We conducted pairwise searches in the Google and UCF Library EBSCOhost research databases of 15 terms adjoined with "Central Florida" and its counties as locations. These searches identified an opportunity for FTU's unique collection resources to inform better understanding, and subsequent mitigation, of a botanically related environmental health concern in Central Florida: anomalously high pollen levels relative to the national average (McLellen, 2016).

As previously noted, successful "marketing" of a small natural history collection in an academic setting involves creating opportunities for work-study and student research positions as well as research by local scientists (Snow, 2005). These are general, practical strategies that would employ the educational resources of FTU to advance student and scientific development. However, addressing the relevance of FTU to general society requires explicit demonstration of

research produced in and through FTU that contributes to societally relevant issues. This suggests involvement of students in projects of demonstrable societal relevance, offering unique opportunities through which to develop professional disciplinary and community-engagement skills and may be a way by which FTU expands its community engagement while utilizing personnel resources from its internal institutional linkages.

Methodology

Conceptual Framework

Understanding the network of connections between FTU and different stakeholders within the UCF and Central Florida communities is complex in nature: Complexity arises from the multifaceted ways by which FTU ties to different communities, which further interconnect. Various disciplinary perspectives provide insights into facets of this community network; however, no single discipline comprehensively captures the network. This situation, involving an inherently complex problem that integrating disciplinary methods can solve, merits an interdisciplinary research approach to construct a more comprehensive understanding of the issue (Repko, Buchberger, & Szostak, 2017). We employed the Broad Model approach to interdisciplinary research as the framework within which to analyze the network of multifaceted relationships between FTU and the UCF and Central Florida communities, enabling us to draw on relevant disciplinary perspectives to appropriately combine disciplinary insights through an integrative approach.

We analyzed the key elements of the insights from disciplinary perspectives for sources of conflict, then integrated and conceptualized them to produce practical evaluations, identifying high-priority linkages through which FTU may engage with, and contribute to, its community network. We avoided disciplinary bias by incorporating multiscale aspects of the network, considering potential linkages across boundaries, on individual to institutional scales. We avoided personal bias by ensuring we accurately represented the disciplinary perspectives relevant to the issue by authentically reporting insights from primary and secondary sources. To identify the disciplinary perspectives most relevant to consult for insights, our literature review of the *Societal Relevance of FTU* suggests the disciplines most relevant to consult are botany, conservation biology, environmental health, and higher education curriculum development and administration. When consulting these disciplinary perspectives, we created a network analysis of FTU's established and potential community linkages based on a participatory approach to identifying linkages across boundaries, qualifying interconnections, and accurately analyzing the current network by operating with data collected in a current timeframe (Matin et al., 2015).

Data Collection Methods

To conduct our analysis, we employed data collection methods of semi-structured individual and e-mail interviews and participant observations to obtain primary-source disciplinary insights. We conducted interviews with subjects who strongly identified as botanists and had experiences with curating herbaria collections. Other subjects may not have met these criteria but identified as stakeholders within the local community and also were equipped to offer disciplinary insights. The key elements of the disciplinary insights pertained to the utilizations of FTU's resources as unique educational and informational community-based resources.

Findings

Personal and E-Mail Interviews

1. I (first author) conducted many informal personal interviews with Dr. Elizabeth Harris over the period of spring 2017 to spring 2018, from which I gained insights from the fields of botany and higher education curriculum development and administration. Dr. Harris is an Associate Lecturer in the UCF Dept. of Biology and serves as the Curator of FTU. In this position, she brings expertise in small-herbaria curation to her Departmental roles of curriculum development and administration. A summary and key insights include the following:

Over the past few years, a small group of a botanically-focused faculty members, including herself, have been targeting the revitalization of botany within the UCF Dept. of Biology through the development of the Plant Sciences Track, which UCF established in fall 2017 as a specialization in the UCF Biology degree. This effort has included restructuring existing courses, developing new courses, and hiring additional faculty members specializing in botany. Though the Plant Sciences Track is currently developing and expanding, it has not yet resulted in increased funding or monetary support for FTU, a hoped-for byproduct. FTU does operate in a supportive Dept. environment; however, the Dept. has not yet realized the potential of a mutually beneficial relationship between support for FTU and the development of educational botanical science opportunities.

Dr. Harris emphasized the potential for providing local doctors with resources about the allergy-inducing flora in Central Florida. She based this idea on her local knowledge of the prevalence of allergy-inducing flora throughout Central Florida and opportunities to advance the formal study of such phenomena. It is estimated that 35 million people in the U.S.A. suffer from symptoms in their upper respiratory tract of allergic reactions to airborne allergens (U.S. Department of Health and Human Services, 2003). Diagnosing a child's symptoms from an airborne allergy can be particularly challenging, as family members and school staff members are likely to attribute the presence of such symptoms in school-aged children to pinkeye or common colds (Miller, 2015). Misdiagnosis, and a further lag time between the inception of symptoms and their proper treatment, has potential effects that compound the discomfort and pain a child feels, as missing days of school and delaying multi-year allergy treatments decrease quality of life in ways that better diagnosing, educating, and treating patients could have addressed readily (U.S. Department of Health and Human Services, 2003).

FTU provides current and historical records of the allergy-inducing flora of Central Florida. Dr. Harris identified the potential for local children's hospital doctors to use these resources. Studies of current populations of allergy-inducing flora may better mark seasonal changes in weather that affect allergy-inducing flora life-blooming cycles. Furthermore, longer-term studies, utilizing the historical record of preserved specimens, may document the effects of climate change on population dynamics and distributions of local allergy-inducing flora, informing conservation efforts.

2. I (first author) personally interviewed Dr. George Wilder on a few occasions within the period of summer 2017 – winter 2017; I gained insights from the fields of botany and conservation biology. Dr. Wilder is the Curator of the Herbarium of Southwestern Florida, a collection of more than 40,000 plant specimens that solely he and volunteers has gathered and maintained. Dr. Wilder is a retired Professor of Biology from Cleveland State University, and he

has authored numerous publications regarding the anatomy, morphology, and taxonomy of vascular plants. In addition to these areas of expertise, Dr. Wilder has become a leading expert in the floristics of South Florida upon his retirement to Naples, Florida, and through his work as Herbarium Curator at Naples Botanical Garden. A summary and key insights include the following:

Dr. Wilder's diverse herbarium includes concentrated collections from floristic inventories performed in specific geographic areas, with many in Southwest Florida. These collections contribute to conservation efforts by preserving voucher specimens of plants at specific times and places, offering valuable local, regional, and even global records of a species' population dynamics, within the context of human growth and development or other environmental conditions. Dr. Wilder values the artistic nature of properly maintaining plant specimens and employs innovative materials and methods for best maintaining the integrity of each specimen. His artistic and aesthetically pleasing specimens easily engage community members across a wide range of ages, abilities, backgrounds, and exposures to science, lending ideal tools for science and conservation education initiatives.

3. I (first author) conducted many informal personal interviews with Bryan McCullough, a Ph.D. candidate in the UCF Chemistry–Forensics graduate program. A summary and key insights include the following:

McCullough's work focuses the forensic analysis of pollen grains by identifying the spatial origins of the grains based on known geographic distributions of plants. His research is based on spectroscopic methods for pollen identification; however, his research relies heavily on the resources of FTU to provide a depository for the voucher specimens he is collecting to obtain pollen for his study. McCullough's research highlights the relevance of FTU to other university research endeavors, especially as a collection that holds particularly valuable information about the allergy-causing flora of Central Florida.

4. We personally interviewed Dr. Walter Taylor on March 3, 2018. Dr. Taylor is Professor Emeritus in the UCF Dept. of Biology. The UCF hired him in 1969 to serve as one of UCF's founding faculty members, when UCF began as Florida Technological University (FTU) in fall 1968. Dr. Taylor is a highly respected ornithologist and a leading expert on Florida wildflowers. From our discussion, we gained insights from the fields of botany, conservation biology, and higher education curriculum development and administration. A summary and key insights include the following:

Botany was part of the historical foundations of biological science and natural history education at FTU, especially as professors and students had many opportunities to explore the natural environment of Pine-flatwood habitat enclaves that surrounded the campus. At that time, the campus consisted of only a few buildings. However, over time, differing departmental hires and university administrators caused shifts in the value placed on growing and developing botany education and opportunities. This affected the support and funding resources such as the UCF Arboretum and FTU received. At points, UCF administrators and presidents cut down trees and developed parts of the contractually conserved UCF Arboretum land; or they constructed projects encroaching upon these protected lands and the once-pristine enclaves of unique Pine-flatwood habitats.

Dr. Taylor laments what he sees as irresponsible land use practices. Dr. Taylor sees the rapid growth of the UCF population as interwoven with land development and construction: the

large size of UCF as one of the nation's largest universities raises questions and concerns regarding limits to its sustainable growth. Regardless, Dr. Taylor wants to see an increasing number of Biology students directly involved with field elements of biology and natural history education to advance conservation literacy and efforts.

5. We had various informal e-mail and in-person interviews with Dr. Jordan Smallwood, Division Chief of Allergy-Immunology a Nemours Children's Hospital (Orlando), from whom we obtained disciplinary insights in the field of environmental health. A summary and key insights include the following:

Dr. Smallwood reached out to Dr. Harris in early 2017, expressing interest in FTU's expertise on local populations of pollen-producing plants. Dr. Smallwood wished to disseminate information to healthcare practitioners in his team to help patients receive improved healthcare and detailed, reliable information regarding their flora-related allergies. Dr. Smallwood suggested establishing collaboration by having a simple "weed walk" to better acquaint him and his team with common pollinating plants in the area.

Participatory Observations

1. I (first author) conducted participatory observations as an undergraduate researcher to better understand the structure of FTU and to develop an understanding of small-herbarium collection maintenance and botany field work. During spring 2017, I worked as a volunteer at FTU. I learned about properly processing collected specimens, which includes identifying the species of the collected plant specimen; mounting the specimen on a standard, acid-free sheet of archival herbarium paper; affixing a label on the sheet, following a protocol for the detailed description of the specimen, its collector, and its collection number; and archiving the specimen by correctly filing it according to its taxonomic classification.

I also conducted botany field work from spring 2017 to winter 2017 as an undergraduate researcher. My project involved floristics and plant systematics through the collection, taxonomic identification, and preservation of allergy-inducing plants from the UCF Arboretum. The purpose of my study was to better understand local allergy-inducing flora, FTU's potential unique contributions to local environmental health, and components of projects an increasing number of plant-science-focused students may pursue. Through these experiences, I gained disciplinary insights in the fields of botany, environmental health, and higher education curriculum development and administration; a summary and key insights include:

Through volunteer work in maintaining the FTU collection, I experienced the detail-oriented and time-consuming nature of processing and ensuring the integrity of collected specimens. Dr. Harris entrusts this work to a work-study undergraduate student employee and a few undergraduate volunteers, many of whom are familiar with FTU from exposure through the "Plant Taxonomy" course offered every other spring by Dr. Harris through the Dept. of Biology. Through my field work experiences and investigations, I found certain allergy-inducing "weeds," such as the Pinewoods Fingergrass (*Eustachys petraea*), were more prevalent in disturbed sites around the UCF Arboretum lands, such sections of the tree line upon which paving and building construction projects encroached.

2. I (first author) conducted a participatory observation of a successfully supported small herbarium collection, the Herbarium of Southwestern Florida, by volunteering on various

dates from summer 2017 to winter 2017 to assist with collection maintenance and an educational presentation. I gained disciplinary insights in the fields of botany and conservation biology. A summary and key insights include the following:

On July 26, 2017, I provided practical support to Dr. Wilder and participants by organizing, displaying, and circulating type specimens during his lecture "The Herbarium of Southwestern Florida: the hidden secret of Naples Botanical Garden with Dr. Wilder" for the Garden's Lifelong Learning lecture program. The lecture weaved together artistic and scientific elements of Herbarium resources by utilizing voucher specimens from the collection to display the phenotypic variations within just one species of a plant and the effects of human growth and development on altering, threatening, or even causing the extinction of certain floral populations across Southwest Florida. This lecture targeted the retired and senior population, which brought to light the opportunity to engage minority populations with science education initiatives to increase the diversity of representation within and access to STEM fields. The lecture also highlighted the importance of education to conservation initiatives, as the poor communication of scientific understandings, no matter how consequential the understandings may be, will not inform societal issues unless we communicate such understandings as pertinent and relevant to citizens and community stakeholders.

3. We conducted a participatory observation of higher education curriculum development and administration by attending the first UCF Plants Beyond Limits Conference on November 10, 2017. A summary and key insights include the following:

This conference resulted from concerted efforts aimed at the revitalization and development of botany in the UCF Department of Biology. It focused on botany as a field of both historical and current relevance in UCF, state, and national research and on the many specializations and careers within the field. The UCF Arboretum hosted the Conference, and the event received broad emphasis as a science and conservation education initiative. It was apparent that botany is an important aspect of the Arboretum's conservation work. Dr. Taylor was a featured speaker and gave a presentation on the history of botanical science at UCF.

Discussion

Sources of Conflict when Integrating the Key Elements

We identified sources of conflict, which may arise while integrating key elements of disciplinary insights, primarily within the insights of botany and higher education curriculum development and administration. Although botany represents the study of flora, which makes up the majority of the Earth's biomass (Thompson, 2018), historical institutional dynamics within the Department of Biology have periodically limited the progress of botany education within the development of the UCF undergraduate Biology degree program curricula, a phenomenon we discussed in the personal interview with Dr. Taylor . This periodic limit on progress suggests a relational influence on support for FTU separate from evaluations of FTU's societal relevance; this relationship demonstrates institutional support is based on more than sole evaluations of societal relevance (Timby, 1998). This insight suggests departmental dynamics have had a strong influence on herbarium support when FTU had fewer and weakly-maintained community linkages. It is possible the converse relationship also occurs: Departmental dynamics may have a weaker influence on herbarium support when there are greater and strongly maintained

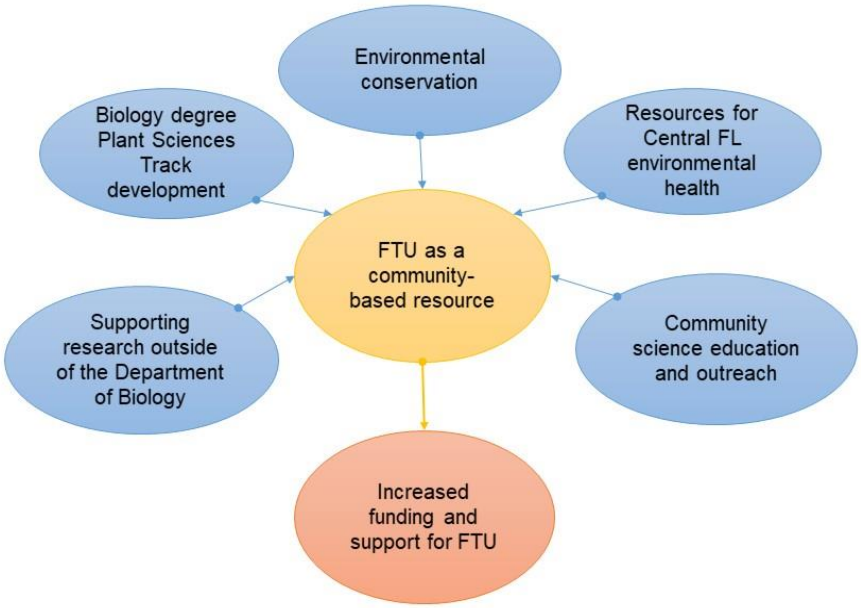
community linkages. This suggests linkages of societal relevance are still a main, or possibly underlying, driver of collection security.

Integration of Insights: Network Map Conceptualization

By accounting for sources of conflict and each of the key elements of the disciplinary insights, we developed a network map (Figure 1), which demonstrates the more comprehensive understanding of FTU's current and potential community linkages we gained through interdisciplinary research. Through interdisciplinary research, we integrated disciplinary insights by synthesizing their key elements to identify and map linkages. The resulting map suggests the most effective targets of highest priority for programming directed at maximizing FTU's community influence based on the strategy for increasing societal relevance by establishing internal and external linkages. However, the current network map lacks a ranking of the highest priority linkages, measures of linkage strength, or identification of linkage directions.

Figure 1

A network map portraying the UCF Herbarium's key linkages to the Central Florida community based upon the educational and informational resources it contributes. We identified key linkages by obtaining primary-source insights from the disciplinary perspectives most relevant to this analysis (botany, conservation biology, environmental health, and higher education curriculum development and administration) through methods of semi-structured interviews and participant observations.



Service-Learning Project: An Interdisciplinary Research Outcome

We applied the results from the integration of insights through a service-learning project derived from the interconnection between community science education initiatives and providing resources for Central Florida environmental health care practitioners and patients. This service-learning project demonstrated engagement with a high-priority linkage by utilizing FTU's unique

resource offerings: On April 20, 2018, the FTU Curator, Dr. Harris, graduate researcher, Bryan McCullough, and undergraduate student assistants, Alex de la Paz and Sarah Swiersz, hosted doctors, nurses, and staff members of the Department of Allergy and Immunology of Nemours Children's Hospital (Orlando), stakeholders in Central Florida environmental health concerns, for an educational "Weed Walk" on UCF property (Figure 2). The Weed Walk functioned as a nature walk focused on identifying allergy-inducing flora. During the Weed Walk, FTU researchers educated attendees about the nature of the wind-pollinated, allergy-inducing plants of Central Florida, especially within the context of urban development, familiarizing community healthcare providers with FTU as a community-based resource for providing scholarly information on topics relating to local botanical ecology and environmental health education.

Figure 2
Participants – "Weed Walk" on April 20, 2018

This collaborative meeting cultivated a dialogue centered on the ways FTU is equipped to provide information and tools fit to advance the stakeholders' interests and initiatives. The doctors and researchers expressed interest in students creating an educational guide to the local allergy-inducing plants of Central Florida, in natural and urban environments, which would make accessible in print and online for health care professionals and their patients. Another potential partnership between FTU and the healthcare community would involve creating a system to inform Central Florida doctors of specific allergens and periodic blooming trends to improved preventative care and general health care practices. The Weed Walk service-learning project and its resulting dialogue exemplifies the establishment of FTU as a community-based resource.

Conclusion

Our research analysis of the FTU herbarium produced a case study in expanding a small natural history collection's contribution to society by identifying and targeting its unique local resources and network of community linkages. Through analysis of this network through interdisciplinary research, we developed a more comprehensive understanding of the interconnected nature of FTU's linkages within the Central Florida community. This understanding informs the allocation of limited temporal and monetary resources to community

engagement by indicating high-priority targets for efforts meant to maximize FTU's community influence, which include science education initiatives, UCF Biology degree reform and Plant Sciences Track development, and our understanding of environmental health concerns related to local allergy-inducing flora.

Establishing FTU as a community-based resource supports the organization's societal relevance, which may translate to increased and more sustained funding and support from stakeholders in the university and Central Florida communities. The theoretical and applied models resulting from our analysis of FTU's unique community resources present a more comprehensive understanding of the community networks and unique resources located in FTU, a small natural history collection in an academic setting. Natural history collections play integral roles in preserving knowledge of organisms and their connections to the environment, which inform our understandings of many pressing issues humanity faces: It is vital such organizations possess the theoretical and applied frameworks, models, and tools for persisting within and contributing to society.

Future Work

The future work of FTU consists of increasing its societal relevance by effectively engaging with its community network as an educational and informational resource. This includes developing initiatives that open pathways for community members to access FTU resources from high-priority linkages, such as increasing scientific literacy and education. The creation and growth of the UCF Dept. of Biology Plant Sciences Track offers a prime opportunity to promote botanical research based at FTU. Future researchers can further refine and analyze the network map resulting from the interviews and participant observations for the accuracy of its representation: They could expand it to include measures of the strength of a connection and of the dynamics of interconnections, such as the time periods of formation for reciprocal internal and external interconnections. A substantial improvement of the network map requires an explicit multiscale framework of interconnections and employs elements of graph theory to analyze linkage interconnections (Dilts et al., 2015).

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Elizabeth M. Harris (elizabeth.harris@ucf.edu) has taught at the university level and worked in various Herbaria for most of her career, arriving at UCF and the UCF Herbarium (FTU) in 2004, where she has worked to transform the underutilized herbarium collections to a vital resource for undergraduate and graduate student research and used them as valuable teaching aids.

Discussion Questions

1. This case study provides a model for identifying and developing linkages between a small natural history collection and its campus and surrounding communities. In different academic settings, what are the potential internal linkages between a small natural history collection and the college or university? What are the potential external linkages between the small natural history collection and the surrounding community?

2. What are some of the possible positive outcomes for enlisting volunteer work from the (mostly) untrained general public? What are some of the possible negative outcomes? What strategies could one employ to mitigate the potential negative outcomes?

3. Collections in academic settings often compile online databases of their collections. How can curators develop databases or other forms of a virtual presence to build remote connections? How can collections build and maintain a virtual community of support, especially during times such as the global COVID-19 pandemic, when social distancing practices and widespread lockdowns limit physical interaction between the collection and the community? What are some possible opportunities for and innovative approaches to service-learning in this context?

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Note: Original interviews are available from the authors.

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Disaster at Moore Haven: How the 1926 Great Miami Hurricane destroyed a Small Town on the Shores of Lake Okeechobee

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Abstract

On September 18, 1926, a powerful hurricane made landfall in South Florida. It struck the booming new city of Miami, then moved inland to devastate the small agricultural town of Moore Haven, on the shores of Lake Okeechobee. When the poorly-designed earthen dike intended to protect Moore Haven failed, wave surges 15 feet high flooded the town, demolishing houses, farms and other structures, and drowning many townspeople. The high force winds crushed and obliterated the shacks of agricultural workers, which were constructed of scrap materials. The smaller canals scattered over the area carried the drowning victims to Lake Okeechobee's main canals. Relief teams from nearby Sebring were the first to arrive in Moore Haven, but post-hurricane conditions hampered their progress and made recovery and identification of victims difficult. At least 26, and perhaps as many as 50, unidentified victims of the hurricane are buried in a mass grave in Sebring's Pinecrest Cemetery, almost unmarked and difficult to find.

Keywords: Florida, 1926 hurricane, mass graves, Moore Haven, Sebring, Lake Okeechobee, forensics

Introduction

On September 18, 1926, a powerful hurricane, estimated to be a Category 4 with peak winds of 138 mph, made landfall in South Florida (Barnes, 2007, p. 9). It devastated the booming new city of Miami, then moved inland to wreak further destruction on the western shores of Lake Okeechobee. The great Miami Hurricane brought strong winds and severe flooding that devastated the small agricultural town of Moore Haven, killing hundreds of people and destroying multiple buildings, railroads, and other structures. Relief teams came down to Moore Haven from the nearest city Sebring, due to the significant damages, the scattering of victims, and the immense area that was flooded. These teams, however, were slow to arrive and found it difficult to recover bodies. Records are sparse, but it is said that Sebring's Pinecrest Cemetery has at least 26, but possibly as many as 50, unidentified victims of the hurricane buried in a mass grave.

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In the summer of 2019, Jim Pollard - then the president of the Sebring Historical Society, and Elaine Levey, director emerita of the Avon Park Depot Museum, visited Pinecrest Cemetery, but because the mass grave was poorly marked, they were unable to locate its site. Discussion followed about the need for a better marker and a possible application to have the mass grave listed on the National Register of Historic Places, with an appropriate marker. Levey and Pollard then suggested that the Honors students in Dr. Charlotte Pressler's fall 2019 Freshman English I class research the 1926 hurricane's effects on Moore Haven as an undergraduate research project, using the results in an application for National Register status (Levey, personal communication).

The Great Miami Hurricane of 1926 produced inland winds over 100 miles per hour and wave surges up to 15 feet tall. These extreme forces of the hurricane demolished Moore Haven's houses, farms, and buildings. As the wave surges rushed through the homes of the citizens of Moore Haven, an eyewitness, Lawrence W. Will (1978) saw a wall of black water carrying mud, grass, hyacinths, and debris. The powerful waves ripped people out of their homes, carrying them for miles and often eventually taking their lives. Will (1978) gives an anecdote about a family who suffered the immense trauma of the hurricane. When the black wall of water reached their home, it dragged out a woman and her four children separating the family and carrying them about two miles down the canal. While being hauled down the canal, the two youngest children drowned; the mother tied her children to a clothing line to prevent them from being dragged any further by the intense currents of the flooding town.

Many of the victims experienced ordeals like those of the poor woman and her family Will described. In fact, the forceful waters during the hurricane ended up transporting many of them and depositing them in piles as high as houses in the Willow Swamps on the border of Lake Hicpochee (Will, 1978). The hurricane carried many of the victims in countless directions and distances, making search team efforts less effective than they might have been. As a result, many of the bodies were unrecognizable by the time they were found, or never discovered at all.

Despite the drastic damages caused by the hurricane, the people of a town not far away, Sebring, were among the first to deploy relief teams to the Moore Haven area. George E. Sebring, the town's founder, and his family owned agricultural land in the Moore Haven area, and had built a railroad to bring the produce to market.[4] When news of the destruction at Moore Haven arrived in Sebring "just after dark" on the day it struck, George Sebring "immediately took charge of the situation," using the railroad he had built to transport volunteers to Moore Haven (Pond, 2012, p. 33). Among the relief teams were search parties, food, water, and other necessary resources, and surprisingly the only two expert embalmers-funeral home directors in Sebring (C. Nelson, personal communication, October 30, 2019).

These two expert embalmers were Jack Stephenson and Ross Blythe; who experienced the catastrophe for themselves at first hand. The histories of the town of Sebring, the website of the Stephenson-Nelson Funeral Home, and the personal recollections of Craig Nelson, vice-president of the funeral home and descendent of one of its founders, preserve their story. Stephenson and Blythe had to travel via train, railroad sidecar, and boat to reach their final destination (Stephenson & Nelson, n.d.). Travel to Moore Haven became increasingly difficult the further they went, as a result of "tree-clogged, washed out roads" that extended a great distance across the Okeechobee region (Pond, 2012, p. 33), while the forceful winds of the hurricane had torn apart and flipped over the rails and ties of the railroad (Stephenson & Nelson, n.d.).

[4] Jenna Murphy, a student, carried out the research on this topic.

Once they finally reached Moore Haven, Stephenson and Blythe helped set up a temporary morgue within a post office, where they spent all day and night embalming the bodies that were found first, all the while standing in snake infested water that came up past their knees (Stephenson & Nelson, n.d.). Under these circumstances, the recovery process was slow and involved the continual removal of debris (Pond, 2012). When the second relief team arrived, both Jack and Ross returned to Sebring, bringing with them twenty-six bodies to give them a proper burial as well as many of the hurricane survivors (Stephenson-Nelson Funeral Home, n.d.). Soon after arriving in Sebring, the townspeople of Sebring buried the bodies in a mass grave in Pinecrest Cemetery marked only with a solitary stone that said "Moore Haven Storm Victims 1926" (Stephenson-Nelson Funeral Home, n.d.).

The unreliable forensics and identification techniques of the time resulted in the mass burial of these unfortunate individuals. During the 1920s, forensics and body identification were extremely basic; investigators asked simple questions of survivors to identify bodies, such as, "Does this look like your son, husband, daughter, mother, etc..?" (Stephenson & Nelson, n.d., para. 12). This was the only reliable form of identification. The family had to do all of the work, not the funeral home, if they wished for their deceased relative to have a proper casket burial in their family plot. Further, embalming was an uncommon, difficult practice in the 1920s that was done by hand (Stephenson & Nelson, n.d.). Without such preservation, the bodies would begin to decompose rather quickly and would soon be unrecognizable to family. On account of these burial and identification techniques, many of the dead went unclaimed; survivors buried them as quickly as possible in mass graves.

To summarize, the hurricane of 1926 had flooded Moore Haven, destroying its buildings, and dragging drowned victims for miles. The substantial hurricane damage, combined with the severe flooding, and the widespread dispersal of victims, contributed to the ineffective and haphazard collection and identification of bodies. The debris and flooding made it extremely troublesome to travel and search for both the survivors and victims. Since it was so challenging for the relief teams to search for the victims, bodies decomposed and became unrecognizable resulting in the need for a place to put the unidentifiable bodies. This place in Sebring is the mass grave for "Moore Haven Storm Victims 1926" in Pinecrest Cemetery, the town's effort to give the victims a respectful and honorable place to rest.

What had caused the ruin of the town of Moore Haven? The worst damages resulted, not from the 100 mph winds, but from the flood that followed them. This flood resulted from combined impact of the hurricane's powerful winds and surges on the inadequate earthen dike that was supposed to protect the town from the floodwaters of Lake Okeechobee. The poor building materials used to create the town's structures, assisted the flood in causing an abundance of damage to buildings. In short, due to its weak infrastructure and susceptibility to hurricane induced effects, the earthen dike on Lake Okeechobee failed to shield Moore Haven from its waters during the 1926 hurricane, destroying lives and property.

The year before the Great Miami Hurricane struck, in 1925, the Florida State Legislature made a decision to build a 57-mile earthen dike from Pelican Lake to Moore Haven, due to increased concern from frequent flooding (Mykle, 2002). The intent was simply to hold back some water from the summer rains as well as the western wind tides, but not to fully protect the surrounding land. This became obvious as the building method for the earthen dike consisted of lifting buckets of nearby materials -such as silt, muck, sand, and rocks- and placing them on top of the existing dike (Mykle, 2002). The builders imported no materials for this project (Mykle, 2002). The hunter gather-gatherer Calusa Indians, who had once dominated southern Florida,

created the first level of the dike on a foundation of muck covered with oolite limestone. In addition, in 1916, the Everglades Drainage District had built concrete locks at the end of each canal as a method to retain and control water (Mykle, 2002). These concrete locks and new canals caused the whole lake to contract by six feet and modified the natural flow of water.

The 1925 dike ended up being a structure about 5-9 feet tall that cut through the dead rivers of Lake Okeechobee. These dead rivers began at the lake's edge as wide outlets and became narrower as they proceeded downstream until they vanished. These seemingly harmless, small dead rivers could develop dangerous currents after heavy overflows (Mykle, 2002). In Moore Haven specifically, citizens had to rebuild the dike five times since the dead river underneath the dike did not provide a strong base foundation (Mykle, 2002). This was the dike that the people of Moore Haven relied on for protection during storms, including the 1926 hurricane.

An equally important aspect of the dike's infrastructure is the natural flow of Lake Okeechobee' waters. The lake's main outlet for flooding was the Caloosahatchee River, which arises at Lake Hicpochee near Moore Haven, and empties its waters into the Gulf of Mexico (Mykle, 2002). Although the Caloosahatchee River is Lake Okeechobee's principal outlet, numerous dead rivers also contributed to the water discharge of Lake Okeechobee when it overflowed. The dead rivers proved to be an additional factor that contributed to the flooding of Moore Haven, since this part of the earthen dike fortuitously sat over a dead river, which during the storm began to wash away. Dozens of breaks then widened, sending black lake water down the streets of Moore Haven (Mykle, 2002).

The historical structure of the earthen dike and the natural flow of water from Lake Okeechobee provides insight as to how the dike responded to hurricane-induced rains and winds. The surge, an overall result from the wind, and its prompted currents imposed too much force on the earth levee at Moore Haven, which resulted in about 392 fatalities. The poor base structure was no match for the hurricane's powerful winds and rains. Although Yuepeng Li et al. (2016) and his research group focused on the modern Herbert Hoover Dike on Lake Okeechobee, they suggest that the erosion effects they describe will occur with any dike that has to withstand a strong hurricane. One of their insights is that the storm-induced winds impelled strong water currents, which are a dominant factor on dike erosion damage, these areas being consistent with the high wind zones.

Unfortunately, Lake Okeechobee's characteristic shallow depth worsened the effects of the 1926 hurricane. The hurricane's high wind speeds can be associated with normal water fluctuations in the bowl-shaped shallow lake, which has an average depth of 2.7m (Li et al., 2016). Lake Okeechobee's deepest point in its prime was never more than about 20 feet (Mykle, 2002). Eyewitness George Walker described the lake's condition during the 1926 hurricane: "The surface of the lake had actually shifted and was tilted at an angle- the lake was blown dry for a three miles" (Mykle, 2002, p. 88). On a shallow and yet expansive body of water, the hurricane-induced wind and surge created a significant impact on the lake and surrounding land of Moore Haven.

In consequence of the dike's inadequate protection during the 1926 hurricane, Moore Haven became a city underwater. Moore Haven had already had a history of flooding during the area's rainy season. After the first few storms of the rainy season, Lake Okeechobee typically regained the 100-200 yards that it had lost during the dry season (Mykle, 2002). Lake Okeechobee in those days did not have defined boundaries because its shores were constantly changing according to the season, rainy or dry (Mykle, 2002). Adding to this typical flooding

was the issue that Moore Haven had fortuitously built its portion of the earthen dike over a dead river. During the hurricane, the muck dike began to wash away and dozens of breaks widened, sending black lake water down the streets of Moore Haven (Mykle, 2002).

The section of the dike near Moore Haven mainly consisted of the muck side, which created a natural dike that held back some water (Mykle, 2002). The dike had to be continually be reinforced by the town's citizens owing to the moderate flooding that occurred after heavy rains (Barnes, 2007). When the dike failed in 1926, some Moore Haven houses simply disappeared, while others slowly floated out of sight; there was no dry land visible in any direction (Mykle, 2002). Lake Okeechobee was characteristically prone to heavy wind and water currents, which, when combined with the failed dike, resulted in the disastrous flooding of Moore Haven.

The flood had various impacts on residential architecture dependent on the building materials utilized. Stephen Olausen (1993), in *Sebring: City on the Circle,* states that residential building construction in Central Florida in the 1920s used wood almost exclusively, in Bungalow or Frame Vernacular designs. In fact, the better built residential buildings in Moore Haven sat on stilts that reached down about twelve feet, anchored to the top of marl bedrock (Mykle, 2002). These were the common housing types among the wealthy class in Moore Haven. Most agricultural workers, who could not afford these better built residential structures, lived in shacks, which they built in the uncultivated sections of the farms in which they worked or near canal banks, both undesirable areas due to occasional flooding (Mykle, 2002). They constructed their makeshift shacks from leftover scrap wood and tin (Mykle, 2002). Since building structures differed between the different social classes the effects of the flooding differed, as witnessed by the disparities in damage to structures occupied by poorer and wealthier residents, as noted in the aftermath of the hurricane in Miami.[5]

However, it could be said of all the structures in which Central Florida social classes lived, that the building styles that emerged reflected the diverse nature of the population and the adaptation to materials available locally (Olausen, 1993). Thus, while building materials differed between social classes, all structures made heavy use of wood, as the people of Moore Haven had easy access to lumber. Surrounding the lake were forests of pine trees, cypress, and some live oaks (Mykle, 2002). Analyzing the flooding impacts on lumber is important when considering the few building structures that were able to maintain their ground during the 1926 hurricane. Wood is badly impacted with long-duration inundation, with an outcome of "rot and decay resulting from the saturation of the wood fibers; this alone can affect the structural components and lead to a loss of structural integrity" ("Effects," FEMA). Long-term flooding on wood will boost the growth of mold and fungi if not removed, or dried immediately, or both, at most 24 to 48 hours after first occurrence of flooding ("Effects," FEMA). Long-term loss of structural integrity, however, was not the main concern of the agricultural workers; the floodwaters entirely and immediately crushed their shacks and the damage was total.

It is difficult for any building structure to survive the winds of a strong Category 4 hurricane. However, in Moore Haven in 1926, the structures included many shacks made of scraps that did not follow any type of building code, and dikes made of muck, which the townspeople had to continuously fix and repair. There is only a slight chance that under these conditions any building structure would survive; but adding a 15-foot wall of water on top of that resulted in the catastrophic flooding and near-destruction of the entire town. These were the chances the victims of Moore Havens had to face on September 18-21 of 1926. Acknowledging

[5] Shayla Cox and Taylor Deer, students, carried out the research on these topics.

the range of collateral damages Moore Haven experienced during the hurricane such as the faulty dike, the destruction of poorly-made building structures, and the weather-imposed effects is critical in understanding why the victims died.

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Discussion Questions

1. Why did the earthen dike intended to protect Moore Haven fail?

2. What was the association between the towns of Sebring and Moore Haven?

3. How did the undeveloped forensic methods of the 1920s affect body identification?

4. Why was there a difference in damage between the different house structures of the different social classes?

5. Why is there uncertainty about the total number of storm victims buried in the mass grave at Pinecrest Cemetery, Sebring?

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Language Preference when Learning a Third Language

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Abstract

Research demonstrates that learners typically rely on the first language (L1) when learning another language, regardless of whether it is the second (L2), third (L3), and so forth (Hermas, 2010). However, other research found effects related to language preference when considering order of language learned (Rothman, 2010). This study sought to determine whether language type influenced learning a third language when the third language related syntactically to the first or second language acquired. All participants were near bilinguals in Spanish and English and had varying proficiency levels in their L3. Participants rated sentences in a third language based on grammaticality. The results shed light onto the influence of language type above the order of language learned.

Keywords: cross-linguistic influence, third language acquisition, morphosyntactic transfer, processing strategies

Introduction

In the past 20 years, the area of third language acquisition (TLA) has gained popularity due to the growing need to distinguish between bilinguals and multilinguals (Leung, 2007). Results from previous research indicate that bilinguals demonstrate greater success than monolinguals when learning a third language (Cenoz, 2003; Klein, 1995; Sanz, 2000). However, Odlin (2003) claims that it is very difficult to narrow down the most influential factor in TLA and that there is not sufficient evidence to decide which factors are more or less influential.

Some research claims that TLA may use or activate any and all known languages (Flynn et al., 2004; Lemöhfer et al., 2004; Rothman, 2010). However, others claim there is a preference for L1 transfer in the initial stages of TLA (Hermas, 2010). Still others show a greater influence of the L2 in TLA (Falk & Bardel, 2010).

The present study sought to clarify the influence of the L1 and the L2 on the L3, when the learners were late bilinguals learning languages that relate syntactically to either the L1 or the L2.

Previous Research

Language similarities are evident in languages that share a proto-language. Languages such as Spanish, Italian, and French (and others) are typically grouped together as Romance languages as they derive from Latin, whereas English and German (and others) are considered Germanic languages as they derive from protogermanic (Rothman, 2010). For these reasons, we chose to examine Third Language Acquisition with different language ancestry (Romance and Germanic) and tested participants in Romance and Germanic languages (French and German.) By doing so, we hoped to gain clarity on how the L1 and L2 function in TLA.

Influence of the L1

Hermas (2010) investigated the contribution of syntax and its affect on the L3 initial state. The study employed acceptability judgment tests and preference tests with Arabic-French bilinguals learning English as an L3. Hermas found that the L1 strictly influenced the L3.

Bardell et al. (2013) investigated the role of metalinguistic knowledge in the first language when learning a third language. All participants were L1 Swedish, were L2 English, knew at least one Romance language, and were learning Dutch. All participants had varying levels of metalinguistic knowledge in the L1. The results demonstrated that the level of explicit knowledge in the L1 is a deciding factor in the beginning learning stages of L3.

Sanz et al. (2014) also investigated the roles of the first and second languages in learning beginning Latin. Participants were English speakers, from classrooms learning either Spanish or Japanese (i.e., late bilinguals). The results demonstrated that the significant improvement was due to influence from the first language (English). Sanz et al. suggest that in order to have higher influence from the second language, a greater proficiency level may be necessary.

Influence of the L2

Fouser (2001) investigated general language transfer in TLA. The participants' L1 was English, L2 was Japanese, and L3 was Korean. Japanese and Korean share syntactic similarities, but neither has syntactic commonalities with English. The results demonstrated that only the L2 (Japanese) had an influence on the acquisition of the L3, Korean.

Bardell and Falk (2007) also found that L2 transfer takes preference, at least at the initial stages of TLA. Bardell et al. (2013) investigated syntactic transfer of L1 and L2 to L3. The study tested 44 French-English or English-French participants (order of acquisition) on the acquisition of object pronoun placement in German. Results demonstrated that the L2 was the privileged source of transfer. These studies indicate that there is a significant influence of the L2 on TLA.

Llama et al. (2010) investigated L2 influence in phonological L3 acquisition. Two groups, L1 English-L2 French and L1 French-L2 English, read a list of words in Spanish with different phonological features and were tested on their ability to determine the difference. The results found L2 as the determining factor in both groups.

Riestenberg et al. (2015) investigated the role of explicit knowledge in order to explain the advantage of previous language experience in learning a third language as well as the potential role of second language ability. The participants were native speakers of English, who were learning Arabic as a second language and Latin as a third. Thirty-five native English-speaking learners of Arabic at three different levels completed computer-based training and testing tasks dealing with thematic role assignment in Latin. The results demonstrated that learners in the early stages of L3 development start with a strategy based on their first language, but as proficiency increases, second language strategy played an increased influence.

Influence from any Previous Language

Flynn et al. (2004) investigated the source of L3 transfer in formal syntactic features and functional categories. They examined the production of restrictive relative clauses in participants with L1 Kazakh, L2 Russian, and L3 English. The results demonstrated that any previously acquired language may aid in the acquisition of a new language.

Lemöhfer et al. (2004) investigated the effects of cognates in trilingual processing. The experiment consisted of 28 trilinguals with a background in Dutch, English, and German. Participants were tested on Dutch-German-English cognates and Dutch-German cognates, and were asked to determine whether each word was a real German word. The results demonstrated that all known languages can be accessed simultaneously during lexical processing.

Rothman (2010) investigated two groups of learners. Group 1 participants were L1 Italian, L2 English, and L3 Spanish at beginner to intermediate levels. Group 2 participants were L1 English, L2 Spanish, and L3 Portuguese. Group 2 had the same levels of knowledge in their L2 and L3. The participants learned adjective placement and meaning change in Romance language and completed tests to measure acquisition. The data revealed that L3 transfer can occur from L1 or L2 in the initial stages, and the determining factor during acquisition is language family closeness.

To summarize, previous research reveals that learning a second language involves an influence from either the L1 or the L2, or both the L1 and L2, when considering phonological, syntactic, and lexical acquisition as well as proficiency level and age of acquisition in the second language. The current study sought to determine leaner preference when determining grammaticality in a third language that is related syntactically to either their first or second language.

Research Question

The research question that guided this study is the following:

When determining the grammaticality of expressions in the third language (L3), do learners rely on the grammar of the first language (L1) or second language (L2)?

Hypothesis: If the L3 is related to the L1, learners will rely on the L1 when determining grammaticality. If the L3 is related to the L2, learners will rely on the L2 when determining grammaticality.

Methods

Participants

Participant 1 was a native English speaker. She had 11 years of Spanish instruction as well as experience living and studying in a Spanish-speaking country and described her reading, writing, listening, and speaking as advanced. She also studied 2 years of university level French and lived in a French-speaking country. She described her writing and reading in French as beginner, and her listening comprehension and speaking as intermediate. She had studied 2 months of beginning university Japanese at the time of testing.

Participant 2 was a native English speaker. She had 8 years of Spanish secondary and university instruction, and she described her reading, writing, listening, and speaking as advanced. She also had a beginner level of Polish and Swahili, and was enrolled in a first semester beginning university French course.

Participant 3 was a native speaker of Spanish. She has studied English for 18 years and lived in the United States of America for 4 years at the time of the test. She also had studied Italian for 15 years, which she rates as intermediate in the four areas.

Materials

The treatment covered the Romance (French) and Germanic (German) language families. The researchers chose French, a Romance language, for its syntactic similarity to Spanish. However, there are some very common differences in syntax between French and Spanish. For example, in Spanish, it is acceptable and even preferred to omit the subject pronoun in a sentence.

Hablo	*español*.	
speak-1st person singular-present		Spanish-noun.

In French, subject pronoun omission is ungrammatical, and it is normally necessary to include the subject pronoun.

Je	*parle*	*français.*
I-nom. pro. 1st pers. singular	speak-1st person singular present	French-noun.
The same is true in German.		
Ich	*spreche*	*Deutsch.*
I-nom. pro 1st pers. singular	speak-1st person singular present	German-noun.

Therefore, in the experiment below, learners were asked about the grammaticality of French and German expressions that were missing subject pronouns.

**parle*	*français.*
speak-1st person singular-present	French-noun.
**spreche*	*Deutsch.*
speak-1st person singular-present	German-noun.

If learners accept the ungrammatical sentences with subject pronoun deletion, this indicates learners are relying on Spanish for grammatical cues. If learners reject the ungrammatical sentences, this demonstrates learners are relying on English.

Another grammatical feature that differs in some Romance and Germanic languages is adjective placement. In general, the adjective comes after the verb in Romance languages. This is true for Spanish and French, with some exceptions. The researchers avoided these exceptions in the experimental materials.

French:

la	*robe*	*verte*
the-det.	dress-noun	green-adj.

Spanish:

el	*vestido*	*verde*
the-det.	dress-noun	green-adj.

In Germanic languages, in general, the adjective comes before the verb.

German:

das	*grüne*	*Kleid*
the-det.	green-adj.	dress-noun

Therefore, if the participants choose the adjective placement in front of the verb, they rely on cues from English. If they choose the adjective after the verb, they are relying on cues from Spanish.

Procedure

Participants completed a language history questionnaire (Appendix A). Participants informed researchers what language(s) they spoke at home or with their family (as they do not live at home during their university study); what other languages they spoke or studied; at what age they began speaking or studying the language; and for how many years they had spoken or studied the language. They answered questions about the countries they lived in and the languages they spoke while there. Finally, they self-rated their level in each language (beginner, intermediate, or advanced) in the areas of writing, reading, listening (comprehension), and speaking.

Next, participants read a list of vocabulary in French (Appendix B). They had two minutes to learn the vocabulary.

Next, participants completed a grammaticality judgment task in French (Appendix C). The expressions were either grammatical or ungrammatical based on subject pronoun deletion. All words on the grammaticality judgment task were from the vocabulary that participants had studied. Participants rated the expression as grammatically correct, questionable, or incorrect, and attempted to translate the expression to English. They saw no information about language

type or family. The type of pronoun deletion on the test was canonical in Spanish, but not acceptable in French.

Next, participants completed a grammaticality judgment task in French (Appendix D). The expressions were either grammatical or ungrammatical based on adjective placement. All words on the grammaticality judgment task were from the vocabulary that participants had studied. Participants circled the correct expression in French and again attempted translate the expressions to English. The adjective placement was canonical in Spanish and French.

Next, participants read a list of vocabulary in German (Appendix E). They had two minutes to review the vocabulary.

Next, participants completed a grammaticality judgment task in German (Appendix F). The expressions were either grammatical or not based on pronoun deletion. All words on the grammaticality judgment task were from the vocabulary that participants had studied. Participants rated the expression as grammatically correct, questionable, or incorrect, and attempted to translate the expression to English. Pronoun deletion items were unacceptable in both German and English.

Next, participants completed a grammaticality judgment task in German (Appendix G). The expressions were either grammatical or not based on adjective placement. All words on the grammaticality judgment task were from the vocabulary that participants had studied. Participants circled the correct expression in German, and attempted to translate the expression to English.

Results

In Table 1, we present the results from the pronoun deletion acceptability test. All three participants accepted 50% of the incorrect pronoun deletion in French. In German, Participant 1 accepted 10% of the incorrect pronoun deletion, Participant 2 accepted 20% of the incorrect pronoun deletion, and Participant 3 accepted 60% of the incorrect pronoun deletion.

Table 1
Pronoun Deletion for French and German Tests

	French	German
Participant 1	50%	10%
Participant 2	50%	20%
Participant 3	50%	60%

In Table 2, all participants correctly rejected incorrect adjective placement in French.

Table 2
Adjective Placement in French

	French
Participant 1	0%
Participant 2	0%
Participant 3	0%

In Table 3, Participant 1 accepted incorrect adjective placement in German for 40% of the items. Participant 2 and 3 accepted 0% of the incorrect adjective placement.

Table 3
Adjective Placement in German

	German
Participant 1	40%
Participant 2	0%
Participant 3	0%

Discussion

Participants in the grammaticality judgment tasks demonstrated a preference for Spanish pronoun deletion and Spanish adjective placement when judging French sentences. When judging German sentences, participants demonstrated a preference for English subject pronoun cues and English adjective placement.

There were some issues that the researchers feel could have influenced the outcome of the study. The first was the lack of French and German language data. For example, though participants were given a vocabulary list, they were not given examples of French or German intact sentences, so the only cue they had to determine the grammaticality of an expression was their first or second language. However, they performed differently in French and German, which indicates the influence of the language family, the main focus of the study, regardless of their experience with another language beyond the languages they considered advanced or native.

Another factor to consider is the participants' language history. All participants have an L3 in a Romance language; however, two have an L3 of French and L1 of Italian. Further testing with more participants with different fluency levels in their L3 could paint a clearer picture of the effects of L1 and L2 on L3, and the effects at the different stages of L3 acquisition.

Conclusion

The goal of this study was to determine learner preference of L3 grammar. Researchers employed grammaticality judgment tests in order to determine whether the first or second language was more influential when learning a third. We hypothesized that based on the similarity to the language being learned, the learner would rely on either the first or second language. Results demonstrate that language type influenced learners' third language acquisition.

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Appendix A

Language History Questionnaire

1. What language(s) do you speak at home/with your family?

   _____

2. Please list the languages you have: spoken/studied, the age at which you began to speak/study these languages, and the total number of years you have been speaking/studying each language.

	Language	Age began speaking/studying	Years spoken/studied
1.	_____		
2.	_____		
3.	_____		
4.	_____		

3. What countries have you lived in, for how long and what language(s) did you speak/study while there?

	Country	Duration	Language
1.	_____		
2.	_____		
3.	_____		
4.	_____		

4. At what level do you consider your ability to be in the languages you have studied? [beginner (B), intermediate (I), advanced(A)]

	Language	Writing	Reading	Listening	Speaking
1.	_____	B I A	B I A	B I A	B I A
2.	_____	B I A	B I A	B I A	B I A
3.	_____	B I A	B I A	B I A	B I A
4.	_____	B I A	B I A	B I A	B I A

Appendix B

French Vocabulary and Expressions

Nouns

1. Le Magasin: Store
2. Le Chat: Cat
3. La Terre: ground, earth, land
4. La Mère: Mom
5. L'école: School
6. La voiture: Car
7. L'œil: eye
8. L'enfant: Child
9. Le Chien: dog
10. La femme: woman
11. le bateau: Boat
12. Le plat: dish
13. L'homme: Man
14. La chaussure: shoe
15. Le devoir: homework
16. La course: race
17. Le livre: book
18. La classe: class

Verbs

1. Va: goes
2. A: has
3. Tombe: falls
4. Appelle: calls
5. Promène: walks
6. Est: is
7. Aime: loves
8.Nager: to swim
9. Fait: does
10. Courir: run
11. Assiste: attends

Adjectives

1. Haut(e): tall
2. Amusante: Funny
3. Sympathique: nice
4. Bas(se): short
5. Content(e): happy
6. Jaune: yellow
7. Bleus: blue
8. Russe: Russian
9. Precieux: precious
10. Triste: sad
11. Vert: green
12. Ancien: ancient, antique
13. Intelligent: Smart
14: Brunes: brown
15: Libre: Free
16: Gratuit: Free

Prepositions

1.Sur: on
2. Au: at/to
3. A: to
4. Ses: His

Pronouns

1. Il: He
2. Elle: She
3. Sa: Her

Expressions:

1. deux fois chaque jour: twice a day

Appendix C

French Pronoun Deletion Test

Determine whether each sentence written in French is grammatically correct (✓), questionable (?) or incorrect (x). On the line provided below, give an English translation of each sentence.

1. Va au magasin. Correct (✓) Questionable (?) Incorrect (x)

_____

2. (Il/Elle) a un chat. Correct (✓) Questionable (?) Incorrect (x)

_____

3. Tombe sur la terre. Correct (✓) Questionable (?) Incorrect (x)

_____

4. Appelle sa mère deux fois chaque jour. Correct (✓) Questionable (?) Incorrect (x)

_____

5. (Il/Elle) promène à l'école. Correct (✓) Questionable (?) Incorrect (x)

_____

6. (Il/Elle) est haut(e). Correct (✓) Questionable (?) Incorrect (x)

_____

7. Est amusant(e). Correct (✓) Questionable (?) Incorrect (x)

_____

8. (Il/Elle) est sympathique. Correct (✓) Questionable (?) Incorrect (x)

_____

9. Est bas(se). Correct (✓) Questionable (?) Incorrect (x)

_____

10. (Il/Elle) est content(e). Correct (✓) Questionable (?) Incorrect (x)

_____

Appendix D

French Adjective Placement Test

Circle each grammatically correct French phrase. Then, provide an English translation.

1. (La jaune voiture.) (La voiture jaune.) _____

2. (Les yeux bleus.) (Les bleus yeux.) _____

3. (Le chat russe.) (Le russe chat.) _____

4. (L'enfant précieux.) (Le précieux enfant.) _____

5. (Le chien triste) (Le triste chien.) _____

6. (La femme contente.) (La contente femme.)_____

7. (Le bateau vert.) (Le vert bateau.) _____

8. (Les plats anciens.) (Les ancien plats.) _____

9. (L'homme intelligent.) (L'intelligent homme.) _____

10. (Les chaussures brunes.)(Les brunes chaussures.)_____

Appendix E

German Vocabulary and Expressions

Nouns	Verbs	Adjectives
1. Laden: Store	1. Geht: goes	1. Groß: tall
2. Katze: Cat	2. Hat: has	2. Lustig: fun
3. Boden: Ground	3. Fällt: falls	3. Nett: nice
4. Mutter: Mom	4. Ruft: calls	4. Klein: short
5. Schule: School	5. Laufe: walks	5. fröh: happy
6. Auto: Car	6. Ist: is	6. Gelbe: yellow
7. Auge: Eye	7. Trinkt: drinks	7. Blauen: blue
8: Kind: Child	8. Macht: makes	8. Russische: russian
9: Hund: Dog		9. Kostbare: precious
10: Frau: Woman		11. Traurige: sad
11: Boot: Boat		12. Glückliche: happy
12: Gerichte: Plate		13. Grüne: green
13: Mann: Man		14. antiken: antique
14: Schuh: Shoe		15. Intelligente: smart
15. Hausaufgaben: homework		16. Braunen: brown
16. Kaffee: coffee		17. Hungrig: hungry

Prepositions:	Pronouns:
1. In: in	1. Er: He
2. Eine: a	2. Sie: She
3. Auf: on	3. Seine: His
4. Den: the	4. Ihre: Her
5. Zur: to	

Expressions:

1. zweimal am Tag an: twice a day

Appendix F

German Pronoun Deletion Test

Circle whether each phrase in German is grammatically correct (✓), questionable (?) or incorrect (x). On the line provided below, give an English translation.

1. (Er/Sie) ist nett. Correct (✓) Questionable (?) Incorrect (x)

_____

2. Geht in den Laden. Correct (✓) Questionable (?) Incorrect (x)

_____

3. (Er/Sie) ist lustig. Correct (✓) Questionable (?) Incorrect (x)

_____

4. Hat eine Katze. Correct (✓) Questionable (?) Incorrect (x)

_____

5. (Er / Sie) fällt auf den Boden. Correct (✓) Questionable (?) Incorrect (x)

_____

6. (Er/Sie) ist klein. Correct (✓) Questionable (?) Incorrect (x)

_____

7. Ruft (seine/ihre) Mutter zweimal am Tag an. Correct (✓) Questionable (?) Incorrect (x)

_____

8. Ist fröh. Correct (✓) Questionable (?) Incorrect (x)

_____

9. (Er/Sie) laufe zur Schule. Correct (✓) Questionable (?) Incorrect (x)

_____

10. (Er/Sie) ist groß. Correct (✓) Questionable (?) Incorrect (x)

_____

Appendix G

German Adjective Placement Test

Circle the grammatically correct German. Then, give an English translation.

1. (Das gelbe Auto.) (Das Auto gelbe.) _____
2. (Die blauen Augen.) (Die Augen blauen.) _____
3. (Die russische Katze.) (Die Katze russische.) _____
4. (Das kostbare Kind.) (Das kind kostbare.) _____
5. (Der traurige Hund.) (Der hund traurige.) _____
6. (Die glückliche Frau.) (Die Frau glückliche.) _____
7. (Das grüne Boot.) (Das Boot Grüne.) _____
8. (Die antiken Gerichte.) (Die Gerichte antiken.) _____
9. (Der intelligente Mann.) (Der Mann intelligente.) _____
10. (Die braunen Schuhe.) (Die Schuhe braunen.) _____

About the Authors

Lauren Wilenski (laurenwilenski1@gmail.com) is an alumna of the University of Tampa, with a Spanish major and a Political Science minor, and she begins a Master's degree in Spanish in the fall.

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Discussion Questions

1. As a language learner, what influences from other languages have you noticed?

2. What role could cognates, or words shared by two or more languages play in language learning?

3. Is more easier to learn a language similar to one you already know, or one that is completely different?

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Life Forward

Kimberly R. Schneider

Educator

Background

Kimberly R. Schneider was the founding director of the Office of Undergraduate Research from 2007 to 2020 and currently serves as the Interim Assistant Vice Provost at the University of Central Florida. She has a B.S. from the University of Florida in Zoology and Ph.D. from the University of South Carolina in Biological Sciences. Her research interests are in marine ecology, science education, and high-impact educational learning practices.

Interview

By Hagai Graingarten
Editor-in-Chief, *Journal of Multidisciplinary Research*

1. Life is about stories. Do you have a favorite story you use as an icebreaker?

Over the years, I have gained inspiring stories from a variety of students with whom I have had the pleasure of working. I love to share these stories and where they are now with students just starting out in research (or even exploring the idea of research).

For example, we took a student to the Florida Undergraduate Research Conference (FURC) at the University of Tampa in his freshmen year to learn about research and talk to the presenters. He was a first-generation college student. He remained engaged during the entire event and I saw him chatting with the student presenters continuously. You could see him becoming inspired over the course of 24 hours. He continued engaging with our office, attending workshops and events. The following year, with his own poster in hand, he returned as a presenter! His confidence started to build, and he applied to summer research programs, and then started presenting at international meetings. In his junior year, he became a Goldwater Fellow. That student will begin a Ph.D. program at an Ivy League Institution in the fall with an NSF fellowship to cover five years of graduate work. It was so fulfilling to watch his evolution from naive freshmen to seasoned young researcher, and an excellent example of how success often starts with a single, unsure step into subjects you know nothing about.

2. What are the top three characteristics that contributed to your success?

Great question. I am sure my colleagues might come with others, but from my own perspective, I think they are as follow:

(1) Vision – I love exploring new ideas and growing them from the start. I found that surrounding myself with likeminded, adaptable, and smart team members could greatly enhance this vision. I have been fortunate to have amazing colleagues at UCF and collaborating institutions during my career to help develop new programs, opportunities, and to solve difficult problems.
(2) Organization Skills – Ideas need to be implemented and the details can be extremely important to success. One of my strengths is thinking through the layers of a program, event, or a research project to create an effective outcome.
(3) Work Ethic – When it comes down to it, hard work is what leads to success! Learning to use your time wisely and seek help when needed can increase your productivity and help ensure the vision becomes reality.

3. What life-changing events or decisions have guided your career?

My high school summer job was lifeguarding for a Florida beach patrol. This work got me excited about ecology and marine science. Baby sea turtles would wash up to our shore and I quickly became the turtle person for our beach zone. Lifeguards called me whenever one was

found, and I would coordinate with the 'turtle patrol' and have them come to rescue these little creatures. From this experience, I wanted to learn more about science. Working on the beach allowed me to make hands-on learning connection often lacking for student early in their careers. I enrolled in AP biology in high school and starting take life sciences courses as a freshman. When I was a junior in college, studying zoology, I had the opportunity to return to the beach patrol as a lifeguard summer camp instructor where I learned how fulfilling it was to excite others about science and how our world works. This led me to getting involved in undergraduate research, and pursue a Ph.D. in Marine Ecology, which eventually led to my interest in helping others find their path toward a career in research and science.

4. What is the biggest misconception about you?

Early in my tenure as director of undergraduate research, I heard I was intimidating. I may have been overcompensating for being 30 years old, straight out of my Ph.D., and being given the opportunity to start an office. My job was an exciting but challenging opportunity. However, hearing that I was intimating was tough; I wanted students to be comfortable working with me. I have worked to break down that barrier with students over the years to try to be sure I am accessible and relatable. After all, my career is focused on helping others to follow their research dreams.

5. You are considered the de facto founder of The Florida Undergraduate Research Association (FURA). Please take us behind the scenes during founding of FURA and your vision for the organization.

While at a conference focused on "best practices" in undergraduate research for the state of Florida, myself and two colleagues, Michael Aldarondo-Jeffries (UCF) and LouAnn Hawkins (UNF), began discussing the need for a statewide event that allowed Florida's numerous undergraduate researchers to showcase their work. Importantly, this event would need to be low-cost to help undergraduates without external funding to attend. By partnering with other colleges and universities throughout the state to keep costs low, we were able to create FURC (Florida Undergraduate Research Conference); a high-impact experience open to all students that gives them the opportunity to connect with each other, strengthen their communication skills and even find potential graduate school homes. Ten years later we have grown into the FURA and now host other events and opportunities (e.g., Posters at the Capitol). Dr. Eric Fruendt took over the leadership of FURA last year and has great vision for the next steps of this growing organization.

6. What books have you read lately?

I have a 9- and a 7-year-old so rarely get to read for pleasure these days, and I have a stack of books waiting for my next vacation. I did just receive Lin-Manuel Miranda's *Gmorning, Gnight! Little Pep Talks for Me and You.* With everything going on in the world right now, I look forward to enjoying some inspirational words and sharing some of this with my family.

7. Imagine your phone rings and it is you from 10 years ago. If you only had a minute to talk, what would you say? (Yes, I know, buy AAPL.)

Learning how to say no. And I am still learning this important life lesson. In the past 10 years I have become a mom of two amazing boys, received several NSF grants, and have learned a lot about balance and personal expectations. You cannot do everything that you will want to do, or that others will ask of you. There is a tremendous amount of responsibilities required in balancing your personal and professional goals. Sacrificing one can hurt the other but learning how to put limits on your professional life is essential.

8. What elevator speech would you give children about success in life?

Being comfortable with failure. Failure is often feared but it teaches children about the importance of persistence. Successful people fail temporarily. But not trying is the only true failure. Don't defeat yourself before you even try.

I encourage students to apply for scholarships, fellowships, programs, and positions. The worst outcome is "no" but often students get a 'yes' and their future path begins to change and widen. Once a student applied to 10 summer research program and was denied entry to all of them. The following year she did the same and applied to a dozen. I appreciated, and encouraged, her diligence. She was invited to join only one of those 12! She only needed one acceptance after 20+ applications over the course of two years. She returned from the program having had an amazing summer experience and is in a fully funded graduate program now. The one 'yes' remained on her resume, the 21 rejections are history!

9. What is the best advice you have ever received, and who gave it to you?

My mom discussed terminal degrees with me from an early age. She taught me the value of being self-reliant by completing my education goals. As a single mom, she went back to school to complete a second bachelors and a master's thesis program when I was in elementary school. It was hard to take care of two children and complete her graduate work. I remember her handwriting her master's thesis and bringing it to a typist to print (very different times). She wanted to protect me from those struggles by encouraging me to complete advanced degree early in my life.

10. What would you like to see as your life's legacy?

Growing and diversifying the research pipeline at UCF and the entire state of Florida. I would like every student who wants to be involved in research to have that opportunity. Part of this is making students know that they can be part of the academic community and that often requires breaking down preconceived notions about research.

The way research experiences change lives is indescribable. My favorite day of every year is our UCF poster showcase, the excitement in every student's eyes shines through. I see their confidence expanding and their future getting brighter. Students take ownership of a project and become academic scholars through the process of dissemination. At the end of the day, 100s of students have built their resume and shared their amazing work.

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Book Review

Book Details

Hollensen, S., Kotler, P., & Opresnik, O. M. (2020). *Social Media Marketing: A Practitioner Guide* (4th ed). Columbia, SC: Opresnik Management Consulting, 219 pages, $15.90, softcover, ISBN: 979-8643250623.

Reviewer

Hagai Gringarten, Ph.D.

Synopsis and Evaluation

Social Media Marketing: A Practitioner Guide (2020) is a timely, clear, and practical guide for social media marketing. The book, co-authored by leading academic marketing experts, focuses on the operational aspects of social media marketing. Marc Opresnik is a distinguished professor of marketing and a member of the Board of Directors at the SGMI Management Institute St. Gallen in Switzerland. Philip Kotler is a world-renowned marketing professor, and Svend Hollensen is a distinguish professor of international marketing at the University of Southern Denmark, with extensive global consulting experience.

Professors Opresnik, Kotler, and Hollensen combine academic research and personal experience to explain and demonstrate how to create and implement relevant and pragmatic social media marketing. This book provides proven tactics and serves as an indispensable guide for marketers and students of social media. According to the authors, many books merely look at the strategic aspects but neglect to consider the importance of the operational aspect. *Social Media Marketing: A Practitioner Guide* (2020) provides appropriate concepts and practical advice for successful digital communications strategies.

Throughout the book, the authors provide proven, real-world tactics combined with practical tips, which makes the book authentic and indispensable for students and practitioners alike. This completely revised and extended fourth edition is divided into five major sections:

(1) Social Media Marketing Planning,
(2) Digital Marketing Research,
(3) Fundamentals of Social Media Marketing,
(4) Digital and Social Media Marketing Tools and Platforms,
(5) Social Media Marketing Controlling.

Clever, clear, and a practical guide on creating and executing social media marketing strategies, Opresnik, Kotler, and Hollensen's *Social Media Marketing: A Practitioner Guide* (2020) is an innovative, smart, and enjoyable book. Considering that social media is a critical element of marketing in the 21st century, this book is a must-read book for marketers and future marketers.

In the Author's Own Words

"This completely updated and extended fourth edition of 'Social Media Marketing' guides through the maze of communities, platforms, and social media tools so that marketers can decide which ones to use, and how to use them most effectively. With an objective approach and clear, straightforward language, it shows how to plan and implement campaigns intelligently, and then measure results and track return on investment" (Preface).

"A social media marketing plan is the summary of everything the company plans to do in social media marketing and hopes to achieve for the business using social networks....In general, the more specific the company can get with their plan, the more effective they will be in the plan's implementation" (p. 4).

Reviewer's Details

Hagai Gringarten, Ph.D. (hagai@stu.edu) is a marketing professor, teaching branding strategies and marketing at St. Thomas University's Gus Machado School of Business. Dr. Gringarten was a Visiting Professor at Beijing Jiaotong University in Beijing and Harbin Finance University in Harbin, China. He has served as president of the American Marketing Association South Florida chapter and co-authored a bestselling book about coffee. Dr. Gringarten is Publisher & Editor-in-Chief of the *Journal of Multidisciplinary Research* (JMR) and serves on the review board of the *Journal of International & Interdisciplinary Business Research*, a California State University system publication. He also serves as a board member of the Florida Undergraduate Research Association (FURA). His latest book, *Ethical Branding and Marketing: Cases and Lessons* (Routledge, 2019), was recently published in Japan, the U.K., and the U.S.A.

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