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LETTER FROM THE EDITOR

The editorial staff and I are proud to present the thirteenth volume of *Lucerna*. This volume offers another year of exemplary, interdisciplinary scholarship. Addressing topics from dance to mathematics to political science and more, this volume is a proud testament to the valuable contributions of undergraduate research. The staff and I hope that this journal is yet another highlight of the significant academic achievement of the University of Missouri-Kansas City's undergraduate community. Without the dedicated and talented editorial staff, the selection and publication of the high-quality research presented in this journal would not be possible. These are student editors who volunteer their time to dedicate themselves into driving Lucerna's mission of producing high-quality interdisciplinary undergraduate research. I would also like to congratulate the chosen authors of this volume for honoring Lucerna with the opportunity to review, edit, and publish their work. These authors, like the authors of previous volumes, create new ideas, thoughts, and conversations that further stimulate the intellectual curiosity of our community through their research.

I would like to thank the committed faculty mentors who worked with the authors to make this journal possible. My sincere thanks go to Dr. Henrietta Rix Wood, Dr. Richard Delaware, Dr. Erin Hambrick, Hollie Hayes, Dr. Debra Leiter, Mary Jean Miller, and Dr. Rachel Chantos. The effort these mentors make to cultivate and foster growth in their students should not go unnoticed as their work is a significant building block towards the publication of this journal.

Additionally, the continuous support of the UMKC Honors College faculty and staff helps make *Lucerna* a reality. The UMKC Honors College has always provided much needed support and guidance, and its faculty and staff encourage the research this journal recognizes. Special thanks are due to *Lucerna*'s 2017-2019 faculty advisor, Dr. Henrietta Rix Wood. Dr. Wood is always available to help our staff and assist with
questions and concerns, and she has showed the utmost commitment to the journal’s continued success. Alisa Carmichael, the Executive Assistant of the Honors College, also deserves recognition for taking the time to help assist with the editing process of the journal. I also would like to thank Dr. Gayle Levy and Dean James McKusick for their constant support of Lucerna’s goals. My thanks also go to Professor Paul Tosh and the talented Egghead Student Design Agency for their design of Lucerna Volume 13. Thank you to Laura Wuthnow and Jack Wrisinger, who designed the Volume 13 cover and formatted the journal, respectively. Lastly, I would like to give very special thanks to Dr. Jim Sheppard for his role as the founding faculty of Lucerna. His work and the people he inspired has led to the publication of thirteen volumes of innovative research. Lucerna would not have been possible without the many people who dedicate many hours to see the journal flourish. I am humbled and honored to have been part of such a significant process as Editor-In-Chief. Working with the editorial staff, faculty, and authors, as well as having the support of UMKC, has been an incredible and rewarding experience. Congratulations once again to the authors whose work is published in this volume, as well as those students recognized with honorable mentions. I wish you the best as you work towards future endeavors and aspirations, and I hope you continue to foster new ideas, conversations, and experiences.

Sincerely,
Anthony Gilyard
2017-2018 Editor-in-Chief

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EDITORIAL BOARD

EDITOR-IN-CHIEF: ANTHONY GILYARD

Anthony Gilyard is a senior at UMKC majoring in business administration with an emphasis in management. He chose to attend UMKC for its diversity and unique educational opportunities. Anthony is currently in his third year with Lucerna, and he has assisted in planning the symposium for Lucerna Volume 11, led the symposium-planning process for Lucerna Volume 12, and was a published author in Lucerna Volume 11. Always looking for diverse and unique opportunities, Anthony was an intern at Truman Medical Centers in summer of 2018, where he worked directly under the hospital's compliance officer. Upon graduation from UMKC, he hopes to become a business analyst/consultant, helping organizations big and small to grow and improve. Outside of his studies, Anthony enjoys baking, reading, a good video game, and exploring Kansas City.

MANAGING EDITOR: JOSEPH ALLEN

Joseph Allen is a second-year student at UMKC pursuing a Bachelor of Science in biology with a Biomedical Sciences (BMS) emphasis, a minor in chemistry, and the distinction of an Honors Scholar. Joseph has been involved with Lucerna for the past two years and he is grateful and humbled to be a member of and work with the incredible Lucerna team. Outside of Lucerna, Joseph is engaged in research of multiprotein complexes regulating neural stability at the Ryan Mohan Laboratory. After graduating from UMKC, Joseph plans to attend medical school and attain an MD-PhD with the goal of becoming a neurosurgeon. Joseph enjoys spends his free time hiking, fishing, painting, cooking, playing piano, or sitting down to a good book and a cup of coffee.
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What’s the Difference?

   Pleasance Mertz

The Influence of Animal Behavior on Zoonosis Infection and Transmission: The Ebola Virus as a Model

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A FATHER’S FANTASY: DEPICTING CLASS
IN JAN STEEN’S FANTASY INTERIOR

BY: CAROLYN NORDENGREN

The economic stability of seventeenth-century Holland resulted in a substantial accumulation of wealth in the middle-class. During this time, many families were able to improve their station in life by purchasing country estates and the aristocratic titles that came with them. A great number of privileges came with the wealth and status these new nobles found. These families could enjoy lives of leisure, expensive clothing, and lavish homes. It was common practice among the nobility to commission whole family portraits to document their lives and wealth. This paper examines the portrait of one such middle-class family whose wealth enabled them to launch themselves into the aristocracy. The family portrait, *Fantasy Interior with Jan Steen and the Family of Gerrit Schouten*, at first glance seems to be a typical group portrait of the Dutch Golden Age. However, the portrayals of the parents and children reveal much about the family’s changing position in Dutch society. While the parents are represented firmly in middle-class portraiture traditions, their children are clearly shown as members of the elite. *Fantasy Interior with Jan Steen and the Family of Gerrit Schouten* represents a fantasy many parents have for their children, a desire that they will live a better life by climbing the socioeconomic ladder. For the Schouten family, this was a fantasy that was within reach.

It is a common wish among modern parents for their children to live a better life than they did. While one parent's
definition of a better life may differ slightly from another’s, a common feature is the hope that their children will climb the socioeconomic ladder. This desire is not unique to the modern day. Parents throughout history have expressed this desire, and some were fortunate enough to be able to provide that future for their children. Such was the case for the Schouten family of seventeenth-century Holland. With the purchase of a country estate, and with it an aristocratic title, the Schouten family was able to make itself part of the elite. Upward social mobility was one defining feature of the Dutch Golden Age. The economic stability of seventeenth-century Holland presented many middle-class families with the opportunity to accumulate wealth. Many families used this wealth to purchase country estates that carried aristocratic titles in the same manner as the Schoutens. These families and their descendants could look forward to lives of leisure, surrounded by the trappings and privileges of their new wealth and status. In *Fantasy Interior with Jan Steen and the Family of Gerrit Schouten*, Jan Steen presents the life of the newly noble Schouten family as the patriarch imagines it will one day be.

Painted circa 1660, *Fantasy Interior with Jan Steen and the Family of Gerrit Schouten* presents a family at home (Nelson-Atkins Museum of Art). (Fig. 1) The family depicted in *Fantasy Interior* has been identified as that of Gerrit Gerritsz Schouten the Younger. Gerrit Schouten is found seated near the fireplace; he has turned around in his chair to face the viewer and his wife Geertruy can be seen in the kitchen through an open doorway. Though she at first appears to be a servant, she is distinguished by the beauty mark on her left temple, a symbol reserved for upper-class women. Schouten’s son Jacobus offers a serving tray with a peeled lemon to his sister Cornelia while their younger sisters Maria and Machtelt play the clavichord and lute, respectively. A black servant is in the bottom left corner of the work. Jan Steen takes center stage: framed by the fireplace, he can be seen talking to Gerrit Schouten.
(Cloutier-Blazzard) The surroundings of the family signify wealth. From the tapestries covering the walls to the statues that decorate the room and the golden frame around the painting above the fireplace, this interior would have cost a great deal of money to decorate.

The Schouten family was not always believed to be the sitters for this portrait. Scholars had previously identified them as Steen’s in-laws, the Van Goyens, however there are several signs that allow us to confidently point to the Schoutens as the family depicted. Much of the new identification is a result of the research done by Kimberlee Cloutier-Blazzard in “The Elephant in the Living Room: Jan Steen’s Fantasy Interior as Parodic Portrait of the Schouten Family.” The Schoutens had a few connections to Jan Steen. In addition to being long-time patrons of Steen, eventually appearing in at least five of his works, the Schoutens were also related to the artist by the marriage of Steen’s aunt to Geertruy’s brother. A major identifier of the Schoutens as the sitters is the painting hanging above the fireplace in *Fantasy Interior*. This painting, a battle scene, significantly features an elephant, a direct connection to the name of the Schouten family’s brewery, the Elephant Brewery. The prominence of this elephant highlights the importance of the Elephant Brewery to the Schouten family. It is, after all, the source of their wealth. It was the profits from this brewery that enabled Gerrit the Younger’s father, Gerrit the Elder, to purchase a country estate, and with it an aristocratic title. When Gerrit the Elder passed away, the brewery, estate, and, most importantly, the aristocratic title were all inherited by Gerrit the Younger. Family records indicate this inheritance occurred around the same time *Fantasy Interior* was commissioned. (Cloutier-Blazzard)

A rise in class like the one the Schouten family experienced was not an uncommon occurrence in seventeenth-century
Holland. While the rest of Europe struggled economically under the House of Orange-Nassau, Holland's economy flourished and remained stable for over a century. This growth of wealth was concentrated in the middle-class (Mainstone and Mainstone). In addition to new clothes and country estates, the newly wealthy used group portraits to display their rise in status, a common practice for the Dutch elite. These portraits often emphasized features that customarily set the nobility apart from the middle-class in Dutch portraiture tradition. (Wilson) Most commonly, portraits of the Dutch nobility portrayed sitters wearing expensive clothing and engaging in leisure activities. The bright colors and luxurious fabrics worn by Dutch nobility marked them as wealthy. One of the most important aspects of portraits of the Dutch elite is that they are portrayed at rest. (Westermann) The wealth of the nobility afforded them the luxury of leisure inaccessible to lower classes. In portraits the nobility hardly ever depicted themselves at work; they instead engage in conversation or play music. Both features were designed to demonstrate that these members of the upper class were different from the middle and working classes (Cloutier-Blazzard). They did not have to work every day to ensure the survival of their family. Rather they could afford to rest, engage in hobby activities, and wear clothing designed for style, not function.

The middle-class, on the other hand, preferred more conservative portraits, when they could afford them. They chose to portray themselves in understated fashions with muted colors (Gordenker). This is in part out of accessibility, as vibrant colors and elaborate clothing were far more expensive than the middle-class could comfortably afford. Their clothes were also designed to be practical. The Dutch middle-class placed a heavy emphasis on hard work. They believed that working hard was a sign of one's moral values (Westermann). Traditional paintings of the middle-class showed the figures engaged in work, and therefore depicted
their moral values. Women did housework and quite often they are shown cleaning. In the Dutch Golden Age, a clean house was of the utmost importance, as it reflected the moral character of its inhabitants. Men busied themselves with work concerning the outside world; they are portrayed conducting business transactions, updating records books, even delivering sermons (Westermann). Regardless of gender roles, all of these activities serve to drive home the point that these members of the middle-class worked hard and were, therefore, moral people.

It is the Schouten family's rise in class that Steen explores in his *Fantasy Interior*. Other scholars have argued that *Fantasy Interior* represents the Schouten family as they navigate this change. While this analysis does take into account the Schouten family's social status and existing portrait traditions, it forgoes the fact that this interior is, as the title reminds us, a fantasy. The room portrayed in *Fantasy Interior* makes multiple appearances in Steen's body of work. The same fireplace, tapestries, golden frame above the fireplace, and even some of the furniture appear in both *The Artist Eating Oysters* and *Easy Come, Easy Go* (Westermann). Patrons allowing the depiction of their home in paintings for other customers is highly unusual; so this is likely not the home in which the Schouten family actually lived. Nor is it Steen's own home, as he could not have afforded such a lavish space on the meagre income of an artist in seventeenth-century Holland (Westermann). This space was likely an interior invented by Jan Steen to act as the setting for paintings. The lavish space lent itself well to be the setting for the Schouten family's commemoration of their rise in status.

Schouten commissioned Steen to paint a portrait of his family; these men sit in the center of the resulting painting. They have paused in a conversation as Steen gestures outwards, towards the Schouten children and the viewer. Schouten wears the
conservative garb of a middle-class man, serving as a sharp contrast to the clothing of his four children and the riches of the surrounding room. It is clear that he is not displaying the same level of wealth as his children. The Schouten children take full advantage of the expensive and colorful fashions they could afford as nobility. The children are also at leisure, another sign of nobility. Two daughters play music, another has a book in her lap and her brother offers her a lemon. In a clear departure from the portraiture traditions of the Dutch middle-class, none of them are concerned with the upkeep of a home or business. The children have embraced the free time their status has afforded them. In keeping with portrait traditions of the aristocracy, the figures of the daughters have also been elongated, a sign of the grace and elegance characteristic of noble women (Westermann).

In the background is Schouten’s wife Geertruy, busy with housework and separated from the activities taking place in the next room. As in portraits of many middle-class women, Geertruy's diligence indicates her hard-working character. Her clothing, like that of her husband, is in the middle-class style. From her actions and dress, the viewer can tell Geertruy, like her husband, does not portray the same level of wealth as her children. Geertruy’s placement, visible through the doorway to another room is an important compositional element. This arrangement is called a doorsien, roughly translated as "view through" (Hollander). Doorsiens, common features in Dutch paintings of this period, present a figure, landscape, or additional scene through a door or window (Hollander). In addition to providing depth and spatial context to a painting, doorsiens could serve to provide additional information about the primary image (Hollander). Geertruy in her doorsien does just this. By acting and appearing as expected for a middle-class wife, she reminds the viewer of the middle-class background of the Schouten family and further emphasizes the luxury experienced by her children.
In *Fantasy Interior with Jan Steen and the Family of Gerrit Schouten* the parents and children are depicted with two different socioeconomic statuses. The parents are portrayed firmly in middle-class traditions while their children are clearly presented as members of the nobility. These differences, when combined with the fact that the room does not belong to the Schoutens, inform the viewer that this is not an accurate depiction of the Schouten's life. Even more information can be gained when considering Steen and Schouten in the center. Steen gestures outwards as Schouten turns to follow his gaze. Schouten and Steen have paused in a discussion to look out at the lives of the children, obviously not the same life Schouten himself leads. *Fantasy Interior* represents the fantasy Gerrit Schouten the Younger has for the lives of his children now that they have inherited his father's aristocratic title. Schouten, with the help of Jan Steen, is quite literally picturing a better life for his children— a life that is now within reach due to his inheritance of an aristocratic title.

*Fantasy Interior with Jan Steen and the Family of Gerrit Schouten* represents a dream many parents have for their children. A father's fantasy of a better life for his children has been brought to fruition through his family's hard work and illustrated by the hand of Jan Steen. Like many members of the seventeenth-century Dutch middle-class, the Schouten family benefited from their country's economic stability and utilized it to climb the social ladder. Through the purchase of a country estate, and with it an aristocratic title, the Schoutens launched themselves into the nobility. Suddenly, they had access to expensive clothing, lavish interiors, and the freedom to lead lives of leisure. Though the scene depicted in *Fantasy Interior* may not have been fully realized at the time of its painting, it was soon to come for the Schouten children.
Figure 1
Fantasy Interior with Jan Steen
and the Family of Gerrit Schouten
Works Cited


This essay examines the reflexive relationship between current correctional procedures in US prisons and subsequent re-offense rates among released inmates, a relationship that can be described as a recidivist cycle. In the ‘60s, the US saw a swift abdication of a short-lived era of rehabilitation implemented throughout US correctional facilities. Thereafter, as part of the “get-tough on crime” philosophy, correctional and political ideology shifted toward what is known as the crime control model. Under this model, prisons emphasize deterrence, retribution, and incapacitation as the strongest attack to counter public crime. The impacts of past policy decisions are analyzed through the lens of the crime control model and compared to a contemporary analysis of current penological approaches. Conclusions describe how the status quo perpetuates the recidivist cycle, meaning the correctional facilities fail at effectively correcting offenders and preventing future crime. Solutions are suggested to rehabilitate offenders via in-prison programs that target criminal cognitive behavior based on changing criminal thinking and behavior rooted in an offenders’ inherent criminality levels. Potential policy implications are also presented.

A man sits in his home flipping through newspapers for potential job opportunities. Days later, he arrives at an interview at a construction company. He has no prior employment, and he spent the last decade in and out of jail and on parole. The
interviewer asks about his educational history. He has none beyond the 10th grade. It is one day before his six month anniversary out of prison. Once again, another interviewer turns him down. The next day he robs a gas station, violates his parole, and is sent back to prison. The cycle starts over.

This is the reality for tens of thousands of US inmates currently leaving and re-entering the US Correctional System. Under the punitive ideological and procedural approach known as the crime control model, prisoners sit in correctional facilities without being afforded proper, evidence-based treatment to correct their criminal thinking or behavior. This phenomenon is a direct reflection of the ideological shift away from rehabilitation toward the subsequently made policies conducive to the crime control model. As a result, the United States has held the highest recidivism rate in the world for decades due, in part, to its punitive emphasis on incapacitation and specific deterrence rather than proper rehabilitation of inmates. In order to end the recidivist cycle, there must be an exchange of the crime control model for rehabilitative reentry programs that target specific needs of criminal thinking and behavior.

This analysis has three goals. The first is to provide context by offering a working definition of recidivism, addressing the prevalence of recidivism in US prisons, explaining the cyclical nature in recidivism and mass incarceration, and outlining those most at risk. The second goal is to examine the positive illusions of inmates contrasted with the realities of recidivist statistics and to identify where the problem lies in current correctional procedure. The third and final goal is to examine how cognitive-behavioral treatment can reduce the major causes of recidivism.
What is Recidivism?

Recidivism, or the tendency for a released ex-offender to reoffend and become re-incarcerated, is historically prevalent in the US. In 1987, the US had a 41 percent recidivism rate among federal ex-offenders within just three years of their release from prison (Dhami 632). Since then, this rate has continued to rise. According to the Bureau of Justice Statistics, half of the prison population released annually will re-offend and be re-incarcerated between six months to two years after returning to their communities (Seigafo 184). The Bureau of Justice Statistics conducted a five-year study of roughly 400,000 ex-offenders. The study found that while 50 percent of offenders recidivated after six months to two years, 76.6 percent of the same sample were re-incarcerated after five years (Seigafo 184). Therefore, the likelihood of recidivating increases the longer an inmate remains reintegrated in society.

These statistics become more important when put into the context of contemporary US release data. As of 2010, the number of prisoners released from state and federal correctional facilities equaled 708,677 per year (Nally et. al 17). If nearly half of those inmates reoffend within six months and more than 75 percent of them do the same within just five years of their release, then society faces a significant social issue. The consequences are twofold and reciprocal. First, failure to reduce recidivism puts public safety at high risk. Second, inevitably the majority of US prisoners will continue to recidivate if not provided with the necessary resources to correct their criminogenic behaviors prior to societal reintegration.

Recidivism and US Prisons

While the recidivism rate is high, the rate of incarceration in the US is astronomical (Seigafo 183). Along with the highest recidivism rate, the US also holds the highest incarceration rate in
the world. The most recent prison population data report states that federal US corrections currently house over two million inmates (Seigafo 183). Based on the 2010 census, the Bureau of Justice Statistics found incarceration rates equaled 500 sentenced prisoners per 100,000 citizens (Nally et al. 17). Among those sentenced in that year, the number of prisoners released from state and federal correctional facilities amounted to 708,677 prisoners (Nally et. al 17).

The annual release of 708,677 inmates from the prison population is useful for analyzing recidivism. As prior research shows, at least half of the prisoners released annually in the US are likely to be re-incarcerated within just six months to two years (Seigafo 184). This means that the number of offenders recidivating is contributing to the incarceration rate. With 2.2 million inmates, prisons are running out of cells to house everyone, causing a race to expand prison facilities. In 1996 alone, the government paid for the construction of 31 new prisons, not to mention the 61 additional prisons to be completed by the end of 1997 (Alarid 8).

The pressure to compete with mass incarceration forces the government to foot the bill for the US Correctional System’s prison expansion efforts. This is evidenced through the rise in government funding of correctional programs. Since the late 1990’s, the fiscal budget for US Corrections has grown at an unprecedented rate, starting at $35.8 billion in 1982 and increasing to $93.8 billion by 1992 (Savelsberg 190). Furthermore, the allocation of such funds that went directly toward prison construction alone increased by 593 percent (Savelsberg 190). The massive increase in funding is due to the sheer fact the United States arrests more of its individuals than it knows what to do with.

Consequently, more prisoners are being released back into their communities without proper preparation during their sentences in order to make room for incoming inmates. Without
preparation, the indicators of recidivism impede ex-offenders from achieving a successful reintegration, increasing the likelihood of reoffense. Lockwood's study affirms this increase; out of 1,335 released inmates, 51 percent of those who recidivated did so due to committing a new offense (Lockwood et al. 61). In sum, it is this exact relation between prison population and recidivism that initiates a recidivist cycle: the prisons are forced to release inmates prematurely, the prisoners recidivate, so the prisoners ultimately return to prison.

Demographics Most at Risk

It is important to conceptualize which individuals living in our society are most likely at risk for this phenomenon. While the reports of recidivism and incarceration rates have been empirically high and steadily increasing, so have reports regarding its demographics. For the purposes of this analysis, two demographic categories will be discussed: race and age.

In 1987, the Federal Bureau of Prisons reported those at greatest risk of recidivating are typically African-Americans and Hispanics compared to Non-Hispanic Whites (Harer 2). From the same report, African-Americans, Hispanic, non-Hispanic, and Caucasian ex-offenders recidivated at rates of 58.8 percent, 45.2 percent, 40.2 percent, and 33.5 percent respectively (Harer 2). Part of the reason for the disparity between the recidivation rates is due to greater representation of some races in prison compared to others. For example, nearly half (45 percent) of the prison population is made up of African-Americans, whereas Whites make up 30 percent (Alarid 9). Logically, only those who have been imprisoned and later released can recidivate.

At the same time, recidivism rates were “inversely” correlated to age (Harer 3). The research found that recidivism rates decreased as an ex-offender got older. In fact, ex-offenders younger than twenty-five years of age experience a recidivism rate
of 56.6 percent and those older than fifty-five retain a rate of 15.3 percent (Harer 3). This shows that there is a drastic disparity between ages as a dynamic of recidivism.

In no way are race and age argued to be the predictive indicators of recidivism. Plainly, an individual’s race or age does not make someone more likely to reoffend. The importance in noting the race and age of released offenders is that recidivism is disproportionate spread across individuals akin to certain demographics. The fact that this is spread disproportionately among younger, African-American males is an issue outside the scope of this investigation.

**Prisoners’ Positive Illusions**

Given the major factors of a high probability of going back to prison, prisoners are surprisingly optimistic and confident that they will not recidivate after their release. A study analyzed inmates from the US and the UK to collect data on their plans for post-release. In a sample of 130 UK prisoners, 70 percent of the medium-risk offenders predicted they only had a 50 percent likelihood of committing another offense (Dhami 633). Similarly, out of 324 US prisoners, 78 percent of them said it would easy to renew family ties, find a residence, get a job, and stay out of jail (Dhami 633). Prior to their release and subsequent reoffense, the participants reported that they would be successful in their reintegration into society (Dhami 634).

The most striking area within this survey were the inmates’ positive illusions in regard to achieving stability, specifically post-release. Simply put, the predictions of the inmates do not reflect the statistical reality. According to the study, results found prisoners believed to have a 70.28 percent chance at finding a job (Dhami 638). The prisoners also only reported a 30.5 percent chance of committing a new crime as well as a mere 26.23
percent chance of being re-incarcerated (Dhami 638). While it is now known that recidivism rates are on average closer to 50 percent within the first 6 to 12 months of release, it is interesting to note predictors of the likelihood of recidivating from the perceptions of the prisoners themselves.

This research tells us that offenders want to succeed. Unfortunately, the majority do not have success in their reintegration. This could mean inmates simply have not learned the skill-sets to be a contributive member of society by the time they leave prison. Demographic research notes that most of the prison populations are made up of young inmates. Therefore, the narrative argues the majority of the released inmates were incarcerated when they were young, are undereducated, have a poor employment history, lack job skills, fail at establishing positive relationships, and present indicators of criminogenic cognitive-behavior. If these same inmates were never taught how to correct those issues before their release, then it is unlikely any change would occur during their reintegration. In terms of recidivism being a cyclical phenomenon, for those with repeat offender history, it is plausible that they will never receive preparation to acquire those skills. Subsequently, they may simply continue to be processed in and out of the correctional system without relief.

**The Major Indicators of Recidivism**

It is apparent that the lack of inmate preparation for reintegration into society post-release is causing a recidivist cycle. When prisoners enter a US jail or prison, most programs do not aim to target criminogenic risk factors, such as what causes a criminal to act on his or her motivations and what triggers deviant behavioral responses. Therefore, when prisoners are released, stress factors in the community can impede an ex-offender’s successful reintegration since no treatment was provided to teach
inmates how to overcome these obstacles and deal with them in prosocial ways.

There are two types of risk factors which ought to be evaluated when attempting to predict an individual inmate's likelihood of recidivism. The first are static risk factors, which are those that are constant and cannot be changed through treatment, (Brown 3). Examples of these factors are educational, employment, and criminal histories. The second are dynamic risk factors. These factors can be changed through treatment (Brown 3). Dynamic factors include antisocial personalities or behaviors, substance abuse, social ties with antisocial peers, and employability. These risk factors are those that are considered mostly criminogenic and can encourage future criminal thinking and behavior.

Based on current criminological research, treatment programs tend to mostly focus on job securement after release. The problem is that while employment is important, preparation through in-prison treatment ignores other, more significant, dynamic risk factors. This theory is evidenced through evaluative research of the relationship of employment and recidivism. In the article, “Employment and Recidivism among Men Released from Prison,” D. Steffey argues that while results of employment-based treatment are mixed, most have negative effects, and the studies do not specifically analyze employment as a direct predictor of recidivism. Instead, this connection is nearly impossible to conclude based on current research due to the other risk factors that affect both employability and recidivism. Therefore, other confounding dynamic risk factors cannot be overcome through providing inmate programs that solely focus on career and technical education, and such programs merely oversimplify the issue. Consequently, it is necessary to go beyond employment-related variables in order to implement in-prison programs designed to target specific high-risk factors. Such factors include
an individual's antisocial behaviors, substance abuse, poor social achievement, and family history (i.e., bad childhood, exposed to a family prone to crime, neglect) (Dhami 633). These criminogenic factors surface before incarceration, as they are inherent to the individual's predisposition toward crime. Pre-prison factors are all based in criminal thinking and can subsequently transcend into post-prison behavior and result in higher recidivism rates. Any combination of these factors can cause an individual to be more naturally prone to recidivating simply due to their own psychological make-up, childrearing, stressors of their surrounding environment, and/or habitually deviant behavior. Since these factors present themselves prior to the initial offense and punishment served, they are rooted in their criminal thinking and behavior. If these variables remain untreated due to placing an emphasis on employment preparation, then the same pre-prison factors will remain after rehabilitation. Essentially, the released prisoner would still think and respond like a criminal as opportunities arise in the environment regardless of whether he or she had a job.

A Historical Emphasis on Education and Unemployment

For decades, the most significant recidivist factors have been assumed to be an inmate's educational and employment histories. At face value, this is a valid assumption, since lack of education has been proven to have a correlation with unemployment rates and recidivism among ex-offenders. Studies show that roughly 42 percent of African American offenders and 30 percent of Caucasian offenders released did not complete high school (Lockwood et al. 68). Furthermore, these same offenders never obtained a stable job prior to recidivating (Lockwood et al. 68). Additional research found that those who managed to either become employed or attend school had a recidivism rate of 25.6 percent versus those who did not who had a rate of 60.2 percent
(Harer 3). Therefore, these correlations do warrant that education and employment are important, but they do not necessitate that a lack of these factors causes recidivism. To say the opposite would be an overgeneralization of criminological theory; research proves over-emphasizing employment-based correctional programs has been ineffective by ignoring key, dynamic risk factors of recidivism such as pro-criminal cognitive-behavior.

Listwan et al. argue “industrial model” programs, or those based in job preparation, are ineffective for their design for three historical reasons. First, when the US economy met its decline, the availability for employment for those low-class workers deteriorated significantly. Second, this fact, coupled with the rise in minority groups in prison, further undermined the ability to secure job employment upon release. (19) This is important since the low-class demographics are composed of mostly minority groups and make up the majority of prison population. The effect was a unique group of people deemed especially unemployable compared to their counterparts. Third, prison populations since the `70s have increased seven-fold, making it impossible for prisons to house every inmate. This caused release programs to switch from points of “meaningful reintegration” to “supervision” (Listwan et al. 19). When mass incarceration caused prisons to become overcrowded, the existing inmates needed to be released without having any sort of treatment in order to make room for more initiates. In sum, the released inmates were never corrected—only punished. They never learned important job skills to secure employment, such as how to manage their criminal thinking in a prosocial manner that would comply with the moral and legal codes of society. This created a cycle of overcrowded prisons and prematurely released inmates with no hopes of employment.
The Crime Control Model and Its Effects

The shift from meaningful reintegration toward punitive supervision came about through the crime control model and the legislation passed therein. During the onset of mass incarceration, prison administrations and political authorities focused on retribution, punishment, and deterrence, creating the pillars of what is coined the crime control model. In his article, “Assessing the Impact of the Great Prison Experiment on Future Crime Control Policy,” Byrne notes that, since the 1970’s, authorities attempted to ensure public safety through mass incarceration to create a specific deterrence that would ideally reduce crime in general society. To do so, prison populations increased by 628 percent and reached 1.5 million inmates in correctional facilities by 2005 (Byrne 3). Contextually, the most recent prison population data reports that state and federal US corrections currently house over 2 million inmates (Seigafo 183). This means that majority of the prison population came to be during a mere three decades, making the US hold the highest incarceration rate in the entire globe.

The crime control model was based on the idea that punishment outweighs supportive rehabilitation, believing it was more important get criminals off the streets and locked away in order to set an example rather than to solve the internal or structural problems which may have contributed to or brought about the criminal activity. Byrne argues this “get-tough” approach toward combating crime fails in three ways. First, research shows that incarceration has held a meager 2-4 percent impact on the greater society in invoking crime deterrence. Second, studies found that simply incarcerating an individual does nothing to invoke their own personal deterrence from reoffending. For this, the evidence does not show incarceration works as a rehabilitative strategy in and of itself. Instead, the third point
purports that prisons are criminogenic, meaning they can add to an offender’s likelihood to recidivate after release. (Byrne 4)

These points cause us to question why authorities have continued to support and perpetuate incarceration as an effective tool for crime reduction. In their article, Useem et al. explain this could be due to false assumptions regarding the outcomes of mass incarceration. Research in support of overall effectiveness of the crime control model is scarce. Of what research does exist, Useem et al. argues that the conclusions are severely limited (27). The researchers analyzed two popular studies supporting the crime control effect on incarceration and crime rates. Useem et al. offers critiques of both studies, arguing that their methods were limited and lacked proper analysis of crime control policies. Further, the researchers argue that lesser crime rates as a result of the crime control policies are insignificant due to the reciprocal relationship between incarceration and crime rates. For example, reduced crime could be a result of increased imprisonment, not from incarceration working as a rehabilitative tool. To the same extent, increased crime in society could subsequently increase imprisonment. This could ultimately result in an illogical fallacy where the crime control model can offer effective impacts on society through punitive retribution.

Overall, the review of criminological literature empirically suggests the crime control model is ineffective at reducing crime and may, in fact, exacerbate high recidivism. Therefore, the crime control model actually encourages a cyclical relationship between incarceration, release, and recidivism.

**Replacing the Crime Control Model with Rehabilitation**

The problem with the status quo of correctional facilities is that the programs and procedures fail to follow the suggestions of evidenced-based research. Since research has shown the
ineffective outcomes of career programs and incarceration as a deterrent, it is the obligation of correctional administrators and policymakers to implement policies and programs that adhere to the research. This would be achieved through providing Cognitive-Behavioral Treatment (CBT).

Latessa finds that cognitive behavioral programs have the greatest effect at reducing recidivism overall due to their focus in changing procriminal thoughts and behaviors among ex-offenders (227). Barnes et al. provide further detail of how (CBT) impacts prisoners (612). CBT modifies behavior through actively participating with the individual and ultimately changing their natural cognition and behavioral actions toward criminogenic stimuli (Barnes et al. 612). The programs work to find the source of the problem, or the variables which elicit a prisoner’s procriminal thoughts and behaviors, and then teaches them in an individualized manner prosocial method to manage their own deviance (Barnes et al. 612). What makes CBT most effective is that it has the capacity to combine training in social, interpersonal, and anger management skills to prepare ex-offenders for the emotional or environmental variables they will face during reintegration (Barnes et al. 612). Therefore, regardless of employment or lack thereof, criminals acquire the tools to combat their stressors or overcome tempting opportunities that would have previously triggered criminal behavior.

In addition to these findings, research points to specific successes of experimental testing in concern of CBT. In their article, Tournunen et al. analyze the policy changes made throughout the penal system to combat drug-related crimes with prison-based drug treatment (PBDT) programs administered throughout prisons in Finland. The findings show that PBDT could be an illustration for implementing rehabilitative programs in prisons. This is an interesting study for cross application because, historically, Finland experienced a drug-related crime wave
during the '60's which is when the United States experienced a violent crime wave leading to its push toward increased penal harm in prisons. Finnish prisons started implementing treatment programs in the 1990's, which was ultimately followed by a second drug wave (Tourunen et al. 575). Eventually new rehabilitative initiatives focusing on cognitive-behavioral programs were becoming more popular and started being tested in Finland. Results showed this specific form of rehabilitative programming yielded many positive results for prisoners, and that no longer is “punishment . . . based solely on the criminal act and the general deterrence of punishment” (Tourunen et al. 585). The prison-based drug treatment program is just a small scale of cognitive behavior treatment, but it yields two promising messages. First, it is a comparable example in which a correctional system has rejected a punitive control model. Second, its individualized aim to target a specific, dynamic risk factor (i.e., substance abuse) demonstrates the possible outcomes if the use of such programs was more encouraged in the US.

Further steps can be taken to target multiple specific needs conducive to criminal thinking and behavior. In his article, Don Andrews outlines 18 principles to follow to ensure effective correctional programs which span from ideological suggestions to the actual structuring and management of applied rehabilitation services. While all are important, there are three that ought to be implemented uniformly across all rehabilitative programs. The first is to target six dynamic risk factors of recidivism: antisocial attitudes and cognitive states that support criminality, weak self-control, reckless aggression, pleasure-seeking against prosocial norms, and problematic circumstances in their environment that could trigger deviant behavioral responses (Andrews 218). The second is to abdicate the current emphasis on punitive control, retributive incapacitation, and specific deterrence. Instead,
significant and repeated reduction in recidivism has been proven when programs offer “clinically relevant and psychologically appropriate human service under conditions and settings considered just, ethical, legal, decent, [and] efficient” (Andrews 218). The third principle is to commit to programs that answer to an offender’s individual risk level, criminogenic needs, and learning styles (Andrews 219).

Risk: According to Andrews, assessing risk means to determine, based on clinically relevant practices, the likelihood of an offender to reoffend after reentry (219). This is important to assess at the point of incarceration, as it gives insight to correctional directors that helps determine what types of rehabilitative programs ought to be offered and to what extent. It is evident those people predicted to have a higher probability of recidivating should be afforded more intensive interventions and resources. This is because those people who pose a low threat of recidivating will likely reintegrate successfully without any rehabilitative treatment. Doing so is not only advantageous to the correctional facilities for providing resources in a cost-effective way while receiving the highest net benefit possible, but also to the offenders who will be afforded a better chance at remaining reintegrated in the society regardless of the circumstances surrounding them.

Target criminogenic needs: Criminogenic needs are dynamic, and if controlled, can reduce criminal thinking and behavior (Andrews 219). This would subsequently reduce recidivism. The objective would be to provide inmates with the tools and skills to manage their own antisocial tendencies in order to respond to stressful or tempting environmental stimulus that could potentially result in a new offense. Some may argue that this objective ignores the high correlation between employment and recidivism; however, the ability to manage these internal risk
factors could prove significantly helpful in not only obtaining employment but maintaining it for the future.

Responsivity: Responsivity requires correctional directors to design programs that match the offenders’ learning styles, ability to understand content, and their willingness to succeed (Andrews 219). This ensures that correctional facilities do not implement a “catch-all” blanketed system that ignores the personal needs of inmates. An individualized approach maximizes the chance of reducing the criminal behavioral tendencies of all inmates who are subjected to the cognitive behavioral treatment.

By following the research, correctional facilities can ensure that programs meet their maximum potential. Cognitive behavior treatment emphasizes the characteristics of offenders in dire need of rehabilitation that the current crime control procedures or employment programs neglect to consider. Evidence-based programs rooted specifically in changing criminal thinking and behavior will provide a greater assurance that offenders will be able to remain successfully reintegrated in society regardless of employment status and to dispel concerns of public safety.

Policy Implications

After decades of seeing recidivism affect the majority of released prisoners, there still has not been sufficient research into rehabilitative approaches or other options that would result in policy implications. The lack of research is due to the burden and cost of correcting recidivism.

The multitude of recidivist indicators make the burden of correction extremely high. There are pre-prison factors and post-prison factors, all of which endure through imprisonment as well. This makes it hard to decipher whether improvements in recidivism would be due to some in-prison rehabilitative program
or another variable manipulating the data results. For example, subliminal factors such as “self-selection” can be developed naturally during prison absent any rehabilitative training (Ward 199). In a study that provided career and technical education to inmates before their release, results showed if inmates show signs of self-selection, they would readily volunteer for the program (Ward 199). As a result, they could possibly be predisposed to higher motivations to succeed in their reintegration which could be true for several types of in-prison programs beyond those based on job employment preparation. Should those inmates perform better than others after their release, it could be due to their personality and will to succeed rather than the impacting effects of the rehabilitative treatment (Ward 199).

The research is extremely difficult to control for all subjective variables, which makes it harder to conclude that the rehabilitative approach would be effective for most released offenders (Ward 199). Since employability is highly correlated with recidivism, it should not be ignored, but there would need to be measures put in place to accommodate the individuals’ risk levels, criminogenic needs, and responsivity requirements. This challenge alone is multifaceted. Therefore, there is not yet enough research conducted to point to a specific solution, but there is certainly enough to recognize there are flaws within the system. The research that does exist on the matter concurs that the major recidivist indicators fall within the inmates’ criminal thinking and behavior.

Nevertheless, recidivism in the United States remains unsolved and practically untouched, since data shows that recidivism rates have been historically profound and continue to rise at a steady pace. From roughly 40 percent in 1987 to 50 percent as of most recently, the issue of recidivism has been evidenced for nearly three decades. Though the data clearly outlines the issues, there is an idea of where solutions lie, but less so on how to
effectively implement the correct programs. Without solidified research pinpointing the solution, it is difficult to expect a shift any time soon. What can be said is that complacency can only propel the recidivist cycle forward.

**Conclusion**

In order to see any impact on recidivism, it is imperative that time and resources are used in a smart, strategized, and just way. Simply locking someone away and focusing treatment on the sole goal of helping someone get a job will not change their inherent criminal thinking and behavioral pattern. Therefore, the types of programs emphasized in prison must be designed with the tools to alter and distinguish these risk factors. The major obstacles preventing the end of the recidivist cycle stem from the crime control model and the failure of authorities to make policy decisions based on evidence-based research. This is no longer about what causes the recidivist cycle; that has been made apparent. After decades of evidence identifying the causes, assessing the obstacles, and pointing to the solutions, it is time to actively work to end the recidivist cycle.
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On a February evening in Kansas City, around one hundred community members crowded into City of Truth Church to address Kansas City’s problem of gun violence. During this gathering, known as a “call-in,” city leaders spoke to offenders who are most frequently involved in group related gun violence. Respected city figures attempted to persuade offenders to stop the shootings and accept the help of the crime deterrence initiative known as the Kansas City No Violence Alliance (KC NoVA). After Pastor Armour Stephenson III opened the service with a prayer, Kansas City Mayor Sly James encouraged the fourty-four invited offenders (@KansasCityNoVA) in attendance: “You have an opportunity tonight that can change your life.” Then, Rosilyn Temple and others involved in the community organization Kansas City Mothers in Charge, delivered testimonials about coping with the loss of their children killed by gun violence. One mother recalled, “On my way home from work at 1:15 am, I got a call my son had been shot in the head.” Another sorrowful mom recounted how her screams echoed throughout her home when she received news her son was murdered. Overcome with grief, she struggled to say, “I can never hear, ‘Momma, I love you’ . . . or ‘Momma, Happy Birthday’ anymore.” KC Mothers in Charge concluded imploring the offenders, “Don’t let your mother be here with us . . . KC NoVA is here saying, ‘We are here to save your life.’ Please, take whatever they will offer you” (“KC NoVA Call-In”). KC NoVA offers every available resource to offenders who most
frequently commit gun violence in hopes that they will put the guns down and seek to better their lives. KC NoVA should gain further community support because it creates a safer Kansas City community by removing chronic violent offenders from society and provides an avenue of escape from gangs, poverty, and violence for those who desire to live peaceful lives as law-abiding citizens.

What is the Kansas City No Violence Alliance?

KC NoVA is a multifaceted coalition that strives to reduce gun violence in Kansas City. It consists of the City Hall of Kansas City, Missouri; the Kansas City, Missouri Police Department; the Jackson County Prosecutor’s Office; researchers at the University of Missouri-Kansas City Criminal Justice Department; the US Attorney’s Office; the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF); and the FBI. In addition, this initiative collaborates with multiple community betterment organizations such as Kansas City Mothers in Charge, the Healthcare Foundation of Greater Kansas City, and the Kansas City Ad Hoc Group Against Crime (“About KC NoVA”).

KC NoVA implements the unique policing strategy of focused deterrence by employing preventative measures to “get in front of the violence,” said former NoVA Project Manager, Major Joe McHale (“Our Divided City”). Focused deterrence theory suggests “a relatively small group of active chronic offenders commit the majority of the violence in a city” (Henderson 283). This is true in Kansas City. At the outset of KC NoVA, researchers found 0.19% of the Kansas City population is responsible for 67% of the violence, according to Ken Novak, a professor in the UMKC Criminal Justice Department (Novak; Rice). Therefore, this 45
program concentrates its efforts toward gangs (and less-structured groups that are not legally identified as gangs) that most frequently commit gun violence. This coalition “pulls every legal lever” to convert these group members from a life of crime before they become involved in another shooting (Kennedy 155).

**What is Focused Deterrence?**

Focused deterrence is a crime deterrence tactic that challenges traditional policing methods. Focused deterrence demands a change in police culture that has caused initial difficulty in getting law enforcement to accept this strategy. David Kennedy, originator of focused deterrence, acknowledges, “Most criminal justice practitioners, most of the time, do not believe in [any form of] deterrence” (161). In the traditional policing method, officers wait for a crime to be committed, attempt to respond quickly to the distress call, and then catch and arrest the perpetrator. This system has proven to be ineffective as “a large body of academic and, beyond that, practical experience suggesting that these tools are often very weak” (Kennedy 164). In 2016, Chicago implemented traditional policing method with enhanced severity of punishment; however, “of the twenty-two hundred bullets-to-skin only eight percent of these cases were cleared by arrest,” according to Novak (Novak). The low certainty of punishment provided by Chicago’s traditional policing tactics led to a nineteen-year-high of 762 murders (Ansari). In contrast to traditional policing methods, focused deterrence is a crime prevention strategy. Focused deterrence initiatives identify the most destructive people to a city and prevent them from committing further homicides by using every legal resource to aid these offenders to live a stable life, or if they refuse to comply, use any charge against these suspects to arrest them. Focused deterrence also encourages direct
communication between law enforcement and criminals which, along with giving offenders an opportunity to leave crime, has improved police-community relations (Braga “Promise of Fair” 466). Focused deterrence is more effective than traditional policing measures, for research has found focused deterrence to produce statistically significant reductions of crime in multiple cities across America (Braga “Theoretical” 63).

**KC NoVA’s Implements Focused Deterrence Through Six Steps**

KC NoVA’s implementation of focused deterrence revolves around six steps: First, they identify the problem. Second, they, with the assistance of criminal justice research professors, analyze the problem. Third, Kansas City leaders create a multifaceted organization whose main goal is to address the identified problem. Fourth, multiple departments of KC NoVA from police officers to social service workers and well-respected members of the community communicate with the offenders of this crime. Fifth, the social services department offers offenders incentives to leave gun violence. Sixth, if help is refused and the people involved in gun violence persist in harming the community, then law enforcement implements swift enforcement with a high certainty for punishment (Novak).

First, Kansas City leaders identified group related gun violence as a problem in Kansas City. Members of group violence have a higher percentage of dying than US soldiers in Iraq or Afghanistan (“Our Divided City”). Kansas City was the tenth most dangerous city in 2016 with 128 murders (Sauter). In 91% of these deaths, a firearm was involved. Kansas City’s homicide rate was nearly equivalent to Chicago, a metropolitan area notorious for
gun violence, as reported by Tony Rizzo of the *Kansas City Star* ("KC 2016 Homicide Toll"). KC NoVA is Kansas City’s best solution to reducing homicides and establishing tranquility in the Prospect Corridor and other troubled neighborhoods because “the Kansas City No Violence Alliance . . . is the city’s centerpiece homicide prevention strategy” ("Police Board").

Second, University of Missouri-Kansas City Criminal Justice professors Ken Novak and Andrew Fox used intelligence from front line officers to analyze the problem of group related gun violence. This partnership identified the offenders who most frequently commit gun violence in Kansas City and the connections they share. These academics are a vital relationship that helps police enforce the law more effectively. The innovator of focused deterrence, David Kennedy, notes that front-line officers “frequently have extraordinary insight into who is doing what, and why, and very often what will happen next,” however, this intelligence is largely unused (Kennedy 160). KC NoVA realizes the value of this knowledge and has academics analyze the different dynamics of these relationships through social network graphs. These graphs give officers a bird’s eye view of the crime in Kansas City and help them see the forest for the trees by “look[ing] at crime in a more comprehensive way,” according to Fox ("Kansas City No Violence Alliance"). This research helps law enforcement better understand the organization of groups, allowing officers to identify leaders and those who have connections to multiple groups. Fox notes, “It is important to identify those who are central to the network,” so KC NoVA can focus its efforts in deterring the sources of gun violence from inducing further crime ("Kansas City No Violence Alliance"). Then, if these influential members leave the group, it could cause a spillover effect in which the rest of the group dissipates. At the very least, most frequent offenders “can help spread the message” to their associates that KC NoVA will not tolerate gun violence and will provide them multiple resources to
avoid crime ("Kansas City No Violence Alliance"). The analysis of front line intelligence helps KC NoVA get a step ahead of offenders and prevent them from committing homicides.

Third, Kansas City leaders directed by Jackson County Prosecutor Jean Peters Baker created a multifaceted focused deterrence-based organization, the Kansas City No Violence Alliance (KC NoVA), whose sole goal is to reduce gun violence in Kansas City’s urban core. Gun violence is not just the police department’s issue but requires collective action from multiple agencies, to produce significant reductions in homicides, such as the help of federal and local prosecutors to ensure people who refuse to stop causing chaos in the community are removed from society. KC NoVA has connections to multiple departments that will use every resource and every sanction available towards deterring gun violence. These branches of city, state, and federal government do not typically collaborate with one another, but this interagency attempts to bridge the divide and “atmosphere of distrust and dislike” between these departments (Braga “Practice and Theoretical” 60). It is necessary that these divisions work together as one entity. Other cities, specifically Boston, found “no one agency could mount a meaningful response” to problems like gun violence, according to Anthony Braga and Christopher Winship of Harvard University (179). Therefore, they formed a focused deterrence coalition in which “criminal justice agencies, community groups, and social service agencies coordinated and combined their efforts in ways that could magnify their separate effects” (Braga and Winship 178). Kansas City leaders also realized in unity there is strength and came together to deter crime.

At the outset of KC NoVA, it was difficult to coordinate every department of this organization behind a common goal. Captain Chris Young of the Violent Crimes Enforcement Division
in the Kansas City Missouri Police Department was instrumental in the initial stages of this initiative as he was an operation sergeant in charge of establishing relationships between the police department and other agencies involved in KC NoVA. Young has helped ease KC NoVA through its growing pains. He acknowledges that in the beginning, every agency was “ignorant of the way each other’s organizations worked,” and “understanding what [other departments] do, why they do it, and what they need to be successful” was a challenge (Young). As a result, KC NoVA stalled in its first year of formation.

Over the years, this coalition has become a more cohesive group, building synergy among departments as progress has been achieved. Specifically, the officer-prosecutor relationship has improved through the recent implementation of daily intelligence meetings, according to Captain Young. During these meetings, the Violent Crimes Enforcement Division, the FBI, and the ATF, among other enforcement divisions work together with the Jackson County Prosecutor’s Office to build cases against offenders that have been identified by multiple enforcement divisions. Leaders of these organizations also decide who to target next, asking prosecutors what criminals they can build solid cases against to ensure certainty of punishment. Young remarks, “These meetings produce great conversations and result in very good arrests and very good prosecution” (Young).

Community betterment organizations help citizens trust law enforcement. Kansas City Mothers in Charge is an organization that enhances KC NoVA’s legitimacy in the eyes of the community. KC Mothers in Charge is a group of women who have lost their children due to gun violence and want to make Kansas City a safer community. This branch of KC NoVA “[is]in the community weekly or more often,” empathizing with others who have lost a loved one because of gun violence, educating young
people about gun safety, and helping solve murders by compelling witnesses to testify ("Kansas City murder"; "What We Do"). A member from KC Mothers in Charge goes to the scene of every homicide to console the loved ones of the victim, explain to them the process of a crime scene and why they cannot rush to the body. KC Mothers in Charge also speak at interventions, known as calls-ins, compelling offenders to "straighten up and listen" when they deliver their testimonials ("Kansas City murder"). These mothers "try to counteract hostility toward the police" by persuading offenders to trust KC NoVA and accept their life changing help ("Kansas City Murder"). The ability of community organizations, such as KC Mothers in Charge, to establish police legitimacy is "equally important" as the other departments in KC NoVA in contributing to the effectiveness of this initiative (Braga "Partnership" 180).

Fourth, KC NoVA clearly communicates to offenders. This initiative sends "a promise to gang (group) members that violent behavior [will] evoke an immediate and intense response," according to Braga ("Partnership" 174). Crime prevention expert Marie Tillyer claims that communication is essential in a focused deterrence model and is "a defining feature" of this crime reduction strategy (975). Much like a marketing professional, KC NoVA must select the proper channel through which to deliver their message to the targeted offenders. Thus, Braga contends, "As Zimring & Hawkins observe, 'the deterrence threat may best be viewed as a form of advertising'" ("Practice and Theoretical" 60). Informing suspects through multiple outlets that they are under strict supervision could increase the risk for committing this violence beyond its reward. In addition, informing the surrounding community about this initiative through publicity may pressure criminals to stop the violence.

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This communication is transmitted through direct conversations and in lecture-style assemblies, known as call-ins. Front line officers go door to door to targeted groups and inform these individuals that KC NoVA can offer them resources to improve their lives and leave crime. They are warned that if they refuse this help, then they will be under enhanced surveillance by law enforcement and will be swiftly punished if they commit further gun violence. In addition, influential members of targeted groups are invited to a call-in. During this meeting, KC NoVA board members and community leaders deliver the focused deterrence message. The speakers explain how this initiative can help offenders but warn that law enforcement will heatedly pursue the first person to commit a homicide. Everyone in the murderer's group will also be arrested. The police department promises to target the most disruptive group in the community. Throughout this intervention, every form of persuasion is used to convince offenders to stop the violence. Focused deterrence leaders in cities across the nation are surprised to see “that offenders tend to be well behaved, attentive, and often visibly moved by what ministers, mothers who have lost their children to the street, and neighborhood elders have to say to them” throughout the call-in service, according to Kennedy (167). Criminal justice researcher Samantha Henderson found “call-ins have direct effects on violent behavior, but this effectiveness is relatively short lived and requires repetition” in reference to the Cincinnati focused deterrence program (290).

KC NoVA holds call-ins quarterly. Initially, these interventions were very successful in deterring crime. Captain Young claims, “When the No Violence Alliance message first came out in 2014, [offenders] considered shutting down their drug operations as criminals thought, ‘they know us and who’s connected with us . . . we’ve got to watch out’” (Young). At the outset, this focused deterrence message created a sense of “NoVA’s
watching” among groups which was a major contributor to
generational lows in homicide during 2014; however, due to lack of
resources, law enforcement has not been able to execute high
certainty of punishment towards chronic violent offenders who
commit group related gun violence (Young). Today, the message is
not as effective because of law enforcement’s struggles to fully
enforce the warning that those who commit gun violence will
definitely be arrested, prosecuted, and put in jail for this crime.

In steps five and six of focused deterrence, KC NoVA
attempts to compel gun violence offenders to stop committing
crimes through aid and enforcement. For example, social service
workers, known as client advocates, compile an incentives package
to offer offenders (who are referred to as clients) every resource
available to help them live a stable life. Andre Carson of the Social
Services Department states advocates’ main function is to “remove
obstacles and barriers that our clients face upon reentry to society”
(Carson). The four advocates in the Social Services Department of
the Kansas City No Violence Alliance serve a diverse clientele, from
“guys that are grandfathers to people that are teenagers” (Carson).
Advocates assist their clients in multiple ways: from “transporting
clients to job interviews,” helping them create a resume, placing
them in housing away from violence, attaining proper
identification, eliminating city warrants, providing addiction
counseling, buying them clothes, and helping them attain their
GED. This relationship with social services is voluntary, thus
clients are not required to accept this assistance and can end the
advocate-client relationship at any time. Nonetheless, Carson
notes, “I cannot tell you the amount of people we’ve helped over the
years. Of those who have received help from social services, about
half have been able to stay out of trouble, while the other half have
returned to their groups and gun violence” (Carson).
Carson claims, “We are constantly trying to change lives,” which is an admirable goal the community should support (Carson). This Social Services Department does not offer a lot of direct resources, but it connects their clients with community programs that can help them. Therefore, increased support for NoVA from the Kansas City community will result in more lives changed and in effect more lives saved.

As seen, Social Services utilize every resource available to help offenders change the trajectory of their life, so that they will never resort to gun violence or other criminal actions again. The incentives of social services are essential to the process of KC NoVA deterring gun violence, as client advocates “provide a much-needed ‘carrot’ to balance the law enforcement ‘stick’” according to Braga (“Practice and Theoretical” 59). If help is refused, enforcement must be applied. Law enforcement uses every legal sanction to arrest, prosecute, and punish groups who continue to wreak havoc in the community.

The final step of KC NoVA is to surveil targeted groups in order to swiftly enforce punishment towards chronic gun violence offenders. The Violent Crimes Enforcement Division of the Kansas City Missouri Police Department along with the ATF and FBI administer punishment toward those who continue to commit violence with guns. Law enforcement concentrates their efforts on these groups and gangs that are involved in gun violence, instead of individuals, which was found to be unsuccessful (Henderson 289). Officers closely monitor these clusters of offenders and quickly apprehend one who commits gun violence along with his connections. Through focused deterrence theory, the police aim to enhance the certainty of punishment for offenders within the targeted groups. If law enforcement can deter those who commit the most gun violence from pulling the trigger, then homicides will decrease more dramatically than if officers continued in the
traditional way of policing equally throughout the city. For example, if a person becomes ill or injured, doctors would focus on healing the source of their pain. Likewise, KC NoVA has identified the sources of gun violence and focuses on healing (through social service resources) or removing those who cause this pain to the city. Henderson, in her study of focused deterrence as an effective crime prevention strategy, concluded “focusing on group(s) of high violence individuals is likely to have the greatest impact on violence” (Henderson 283). Law enforcement utilizes every legal sanction to ensure certainty of punishment for groups that commit gun violence by using “petty violations,” such as the suspects’ outstanding warrants from minor offenses, overdue traffic tickets, and violation of city ordinances, as opportunities to speak with, warn, and punish those frequently involved in gun violence (“KC NoVA Call-In”).

**KC NoVA is Effective**

KC NoVA has proven to be effective. In 2014, UMKC researchers analyzed NoVA and found, “Overall, the data indicated a dramatic and significant reduction in homicides that corresponded to robust implementation of focused deterrence in Kansas City” (Fox 21). KC NoVA’s first full year of implementation in 2014 was a major contributor to the lowest homicide total in Kansas City since 1972 (“Violent Crime in Kansas City”).

KC NoVA is not an outlier. Numerous cities that have implemented focused deterrence have recorded significant reductions in their targeted crime. The Boston Ceasefire Project, the landmark model of focused deterrence, was initially responsible for 63% reduction in murder within its target group of offenders (Tillyer 974). Anthony Braga, a professor of the Kennedy
School of Government at Harvard University, found focused deterrence initiatives produced statistically significant reductions of gun violence in nine out ten cities he studied with notable reductions in Lowell, Massachusetts; Stockton, California; Cincinnati, Ohio; Indianapolis, Indiana; and Los Angeles, California (Braga “Practice and Theoretical” 63). Cities that have removed their focused deterrence program have seen homicides spike. For example, the New Orleans Police Department, due to budget cuts, has allowed its focused deterrence initiative, NOLA for Life, to regress. When NOLA for Life was first implemented, the murders and overall gun violence decreased at an “incredible” rate, according to a New Orleans Police District Commander (Kaste). After this initial success, the homicide total stopped decreasing as dramatically. Instead of striving to improve the focused deterrence initiative that had proven to be effective, the New Orleans Police Department resorted back to traditional policing methods. The NOPD believed it was too difficult for their understaffed department to coordinate among multiple agencies and implement the proactive demands of a focused deterrence initiative, especially since it was no longer producing significant results. Therefore, the NOPD neglected its focused deterrence program and returned to traditional policing methods in order to satisfy the public’s demands for quicker response times. This strategy led to a “dramatic increase in gun violence” in July 2016 that has continued to get “significantly worse” up to the current day, as noted by a New Orleans crime analyst (Kaste).

Weakness of Focused Deterrence and Opposition to KC NoVA

KC NoVA is not perfect and has problems. As a result, since a generational low of seventy-six homicides in 2014, murder has
increased to 111 in 2015 and 128 in 2016. Focused deterrence initiatives produce great initial success but struggle to sustain lowered reductions in gun violence and crime. Tillyer, who acknowledged the success of focused deterrence programs in multiple cities throughout America, was quick to note, “The success in violence reduction across some of these cities, however, appears to be short-lived” (977). In addition, David Kennedy, the originator of focused deterrence claimed before Congress, “Many [cities] that have [implemented focused deterrence] . . . have let effective interventions fall apart” (Tillyer 977). In response to long-term ineffectiveness, the Cincinnati Initiative to Reduce Violence (CIRV) developed a long-term plan and created a well-defined organizational structure that would withstand dramatic turnover in personnel. In the planning phase, CIRV leaders consulted executives at Proctor and Gamble Co., concerning how to organize and run a large bureaucratic structure. CIRV was split up into departments: law enforcement, services, community engagement, and systems. The departments were run by a strategy team that consisted of the heads of every department, two spokespersons, consultants, and a project manager. The entire operation was overseen by a governing board of “high ranking city officials” (Engel 412). At the outset, this initiative struggled through two years of infighting, but “the organizational structure ... ultimately salvaged the initiative” and is still in existence a decade later. Robin Engel, along with two other criminal justice researchers who analyzed this program, concluded, “it appears likely that CIRV’s organizational structure is responsible for CIRV’s prolonged success” (432). Therefore, one possible solution to produce sustainable reductions in gun violence is through a solid organizational structure; however, Tillyer, a criminology scholar who analyzed CIRV a year later, found “that institutionalization of the [focused deterrence] process was a necessary, but insufficient,
solution for long-term success” (981). Despite a strong, definite structure that could withstand turnover, CIRV like other focused deterrence initiatives initially caused dramatic reductions in homicides and overall crime, but over time its effectiveness diminished.

Sustainability was a concern from the beginning among leaders of KC NoVA, as noted by Michael Mansur, who has been involved since the planning phase of this program (Mansur). KC NoVA officials sought the advice of CIRV leaders to form a solid organizational structure. KC NoVA was also influenced by the “committee structure” from the National Network for Safe Communities at John Jay College (Mansur, Young). The operations of KC NoVA are directed by a board consisting of the leaders of the departments involved in KC NoVA such as the police chief, mayor, and lead Jackson County prosecutor. KC NoVA’s structure has been effective, as it has withstood changes in the Missouri Probation and Parole, ATF, and FBI divisions (Mansur and Young). Moreover, cohesion has developed among the departments of this initiative. Mansur believes the greatest achievement of KC NoVA is its agencies improved collaboration with one another (Mansur). Carson from Social Services, Mansur with the Jackson County Prosecutor’s Office, and Young of KCPD all noted they have a better appreciation for other departments because of their teamwork with one another in quest of the common goal to reduce gun violence in Kansas City (Carson, Mansur, and Young). They all also acknowledged relationships with agencies must continue to strengthen in order for KC NoVA to become a more adhesive group and improve its overall effectiveness (Carson, Mansur, and Young).

Moreover, many, like Mayor Sly James, argue, “There are too many factors out of KC NoVA’s control” (Rizzo “Homicide is Up”). Such individuals believe gun control legislation is the best solution to reducing gun violence. He and Chief Forte wrote in their
article to the *Kansas City Star*, “We need the help of the Missouri legislature to make a significant impact on the safety of our community” (James). The Missouri General Assembly has consistently denied all gun control proposals. For example, there is no law preventing a minor from carrying a gun. Captain Young, a Kansas City police officer, claims, “I cannot do anything when a 13-year-old is walking the streets with a gun” due to no laws prohibiting such behavior (Young). This lack of legislation by Missouri State lawmakers is dangerous and a disservice to constituents of Missouri. Nonetheless, there does not appear to be any gun control reform in the near future, and for there to ever be gun control legislation passed in Missouri may require a national movement.

Many officers within the police department are critics of KC NoVA. Despite research that demonstrates the effectiveness of focused deterrence programs, “initially, focused deterrence [and KC NoVA] was not well received,” according to Young. Due to the nature of their job, many officers question crime prevention tactics (Young). Police officers see people on the worst days of their lives. An officer’s job is to daily focus upon the worst aspects of society, such as responding to murders, violent assaults, and other heinous crimes. The constant disheartening scenes police officers experience can cause cops to be skeptical of the idea of offenders changing their ways, if given the opportunity. In order for law enforcement to adopt focused deterrence, officers must be persuaded to realize “some of these young men want to change and don’t want to be gang members” (Young). It’s extremely difficult to implement “a complete paradigm shift” in an agency containing approximately 1,400 officers. Today, many throughout the KCPD still do not support the Violent Crimes Enforcement Division, the main enforcement arm of KC NoVA (Young). Young says, “I know a lot of personnel throughout the police department who do not
actively support [KC NoVA]" (Young). Leaders of certain divisions within the police department do not believe in focused deterrence theory and hinder KC NoVA’s effectiveness by allowing their subordinates to withhold intelligence, ignore directives to arrest certain targeted individuals, and ignore calls for backup from the Violent Crimes Enforcement division. Criminal justice expert David Kennedy claims that focused deterrence reveals “the shockingly poor management and accountability mechanisms within police departments” across the nation (168). KCPD is no different. Young believes officers who do not support KC NoVA do so “out of pure ignorance” (Young).

Critics of focused deterrence do not like change and claim “there’s nothing better than old fashioned patrol” (Young). The opposition also thinks KC NoVA has taken officers away from the streets, but “this couldn’t be further from the truth,” for resources have been realigned to apply increased focus on those who commit the most crime (Young). Others find it foolish to inform offenders of police strategies; however, this “consistent, predictable, and very meaningful” enforcement of a focused deterrence model increases the likelihood that the offender will get caught, which could raise the risk for committing crime above the offender's perceived reward, resulting in deterrence (Kennedy 165). In addition, through focused deterrence, there is enhanced intelligence from multiple divisions and agencies, allowing officers to anticipate gun violence and have more opportunities to save the people they serve. The ultimate goal of a police officer is to make the community safer; thus every police officer should contribute to the efforts of KC NoVA, for focused deterrence takes proactive measures to prevent gun violence and has been proven to lower homicide rates (Tillyer 976-977). A full, coordinated effort of the Kansas City Missouri Police Department in support of focused deterrence is essential to lowering the homicide rate and enhancing the safety of Kansas City (Young).
How to improve KC NoVA

Ensuring punishment for gun violence has been a challenge for KC NoVA (Young). Predominantly, a lack of resources has affected law enforcement’s effectiveness. Thus, one solution to improving the enforcement aspect of KC NoVA would be to provide more resources. Recently, there was a $1.7 million budget cut to the police force, causing a 20 percent reduction in the Violent Crimes Enforcement Division’s personnel and decreases throughout the entire police department. Thus Young claims, “I need more officers” (Young). Certainly, more resources for KCPD would increase the effectiveness of the enforcement arm of KC NoVA, reduce homicides, and create a safer community.

As another solution to improving KC NoVA, enforcement departments could narrow the target group and intensify their focus upon the most violent of the frequent offenders. If NoVA could guarantee punishment towards group leaders when any of their subordinates commit gun violence, then that might drive group leaders to control group related gun violence themselves (Kennedy “Old” 165). It is impossible to arrest and punish every lawbreaker in the city, thus apprehending the most influential criminals can deter minor offenders from committing further violence by emitting a message of “zero tolerance for [gun] violence” (Braga “Spillover Effects” 321). Guaranteeing utmost certainty of punishment towards leaders of groups will result in homicide reductions by removing those who wreak the most havoc in the community. In effect, these arrests send a message that if KC NoVA can lock up these seemingly untouchable offenders, then less involved offenders can certainly be apprehended.

Furthermore, KC NoVA must learn how to adapt in order to remain effective. After the first period of full implementation,
the targeted offenders adjust to the policing tactic. As offender behavior changes due to new members entering targeted groups and current criminals attempting to hide from the strict surveillance of KC NoVA, every department must be able to adapt quickly with the reworkings of group dynamics. Novak argues the constant reiterative process of adapting strategies is the key to KC NoVA’s long-term success. KC NoVA needs to adjust with changes in targeted offender behavior, while still remaining in the core principles of focused deterrence, for initiatives in other cities have “struggled to fully adhere to [their] original model” and thereby failed to sustain gun violence reductions (Henderson 288).

**Conclusion: What can the community do to further the efforts of KC NoVA?**

I believe to further reduce gun violence in Kansas City and sustain such results requires involvement from the community, both within neighborhoods impacted by gun violence and from the rest of the city. Community approval is important to KC NoVA’s existence, but increased community involvement may be the answer to improving NoVA’s effectiveness and reducing gun violence to generational lows and sustaining such reductions. The low homicide rate in 2014 was due, in large part, to the efforts of the entire community, according to Carson, Mansur, and Young. Former Kansas City Police Chief Darryl Forte also believes “the decrease in city’s homicide rate [was] a community effort” (Rizzo “Amid crackdown”).

There are numerous ways the average Kansas Citian can further the efforts of KC NoVA. Mansur, director of communications for the Jackson County Prosecutor’s office, claims being an active citizen can assist KC NoVA in the fight against gun violence. Serving on a jury, being involved in community
betterment projects in East Kansas City, coming forward as a witness, and employing those with a criminal history are acts of a good citizen that can help reduce homicides (Mansur). Mansur claims that “anything you can do to help make the community healthier will help reduce violence” (Mansur). Novak echoes Mansur by encouraging the average citizen to become involved in improving communities that have been neglected for decades. Novak claims the average Kansas Citian should adopt the mindset that “society is judged by how we treat the most disenfranchised” (Novak). Therefore, we should no longer isolate East Kansas City and acknowledge that gun violence is a problem the entire Kansas City community must address. Moreover, Young believes the average citizen can improve KC NoVA’s effectiveness by becoming informed and voting for city judges and other officials that support KC NoVA, who believe in giving offenders second chances, but realize their top priority is the safety of our community. The average citizen can also vote to expand resources to KC NoVA agendas. KCPD needs more officers to better ensure certainty of punishment (Young), Social Services need more client advocates in order to spend more time with each client (Carson), and the Jackson County Prosecutor’s office lacks funding for a new program in convincing more witnesses to testify (Mansur).

Client advocate Andre Carson also suggests that one way the average Kansas Citian can help is by becoming a mentor to KC NoVA’s clients. Carson comments, “Many of our clients say they would like to work with animals, so to have multiple workers from the animal care industry (animal shelter, zoo, wildlife preserve) allow [their clients] to job shadow them” would help clients understand what their lives could be like. Even though the average citizen “would be mentoring [clients] for a short time, it would allow these individuals to have a physical connection to what it is they’ve been dreaming about” (Carson). This mentorship program
can change lives, and it needs help from Kansas Citians to mentor individuals seeking help. The Social Services department is still developing this mentorship program, but with community support, it could transform the lives of many people who believe the streets and violence to be their only reality. Through this mentorship program, the average Kansas Citian can directly contribute to reducing gun violence and creating a safer, economically healthier community.

Gun violence arises out of many factors: lack of gun control (Hancock), poverty (Harrell), de facto segregation (Gotham), and neglect ("Our Divided City"), among other aspects of Kansas City. Therefore, reducing gun violence requires a collective effort from the entire Kansas City community. The Kansas City No Violence Alliance is not perfect, but it is Kansas City's best available option for preventing crime and saving lives. Therefore, this initiative should be given a fair opportunity to address its sustainability issues and solve the recent increase in homicides. The collective action of the entire Kansas City community in assistance of KC NoVA would be the most effective solution to improving the lives of those who need help and reducing gun violence throughout the city.
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PROTECTION AGAINST PTSD: IS GUILT THE KEY?

BY: HANNAH DOGGETT

Emerging research on post-traumatic stress disorder (PTSD) examines factors that may protect one from developing Post-traumatic stress symptoms (PTSS). However, little is known about said protective factors. Research has shown there is a strong association between personality traits and the likelihood of experiencing PTSS (Contractor, Armour, Shea, Mota, & Pietrzak, 2016). Additionally, previous research found that personality traits may predict shame- and guilt- proneness and coping techniques which could also predict the likelihood of developing PTSS (Einstein & Lanning, 1998; Karanci et al., 2012; Stevanović, Frančišković, & Vermetten, 2016). This project aimed to understand how personality, coping, guilt, and shame mattered in terms of predicting PTSS and how each variable uniquely influenced PTSS. We expected to find that coping, guilt, and shame may more significantly predict PTSS when including personality factors, since personality may predispose an individual to shame- or guilt- proneness and lead them to cope in certain ways. We specifically looked at two of the FFM traits - conscientiousness and neuroticism - which were found in previous research to have strong correlations with PTSS. We hypothesized that guilt would act as a protective factor in regard to PTSS severity due to research suggesting that guilt encourages approach coping styles. A self-report survey was collected from young adults, ages 18-25, at the University of Missouri – Kansas City. Data analysis consisted of examining bivariate correlations and running a hierarchical linear regression. Frequency of exposure to distinct trauma types,
neuroticism, and guilt were predictive of PTSS. Additionally, these results suggest that neuroticism and self-conscious affect, specifically guilt, are more salient predictors of PTSD symptoms than other personality traits, coping techniques, or other self-conscious affects.

In our world of ever-growing risk for trauma exposure, the threat of developing Post-traumatic Stress Disorder (PTSD) is increasing. According to the US Department of Veterans Affairs (2007), approximately 6 out of 10 men and 5 out of 10 women will experience at least one trauma in their life. A trauma is defined as “actual or threatened death, serious injury or sexual violence in one or more of four ways: (a) directly experiencing the event; (b) witnessing, in person, the event occurring to others; (c) learning that such an event happened to a close family member or friend; and (d) experiencing repeated or extreme exposure to aversive details of such events, such as with first responders” (American Psychiatric Association [APA], 2013). Moreover, of the general population, about eight million adults have PTSD during a given year (US Department of Veterans Affairs, 2007). This statistic makes up only a small portion of those who have been exposed to trauma and are suffering from PTSD. It does not consist of those suffering with PTSD who are undiagnosed or who have other mental health or life problems associated with trauma exposure. Recent research has turned toward protective factors for PTSD instead of solely focusing on post-diagnosis treatment options.

Research has shown there is a strong association between personality traits and the likelihood of experiencing symptoms of post-traumatic stress (PTSS) following exposure to trauma (Contractor et al., 2016; Karanci et al., 2012; Stevanović et al., 2016). PTSS includes hyperarousal, negative alterations in cognitions and mood, overly negative thoughts and assumptions about oneself or
the world, reckless or destructive behavior, re-experiencing phenomenon, and avoidance of trauma triggers (APA, 2013). However, factors that explain this association are largely unknown. In terms of personality, we specifically looked at two of the five traits operationalized in the Five Factor Model, conscientiousness and neuroticism, which were found in previous research to have strong correlations with guilt, shame, and/or PTSS (shame and guilt are considered self-conscious affects). Research has found that personality traits predict the proneness of certain self-conscious affects which may, in part, help explain how personality is predictive of PTSS development and severity (Fayard, Roberts, Robins, & Watson, 2012). Self-conscious affects refer to shame, guilt, detachment, externalization, alpha pride, and beta pride (Tangney & Dearing, 2002). These emotions impact the regulation and motivation of our thoughts, behaviors, feelings, self-esteem, and more (StröMsten, Henningsson, Holm, & Sundbom, 2009). The two self-conscious affects most prominently seen in literature are shame and guilt. While often interchangeably used in our everyday language, the two emotions motivate an individual differently.

Some research suggests that shame- and guilt- proneness may influence coping techniques (Einstein & Lanning, 1998). Other research has shown that while guilt feels unpleasant, it elicits positive motivations (e.g., taking reparative action) and encourages approach coping strategies, whereas shame is believed to elicit negative motivations (e.g., fight or flight) and have several negative “downstream” implications for mental health and predict the use of avoidant coping strategies (Tangney & Dearing, 2004). For example, neuroticism, a trait characterized by moodiness and emotional instability, is associated with shame-proneness. Shame-proneness is then associated coping techniques such as denial (Einstein & Lanning, 1998; Hambrick & McCord, 2010). While conscientiousness, a trait characterized by mindfulness, is
linked to guilt-proneness and, in turn, more adaptive, approach styles of coping (Held, Owens, Schumm, Chard, & Hansel, 2011; Watson & Hubbard, 1996). In short, those who score high in neuroticism are more shame-prone while those who score high in conscientiousness are more guilt-prone (Fayard et al., 2012). In general, coping is associated with the overall mental health of an individual and, thus, suggests that the way shame- and guilt-proneness may affect coping techniques will predict the development and severity of PTSS (Cramer et al., 2016). Finally, these findings and data suggest that certain personality traits, due to their influence on other factors, may be protective against PTSS development due to their impact on self-conscious affects and coping techniques.

In an effort to reduce the negative outcomes of trauma exposure, studies have looked at a variety of influencing factors which may help us predict and prevent the development of PTSS. Much like the medical field uses DNA to predict diseases an individual is at risk for, researchers have been applying the theory of personality traits to this idea of a “psychological DNA” which, in this case, could elucidate who is at a higher risk for PTSS. The known association between personality traits and PTSS development is thought to exist because of the influence personality has, alongside coping techniques, on PTSS development (Contractor et al., 2016; Cramer et al., 2016). For example, extraversion is linked to active coping (Connor-Smith & Flachsbart, 2007), conscientiousness is linked to active and engaged coping (Hambrick & McCord, 2010) and neuroticism, passive/disengaged coping (Cramer et al., 2016). Also, research suggests that only certain traits (i.e., neuroticism, conscientiousness, and extraversion) are clearly linked to coping (Connor-Smith & Flachsbart, 2007). The combination of the above research suggests that only certain personality traits are important.
in the prediction of PTSS development and severity and that some traits are inherently stronger than others. Moreover, it’s suggestive that these stronger personality traits are important in PTSS prediction because of their relationship with certain coping techniques. This relationship, along with the relationship between personality and self-conscious affects, could help better predict PTSS development and severity.

People have looked extensively at how each variable – personality, self-conscious affects, and coping – influence PTSS development, but, ultimately, we were interested in understanding the unique power of each variable in predicting PTSS when controlling for the other factors. Considering this, our broad aim was to understand how conscientiousness, neuroticism, guilt, shame, and active coping jointly mattered in terms of predicting PTSS and how each variable uniquely influenced PTSS. We expected to find evidence to suggest that guilt, shame, and active coping would be associated with, and might be more likely to significantly predict, PTSS when including personality factors since personality may predispose an individual to shame- or guilt-proneness which, then, would influence their coping techniques. Moreover, we thought that personality would no longer remain significant when guilt, shame, and active coping were added into the model. For this study, it was important to find which variables mattered most in terms of PTSS severity and development. Additionally, due to research suggesting that guilt encourages one to engage in approach-oriented behaviors, which leads the individual to make amends in a situation, we suspected this variable would act as a protectant against PTSS development following trauma exposure (Griffin et al., 2016).
Method

Participants

Undergraduate students from the University of Missouri–Kansas City were recruited through Psych Pool. Psych Pool is a UMKC-based online research participant recruitment system where researchers can post their studies for their students to enroll in. Only students enrolled in courses that provide students with course credit or extra credit for participating in studies listed on Psych Pool can participate. Students could complete this study as one potential way to fulfill research requirements and/or to receive extra credit in their psychology and allied social science courses. The study was available from August 2017 until October 2017. Data from 149 students were collected; however, participants ages 26 and older were excluded to restrict the sample to a young adult sample ($n=128$). In addition, participants who denied exposure to a potentially traumatic event were also excluded ($n=106$). Furthermore, listwise deletion was used to manage missing data, and 14.2% of the 106 participants who had scores of 1 or greater on the Trauma History Questionnaire (THQ) did not complete the active coping subscale of the Brief COPE in its entirety or enough of it to derive the active coping score. Due to missingness being greater than 5% for a key predictor variable, multiple imputation was not considered a viable data management option. Final $n=91$.

The age range was 18-25; the age mean was 19.78 with a standard deviation of 1.82. Approximately 82% of the participants were female and approximately 18% were male. Our sample consisted of 51 individuals who identified as white/Caucasian, 13 Black or African American, 12 Asian, 13 Hispanic or Latino, 1 American Indian or Alaska Native, and 1 biracial.
Measures

The measures used in this study were a subset of a larger battery of measures collected in an effort to learn about predictors of PTSS in young adults with histories of trauma. Each measure used in the current analysis is described below. These measures were ordered to prime the participant to answer the first half of the survey without the participant’s past trauma on their mind and to answer the last half while thinking of it. Demographic information like the occupation of the participant’s parents/step-parents and the educational history of the family was collected. We also collected information regarding whether the student had received mental health therapy in the past or was receiving it currently.

The M5-50 is a 50-item personality inventory derived from the M5-336 which is a self-report instrument that produces scores on the five primary domains of the Five Factor Model (FFM) - neuroticism, conscientiousness, extraversion, agreeableness, and openness - and their subdomains (McCord, 2002). On the M5-50, ten items are dedicated to measuring each trait. The participant read through different scenarios (e.g., “Have a vivid imagination”) and reported their response on a Likert-type scale (0= Inaccurate to 4= Accurate). The reliability found with Cronbach’s alphas for our study were $\alpha = .75$, $\alpha = .85$, $\alpha = .67$, $\alpha = .84$, $\alpha = .83$ for openness, neuroticism, agreeableness, conscientiousness, and extraversion respectively. In a previously conducted confirmatory factor analysis report of this measure, the Cronbach’s alphas were $\alpha = .79$ for openness, $\alpha = .86$ for neuroticism, $\alpha = .76$ for agreeableness, $\alpha = .85$ for conscientiousness, and $\alpha = .86$ for extraversion (Socha, Cooper, & McCord, 2010).

The Test of Self-Conscious Affect version 3 (TOSCA-3) is a scenario-based inventory which measures shame, guilt, detachment, externalization, alpha pride, and beta pride (Tangney,
Dearing, Wagner, & Gramzow, 2000). In another study which used this measure, the Cronbach's alphas were $\alpha = .76$ for shame and $\alpha = .73$ for guilt (Gao, Qin, Qian, & Liu, 2013). In this study, the Cronbach's alphas were $\alpha = .82$ was found for shame and $\alpha = .80$ was found for guilt. In this measure, the participant is presented with common day-to-day situations (e.g., "You make plans to meet a friend for lunch. At 5 o'clock, you realize you stood your friend up"). The scenario is then followed by responses the participant could have (e.g., "You would think 'I'm inconsiderate'.") and a scale (1-5) where the participant will rate the likelihood of having that response. Each response represents a different self-conscious affect. For example, the response, "You would think 'I'm inconsiderate'", would represent shame.

The Trauma History Questionnaire (THQ) (Hooper, Stockton, Krupnick, & Green, 2011) is a self-report measure that examines events with trauma exposure potential using a "yes" or "no" format ($\alpha = .59$). In a previous study, the Cronbach's alpha was found to be $\alpha = .67$ (Sullivan, Contractor, Gerber, & Neumann, 2017). Some of these events include but are not limited to disasters, sexual and physical assault, and combat. For each event where the participant answered "yes", they were asked to specify the age the event first occurred and the frequency of the event.

The Post-Traumatic Stress Disorder – Checklist version 5 (PCL-5) is a 20-item self-report measure which assesses the symptom severity of PTSD per the DSM-5 (Weathers et al., 2013). In this study, the PCL-5 was on a 5-point Likert-type scale (0= Not at all to 4= Extremely). We used this measure to specifically assess each participant's PTSD symptom severity in relation to their specified "most traumatic event" which they briefly told us about in an open-ended answer. Good reliability was found within our study as shown by a Cronbach’s alpha of $\alpha = .96$. The original PCL
version has a test-retest reliability of $r = .96$ and the Cronbach’s alpha found in a previous study was $\alpha = .91$ (Wortmann et al., 2016).

The Brief-COPE is a list of 28 questions that addresses 14 coping styles which are as follows: self-distraction, active coping, denial, substance use, emotional support, instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame (Carver, 1997). This measure was given to assess the coping styles of the participants. The participants were presented with a coping scenario (e.g., “I’ve been turning to work or other activities to take my mind off things”) and would respond on a Likert-type scale (0= “I haven’t been doing this at all” to 4= “I do this lot”, and 5= “N/A”) in relation to their specified “most traumatic event”. The reliability for the subscale of the Brief COPE we used in our study (active coping) was $\alpha = .77$. A previous study which utilized the Brief COPE measure found a Cronbach’s alpha of $\alpha = .67$ for the active coping subscale (Hagan et al., 2017).

**Procedure**

This study was approved by the University of Missouri – Kansas City Institutional Review Board (IRB). Participants completed the study through an online survey system (Qualtrics). Prior to consenting, participants were informed that this study would ask them to report their history of potentially traumatic experiences and their reactions to these experiences. They were also informed that participation was anonymous, as researchers would not request access to any identifying information, such as names or IP addresses. Even though the survey was deemed to be of minimal risk, due to the content of the survey and the possibility of distress occurring, information for counselling services was
provided to all participants should they wish to speak with someone following study completion.

Data Analysis

First, we created the variables which make up the M5-50, the TOSCA-3, and Brief COPE to be used in our analyses. Each variable within the M5-50 has ten questions which are then averaged together to produce each one of the five factors (conscientiousness, neuroticism, extraversion, openness, and agreeableness). Only conscientiousness and neuroticism were used in our analyses. Each subscale in the TOSCA-3 is made up of a total score of 16 responses to given scenarios. Each participant rates how they would react to a given scenario. Each scenario has five types of reactions which are linked to shame, guilt, detachment, externalization, alpha pride, or beta pride and the participants rate, on a Likert scale, how likely they are to respond in these different ways. These ratings were then added together and a total score of each was used to create the subscales of the TOSCA-3. Only shame and guilt were used in our analyses. Lastly, the Brief COPE has 14 subscales of which only the active coping subscale was used. Each subscale of the Brief COPE was composed of two questions. The ratings given for each question was added together to create each variable. Additionally, the total scores for the THQ and PCL-5 were used in our analyses.

After creating the above variables, we examined the normality of the distribution of each. Only guilt was skewed. Due to this result, we used a log transformation to normalize the distribution. We then looked at descriptives for each variable used in our analyses: gender (M = .82, SD = 1.82), PTSD symptom total (M = 26.46, SD = 20.29), trauma history total (M = 4.12, SD = 2.557), 79
shame (M = 34.26, SD = 10.77), guilt (M = 48.41, SD = 9.00), neuroticism (M = 1.97, SD = .81), conscientiousness (M = 2.65, SD = .73), and active coping (M = 3.34, SD = 2.11). These descriptives can also be found in Table 1. Next, we looked at the bivariate correlations between the same variables which can be found in Table 2. Lastly, we ran a hierarchical linear regression which can be found in Table 3.

Table 1.

Descriptives

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>91</td>
<td>.82</td>
<td>.38</td>
</tr>
<tr>
<td>PTSD Symptom Checklist Total</td>
<td>91</td>
<td>26.46</td>
<td>20.29</td>
</tr>
<tr>
<td>Trauma History Questionnaire Total</td>
<td>91</td>
<td>4.12</td>
<td>2.56</td>
</tr>
<tr>
<td>Shame Subscale of TOSCA</td>
<td>91</td>
<td>34.26</td>
<td>10.77</td>
</tr>
<tr>
<td>LogGuiltTotalTOSCA</td>
<td>91</td>
<td>48.41</td>
<td>9.00</td>
</tr>
<tr>
<td>Neuroticism Subscale of M550</td>
<td>91</td>
<td>1.97</td>
<td>.81</td>
</tr>
<tr>
<td>Conscientiousness Subscale of M550</td>
<td>91</td>
<td>2.65</td>
<td>.73</td>
</tr>
<tr>
<td>Active Coping Subscale of COPENow</td>
<td>91</td>
<td>3.34</td>
<td>20.29</td>
</tr>
</tbody>
</table>
### Table 2.
Bivariate Correlations

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>PTSD Symptom Total</th>
<th>Trauma History Total</th>
<th>Shame</th>
<th>Guilt</th>
<th>Neuroticism</th>
<th>Conscientiousness</th>
<th>Active Coping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTSD Symptom Checklist Total</td>
<td>-.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trauma History Questionnaire Total</td>
<td>.00</td>
<td>.37**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shame Subscale of TOSCA</td>
<td>.03</td>
<td>.29**</td>
<td>.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LogGuiltTotalTOSCA</td>
<td>.10</td>
<td>-.13</td>
<td>.18</td>
<td>.46**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuroticism Subscale of M550</td>
<td>.19</td>
<td>.49**</td>
<td>.26*</td>
<td>.47**</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness Subscale of M550</td>
<td>.00</td>
<td>-.24*</td>
<td>-.15</td>
<td>-.20*</td>
<td>.13</td>
<td>-.36**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Coping Subscale of COPENow</td>
<td>.13</td>
<td>.20</td>
<td>.21*</td>
<td>.03</td>
<td>.02</td>
<td>.11</td>
<td>-.02</td>
<td></td>
</tr>
</tbody>
</table>

**Note(s).** **Correlation is significant at the .01 level (two-tailed); *Correlation is significant at the .05 level (two-tailed)**
### Table 3.

Linear Regression Coefficients

<table>
<thead>
<tr>
<th>Standardized Coefficients</th>
<th>β</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
<td>2.142</td>
<td>.035</td>
</tr>
<tr>
<td>Gender</td>
<td>-.093</td>
<td>-1.028</td>
<td>.307</td>
</tr>
<tr>
<td>Trauma History Questionnaire Total</td>
<td>.265</td>
<td>2.805</td>
<td>.006</td>
</tr>
<tr>
<td>Conscientiousness Subscale of M550</td>
<td>-.011</td>
<td>-.113</td>
<td>.910</td>
</tr>
<tr>
<td>Neuroticism Subscale of M550</td>
<td>.327</td>
<td>2.916</td>
<td>.005</td>
</tr>
<tr>
<td>Shame Subscale of TOSCA</td>
<td>.187</td>
<td>1.630</td>
<td>.107</td>
</tr>
<tr>
<td>LogGuiltTotalTOSCA</td>
<td>-.237</td>
<td>-2.273</td>
<td>.026</td>
</tr>
<tr>
<td>Active Coping Subscale of COPENow</td>
<td>.117</td>
<td>1.302</td>
<td>.196</td>
</tr>
</tbody>
</table>

Note(s). Dependent Variable: PTSD Symptom Checklist Total
Results

For the PCL-5, a score of 0-80 can be obtained. A cut-point score of 33 is suggested to be reasonable when attempting to preliminarily determine if an individual meets symptom criteria for PTSD. Of our sample, 35 of our 91 participants reported a score higher than this cut-point. The minimum score of these 35 participants when selecting cases that scored a 33 or higher was 34 with a maximum score of 75 (M = 48.34, SD = 11.31).

Our bivariate correlations supported our initial hypothesis that we would find significant associations between PTSS, personality, and shame. There was a significant, positive correlation between PTSS and Neuroticism r (91) = .49, p < .01, and PTSS and shame r(91) = .29, p < .01 suggesting that as neuroticism and shame increase in an individual, there is a higher likelihood they will experience more PTSS. Moreover, there was a strong, positive correlation between Neuroticism and shame r (91) = .47, p < .01. There was a significant, negative correlation between PTSS and conscientiousness r (91) = -.24, p < .05 suggesting that individuals who score high in this trait are likely to experience less PTSS. Interestingly, we found no significant correlations between PTSS and guilt, nor was there a significant correlation found between PTSS and active coping, which seems to contradict some of the literature that points to coping techniques being associated with the mental health of an individual.

Then, a hierarchical linear regression was conducted to predict PTSS severity from the following variables: gender, Trauma History Questionnaire total, conscientiousness subscale of M5-50, neuroticism subscale of M5-50, shame subscale of TOSCA, guilt subscale of the TOSCA, and the active coping subscale of the
Brief COPE. The total N for this sample was 91. Standard multiple regression was then performed.

Our hierarchical linear regression showed us that in total, the variables predicted a significant amount of variance in PTSS severity $R^2 = .37$, $F(7, 83) = 7.03$, $p < .001$. Neuroticism and trauma history still significantly predicted and explained a significant proportion of variance in PTSS as seen in Table 3. The nature of the predictive relation of neuroticism and trauma history were as expected; the analysis showed that higher scores on neuroticism and trauma history predicted higher scores on PTSS. The predictive relation of guilt was also as predicted; higher scores on guilt predicted lower scores on PTSS. The other variables showed no significant prediction of PTSS. Interestingly, the significance found with guilt in the prediction of PTSS provides a unique contribution to explaining the variance in PTSS while still controlling for personality variables. This analysis suggests that guilt matters more than coping and further supports our hypothesis that guilt would act as a protective factor.

**Discussion**

The purpose of this study was to examine the interplay and predictive power of personality traits (conscientiousness and neuroticism), self-conscious affects (shame and guilt) and coping techniques (active coping) on the development of PTSS. Participants were given an anonymous online survey to complete. We hypothesized that personality, self-conscious affect, and coping all matter in terms of PTSS development. Additionally, and more specifically, we hypothesized that guilt would act as a protective factor in regard to PTSS severity due to research suggesting that guilt encourages approach coping styles (Held et al., 2011), such as active coping. We expected this variable would act
as a protectant factor against PTSS development following trauma exposure because approach coping styles are generally adaptive. Guilt as a protective factor, while seemingly counterintuitive, has been shown in past literature to positively motivate an individual toward reparative actions rather than withdrawal like with shame (Tangney & Dearing, 2002), which could, in part, be the reason it acts as a protective factor.

Analysis of our correlational data revealed that neuroticism, conscientiousness, and shame were strongly associated with PTSS as seen in Table 2. This partially supported our first hypothesis. Interestingly, we did not see significant correlations between guilt, active coping, and PTSS. Our findings suggest that only some variables have strong relationships with PTSS. However, these associations did not remain when controlling for relevant covariates within our hierarchical linear regression. Instead, frequency of exposure to distinct trauma types, neuroticism, and guilt were predictive of PTSS. Despite current literature showing conscientiousness to be a strong personality trait which leads a person to being careful and organized leading them to better cope with stress (Watson & Hubbard, 1996), neuroticism continually overpowered conscientiousness in our regression analysis. Results suggest that neuroticism and self-conscious affects, specifically guilt, are more salient predictors of PTSD symptoms than conscientiousness. Moreover, this supports our second hypothesis that guilt would act as a protective factor.

These results have both theoretical and practical significance. Theoretically, the results suggest that guilt is an important factor in predicting and protecting against PTSS. Despite the known strength of neuroticism as a PTSS predictor, the fact that guilt remained significant in the regression analysis
suggests that it is also a strong variable and should be further studied in terms of PTSS development. Practically, these results can help professionals better understand predictive and protective factors of PTSS. Since our results suggest that guilt protects against PTSS, clinicians could use this knowledge to better shape therapies for individuals in an effort to help them appreciate that guilt can, in fact, have positive associations and motivations instead of being so quick to dismiss guilt altogether.

Limitations

It is important to note that the current study had the following limitations. The first limitation of this study is the use of self-report measures. Self-report measures, while cheap, convenient, and an easy way to allow for total anonymity, allows for biases such as social desirability. Additionally, when evaluating these variables in the context of PTSS development, there are several other factors which should be considered and controlled for in future studies. The first of these is the timing of trauma exposure (i.e., when the trauma was first experienced). Early childhood trauma is highly predictive of later development of PTSS due to its ability to impair developmental processes like emotion regulation, interpersonal behaviors, attachment formation, and autobiographical memory development (Hagenaars, Fisch, & van Minnen, 2011; Ogle, Rubin, & Siegler, 2013).

Moreover, adverse childhood experiences (ACE’s) have been shown to initiate a change in one’s neurobiology (Ogle et al., 2013; Thomason et al., 2015; Tottenham et al., 2010; Weems, Klabunde, Russells, Reiss, & Carrión, 2015). For example, an ACE can cause increased sensitization of the neuroendocrine stress response which may cause an individual to be vulnerable to later psychopathology (Hagenaars et al., 2011; Heim & Nemeroff, 2001).
In their study, Ogle and colleagues (2013) found that adults who reported experiencing traumas in childhood reported greater PTSS symptom severity as opposed to those who experienced traumas after childhood. This suggests that, while PTSS development can occur after trauma and regardless of timing of trauma, those who were exposed to trauma in childhood are at a higher risk for PTSS development in adulthood.

Frequency of trauma is also indicative of PTSS development and should be a considered factor in future studies. Earlier studies have found there to be distinct differences between single and multiple traumas and those who have experienced multiple traumas – two or more – are at a higher risk for developing PTSS (Hagenaars et al., 2011). For example, research done by Dale and colleagues (2009) found that individuals who reported a greater number of traumas also reported using dysfunctional coping methods. Additionally, Allen and Lauterbach (2007) found there to be differences in self-confidence between the two groups. Victims of multiple traumas have been found to experience more guilt and shame and have a higher tendency to dissociate despite timing of trauma (Hagenaars et al., 2011; Ogle et al., 2013). While frequency of trauma was controlled for through the THQ questionnaire, future studies should be conducted with a more intentional approach to considering the effects of both trauma-timing and frequency of trauma to better predict which individuals are at an increased risk for developing PTSS following trauma exposure.

Finally, the number of people who did not complete the Brief COPE significantly limited our analytical power. There may be several reasons for this lack of completion, including testing fatigue and participant assumption that the measure was not relevant to their current functioning. The Brief COPE was the final
measure in the survey which could indicate fatigue or people not feeling as if they're currently coping with their trauma – especially since they had just completed a measure asking them to report on how they had previously coped with the trauma. Nonetheless, there is potentially systematic bias in the data set due to this phenomenon.

Despite these limitations, the current research provides important and interesting information into which variables may impact PTSS development and which are strongly correlated with it. Further research is needed to replicate these findings in other trauma-exposed populations. Overall, this research provides a platform for better understanding how personality, self-conscious affects, and coping techniques all interplay and predict the development and severity of PTSS and helps direct further research as to which areas should be more closely examined.
Works Cited


Traumatic Stress, 24(6), 708–715. https://doi.org/10.1002/jts.20689


https://doi.org/10.1111/j.1467-9450.2008.00674.x
OSTROGRADSKY’S DIVERGENCE THEOREM

BY: WHITNEY WHITE

The divergence theorem, though not named as such, was first shown by Michael Ostrogradsky in Paris in 1826 (Stolze 440). While the current vector notation of the divergence theorem applied to 3-dimensional space looks as such,

(I)

\[ \iiint (\nabla \cdot \vec{A}) \, dV = \iint \vec{A} \cdot \vec{d}a \]

Ostrogradsky’s original statement took the following form (Katz 147):

(II)

\[ \int (a \frac{\partial p}{\partial x} + b \frac{\partial q}{\partial y} + c \frac{\partial r}{\partial z}) \, \omega = \int (ap \cos \alpha + bq \cos \beta + cr \cos \gamma) \, \varepsilon \]

It is the goal of this paper to not only connect the original notation to the new, but to also connect Ostrogradsky’s proof to our
modern proof, as they run parallel. The vector notation we are currently familiar with is not present in Ostrogradsky’s proofs, as vector calculus was not developed until later. The divergence theorem was first stated in its vector form by Oliver Heaviside in 1901. This is also when the theorem took on its modern name (Stolze 441). We will, without further reference to Heaviside’s vector proof, connect the two equations above by using our current understanding of vector notation.

Note that in equality II above, \( a, b, \) and \( c \) are scalar constants. We will take for granted that scalar constants inside of the integral are multiples of the integral (so pulled out in front), and we will not address them in our proof. Thus II would become

\[
\text{(III)} \]

\[
\int \left( \frac{\partial p}{\partial x} + \frac{\partial q}{\partial y} + \frac{\partial r}{\partial z} \right) \omega = \int (p \cos \alpha + q \cos \beta + r \cos \gamma) \varepsilon
\]

Ostrogradsky presented his theorem multiple times. The notation used in II is his original statement from 1826, in a presentation to the Academy of Sciences in Paris (Stolze 441). He then presented another formulation of his theorem to the Academy in 1827, though without proof (Stolze 440). Ostrogradsky returned to Russia after five years in France (1822–1827), where he continued to research and publish. Another of his publications contained the divergence theorem as only part of the presentation, used as a tool to study heat theory. This paper was presented to the Imperial Academy of Sciences of St. Petersburg in 1828, then published as part of the memoirs of the Academy in 1831. The notation of this last publication (IV below) is different than what
appeared six years earlier in equation II and looks as follows (shown side by side for comparison. Note the absence of scalar constants in IV as discussed above):

(ii) \[
\int \left( a \frac{\partial p}{\partial x} + b \frac{\partial q}{\partial y} + c \frac{\partial r}{\partial z} \right) \omega = \int (ap \cos \alpha + bq \cos \beta + cr \cos \gamma) \varepsilon
\]

(iV) \[
\int \left( \frac{dp}{dx} + \frac{dq}{dy} + \frac{dr}{dz} \right) \omega = \int (P \cos \lambda + Q \cos \mu + R \cos \nu) s
\]

Let's now connect the current vector notation in equality I to the notation of equality IV. To do this, recall that the scalar product of two vectors \((a, b, c)\) and \((d, e, f)\) is defined as \((a, b, c) \cdot (d, e, f) = ad + be + cf\).

(i) \[
\iiint_V (\nabla \cdot \vec{A}) \, dV = \iint_S \vec{A} \cdot \vec{da}
\]

Here, the vector function \(\vec{A} = (A_x(x, y, z), A_y(x, y, z), A_z(x, y, z))\), the operator \(\nabla = \left( \frac{\partial}{\partial x}, \frac{\partial}{\partial y}, \frac{\partial}{\partial z} \right)\), \(dV = dx dy dz\), and \(\overrightarrow{da} = \left( (\vec{i} \cdot \vec{n}) + (\vec{j} \cdot \vec{n}) + (\vec{k} \cdot \vec{n}) \right) dx dy\), where \(\vec{n} = \vec{n}(x, y, z)\) is the outward unit normal to the surface \(S\) and \(\vec{i} = (1, 0, 0), \vec{j} = (0, 1, 0), \vec{k} = (0, 0, 1)\).
\[ (V) \]
\[ \iiint_V \left( \frac{\partial A_x(x, y, z)}{\partial x} + \frac{\partial A_y(x, y, z)}{\partial y} + \frac{\partial A_z(x, y, z)}{\partial z} \right) \, dxdydz \]
\[ = \int_S (A_x(x, y, z)(\hat{i} \cdot \vec{n}) + A_y(x, y, z)(\hat{j} \cdot \vec{n})) + A_z(x, y, z)(\hat{k} \cdot \vec{n})) \, dxdy \]

*Note that* \( \vec{i} \cdot \vec{n} = |\vec{i}| \cdot |\vec{n}| \cos \lambda = 1 \cdot 1 \cdot \cos \lambda, \) *where* \( \lambda = \lambda(x, y, z) \) *is the angle between vectors* \( \vec{i} \) *and* \( \vec{n} \). *The same is true for* \( \vec{j} \cdot \vec{n} \) *and* \( \vec{k} \cdot \vec{n} \).

\[ (VI) \]
\[ \iiint_V \left( \frac{\partial A_x(x, y, z)}{\partial x} + \frac{\partial A_y(x, y, z)}{\partial y} + \frac{\partial A_z(x, y, z)}{\partial z} \right) \, dxdydz \]
\[ = \iint_S (A_x(x, y, z) \cos \lambda + A_y(x, y, z) \cos \mu + A_z(x, y, z) \cos v) \, dxdy \]

For direct comparison, I rewrite Ostrogradsky’s IV from above:

\[ (IV) \]
\[ \int \left( \frac{dp}{dx} + \frac{dq}{dy} + \frac{dr}{dz} \right) \, \omega = \int (P \cos \lambda + Q \cos \mu + R \cos v) \, s \]

First, connect the left-hand side of IV (Ostrogradsky) and VI (modern). Ostrogradsky writes vector \( \vec{A} \) in its three Cartesian
components: \( p(x, y, z) = A_x(x, y, z) \), \( q(x, y, z) = A_y(x, y, z) \), and \( r(x, y, z) = A_z(x, y, z) \), where \((x, y, z) \in V\). The operator \( \nabla \) is used consistently in both IV and VI, though Ostrogradsky does not use our partial derivative notation. The differential volume \( dx\, dy\, dz \) in VI is denoted by Ostrogradsky as \( \omega \) in IV, and we write three integral symbols where his notation has one.

Second, on the right-hand side of IV and V, Ostrogradsky writes \( P = A_x(x, y, s(x, y)) \), \( Q = A_y(x, y, s(x, y)) \), and \( R = A_z(x, y, s(x, y)) \), where \( z = s(x, y) \) is the function describing the surface \( S \). His differential surface area \( s \) is \( dx\, dy \). Lastly, our specific surface double integral is intended by his single integral.

Thus we have connected the original notation to the new. Moving toward further clarity, I will use Ostrogradsky’s \( p, q, r, P, Q, R \) notation, maintaining the same definitions as described above. Next, I wish to connect Ostrogradsky’s proof to our modern proof, and I believe the most effective way to show this is by first stating the full modern proof. Within this modern proof, I will add superscripts, such as (1), (2), and so on, to be easily referenced while reading Ostrogradsky’s original work.

I will prove:

\[
\iiint_V \left( \frac{\partial p}{\partial x} + \frac{\partial q}{\partial y} + \frac{\partial r}{\partial z} \right) \, dx\, dy\, dz \quad (1)
\]

\[
= \iint_S (P \cos \lambda + Q \cos \mu + R \cos v) \, dx\, dy
\]

It is only necessary to show:

\[
\iiint_V \left( \frac{\partial r}{\partial z} \right) \, dx\, dy\, dz \quad (2) = \iint_S (R \cos v) \, dx\, dy \quad (3)
\]

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From equation V above, this is:
\[
\iiint_{V} \left( \frac{\partial r}{\partial z} \right) dxdydz = \iint_{S} \left( R(x, y, s(x, y)) \left( \vec{k} \cdot \vec{n} \right) \right) dxdy
\]

Modern Proof:

Preliminary assumptions: we have a 3D solid region \( V \) and an oriented surface \( S \) enclosing it. Let \( \vec{A} = p \vec{i} + q \vec{j} + r \vec{k} \), each \( p, q, r \) a function of \( x, y, \) and \( z \), where \( (x, y, z) \in V \). Let \( \vec{i} = (1,0,0), \vec{j} = (0,1,0), \vec{k} = (0,0,1) \) and \( \vec{n} = \vec{n}(x, y, s(x, y)) \) be the unit normal surface vector, oriented outward at each point of the surface. We prove the theorem for the special case of a 3D region \( V' = \{(x, y, z): (x, y) \in D, f_1(x, y) \leq z \leq f_2(x, y)\} \), where \( D \) is the projection of the solid region \( V' \) onto the \( xy \)-plane, and each \( z \) of the region \( V' \) is bounded by two surfaces \( f_1 \) (lower) and \( f_2 \) (upper).

The left-hand side will then be (using Ostrogradsky's notation \( R \) in the last term):
\[
\iiint_{V'} \left( \frac{\partial r}{\partial z} \right) dxdydz = \iint_{D} \left[ \int_{f_1}^{f_2} \frac{\partial r}{\partial z} dz \right] dxdy
\]
\[
= \iint_{D} [(R(x, y, f_2) - R(x, y, f_1)] dxdy \tag{4}
\]

The right-hand side will become the sum of three integrals, as we integrate over the lower surface \( f_1 \), the upper surface \( f_2 \), and the vertical side surface (if any). But, since \( \vec{k} = (0,0,1) \), which is normal to the \( \vec{n} \) of the vertical surface, the integral from this vertical surface is zero. We are only left with the integrals over the top and bottom surfaces. For the lower surface \( f_1 \) where \( \vec{n} \)
points down, \( \vec{n} = \left( \frac{\partial f_1}{\partial x}, \frac{\partial f_1}{\partial y}, -1 \right) \). For the upper surface \( f_s \) where \( \vec{n} \) points up, \( \vec{n} = \left( -\frac{\partial f_2}{\partial x}, -\frac{\partial f_2}{\partial y}, 1 \right) \).

So the right-hand side becomes:

\[
\int \int_S \left( R(x, y, s(x, y)) \left( \vec{k} \cdot \vec{n} \right) \right) dxdy
\]

\[
= \int \int_D \left( R(x, y, f_1) \left( (0,0,1) \cdot \left( \frac{\partial f_1}{\partial x}, \frac{\partial f_1}{\partial y}, -1 \right) \right) \right) dxdy
\]

\[
+ \int \int_D \left( R(x, y, f_2) \left( (0,0,1) \cdot \left( -\frac{\partial f_2}{\partial x}, -\frac{\partial f_2}{\partial y}, 1 \right) \right) \right) dxdy
\]

\[
= \int \int_D (R(x, y, f_1)(-1)) dxdy + \int \int_D (R(x, y, f_2)(1)) dxdy
\]

\[
= \int \int_D [(R(x, y, f_2) - R(x, y, f_1)] dxdy \quad \blacksquare
\]

Here are the first few pages of Ostrogradsky’s 1831 publication containing one of his proofs for the divergence theorem (129-131). The translation is by me and comments I have appear in [square brackets].

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Note on the Theory of Calculus

By M. Ostrogradsky

(Read November 5th, 1828)

[Introduction] The questions of mathematical physics lead most often 1) to integrate an equation with partial differentials that takes place for all points of space where the phenomenon occurs; 2) to satisfy a differential equation that only exists at the boundary of this space, that is to say, the area of the expanse where the phenomenon occurs; 3) we know all the peculiarities of the phenomenon at a given moment.

We first look for a particular solution which satisfies the equation relating to the interior as well as to that relating to the surface [this solution is the divergence theorem]; it happens that we find an infinity [of solutions]; each of them contains, as a factor, an arbitrary constant; all the particular solutions are added together, and an attempt is made to determine the arbitrary factors in order to satisfy the known state of the phenomenon corresponding to the given moment. It is to satisfy the last part of the problem that this note is intended.

[He now sets up his proof].

Imagine within the interior of a space [a volume] terminated [bounded] by any surface [its boundary], a differential [volume] element \( \omega \) \( [dxdydz] \), designated by \( x, y, z \), the rectangular coordinates [position] of this element and by \( p, q, r \) functions of \( x, y, z \) \([p(x,y,z), q(x,y,z), r(x,y,z)\) are the components of the vector field, each a function of position] which remain in all the space that we have just imagined [the common domain of \( p, q, r \) is the volume described above].
Consider the triple integral \[ \int \left( \frac{dp}{dx} + \frac{dq}{dy} + \frac{dr}{dz} \right) \omega \] (1)

we can suppose \[ \omega = dzdydx \] [differential volume introduced above]. [This is the integral \[ \iiint \left( \frac{\partial p}{\partial x} + \frac{\partial q}{\partial y} + \frac{\partial r}{\partial z} \right) dx dy dz \], which can be broken into a sum of three integrals. Since the following process will yield analogous results for all three integrals, Ostrogradsky chooses to proceed with just \[ \iiint \frac{\partial r}{\partial z} dx dy dz. \]

Let's take the integral first

\[ \int dx dy \int \frac{dr}{dz} dz \] (2).

[We would write \[ \iint \left[ \int \frac{\partial r}{\partial z} dz \right] dx dy. \] To evaluate it, let us imagine a quadrangular prism perpendicular to the plane of \( xy \), having as base, on this plane, the parallelogram \( dy dx \); this prism will completely cross the volume, and penetrate its surface in several points [imagine a prism punching vertically through the volume, drawn here through a boundary surface];
the number of these points will necessarily be even [entries and exits of the same surface appear in pairs], since the volume is assumed [to be] limited [by the boundary] on all sides. Let us denote by \( z_1, z_2, z_3, \ldots, z_{2n} \) the values of \( z \) corresponding to the points where the prism penetrates the surface, these quantities are supposed to be arranged in order of their size, \( z [z_1] \) being the smallest. Let \( R_1, R_2, R_3, \ldots, R_{2n} \) be what \( r \) becomes when we successively make \( z = z_1, z = z_2, \ldots, z = z_{2n} \) [parallel to the \( xy \)-plane. So \( R_1 \) is the graph of \( r(x,y,z_1) \), a 2D surface, \( R_2 \) the graph of \( r(x,y,z_2), \ldots \) etc. This corresponds to our two chosen surfaces \( f_1 \) (lower, odd subscripts) and \( f_2 \) (upper, even subscripts)] We will have,

\[
\int dydx \int \frac{dr}{dz} dz = \int (R_2 + R_4 + \cdots + R_{2n}) dydx \\
- \int (R_1 + R_3 + \cdots + [R_{2n-1}]) dydx \quad (4)
\]
[The right-hand side of the equality is the difference between the volume under the upper surfaces \( R_2 + R_4 + \cdots + R_{2n} \) and the volume under the lower surfaces \( R_1 + R_3 + \cdots + R_{2n-1} \).]

Let us denote by \( \nu \) the angle normal to the surface, extended outside the volume [Here we would use our current convention of the normal surface vector \( \vec{n} \) to obtain the same result by taking the scalar product of \( R \) and \( \vec{n} \). Where \( \nu \) is the angle between the \( z \) component of \( R \) and \( \vec{n} \), we have \( R(\vec{k} \cdot \vec{n}) = R|\vec{k}||\vec{n}| \cos \nu = R \cos \nu \)], made with the positive half-axis \( z \), and by \( s \) \([ds]\), a differential element of the same surface: we shall have,

\[
\int \frac{dv}{dz} \omega = \int R \cos \nu \ s; \quad (3)
\]

the integral of the second member of the last equation [the right-hand side] refers only to the points of the surface.

[He now claims the analogous results for the \( x \) and \( y \) components.] If we designate by \( P \) and \( Q \) what \( p \) and \( q \) become, the area of the volume, by \( \mu \) and \( \lambda \) the angles normal to the surface, prolonged from inside to outside the spheroid [by which he means the volume], made with the half axes \( x \) and \( y \) positive, we will also have:

\[
\int \frac{dp}{dx} \omega = \int P \cos \lambda \ s
\]

\[
\int \frac{d[q]}{dy} \omega = \int Q \cos \mu \ s
\]

and consequently
\[ \int \left( \frac{dp}{dx} + \frac{dy}{dy} + \frac{dr}{dz} \right) \omega = \int (P \cos \lambda + Q \cos \mu + R \cos v) s \]

Thus, we have shown and connected the modern proof of the divergence theorem to its historic 1828 proof by Ostrogradsky. As stated above, the divergence theorem was not given its current name until 1901, but this does not mean it was not used in its different forms. Its use spread quite rapidly after Ostrogradsky's presentations and publications. Its various applications by mathematicians and scientists in the same time-period made it difficult for historians to track down the source. I was exposed to the divergence theorem alongside names like George Green, Carl Friedrich Gauss, and George Stokes. Michael Ostrogradsky was a name unknown to me prior to my specific search for the original proof of the divergence theorem. It was a name I had to practice spelling.

Recall that Ostrogradsky's first presentation of the divergence theorem was in February of 1826 at The Academy of Sciences in Paris. Thirteen years prior, Carl Friedrich Gauss published a paper relating volume and surface integrals while studying forces of attraction and repulsion. Gauss' presentation contains three specific cases of the divergence theorem, yet today the divergence theorem is sometimes called Gauss' theorem even though he never stated or proved the general case as did Ostrogradsky (Stolze 439). In Gauss' first result, \( p(x,y,z)=1, q(x,y,z)=0 \) and \( r(x,y,z)=0 \). In the second, \( \frac{dp}{dx} = \frac{dq}{dy} = \frac{dr}{dz} = 0 \), and in the third, \( p(x,y,z) \) is an unknown while \( q(x,y,z)=0 \) and \( r(x,y,z)=0 \). In 1833 and 1839, he published more special cases of the theorem (Katz 147).

In 1928, George Green published An Essay on the Application of Mathematical Analysis to the Theories of Elasticity and Magnetism in England. This essay contains what are now known as Green's 105
identities, which also relate volume integrals and surface integrals. The first identity of his paper is quite close to the divergence theorem, and with a single substitution, it would be the exact same equation. The needed substitution would be $P = u \frac{\partial v}{\partial x}, Q = u \frac{\partial v}{\partial y}$ and $R = u \frac{\partial v}{\partial z}$ (Stolze 438), where the $P$, $Q$, and $R$ are Ostrogradsky’s values discussed above and the terms on the right side of the equalities are what appear in Green’s identity.

The same year in Paris, 1828, Simeon Denis Poisson stated and proved a result identical to Ostrogradsky’s, but without citation. Mathematical historian Victor Katz states that Poisson had “refereed” Ostrogradsky’s 1827 paper, thus learning it from him. Katz reminds us that “references were not made then with the frequency that they are today,” so there’s no need to accuse anyone of theft (148).

Other evidence that attributes the divergence theorem to Ostrogradsky appears later in the work of James Clark Maxwell. In Maxwell’s 1873 Treatise on Electricity and Magnetism, he uses the divergence theorem with reference to Ostrogradsky’s work (Stolze 439).

Each person used their version of the divergence theorem as a means to an end. I have not found any information stating if the divergence theorem was named by anyone prior to Heaviside in 1901. Since the theorem was viewed as a secondary tool, this may be a reason why. Even Ostrogradsky did not present it as its own result, but as a benchmark toward a further goal. In the 1831 publication, discussed above, he states and proves the theorem in less than a page and a half. He proceeds without pause through the next eight pages, dedicating most of them to the theory of heat. “Let’s apply these general results to the theory of heat” (134). The
Katz states that each scientist used the theorem “in the middle of long papers” to achieve a further goal. Its applications were widespread, as “Gauss was interested in the theory of magnetic attraction, Ostrogradsky in the theory of heat, Green in electricity and magnetism, Poisson in elastic bodies,” and later Maxwell also in electricity and magnetism (149). Applications of the divergence theorem have continued to spread, and it is just as useful today, with the proof hardly changed, as it was when originally stated by Ostrogradsky nearly 200 years ago. Ostrogradsky’s work certainly deserves more recognition. As widespread as the divergence theorem is, Ostrogradsky’s name should be spread equally as far, even if it takes a few tries to spell it correctly.
Works Cited
In 1202, a man named Leonardo of Pisa wrote the *Liber abaci*, or "book of calculations." In his earlier years, Leonardo traveled to many different places to learn about the mathematics of different cultures. In his childhood, he and his father moved to a region that is now known as Algeria <1, p. 3>. Here he studied the Hindu-Arabic number system: 9, 8, 7, 6, 5, 4, 3, 2, 1, and the symbol 0 or "zephir" in Arabic <2, p. 17>. From these experiences, he was able to use and introduce the Hindu-Arabic number system to the rest of the European world through *Liber abaci*, a system which proved more useful than the previously used Roman numeral system. The *Liber abaci* was one of the first works associated with the introduction of the Hindu-Arabic number system to Europe. This text was also chiefly responsible for strengthening international trade by encouraging a more universal understanding of mathematical computation. The number system we use today is drawn from the first chapter of *Liber abaci*. While much of the book focuses on providing merchants of the time with the mathematical tools required to run their respective businesses, *Liber abaci* also had an important impact on the world of mathematics by reintroducing mathematics to medieval Europe.

While I aim to discuss some of Leonardo's lesser-known problems, I will also discuss the famous Rabbit problem, found on
page 404 of the translation. Interestingly, this problem had been proposed well before Leonardo’s time. He merely copied it into his book from another source to serve as a whimsical example for practicing arithmetic with the Hindu-Arabic number system (1, p. 157). Comments in square brackets have been added for clarity. Expressions such as (p284) refer to the page number of the original text inserted by the translator. It is as follows:

How Many Pairs of Rabbits Are

Created by One Pair in One Year.

A certain man had one pair of rabbits together in a certain enclosed place, and one wishes to know how many are created from the pair in one year when it is the nature of them in a single month to bear another pair, and in the second month those born to bear also.

Because the above-written pair in the first month bore, you will double it; there will be two pairs in one month. One of these, namely the first, bears in the second month, and thus there are in the second month 3 pairs; of these in one month two are pregnant, and in the third month 2 pairs of rabbits are born, and thus there are 5 pairs in the month; in this month 3 pairs are pregnant, and in the fourth month there are 8 pairs, of which 5 pairs bear another 5 pairs; these are added to the 8 pairs making 13 pairs in the fifth month; these 5 pairs that are born in this month do not mate in this month, but another 8 pairs are pregnant, and thus there are in the
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<td>tenth</td>
<td>144</td>
</tr>
<tr>
<td>eleventh</td>
<td>233</td>
</tr>
<tr>
<td>end</td>
<td>377</td>
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sixth month 21 pairs; \(<p284>\) to these are added the 13 pairs that are born in the seventh month; there will be 34 pairs in this month; to this are added the 21 pairs that are born in the eighth month; there will be 55 pairs in this month; to these are added the 34 pairs that are born in the ninth month; there will be 89 pairs in this month; to these are added again the 55 pairs that are born in the tenth month; there will be 144 pairs in this month; to these are added again the 89 pairs that are born in the eleventh month; there will be 233 pairs in this month. To these are still added the 144 pairs that are born in the last month; there will be 377 pairs, and this many pairs are produced from the above-written pair in the mentioned place at the end of the one year.

You can indeed see in the margin [see table below] how we operated, namely that we added the first number to the second, namely the 1 to the 2, and the second to the third, and the third to the fourth, and the fourth to the fifth, and thus one after another until we added the tenth to the eleventh, namely the 144 to the 233, and we had the above-written sum of rabbits, namely 377, and thus you can in order find it for an unending number of months.
The sequence of numbers produced by this problem may look somewhat familiar to you for it is none other than the famous, so-called Fibonacci Sequence in which each number of the sequence, after the first two, is the sum of the two previous numbers in the sequence. It was not until the nineteenth century that Leonardo of Pisa became known as Fibonacci.

As stated above, the purpose of this paper is not to explore that which is already known. Instead, we will examine a few less well-known problems from the latter part of Liber abaci. It is my hope to make clear to you the way in which Leonardo constructed and solved the following problems.

The first problem to be discussed is “Finding a Number Committed to Memory.” In this problem, Leonardo requires a number to be selected. Using addition, subtraction, multiplication, and a clever division at the end, he “miraculously” gives the originally selected number. However, there is a distinction to be made in order to fully generalize this problem. The distinction in question can be found in the following problem titled “On the Same” which I have included to provide additional insight. Once again, all comments in [square brackets] are mine. Comments by the translator are in <angle brackets>. Expressions such as (p309) refer to the page number of the original text.
Liber abaci

<Finding a Number Committed to Memory>

[Chapter 12, p. 434]

[Technique]

If someone commits to memory some number [assumed to be $> 0$], then you make him double it once [2$x$], twice [2(2$x$) = 4$x$], (p309) and three times [2(4$x$) = 8$x$], or however many times you wish, or moreover triple it, or multiply it by any number [$nx$, where $n = 1, 2, 3, ...$], with some other subtractions or additions, according to what we shall demonstrate below, and you will wish to find the amount which will arise [after the prescribed operations have been performed], then you keep 1 in hand, and whatever you prescribe for him to do, you do the same to the unit [1];

if you prescribe him to double, or triple, you double or triple the unit [1], and so that you make count together [perform the same operation at the same time], you equally prescribe that he adds or subtracts an amount [this can be incorrect; see counterexample below] to the number which he committed to memory once or twice or however many times you wish, and you do similarly with your unit [1], and then you prescribe him that he divide the total amount that he has by the number which he committed to memory, and then you know that he has as many as you have in your hand.

[Example]

For example, it is put that he chooses 6, which if he doubles it, then there will be 12, and you from the doubling of the unit will have 2. Whence if he doubles the 12 twice he will have 48 [ = 2 · 2 · 12], and if you double twice the two which you have from doubling 113
1, then you will have \( 8 \[ = 2 \cdot 2 \cdot 2 \], and if he triples his 48 he will have 144, and if you triple the 8 you will have 24, and thus we can proceed without end doubling or tripling or quadrupling, and if he added to the 144 three times the number he committed to memory, namely three times the 6, then he will have 162 \[ = 144 + 3 \cdot 6 \], and if to the 24 you add three times the unit, then you will have 27, and thus if he divides the amount, namely the 162, by the number which he committed to memory, namely the 6, he will have 27, as you have. Whence if you will tell him that he has 27 you will see this called a miracle [by him].

[I give you this table as a reference.]

<table>
<thead>
<tr>
<th>Operation</th>
<th>His number</th>
<th>Your number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>( n = 6 )</td>
<td>1</td>
</tr>
<tr>
<td>double</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>double</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>double</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td>triple</td>
<td>144</td>
<td>24</td>
</tr>
<tr>
<td>add ( 3n )</td>
<td>162</td>
<td>27</td>
</tr>
<tr>
<td>divide by ( n )</td>
<td>27</td>
<td>27</td>
</tr>
</tbody>
</table>

However, consider this counterexample. Let the number which has been committed to memory by “someone” be 5. First, double the 5 to obtain 10 and double the 1 you “keep in hand” to obtain 2. Once this is complete, add 1 to both 10 and 2, as allowed above by the lines “you equally prescribe that he adds or subtracts an amount to the number which he committed to memory once or
twice or however many times you wish,” to obtain 11 and 3 respectively. Now divide each number by their originals, namely 5 and 1, to obtain $\frac{11}{5}$ and 3 respectively. Note, $\frac{11}{5} \neq 3$. Thus, Leonardo did not provide sufficient restrictions on the addition and subtraction operations in this problem in order for it to work in all instances. We will see in the following problem, titled “On the Same,” he makes a distinction that, when applied to the original problem, allows it to work in all specified instances.

<On the Same>

[Chapter 12, p. 435]

Therefore, from this method follows another one that is not less astonishing. Namely when you will wish for someone to find a number that you commit to your memory without any questioning, you must say to him to take a number from anyone [say $x > 0$], and you keep in your hand 1, and you prescribe that he double [2x] the number that he took, or triple [3x], or multiply it by any number [$nx$, where $n = 1, 2, 3, \ldots$], or divide it [by $n = 1, 2, 3, \ldots$], and to the amount add or subtract the number that he took [this is the critical distinction that Leonardo failed to make in <Finding a Number Committed to Memory>; see explanation below], and you always do with your unit the same thing that you prescribe for him, and if this is done you will have the number from the unit [1] that you put in memory, and then you say to him to divide the number that he has by the number that he took [x], and that which will result from the division will be the number that you put in your memory [which you promptly reveal after this final step].
The critical distinction is as follows, “and to the amount add or subtract the number that he took.” This means we must only add or subtract the number initially committed to memory. However, we can take this one step further in order to make the original problem slightly more general by allowing the addition and subtraction of any multiple of the number initially committed to memory. In doing this, we insure the final division step will scale the final number down to the desired proportion of one or the unit.

The next problem to discuss is titled “A Problem on Two Poles”. Here, Leonardo constructs a situation where two poles of unequal lengths stand 12 feet apart. He then poses two different calculations. The first of which is to calculate the point of contact between the two poles when the greater leans on the lesser. The second of which is to calculate the same point when the lesser leans on the greater. Note Leonardo uses the notation $ab$. to represent a line segment from point $a.$ to point $b.$ All additional sketches were constructed by me as explication.

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<A Problem on Two Poles>

[Chapter 15, p. 543]

[Problem]

On a certain ground are standing two poles that are only 12 feet apart, and the lesser pole is in height 35 feet, and the greater 40 feet;
[First Question]

it is sought, if the greater pole will lean on the lesser, then in what part [measured down from the top of the greater pole] of it [the greater pole] will it touch [the lesser pole];

[Construction]

let therefore the lesser pole be the line segment .ab., the greater truly .gd., and let the line segment .da. be drawn,
[Proof]

and because the square of the greater pole is greater than the sum of the two squares of the line segments \( ab \) and \( bd \),

[By the Pythagorean Theorem, in the right triangle \( abd \) we have \( (ab)^2 + (bd)^2 = (da)^2 \) and because \( (ab)^2 + (bd)^2 = 35^2 + 12^2 = 1225 \) \( \leq 1600 = 40^2 = (dg)^2 \), we can conclude that \( (ab)^2 + (bd)^2 < (dg)^2 \).]

it is known that the line segment \( da \) is less than the line segment \( dg \);

\[ (da)^2 < (dg)^2, \text{ hence } da < dg \]

therefore the line segment \( da \) is extended to the point \( e \), so that the line segment \( de \) is equal to the line segment \( dg \); therefore if the pole \( dg \) ends at the point \( e \), then it makes the line segment \( de \); therefore there will be the \( <p308> \) right triangle \( abd \);

\[
\begin{align*}
  & e \\
  & \quad a \\
  & \quad \quad 40 \\
  & \quad \quad \quad 35 \\
  & \quad \quad \quad \quad 12 \\
  & \quad \quad \quad \quad \quad d \\
  & b
\end{align*}
\]

therefore the square of the line segment \( ad \) is equal to the sum of the squares of the two line segments \( ab \) and \( bd \) [Pythagorean Theorem]; therefore you add together their squares, namely \( 1225 \)
and 144; there will be 1369, the root of which, namely 37, is the line segment \(da\);

\[
\left( da \right)^2 = (ab)^2 + (bd)^2
\]

\[
= 35^2 + 12^2
\]

\[
= 1225 + 144
\]

\[
= 1369.
\]

So, \(da = +\sqrt{1369}\)

\[
= 37.]
\]

this subtracted from the line segment \(de\), namely from the pole \(dg\),
will leave 3 for the line segment \(ae\).

\[
[de - da = dg - da
\]

\[
= 40 - 37
\]

\[
= 3
\]

\[
= ae.]
\]
[Second Question]

And if the lesser pole leans on the greater,

[Proof]

then you subtract the 144 from the 1225 leaving 1081;

[By the Pythagorean Theorem, since in the right triangle \( fbd \) we have \( (db)^2 + (df)^2 = (bf)^2 = (ab)^2 \), it follows that \( (df)^2 = (ab)^2 - (bd)^2 = 1225 - 144 = 1081 \).]

you take away the root of this, namely \( df \), from the \( dg \). \( df = \sqrt{1081} \approx 32.87 \), so \( dg - df \approx 40 - 32.87 = 7.13 \); therefore the point \( f \) will be the contact point of the lesser pole,

[Check]

and in order that you see this more clearly, you draw the line segment \( bf \); this will subtend the right angle which is at \( d \);
therefore the square of the line segment \( bf \) is equal to the sum of the two squares of \( fd \) and \( db \).

[by Pythagorean Theorem on triangle \( fbd \); these squares, namely 1081 [calculated above] and 144, added together make 1225; the root of it, namely 35, is the line segment \( bf \) that is equal to the pole \( ba \), as it should be.]

\[
\begin{align*}
[(bf)^2 &= (fd)^2 + (db)^2 \\
&= 1081 + 144 \\
&= 1225. \\
bf &= +\sqrt{1225} = 35.]
\end{align*}
\]
The last problem to be covered is “On a Tree.” In this problem, Leonardo constructs a tree and supposes that a given ratio of it lies underground while 20 cubits of it stand above the ground. Using the method of double false position, the solution to which can be expressed as this modern formula:

\[
\frac{(\text{first guess})(\text{second error}) - (\text{second guess})(\text{first error})}{(\text{second error}) - (\text{first error})}
\]

[1, p. 79], he shows that it is possible to calculate the total height of the tree. Please note that when Leonardo writes \(\frac{1}{4}\frac{1}{3}\) he means addition: \(\frac{1}{4}\frac{1}{3} = \frac{1}{4} + \frac{1}{3}\).

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On a Tree.

[Chapter 13, p. 454]

There is a tree \(\frac{1}{4}\frac{1}{3}\) \(\left[\frac{1}{4} + \frac{1}{3} = \frac{3}{12} + \frac{4}{12} = \frac{7}{12}\right]\) of which lies underground, and above the ground there are 20 cubits of it. Indeed you put for the length of the tree some number arbitrarily [this is the first step of the method elchataym or the method of false position, where once two incorrect guesses are recorded, a proportion can be created to find the correct value]; you can put any number; however you should consider in order that whatever you put \(\frac{1}{4}\frac{1}{3}\) of it will be integral [meaning take a number \(n\) such that \(\left(\frac{1}{4} + \frac{1}{3}\right)n\) is an integer]. And this same thing you know for all positions of all problems; you put always in any problem numbers so that all fractional parts are found to be integral.

[First False Position]

We shall demonstrate this in putting the numbers in the following problems. You therefore put it that the tree is of length twelve cubits [first guess], of which \(\frac{1}{4}\frac{1}{3}\) of it is underground, namely 7 [\(\frac{7}{12}\) •
12 = 7] cubits; there remain above ground 5 [12 – 7 = 5] cubits that should be 20; therefore for this position we deviate from [have a number lower than] the true value by 15 cubits [first error];

[first guess = 12
first error = -15 (lower)]

[Second False Position]

therefore in the second position you put 24 cubits [second guess] for the length of the tree, namely 12 cubits more than the first position. From this you subtract \( \frac{11}{43} \) of it, namely 14 [24 – \( \frac{7}{12} \cdot 24 = 24 – 14 = 10 \)], which are underground leaving 10 cubits above the ground [a number lower than the true value] which should be 20; the true value is 10 cubits [second error] longer.

[second guess = 24
second error = -10 (lower)]

[Finding the Correct Value]

Indeed, in the first position the true value was long by 15 cubits, in the second [long by] 10 [cubits]; therefore the 12 cubits that we increased [the length of the tree] in the second position we approached closer by 5 cubits, and we approximated with 10 cubits. Therefore, you will multiply the 10 by the 12 and you divide by the 5;

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[Recall the expression for solving the method of double false position given by 1, p. 79:]

\[
\frac{(\text{first guess})(\text{second error})}{(\text{second error})-(\text{first error})} = \frac{12 \cdot (-10)}{(-10)-(-15)} = \frac{-120}{5} = -24 \text{ and }
\]

\[
-\frac{(\text{second guess})(\text{first error})}{(\text{second error})-(\text{first error})} = -\frac{24 \cdot (-15)}{(-10)-(-15)} = \frac{360}{5} = 72.
\]

the quotient will be 24 cubits which you add to the 24 cubits of the second position yielding 48 cubits for the length of the entire tree.

[So finally, 72 - 24 = 48.]
[Solving the Same Problem Using the Method of Negotiation]

You can indeed write proportions for similar problems according to the method of negotiation [the method of constructing a table in order to solve for a fourth proportional number whilst three are known] that we demonstrated in the eighth chapter; in order that you know better what numbers to multiply and by what you must divide, we offer this example.

You put in one line [horizontal] the 12 cubits by which we increased the length of the tree in the second position,

\[
\begin{array}{c}
\text{cubits} \\
12 \\
*
\end{array}
\]

and the 5 cubits by which the 12 cubits approximated the true value,
and the 10 cubits that remains as the approximation you put below the 5 cubits, namely the approximation below the approximation so that similar things are below similar things, as is shown here.

Whence it is known that you must multiply the 12 by the 10 because they are diagonally opposite, and you must divide by the 5, as we said before; and we always put in that which follows the proportions in this manner so that you cannot deviate in the finding of the true value. \[\frac{12 \times 10}{5} = 24.\]
[We get an amount $a$ closer to the value with $c$ as our approximation while $b$ represents the corresponding increase in the tree height. The $d$ value represents the desired quotient.]
We first summarize each of the above written problems and the manner in which they represent their respective chapters as a whole. The first problem, “Finding a Number Committed to Memory,” came from the eighth part of the twelfth chapter of *Liber abaci* in which problems of divination are discussed. This problem possesses features characteristic of this part of the chapter, such as using creative algebra to solve for a specified unknown. In this case, the solution involved the idea of proportion. In general, the problems of chapter twelve utilize proportion along with the occasional false position. After discussing “Finding a Number Committed to Memory” it should be relatively easy to make sense of the other problems from chapter eight. The second problem, “A Problem on Two Poles,” is found in the second part of the fifteenth chapter of *Liber abaci* which discusses pertinent geometric rules. The second part of the fifteenth chapter is relatively independent from the first and third parts. The first part mainly discusses the practical applications of proportions while the third discusses rules of algebra and *almuchabala* or “proportion and restoration” [2, p. 631]. In “A Problem on Two Poles,” the ideas of proportion and algebra can be found throughout the solution. While it does not go into the explicit level of detail that the first and third parts of chapter fifteen use to present their respective topics, it still provides an interesting representation of the chapter as whole. The third problem, “On a Tree,” is from the thirteenth chapter of *Liber abaci* in which Leonardo utilizes a method of *elchataymor* “the rule of double false position” [2, p. 628] to solve a variety of problems. In this chapter, Leonardo uses proportion, (*result from guess: target value*) = (*guess: solution*) [1, p. 75], to solve linear problems of one or more variables. For this reason, “On a Tree” encapsulates the essence of chapter thirteen in its entirety. While the other problems in this chapter involve different topics, the solution structures are very similar in nature to the solution of “On a Tree,”
thus bringing a sharp sense of understanding to the other problems in chapter thirteen.

The aforementioned problems come together to represent the grand design of Liber abaci. They all serve as practice applications for the Hindu-Arabic number system that was new to Europeans at the time. By introducing this number system to Europe as a whole, Leonardo hoped to universalize the trade system of the time in order to make international trade simpler and therefore more abundant. In short, Liber abaci served as a book of sample calculations for the traders of the period. However, Liber abaci holds more mathematical significance than merely serving as a calculation book. It also represents the reintroduction of mathematics into medieval Europe. Leonardo used this book to bring back the all-but-forgotten mathematics of the ancient Greeks. What makes Leonardo’s work unique is the fact that he not only provided examples, he proved them in a manner similar to the Grecian proofs of old. When glancing at the proportion and geometry proofs of chapter fifteen, it is very evident that Leonardo possessed a thorough understanding of Euclid’s work. It is important to note that many of the problems in Liber abaci are not Leonardo’s original mathematics. He collected vast quantities of foreign mathematics and used Liber abaci to bring this information to Europe. In fact, much of the work came from the famous Arabic mathematician al-Khwarizmi (c. 780 – c. 850) [1, p. 123]. Following the publishing of Liber abaci, there was a sudden wave of similar books of calculation that also used the Hindu-Arabic number system. In a way, this marked the success of Leonardo’s reintroduction of mathematics into the European world. Such books would go on to influence future mathematicians and scientists for centuries to come.
Unfortunately, only so many problems can be examined in a short essay. However, I hope this provides some useful insight to the content and significance of *Liber abaci*. This book has forever altered the world of mathematics and is perhaps one of the most important works with regard to creating the universal number system we use today. Without Leonardo and his *Liber abaci*, the symbology and structure of modern American and European mathematics might have looked very different.
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DIVERSITY IN COMMUNITY

BY: EMILY RACKERS

There are no glistening tutus, no beautifully flowing orchestra music, no tortuously elegant pointe shoes, and the starkest difference, there are no white dancers. This is modern dance. To many people, modern dance and classical ballet are about as similar as black and white in movement style, in subject matter, in costumes, and in the race of its star dancers. The remarkable rise of both ballet and modern have led to a stark divide. Modern dancers are primarily black, and ballet dancers are primarily white. The history of modern dance, with its roots in traditional African and American styles, has created a chasm of race within the art of dance; while there are numerous criticisms and unanswered questions on how to handle this, many people are hopeful that the future of both modern and ballet can be one of harmony and diversity in the larger scheme of racial issues in society.

We begin with modern dance deeply rooted in African traditions and American values, ideals that overall contributed to the African American experience. The history of modern dance is rich in these stories and cultural phenomena. However, it is important to note that modern dance and African American dance formed in tandem, not in unison, due to issues of financial support and lack of education. According to Susan Manning’s book *Modern Dance, Negro Dance: Race in Motion*, early modern dance had a budding patronage system and opportunities for growth. It enveloped the African American dance styles into its own techniques due to their similar movements and rhythms (Manning 4). In the early twentieth
century, a time when “it became fashionable... to rebel against the strictures [sic] of tradition,” says the “Spotlight” article “Modern Dance,” the world of dance was shocked by modern’s rejection of classical ballet. (“Modern Dance”). The leaders of this movement were Isadora Duncan and Ruth St. Denis, who had drastically different styles but equally impacted dance as we know it today with ideas of freeing movement and liberal principles (“Modern Dance”).

The next generation after early modern development was led by Martha Graham and Katherine Dunham, two famed dancers. “I See America Dancing,” an article describing modern dance’s origin, says Graham turned dance into a cultural experience, rather than just entertainment, and codified a physically grueling technique while focusing on common American experiences. Dunham’s motivation was rooted in the experiences of black cultures in America and Africa; she dignified these experiences in a way that allowed people of all colors to see the pride African Americans held for their community’s history (Warren 5).

At this same time, there was increased attention to the African Diaspora movement, which is “the mass dispersion of peoples from Africa during the Transatlantic Slave Trade,” (“African Diaspora Cultures”), and the traditions/spirituals associated with this movement. Modern dancers from a variety of racial and cultural backgrounds who were interested in these ideas of the Diaspora movement “emerged to identify and describe the black experience in America” (Warren 6). Many choreographers, such as Helen Tamaris and Lester Horton, sought tirelessly to bring representation to various ethnic groups (Warren 5). Alvin Ailey was arguably the most successful at telling the black experiences of the 1950’s through dance. He cast black dancers almost exclusively,
and his works centered around the ideas from the African Diaspora. (Warren 9).

Blacks and other minority groups were drawn to modern dance to escape the discrimination and lack of representation in classical ballet, as well as the world around them. This led to the increased portrayal of African American culture, more black dancers, and more diversity within the world of dance. Yet this community was left with a huge race gap. After the modern dance movement slowed, it became apparent that white dancers were ballerinas and black dancers focused on modern, creating a large racial divide that permeated dance cultures beyond casting or subject matter.

Racial tendencies were obvious in the dance world from first glance. Yet even modern dance itself, despite its stance as a diverse break from the whitewashed ballets, fell prey to internal racism. Edna Guy, an African American modern dancer, was barred from joining Ruth St. Denis’ Denishawn company due to race. Guy had toured with the company as “essentially a glorified maid” and was shocked when St. Denis adhered to the harsh Jim Crow laws when visiting the South (Manning 3). Modern dance, which once stood as a beacon for diversity, was tinged with the pitfalls of American racist culture.

Additionally, the height of racial tensions in society was at the same time as the success of diverse and culturally prominent art groups. Creating a large, all-black modern concert-dance company with a strong concert repertoire was extremely difficult. The prime example was Alvin Ailey. Many critics examined any achievements in this task with scrutiny. The dance world examined Alvin Ailey with an extremely critical eye. He wanted to cross the boundaries of dance genres and appeal to a variety of audiences while emanating black culture and experience. This is
where the difficulty began: staying true to the ideals of Alvin Ailey while introducing new cultural topics. Thomas DeFrantz describes as the company’s fame and fortune grew, many choreographers came specifically to the Alvin Ailey company to set African American-styled pieces, giving fruition to Ailey’s original dream (DeFrantz 668). As Ailey’s works toured the world, their pieces offered a slice of the diversity of American life, particularly the racial climate of the US, and the range of political ideas the liberal group hoped to share (DeFrantz 672). The criticisms of his works, while numerous and often tinged with racial prejudices, did not hinder the company in any way. Instead, the Alvin Ailey company continued to build a repertoire rich in traditional modern styles while staying true to Alvin Ailey’s ideals of African culture and the celebration of the black American experience.

The Alvin Ailey American Dance Theater has been an important piece of my education here at the University of Missouri- Kansas City. We were watching a movie one day with the company’s repertoire in it. My classmates and I were commenting on the skimpy costumes in one of the pieces. My modern dance professor, a former Ailey company member herself, laughed and said something I still remember vividly: “Oh yeah, we definitely wore that. You know I was the only white ass coming across that stage” (Hiett). It was (and still is) funny to think about, but it left me with the questions. I decided to interview Andrew Troum, an administrative employee with the Alvin Ailey American Dance Theater, who was well versed in the company’s history and diversity practices. Troum described Alvin Ailey’s company as being founded on this idea of bringing African American stories to life, a task that “few companies have tackled, especially to such a large scale as we have” (Troum). Troum sees diversity in the company both with performers and administration that brings in a more diverse audience and more support for the works. In my 135
opinion, it shows the growth of diversity and representation in the company. While Alvin Ailey American Dance Theater started with only African American dancers, the company has since expanded to circulate a variety of other ethnicities, which Troum believes indicates its positive history and future. I asked Troum why diversity was important to the company, and he gave one of my favorite answers in this interview: “There are so many stories that need to be told... We are trying to reach out and find other stories that might not have a chance to reach the spotlight” (Troum). As I mentioned earlier, people often see modern dance as a rejection of classical ballet, with modern dancers often being people of color. He quelled this belief by saying “comparing modern and ballet is like comparing apples and oranges; it is impossible to say that modern dancers are rejects” (Troum). Another difficult topic I asked Troum about was the misconception that modern companies that are composed primarily of people of color are in some way discriminatory to white dancers. Troum quickly cleared this up: “We train and give the opportunity for all ethnicities to excel” (Troum). Troum is hopeful for the future of the company, saying that it is already one of the most diverse in the world and it can only go up from where it is at today.

Troum’s interview brought up another issue or criticism that often comes to light with African-based modern companies: the role or place of white dancers in pieces or groups that celebrate the black American experience. Helen Tamiris was one of the first dancers to address this issue. She produced a show about two African American spirituals and gave an interesting take on race in a manifesto she wrote to accompany it. In this manifesto, she describes the artist’s role to express race. However, this was not race in the traditional sense; instead of using race in terms of ethnicity, Tamiris used it as nationality. She saw race as a factor of where one is from; for Tamiris, it was the fact that she was American. Her Jewish heritage, which many recognized and called
her out for, was not seen as her race. Therefore, her piece was not one celebrating the black heritage of the spiritual musicians; instead, it was an homage to the American spirit of the music itself (Manning 2). However, many people today question the role of white dancers in these all-black modern groups founded on certain cultural ideals. Each company will have its own opinions. There is no true, definitive line about the role of whites in black companies; while it was certainly a political statement to have a predominately black modern dance company, it may simply be a technical decision to cast a white dancer in the group.

The implications of racial issues in dance have been addressed, evaluated, and reevaluated by numerous individuals within and outside the field. The question now lies in how we continue to encourage diversity in dance. When there is a wide variety of races, ethnicities, and backgrounds of the dancers on stage, it makes audience members feel as if they are represented. Representation can empower generations and can continue to increase the level of diversity in the world of dance. Additionally, dance is an art form that likes to shock the world. By pushing ideas of diversity in dancers or choreography, the seeds of these ideas can be planted in more conservative facets of society.

One thing I found to be disconcerting, regarding the issue above, was a lack of conversation. I assumed there would be little scholarly discussion about dance in general but soon came across entire journals dedicated to conversing about nearly every aspect of dance. However, there were few conversations about race in dance (let alone in modern dance specifically). Additionally, I struggled in my interview to get concrete answers to the tough questions. I felt like some questions were being ignored or left unanswered for the sake of public relations. The answers I did receive could have been a diversity statement on the company's
website. I initially panicked; had I totally missed the mark on branding this racial divide as an issue? I believe that the primary concern contributing to this lack of recognition and discussion is the fear of stepping on someone's toes. The issue of race runs into some touchy conversations about the origins of modern dance and the tarnished history of ballet; I saw this in my interview with Troum and in reading articles referenced in this work. This led me to wonder: is part of the reason society struggles to increase diversity in everyday life because we try to avoid these uncomfortable conversations about race, religion, sexual orientation, and overall background? By bringing these issues to light, it is easier to accept the problem and tackle a solution. Modern dance companies were built on this beautiful idea of diversity and inclusion of people the rest of society looked down upon; the issue now is taking this idea into building representation for all.

By making dance more accessible to everyone, regardless of their background or status, and losing misconceptions of what types of dancers excel at various styles, the dance community (particularly modern companies) can continue to provide diverse storylines and dancers. In order to do so, I think companies should focus less on archaic ideas of race and diversity introduced at the birth of modern dance. Instead, they should focus their energies on welcoming dancers of all shapes and sizes based on what they can bring to their group. The history of modern dance is a remarkable success story for the dancer of color; yet when the fire slowed, the community was left with a stark racial divide. However, there is hope that with continual support for increased diversity and representation in modern dance companies, this division can slowly become a tale of the past.
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THE INTERPLAY OF IMMIGRANT POPULATION, UNEMPLOYMENT, AND EDUCATION ON FAR-RIGHT SUPPORT

BY: SAMI GUL

Why did immigration become an important campaign issue for far-right-wing parties? How do demographic characteristics affect far-right support in the UK and France? In this study, I will draw on district-level data to examine the relationship between far-right support and immigrant presence and education levels and unemployment rates by using the UK Electoral Commission data, French Interior Ministry Election Data, the UK Census data and French National Institute for Statistics and Economic Studies (INSEE) data. I employed the data across time by constituency areas in the UK (N= 542) and departments in France (N=97). I find that constituency areas and departments with a higher percentage of immigrant population and people with high educational qualifications tend to have less support for far-right wing parties and candidates in the local authorities. However, a higher percentage of unemployment rate increases the support for far-right parties in a district. I also find that the effect of immigrant population on the far-right support becomes more and more negative as the percentage of unemployment rate increases in a local authority in the UK.

During the last two decades, support for extreme right-wing parties and candidates has significantly increased in the US and Western European countries. This growing electoral support has merged with the success of far-right parties at the local,
regional, and national levels. Therefore, this support has influenced the shape and nature of government coalitions, important policy decisions, parties' issue positions, and their electoral strategies (Golder, 2003). Since these parties have emphasized anti-immigration attitudes and nationalism, immigration has become a much-discussed and major focus of the current election cycle in Western Europe. In fact, right wing usually supports restrictive immigration policies (Gijsberts & Scheepers, 2002). These radical right-wing parties share a common fundamental core of ethno- nationalist xenophobia (based on the so-called 'ethno-pluralist doctrine') and anti-political-establishment populism (Rydgren, 2005). Previous studies claimed a variety of hypotheses of the effect of immigration on voting behavior. For example, some studies find that immigration plays an important role on far-right support (Anderson, 1996; Knigge, 1998; Martin, 1996). By using cross-sectional Denmark and Norway data, these authors believe that immigration affects far-right support because immigrants affect countries' economic and cultural nature and they take a place in the media. Therefore, the effects caused by immigrants affect people's decisions towards far-right parties, by catering to those fears. Givens (2000) and Golder (2003) have argued the effects of immigration are more concentrated in certain countries, depending on the ability of far-right parties to politicize and emphasize immigration issues and to make it more salient. At this point, voters' opinions toward immigration and parties' issue positions come into play. When parties and interest groups lead the public on salient issue positions such as immigration, they point out costs such as high unemployment rates and high crime rates; others point out the benefits such as labor power, having more qualified people in the country, and cultural diversity. (Clad 1994; Passel and Fix 1994; Citrin and Green etc., 1997, p. 858). This
article aims to examine when people are focused on the benefits of immigration and when they are focused on the costs of immigration. It has been found that people consider the costs of accepting immigrants rather than the benefits only under specific political, economic conditions (Branton and Jones 2005; Campbell, Wong, and Citrin 2006; Oliver and Wong 2003). These specific conditions are mainly shaped by unemployment rates in countries and the influence of far-right parties. In this study, I will examine three factors: immigrant presence, unemployment rates, and education levels. These are the factors that drive people to more deeply consider either the costs or benefits of immigration.

So far, most previous studies (e.g., Clad 2000; Passel and Fix; Branton and Jones; Oliver and Wong) are cross-national, empirical research. There are also similar studies on immigration and voting behavior in certain cases, such as Norway and Denmark. However, this study provides an assessment of the relationship between immigrant placement and support for far right-wing parties. In doing so, I will examine variation across party families, not just the far right. I will also assess how unemployment rates and educational levels affect far-right support in both the UK and France. To meet this aim, I employed detailed British and French Census Data and official election results across time by constituency areas in the UK (N= 542) and departments in France (N=97). This study is distinct from previous research because most earlier studies that analyze the relationship between size of immigration and vote choice are cross-national—not local district level—and they compared the relation with only extreme right-wing parties. However, my research exclusively focuses on how this relationship is being shaped at the district level in specific cases, which are the UK and France. This study addresses the question of whether a higher percentage of immigrant presence, unemployment rates, and people with high educational qualifications increase far-right support in the UK and France. This
study matters because this relationship is currently one of the most salient and contentious issues, which voters want to see addressed by politicians and governors (Dennison and Goodwin, 2015). For example, this study will provide guidance for political parties and experts to have a better understanding of what inspires party support, specifically for far-right groups, in the UK and France.

THEORY & HYPOTHESIS

Immigration has an impact on voting behaviors. This impact has been discussed in previous studies, but these studies cannot agree on whether this issue influences far-right-wing support positively or negatively. Many earlier cross-national aggregated and individual level studies have indicated that if the immigrant population and emphasis on immigration issues are large, support for far-right parties is larger because voters who voted for far-right parties consider their votes as protest votes against immigration issues and high unemployment rates (Van Der Valk, 2003; Gijberts and Scheepers, 2002; Betz and Swank, 2002). Also, a variety of research related size of minority and immigration population to perceived threat or negative attitudes towards immigrants (Fossett and Kiecolt, 1989; and Evans, 1985; Glaser, 1994; etc. Rink, 2009). One reason is that an increased number of ethnic minority members threatens the majority’s position (Blalock, 1967) and that prejudice is a response to this perceived competitive threat (Blumer 1958; Bobo 1999; Le Vine and Campbell 1972; Sherif 1966). In response, other studies indicate that extreme right parties manipulate this threat and focus on stereotypes and prejudice towards immigrants, as well as ideological positioning (Norris, 2005). Therefore, the native people of a country often consider an outside group, such as immigrants,
a threat to their jobs, culture, and political resources (Hopkins, 2010).

However, even if high numbers of immigrants draw attention from others in their environment and are perceived as obtaining most unskilled jobs, it is not clear that their presence creates negative attitudes toward immigrants and minority groups in general (Hopkins, 2010). The other proposition that we will test is that growth in the number of ethnic minority members increases the chances for positive intergroup contacts (Stein, Post, and Rinden, 2000; Christ etc., 2006). Friendships that people have with members of minority or immigrant groups strongly diminishes negative attitudes towards these populations (McLaren, 2003). Moreover, the insistent presence and contact of minority groups has been demonstrated to improve intergroup relations and intergroup attitudes, even though it does not meet all of Allport’s (1954) situational criteria for maximal positive effects (Pettigrew 1998; Pettigrew and Tropp 2000,2006; etc. Christ 2006). Therefore, I suggest that a higher percentage of immigrants in a geographical district reduces the support for far-right wing parties, because an increasing number of ethnic minorities in a geographical region should reduce ethnic prejudice (Christ, etc., 2006). Thus, I hypothesize that 1- The larger a population of immigrants in a district, the less support there will be for far right-parties and candidates.

Besides the presence and social interaction of immigrants, economic conditions shape attitudes toward immigration because a majority group perceives threats from immigration: (ethnic or racial) size of immigrant population and economic conditions. The first perceived threat, size of minority population, may occur because people from other countries bring their culture and language to countries where they have migrated. Therefore, local people may consider them as a cause of cultural change and loss of traditionalism in their countries. For the economic conditions
threat, local people may perceive immigrant groups as a reason for high unemployment rates and so see them as a threat. Studies have documented this phenomenon, noting the high unemployment rates and poor economic conditions cause negative attitudes toward immigrants and minority groups (Blalock, 1967). Therefore, the level of the economy in a society affects the perception of members of the society towards minority groups.

Studies have documented this phenomenon, noting, “It is generally assumed that low unemployment and relative wealth causes positive relations with immigrant and minority groups, whereas the relations worsen when the economy is stagnant” (Rink and Phalet, 2009). I infer that the higher unemployment rate increases support for far-right wing parties and candidates because high employment rates and decreasing living standards are often blamed on the presence of minority groups (Blalock, 1967), given that majority groups are afraid to lose their jobs or current positions (Rink and Phalet, 2009). Therefore, I hypothesize that 2- The higher the unemployment rates that exist in a district, the more support there will be for right-wing parties and candidates.

Prejudice against minorities and immigrants can vary. People with high educational qualifications tend to have more liberal views on a variety of issues, such as civil rights, gender roles, and the rights of racial and ethnic minorities. (Weakliem, 2002). One of the most well-accepted and accurate findings in social science on ethnic prejudice is that there is a negative correlation between negative perception of immigration and high educational qualification: People who have high educational qualifications are more likely to like people from other countries than people with lower educational qualifications (Coenders and Scheepers, 2003). This relation has been empirically tested and
verified many times for many different countries (Fuchs, Gerhards, & Roller, 1993; Schuman, Steeh, Bobo, & Krysan, 1997; Smith, 1981, 1985; Taylor, Sheatsley, & Greeley, 1978; Vogt, 1997). In addition, studies in Western European countries have demonstrated that negative stereotypes toward ethnic minorities are less common among the highly educated (Billiet et al., 1990; Eisinga & Scheepers, 1989; Wagner & Zick, 1995). Since there is a negative relationship, as mentioned before, between prejudice against ethnic outgroups and support for far right-wing parties, I expect that 3a- Geographical districts with higher percentages of people with high educational qualifications are more likely to have higher support for left-wing parties or candidates. 3b- Geographical districts with higher percentages of people with low educational attainment are more likely to have higher support for extreme right-wing parties.

I have three insights to share. The first is that most of earlier studies that analyze the relationship between size of immigration and vote choice are cross-national—not local district level—and they compared the relation with only extreme right-wing parties. However, my research exclusively focuses on how this relationship is being shaped at the district level in specific cases, which are in the UK and France. I will also analyze the relation of immigration with left-wing parties. Second is that I have updated evidence to support the negative relationship between immigrant presence, high educational qualification, and far-right support and to support positive relationship between a high unemployment rate and far-right support. Lastly, I have analyzed the interaction effects of my independent variables, which are education, unemployment rates, and immigrant presence. This interaction analysis shows how the independent variables affect each other. For example, how education level impacts the effect of unemployment rate on far-right support. Previous studies did not deeply focus on the analysis.
DATA

To test the hypotheses, I examined the time series and cross-sectional data derived from France and the UK in the 2010s. For France, I evaluated the immigration data from 2001 to 2013, population estimates (2016) and detailed population census data, including unemployment rates (2016-17) and educational levels (2013), derived from the French National Institute for Statistics and Economic Studies (Insee). Insee shares social and economic statistics about France with the public. It breaks down data by communes, departments, and regions. I used official French presidential election results in 2017 and 2012, released by the French Interior Ministry. The French ministry provided results at department, regional, and national levels. For the UK, I used highly detailed demographic information from the 2001 and 2011 UK Census data, released by the Office for National Statistics, which is the recognized national statistics institute of the UK (ONS, 2015). For British national parliamentary elections from 2010 to 2017, I used Electoral Commission’s official election results. Electoral Commission is an independent body set up by the UK parliament.

METHODS

To construct measurements for the effect of immigrant presence, education levels, and unemployment on right and far-right support, I merged geocoded education, immigration, and unemployment data sets of France and the UK. To manage the accuracy of these results, I used increase rates for immigrant percentages in both France and the UK, so that I can calculate estimated percentages of immigrant population in districts in the exact year’s elections were held. Therefore, when I compare far-right support with immigrant presence, I used values of the
variables calculated the same year. I calculated the percent of different educational levels, which are grouped into three categories: no educational qualifications, bachelor's degree, and graduate level degree in France. I created a high-level education variable by calculating the percent of people who have at least a bachelor's degree. For the low-level educational attainment, I calculated people who have elementary school diplomas or no formal education in France. For education in the UK, I calculated the percent of the district with the highest level of educational attainment, those with a higher degree (MA, PhD, PGCE) or higher diploma (HNC, HND, RSA), and the percent of the district with the lowest level of educational attainment (i.e., those with no academic or professional qualification with mid-level educational attainment) as my referent group.

In order to measure immigration presence using the detailed census data, I took percentages of immigrant numbers, focusing on those who were documented, foreign born, and not eligible to vote, by department in France and by constituency areas in the UK. Since they do not hold a census in 2017, I calculated estimated immigration rates for 2017 by using 2001 and 2011 data sets.

For unemployment in communes in France and in constituency services in the UK, I found the number of unemployed people who are age 18 and older and then calculated that percent. For France, I added up values for demographics of communes and merged them by departments (N=97), based on the availability of further election statistics. To be able to examine far-right support in France, I took into account the 2012 and 2017 French presidential election results by departments. Support for Le Pen represents far-right party support in graphs and figures for France. For the UK, I calculated percentages of votes for UKIP and the British National Party to obtain far-right support between 2010-
2017. Therefore, my dependent variable is support for far-right parties and candidates and my independent variables are level of education, immigration presence, and unemployment rates.

By using these adjusted measurements, I employed locally weighted scatterplot smoothing of far-right support and immigrant population to better see a line of best fit, because there is a good number of noisy data values that were plotted for the UK in Figure 2. Through this approach, I drew the contrast between mainstream left, mainstream right, and far-right support. It allowed me to see how parties appeal to voters based on similar preferences to the far-right. In Figure 3, I drew a scatter plot linear regression line of the relationship between far-right support and immigrant population in France. I employed regression analysis to see all the independent variables on the dependent variable by holding the other independent variables constant. Also, to visualize the relationship between immigration presence and far-right support, I color mapped both France and the UK using statistical software. In Figure 1, I mapped immigrant distribution by constituency areas for the UK and departments for France by employing estimated 2017 France and 2015 UK immigration data. Also, I mapped the UKIP support in 2010 and 2015 and support for Le Pen in 2017 presidential elections. Precisely, this visualization itself is not enough to support the relationship between these two variables, but it gives a better understanding of the relationship between them. Moreover, I draw interaction effects of my independent variables to see how they drive each other in terms of far-right support. Since my dependent and independent variables are continuous, presenting them by graphing would work best.
RESULTS

In Figure 1, the maps that I created on a statistical analysis software compare immigrant percentages and far-right support. This representation gives a helpful overview of the relationship between far-right support and immigration presence. On the maps, there is a slightly inverse correlation between the maps of immigrant numbers and far-right support. In general, far-right support decreases in the local areas where immigrant percentages are high. However, it is reasonable to state that these maps do not quite expose the correlation between immigrant presence and far-right party support, because it is not exactly inverse, and it does not include detailed analyses. Therefore, I cannot completely support my hypothesis by heavily focusing on these maps, but they give quick and helpful insight at first glance.

FIGURE 1:
In Figure 2, I examined the relationship between immigrant population and far-right support for both France and the UK. There is a negative relationship between immigration presence and far-right support in both France and the UK. The fitted smooth curve on the graph insistently decreases as the number of immigrants increases. If immigrant percentage increases by 10 percent in a local authority, support for far-right parties will drop by 4 percent. There is also a falling percentage for the Conservative Party as immigrant numbers increase. Therefore, it is clear that there is a negative relationship between these two variables. However, the relationship turns to positive when I plug in the immigrant percentage against the Labour Party support. If immigrant percentage increases by 10 percent, the Labour Party’s support will grow by 8 percent. Therefore, immigration presence is statistically related to party support in those districts because it decreases UKIP support and relatively increases votes for the Labour Party. The contrast between the parties helps me to
generalize that the far-right parties—UKIP and the BNP—and the Conservative Party appeal to voters who live in those districts with lower percentages of immigrant numbers. 

![Figure 2](image)

In Figure 3, the support for UKIP insistently decreases as immigrant percentages increase in departments in France. A 10 percent increase in immigration population in a district would decrease support for Le Pen, which represents far-right party support in this study, by 5 percent. Just to see how different immigration presence effect on the graph has, the fitted regression line indicates the negative relationship between these two variables. Conversely, when it comes to Emmanuel Macron, departments that have more immigrant percentages tend to have higher support for Macron. Therefore, the existence of immigrants in France affects election results in disfavor of the right-wing and in favor of the left wing. Taken together, Figures 1, 2, and 3
demonstrate that there is a distinct relationship between higher and lower levels of immigration presence and far-right support, lending suggestive support to my Hypothesis 1a.

In order to test these relationships contemporaneously, I present the results of ordinary least squares regression of far-right support on district level demographic characteristics from 460 local authorities in the UK and ninety-five departments in France. In Table 1, there are statistically significant negative relations between far-right support and immigrant percentage in all models. In model 4, the coefficient value of immigrant percentage on far-right support is -0.508 (p<.001) with a standard deviation (sd) of .031. If immigrant population increases by 10 percent in a local authority, that will decrease far-right support by about 5 percent. This relation between immigrant percentage and the far-right support has proven negative in last three election years in the UK, 2010, 2015 and 2017. Therefore, these results support the Hypothesis
1. In models one, four, and seven, I found the effect of the unemployment percentage on far-right support in local authorities in the UK in 2010, it was 1.127 ($p<.001$) with a .15 sd. Further, this effect grows larger and more positive in following election years. Thus, there is a statistically significant and positive relationship between unemployment and far-right support. If unemployment percentage increases by 10 percent in a district, far-right support would go up by 11 percent. Therefore, local authorities with a high level of unemployment rates tend to have larger support for far-right parties. This supports the Hypothesis 2.

In models two, five, and eight, I examined the effect of high educational qualifications on the far-right support in different election years. All these three models show that there is a negative relationship between high educational qualifications and far-right support. All of the coefficient values for populations with higher educational levels are statistically significant. If a district has a higher percentage of people with high educational qualifications, then it is more likely for the district to have less support for the far-right, which reinforces Hypothesis 3a. However, it has opposite effects when it comes to those who possess no educational qualifications. In models three, six, and nine, the coefficient values are all positive and statistically significant. This indicates that the effect of people with no educational qualifications increases far-right support. Thus, the more people with no educational qualifications in a district, the more likely that district will show far-right support, which corroborates Hypothesis 3b. Overall, the coefficients values of the far-right support on the demographic characteristics in the UK between 2010 and 2017 support my hypotheses in this study.
Table 1

<table>
<thead>
<tr>
<th></th>
<th>The UK Far-Right Support 2010</th>
<th>The UK Far-Right Support 2015</th>
<th>The UK Far-Right Support 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Immigration</td>
<td>-0.232***</td>
<td>0.00249</td>
<td>-0.0287</td>
</tr>
<tr>
<td></td>
<td>(0.0295)</td>
<td>(0.0287)</td>
<td>(0.0275)</td>
</tr>
<tr>
<td>Unemployment</td>
<td>1.127***</td>
<td>0.00249</td>
<td>-0.0287</td>
</tr>
<tr>
<td></td>
<td>(0.146)</td>
<td>(0.0287)</td>
<td>(0.0275)</td>
</tr>
<tr>
<td>High Educational Qualifications</td>
<td>-</td>
<td>0.237***</td>
<td>-0.0287</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0221)</td>
<td></td>
</tr>
<tr>
<td>No Educational Qualifications</td>
<td>0.331***</td>
<td>0.00249</td>
<td>-0.0287</td>
</tr>
<tr>
<td></td>
<td>(0.0307)</td>
<td>(0.0287)</td>
<td>(0.0275)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.422</td>
<td>9.929***</td>
<td>3.793***</td>
</tr>
<tr>
<td></td>
<td>(0.586)</td>
<td>(0.555)</td>
<td>(0.806)</td>
</tr>
<tr>
<td>N</td>
<td>460</td>
<td>460</td>
<td>460</td>
</tr>
<tr>
<td>R-sq</td>
<td>0.158</td>
<td>0.239</td>
<td>0.242</td>
</tr>
</tbody>
</table>

Notes: standard errors in parentheses; *p<0.05, **p<0.01, ***p<0.001

1 Due to multicollinearity between high and no educational qualifications and unemployment rate, these variables were analyzed separately.
Table 2 represents France’s regression analysis. In Table 2 and models 1 and 4, I found the relationship between immigrant presence and far-right support in France. These coefficients values are negative and statistically significant. For instance, in Model 4, the coefficient value is -0.641 (p<.001). Thus, a 10 percent increase in immigrant numbers decreases far-right support by 6.4 percent in a department in France. The coefficient of 2012 far-right support demonstrates the same relation. In Table 2 and models 1 and 4, I also found the effect of unemployment on far-right support. Unemployment has a positive and significant effect on far-right support in both the 2012 and 2015 presidential elections. If unemployment increases in a department, far-right support naturally increases. Moreover, I examined the effect of high and no educational qualifications on far-right support in France. Models 2 and 8 in Table 2 indicate that a higher percent of people with high educational qualifications make far-right support decrease. Conversely, a high number of people with no educational qualifications increase far-right support in departments in France. In sum, the coefficient values of far-right support in many different elections years in both the UK and France on the demographic characteristics demonstrate very strong and statistically significant support for my hypotheses.
### Table 2

<table>
<thead>
<tr>
<th></th>
<th>France Far-Right Support 2012</th>
<th></th>
<th>France Far-Right Support 2017</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Immigration</td>
<td>-0.228*</td>
<td>0.447**</td>
<td>0.174</td>
<td>0.641***</td>
</tr>
<tr>
<td></td>
<td>(0.0924)</td>
<td>(0.157)</td>
<td>(0.117)</td>
<td>(0.150)</td>
</tr>
<tr>
<td>Unemployment</td>
<td>1.592***</td>
<td>-</td>
<td>-</td>
<td>2.968***</td>
</tr>
<tr>
<td></td>
<td>(0.224)</td>
<td></td>
<td></td>
<td>(0.379)</td>
</tr>
<tr>
<td>High</td>
<td>-</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Educational Qualifications</td>
<td>0.546***</td>
<td>-</td>
<td>0.899***</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(0.0902)</td>
<td></td>
<td>(0.133)</td>
<td></td>
</tr>
<tr>
<td>No Educational Qualifications</td>
<td>0.821***</td>
<td></td>
<td>1.039***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.106)</td>
<td></td>
<td>(0.177)</td>
<td></td>
</tr>
<tr>
<td>constant</td>
<td>6.561**</td>
<td>39.00***</td>
<td>-8.694*</td>
<td>13.42***</td>
</tr>
<tr>
<td></td>
<td>(2.023)</td>
<td>(3.199)</td>
<td>(3.852)</td>
<td>(3.633)</td>
</tr>
<tr>
<td>N</td>
<td>94</td>
<td>95</td>
<td>95</td>
<td>94</td>
</tr>
<tr>
<td>R-sq</td>
<td>0.368</td>
<td>0.298</td>
<td>0.407</td>
<td>0.443</td>
</tr>
</tbody>
</table>

Notes: standard errors in parentheses; *p<0.05, **p<0.01, ***p<0.001

Moreover, I possessed interaction effects to see how my independent variables impact each other in terms of their significance on the dependent variables. Since the independent variables are continuous, I employed continuous by continuous interaction. In Figures 4 and 5, I computed the effect of immigrant percentage in a local district or a department on far-right support for some significant values, such as margins of unemployment rates. In Figure 4, the effect of immigrant population on far-right support becomes more and more negative as the unemployment rate increases in a local authority in the UK. This is an interesting finding because I would expect a high percent of immigrants
increases far-right support in a district that has a high unemployment rate. Also, I found that the effect of immigrant population on far-right support decreases as the percent of people who have no educational qualifications increases in constituency areas in the UK. I employed the same continuous interaction analysis for France and, as it is seen from Figure 5, I found the same interaction effect between the independent variables, except the effect of immigrant percent becomes larger than its effect in the UK as the percent of people with no educational qualifications increases in a department. After interpreting these results of interaction effects, I possess deeper and clearer understanding about the effect of the independent variables on my dependent variable.
Conclusion and Discussion

Immigration has become a salient issue across Europe. It has become one of the topics that far-right parties build campaign strategies around. These circumstances are the main motivation for this study. In the literature, many researchers claimed that high immigrant numbers, and thus immigrant presence, increase far-right support, whereas scholarship supports that immigrant presence actually decreases the far-right support. These studies have been conducted across countries with aggregated data; however, I have analyzed local level data within specific cases, such as the UK and France. I analyzed the effect of immigrant presence, unemployment rates, and education levels on the far-right support. I found for both the UK and France that a high percentage of immigrant presence and people with high educational qualifications decrease far-right support in local districts. Conversely, a high percentage of unemployment and people with no educational qualifications make voters more likely
to favor far-right parties and candidates. These are strong and statistically significant effects. In terms of interaction effect, I surprisingly found that the effect of immigrant presence becomes increasingly negative as unemployment goes up in districts and departments. Also, I observed that immigrant presence’s effect on far-right support increases for higher percentages of unemployment. Therefore, my findings lend suggestive support to my hypotheses in this study. These findings reveal an important question about the effect of immigrant presence, education, and unemployment. However, there has been much contradiction about the effects of immigrant percentage numbers on far-right support, especially in the past studies. Why does the immigrant presence have negative influence on far-right support, while also other studies indicate positive influence? Also, a longer range of time-series data for the dependent and independent variables in this study can be used to establish a consistency on this controversy. What other significant demographic characteristics affect people’s perception towards far-right support? Further research should investigate how these contrasting trends influence far-right support in countries more broadly. In addition, this study may help parties to build campaign strategies depending on immigration size, unemployment rates, and educational levels in local authorities.
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Duane Swank, Hans-Georg Betz; Globalization, the welfare state


Population Size, Unemployment, and Individual Characteristics on Voting for the Vlaams


The Mayor of London and the London Assembly. Retrieved


THE WONDERFUL WORLD OF MEMES:  
EXPLOREING THE SATIRICAL COMMENTARY  
OF MEMES IN THE DIGITAL AGE  

BY: CHASE FORD

The Internet has become a vast web of knowledge, communication, and comedy. At a touch of a screen, you can Google search anything and enter a downward spiral of information. For me, the downward spiral usually leads to various social media platforms and ultimately sending a funny image, a meme, to my friends. Memes can take numerous forms, and in my research I analyze how memes tie these aspects of the Internet together and their effect on our growing online culture. Throughout my study, I explain the theory of memes and delve into their various uses. As more memes appear on our media timelines, one begins to question why they are there and what purpose they serve. The goal of this paper is to find the purpose of memes and to explain how they bring a new and advanced level of discourse into our society. This analysis of discourse is divided into the study of memes rooted in political and cultural commentary. Every time someone logs onto
a computer, logs into Facebook, and shares a post with a friend, our society becomes more and more digital, and memes are the platform for our interactions.

In the spring of my junior year of high school, students across the country, including myself, took the Advanced Placement English Language and Composition Exam. The exam challenged our writing skills, our critical thinking abilities, and our mastery of the English language. After the test, my classmates and I spent the rest of the day scrolling Twitter to see what other people thought of the exam. Twitter was trending with #APLang, and people were getting thousands of likes on their posts. Wanting to get in on the action, I attached a picture and tweeted it out about the exam (see fig. 1). The picture shows an altered version of Mr. Krabs from the TV show *SpongeBob SquarePants* and a caption relating to the rhetorical analysis essay from the exam. My phone began blowing up with Twitter notifications, and soon my tweet got over 1,500 likes and 500 retweets. All that excitement, just from one picture, a meme one might call it. On the surface, a meme is a seemingly random picture, usually with a witty caption, that is shared on various social media platforms. My tweet is not the only meme to appear on the Internet; in fact, memes are slowly taking over our digital media.

The comedic aspect of memes causes the meme creator’s true intent to be overlooked: a message of art, creativity, and commentary. My meme may be viewed as unprofessional for showing a random crab, when in reality it discussed the current political climate and past presidential beliefs. In this essay, I analyze what memes are, what aspects of a meme make one compatible in our culture, and most importantly, the platforms they create for various social movements. Creating and sharing a meme is a new form of satirical commentary, and how successful
the commentary is depends upon the meme’s relatability to the targeted audience and the subject it is attempting to create discourse about.

To begin, what is a “meme”? The answer to this question is very complicated, as the concept of meme has evolved significantly. The term “meme” was first coined in 1976 by Richard Dawkins, a biologist, in his book, *The Selfish Gene*. Dawkins was seeking a new way to apply evolutionary theory to cultural change and used the term “meme” to describe this application. He defined memes as “small cultural units of transmission, similar to genes, that spread from person to person by copying or imitation” (Shifman 9). Interestingly, this word we use today started out as a way to apply the science of genes to culture. Dawkins went on to provide examples of memes, focusing on cultural artifacts. To him, things such as melodies, catchphrases, and clothing fashions are memes, as well as beliefs such as God (Shifman 37). This is because these concepts are meant to be spread throughout a culture and “battle” for the spotlight. People seek to replicate these things in order to fit in. Furthermore, Dawkins lists competition as a crucial factor for memes, essentially channeling the survival of the fittest model: only the strongest memes will get the attention of the online users while others go extinct. A meme only thrives depending on the socio-cultural environment it is in. The origin of memes is one rooted in commentary. If an idea has no significance in that culture and it can’t relate to its viewers, then it serves no purpose. Essentially, the first concept of

Figure 2: Comparing memes from 2012 and 2017.
meme was also the broadest one: anything that spread in a culture and was copied by others was considered a meme.

Diving further into Dawkins’ theory, meme derives from the Greek word “mimema,” which describes a unit of imitation (Chesterman 1). Meme is basically a combination of mimema and gene, creating this mind boggling, yet brilliant concept. Just as Dawkins used meme in his evolutionary theory, it is appropriate that meme has evolved over time. Three main attributes make up the modern use of meme. The first is the propagation from an individual into society, representing the creation of the meme by the user and then posting it on whatever platform they see fit (Shifman 18). These platforms can be online social media networks like Facebook, Tumblr, and Twitter, or a meme can be spread through conversation. Secondly, these memes are reproduced via copying or imitation (Shifman 18). This is achieved when other users publish a meme, use one meme to make their own, or discuss a meme with another person verbally or online. Thirdly, they are weeded out through competition and selection. When thousands of online users create memes, not all will be seen and so the user must make a meme that will attract the largest audience (Shifman 18). This is the most important aspect of memes, as accessibility provides a window into not only why a certain meme is successful, but what message it is conveying.

What makes memes attractive to a culture frequently changes. In the early 2010’s, it was common for memes to be photos from movies, such as The Matrix and The Lord of the Rings with large text over them (see figure 2). The text usually had something to do with the movie and adapted it into whatever the user sees fit. Instead of quoting a movie and using a direct image from the screen, memes now utilize photoshop applications to alter the image itself and not just the text. Memes still utilize source
material, such as TV shows, to make relating to an audience easier. The text of memes also includes more spelling simplification or intentional misspellings and is random in meaning. For example, “dat boi,” was used to describe a frog on a unicycle instead of saying “that boy” (see figure 3). This text simplification ties into the concept of vernacular discourse, which is “the language of a particular group, profession, region, or country, especially as spoken rather than written” (Nordquist). Memes and the language simplifications used in a meme itself are becoming vernacular: one speaks to another in terms of memes. However, in my research into the vernacular discourse theory, when a language tries to become dominant, it can become oppressive to other groups. This is not to say that memes will lead to the dehumanization of a group of people, but that if a group does not understand the changing language of memes, there will be a cultural divide between said groups. Memes are therefore competitive by nature. Knowledge of this is crucial in an analysis of meme's cultural success. Certain aspects of memes, such as language simplification or the source material, depend on the meme creator’s sense of humor, which is variable and subject to frequent change.

From Richard Dawkins’ view of memes as a way to express changes in culture to the randomness of modern elements of memes, it is clear that meme is an overlooked idea due to its complexity. Merriam-Webster Dictionary provides a more simplified definition: “An Internet meme is an activity, concept, catchphrase or piece of media which spreads, often as mimicry or
for *humorous purposes*, from person to person via the *Internet* (Merriam-Webster Dictionary). If it is relatively funny, contains some form of media aspect, and is shared on the Internet, chances are it is a meme. A lot of things are memes, and when a meme is published it is sent with a purpose. Our job as media consumers is to decide what purpose that serves. Memes provide commentary on political events and cultural hot topics.

Memes have been embedded into our political culture, even before the creation of the Internet. People have always turned to media like newspapers, print ads, or works of art to make powerful statements of the world around them and share those ideas with others (Winston). In the realm of politics, satiric media is a popular mechanism to produce political commentary and can be viewed as a meme. One such form of satirical media are political cartoons, which have been tied to American history since the Revolution. Benjamin Franklin was the first American to publish a true political cartoon, with his famous “Join or Die” cartoon (see fig. 4). As the cartoon shows, the thirteen colonies make up a snake, yet if all or even just one of the colonies are severed, the snake will die. Franklin used this cartoon as a call for the colonies to unite against the British threat. The usage of a picture with a command proved to be a more effective recruiting
strategy than word of mouth as it provides a visual for viewers to fight for (Winston). Instead of fighting to keep the thirteen colonies together and ultimately the future of America, soldiers can imagine this snake and fight to keep it alive.

This strategy is not unique to Franklin’s work, as all cartoons can simplify complex political ideas for viewers. For example, on the cover of “Captain America Comics” #1, the iconic superhero was drawn punching Adolf Hitler in the face (see fig. 5). This comic art was drawn before the United States entered war against Nazi Germany and yet became a rallying cry for Americans. Having an American superhero punch a dictator and opponent of American values sends a clear message to the public. Jacob Agba concludes that political cartoons not only present a humorous element but they also force the reader to process the cartoon into real life (Agba 1). Ben Franklin and the illustrator of Captain America are just two media creators that have indirectly influenced viewers to discuss ongoing political issues. Humans are visually oriented, and the repeated use of cartoons has made it easier for us to remember a picture and the context around it compared to a series of text or spoken word.

Political memes now play the same role as political cartoons, with the former focusing more on comedy than commentary. Both have a political agenda and are meant to be shared. Most importantly, they provide accessibility to viewers, and memes are becoming the political cartoons of our generation.

Fig. 5: Comic book cover of Captain America punching Adolf Hitler.
(Winston). This shift in media publications was seen during the 2016 election cycle, as the sharing of memes online was just as intense as the election itself. Following every presidential debate and breaking news story, Twitter and other social media platforms would immediately get to work making memes about the new headlines. When Donald Trump tweeted a statement with the word “covfefe” in it, people made memes attempting to decipher what this non-existing word meant (Flegenheimer). Even subjects, such as the vague resemblance between Senator Ted Cruz and the infamous Zodiac Killer became a meme to show the public’s opinion. Making memes about these topics is how younger voters expressed their beliefs on the candidates. Meme creators use comedy to lessen the blow regarding serious issues.

Though Hillary Clinton and Donald Trump were in the spotlight during the election, candidates such as Bernie Sanders also had a moment in the meme light. A Facebook group called “Bernie Sanders’ Dank Meme Stash” attempted to gain support for Sanders by making memes out of him. The theory behind this group was to appeal to younger voters by using subjects they would be familiar with: memes and technology. Sanders having more popular memes than Clinton would make him more relatable and possibly more appealing to young voters (Dewey). However, Sanders lost the democratic nomination. Furthermore, it is unclear whether memes helped either Sanders or Clinton. In an article titled “How Donald Trump won the 2016 meme wars,” The Conversation argues that Donald Trump won the “meme war” because he did not participate in it, unlike Clinton, who people regarded as trying too hard by using memes (Taveira and Balfour). For example, Clinton attempted to relate to young voters in famous vines like “I’m just chilling . . . here in Cedar Rapids” and “Pokémon Go to the polls.” These vines became memes and in turn online users made memes criticizing Clinton. In contrast, Trump’s voter
base would spread memes about him against Clinton, but he rarely made his own. Due to this, Trump distanced himself from that message while still receiving those voters’ support.

People continue to create memes about the American political climate, even after the 2016 election. Memes allow for young activists to mobilize and create change. One such activist group is “March for Our Lives,” a gun-control protest organized by the survivors of the Parkland school shooting. In New York City alone, over 175,000 people marched in March of 2018 in support of the movement (Kircher). It was common for these protestors to create signs with memes on them to make fun of gun-control policies. One such meme was the “Distracted Boyfriend,” which showed a man checking out a different woman while with his presumed girlfriend (see figure 6). Over each person, text was added to argue that Paul Ryan is too distracted by money donations from the National Rifle Association to care about high school students’ lives. Memes such as this one grant a protester the power to send a strong political message in a humorous way and pave the way for political action.

Not only have memes taken over American politics, they have invaded American culture. In an article from The Guardian, Karl Hodge states “memes are the very building blocks of culture. Not every meme is a big idea, but any meme with the right stuff can go global once it hits the internet” (Hodge). Memes have created an unlikely community of people across the Internet by giving them a
common language exclusive to the World Wide Web. Every time a meme is viewed and shared to a new person, the meme gains authority, making its message even more valid. Without recognizing it, memes have become second nature to our digital culture. Though Internet memes are a collection of random pictures and text, Richard Dawkins believed memes were anything that spread throughout culture, including catchphrases and religious beliefs (Shifman 37). In this sense, the basis for our society is memes, the idea of continually repeating something to transmit a concept from one person to the next. We accept the cultural units that Dawkins originally described, but digital memes have a stigma. Whether this stigma stems from a generational gap, an inability to understand the concept, or unwillingness to see the commentary memes provide, it is crucial to grasp that memes have always existed, and digital technology is just the latest platform for them.

With the constant change of social media, memes must compete against one another. Meme creators post their content in hopes of becoming the new building block of our culture. To win this competition, one must accomplish two tasks: find the right source material for a meme and find a way to connect the material to the targeted audience. The source material can be from a television show, music video, news headline, or a catchphrase. Though it is common for memes to have a picture, sometimes the source material can be in text form. Creators are then creatively challenged to think of a source that hasn’t been used before. Consequently, a meme’s source material either follows current events, such as pop culture, hot gossip, or political headlines, or utilizes old media productions to be relatable. If a meme is relatable, then it exposes the common experiences and situations people have faced in life, thus expressing something individuals have felt but have been unable to articulate (Tan). When a meme
seems familiar to an individual, it compels them to share, replicate, and discuss the meme as if it was a common feeling.

This sense of reliability produces a rather quirky trend of memes, reflective of our human experience. Early 2018 common meme trends included Tide Pods, a shirtless Kylo Ren from *Star Wars: The Last Jedi*, and conversations with the supposed FBI agents in our electronic devices (Fitz-Gerald). Topics such as these appear silly, but they are all based on experiences of the online community. Memes are so much more than simple jokes on the Internet; they’re reactions, whether conscious or not, to the world we’ve been thrown into and so have become a reflection of both us and our world. When someone criticizes meme culture because of its “random” sense of humor, they are disregarding the human connections and discussion memes generate.

Marketing companies have realized Internet memes are not just sources of comedy but can be used for advertising. When a corporation uses social media to share a meme, it hopes to connect to an online fanbase and boost their products indirectly. This creates a world of “meme marketing,” where brands either must piggyback on an existing meme or attempt to create a new meme from scratch (McCrae 1). Two notable companies have achieved the latter, Wendy’s and Dos Equis. Wendy’s not only created the catchphrase “Where’s the Beef?” to promote their fresh product but now they use their Twitter account to make jokes about competitors like McDonald’s. Dos Equis developed their spokesperson as “The Most Interesting Man in the World” with the tagline of “I don’t always do x, but when I do, I y” (McCrae 2). This advertisement allowed Dos Equis to gain traction in the advertising world by producing a now famous meme. Companies seek to be relatable to viewers and believe if someone laughs at a post, they are more likely to buy their product. Memes are a new
form of advertisement as they seek to gain the attention of consumers and make them interested in a product.

Although most memes are light hearted and search for cultural topics to commentate on, some Internet users create negative memes. In the United States, it is estimated that 51% of African Americans and 54% of Hispanic Internet users have experienced harassment online, as compared to 34% of white Internet users (Williams et al). Online users do not have to reveal their identity and can contribute to the climate of discrimination without fear of consequences. Memes then act as a visual representation of their hate. For example, the famous “Pepe the Frog” meme took a dark turn during the 2016 election cycle. Pepe first appeared in 2005 in the comic “Boy’s Life” and was seen with other animal friends playing video games and eating pizza (Roy). People then used pictures of Pepe to express sadness or other emotions and made viewers picture themselves as that frog (see fig. 7). The early usage of Pepe as a meme was in lighthearted fun. Some Internet users though, primarily on sites like 4Chan, began altering this random frog into a hate symbol. Images would be shared of Pepe having a Hitler-style moustache, stereotypical Jewish facial features with inappropriate captions, donning a KKK hood, or even blowing up the World Trade Center (Roy). This misuse of Pepe is why the Anti-Defamation League declared the sad frog a hate symbol in 2016. The Anti-Defamation League recognized the original intent of the meme but argued that the current use by some parties made Pepe a symbol of hate and violence (Anti-Defamation League). Debates

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then arose on the Internet discussing the true intent of the Pepe meme, but a simple Google search of “Pepe hate symbol” clearly shows the discrimination encouraged by the frog. Sadly, since anyone can use social media, the humorous nature of memes can be used for ill intent.

The Internet is becoming the tool most widely used in our daily lives. Teenagers and young adults are online for more than twenty-seven hours a week while adults spend only twenty hours a week online (Anderson). From constantly checking social media, news headlines, and logging into our computers at work, our society is steadily going digital. With this new platform comes new ways of communication, the most impactful one being memes. Internet users, especially members of younger generation, are using memes as a way to share their experiences with others. Memes were once used to describe evolutionary theory, but now have become a cultural sensation. People use social media as platforms for this sensation and are used by online users to create, share, and discuss the newest meme trends. With thousands of new memes being posted online daily, it becomes a competition to see what meme will achieve the greatest attention and become a new point of discussion in our digital discourse. Whether the meme is a picture of a frog or a clip from a cartoon show, it reflects our beliefs and ideologies. Memes provide satirical commentary on current events, whether political or social, and make being connected to the world around us easier. Though memes can be silly, sometimes outrageous or almost impossible to understand, they are now ingrained in our digital society with a meme-orable purpose. As people continue to alter text and photos to make serious subjects funny, our culture is embracing the wonderful world of memes.
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Introduction: Mayhem on the Plaza

On the night of March 3, 2018, an incident occurred on the Country Club Plaza that Fox 4 News and KMBC News called “mayhem.” In crisp, to-the-point articles, reporters detailed groups of kids running around, creating disturbances, and even assaulting several people. They called this night a flash mob, a term that has come to be used to describe these incidents since 2010 (Summers). The stories also included interviews with Plaza workers demanding that greater restrictions be in place to control the mobs, such as the summer curfews starting earlier in the spring (Eckerman). One headline even went so far as to cry: “Will Police Allow ‘Teen’ Flash Mobs To Kill the Country Club Plaza?”

While this was happening, I was safely home from my job at J. Crew on the Plaza, but my good friend Duncan Muriithi was in the middle of the action at work that night at Cinemark movie theatre across from J. Crew. He had spent his Saturday night trying to keep kids from sneaking in to see movies for free, while the chaos ensued outside the theater. He said that March 3 did not stand out as different than any other weekend night on the Plaza to Cinemark employees, because the dynamics were the same ones they see every weekend. The first he had heard about the sensationalized news reports that followed March 3 was while reading a draft of my paper.
As a sheltered white girl from Johnson County, I did not know the dynamic I would be entering upon getting a job at the ritzy, outdoor shopping area we call the Plaza. Working at J. Crew, a preppy retailer that attracts affluent and mostly white citizens, I continued to work with the one side of my city, yet the other side of the city lay right outside J. Crew’s doors. The dynamics I began to see on the very street that I worked were the first things to open my eyes and the eyes of my coworkers. We saw a mini replica of the Troost Divide on our street every day we walked to work: black youths congregating outside Cinemark or Urban Outfitters, while the wealthy white families shopped the expensive stores along on the other side of the street. My black friends like Duncan would work at Cinemark and my white friends at J. Crew. The system would seem to work until another outbreak of violence like March 3.

Kansas City journalist Steve Kraske says the outbreaks of violence on the Plaza act as wake-up calls to a city that has “grown so accustomed to the annual reports [of violence] that we’re numb to them” (Kraske). After segregation ended and there was a flight of wealthy African Americans out the area east of Troost (Griffin 143), the area has remained relatively shut off to the rest of the city. Violence there is quiet to the rest of us, even when it steadfastly graces the lists of the nation’s most-violent areas (Kraske). But when violence occurs around the “Jewel of Kansas City,” the Country Club Plaza, then outrage is unleashed in full force.

In this study, I aim to explain the relationship of flash mobs to the Plaza, the factors creating these flash mobs, and various responses to the flash mobs. I contend that flash mobs on the Plaza are a direct result of the legacy of the Troost Divide and racial segregation in Kansas City. As the flash mobs point to deeper societal issues within our community, I argue that they are an influential symbol. Different groups have suggested responses to
the problem, from more policing to better programing, and I agree that a more intense solution is needed.

**The Country Club Plaza: Then and Now**

Looking at the history of violent flash mobs in Kansas City, the Plaza emerges as the center of activity. The reasons are clear, as Marie-Alice L’Heureux explains in her article on Kansas City’s infrastructure and uneven development. The Country Club Plaza was designed by J.C. Nichols in 1922 as an urban shopping center for Nichol’s housing developments, namely Country Club and Mission Hills (L’Heureux 252). The Country Club district to the west remains one of the most expensive areas of real estate in Kansas City, as well as one of the most white-homogenous areas, according to L’Heureux (L’Heureux 254). Troost Avenue sits a mere one to two miles to the East of the Plaza. Houses flip from values of $600,000 on the west side to $50,000 on the east side and demographics go from 82% white to 3% white in a matter of blocks (L’Heureux 254).

The creation of this dramatic divide in Kansas City was not random. The formation of J.C. Nichols deluxe housing developments as well as the increasingly dilapidated state of the neighborhoods to the East spurred city officials to create a definitive boundary down Troost Avenue in the 1940s and 50s. They worked to effectively “redline” the area east of Troost with its widening range of ethnic “difficulties” (Griffin 79). This meant that homes further west than Troost would not be sold to African Americans, in the fear that it would “bring property values” down (Griffin 81). These policies worked, and communities east and west of Troost were securely isolated. Although official segregation would end in 1964 (Griffin 98), the ensuing decades did little to change the demographic makeup of this area of the city. Both a racial and class divide run through the center of Kansas City today.
The Country Club Plaza lies between these two worlds, where the majority of its stores and restaurants have catered to the affluent citizens to the west, in nature, if not explicitly. Recently, however, the old boundary lines of acceptable behavior are being questioned and redrawn. Youths dare to gather together and say they have the right to enjoy the Plaza as much as those with the deeper pockets (Houston et al. 244). Enter the concept of a flash mob.

**Flash Mobs: Practice and Motivations**

J. Brian Houston defines a flash mob as “a group of people who gather in some predetermined location, perform a brief interaction, then disperse” (Houston et al. 237). “Flash” mobs are spread by social media connections, which enable them to gather so quickly. In other studies, the definition has evolved (Houston et al. 244). Sociologist Elijah Anderson even went so far as to define flash mobs as a carnival-like atmosphere gone sinister (Houston et al. 238).

In their study of urban American flash mobs, J. Brian Houston, Hyunjin Seo, Leigh Anne Taylor Knight, and other researchers and graduate students conducted an in-depth study of flash mobs in Kansas City. They led focus groups of fifty youths, four to eight students interviewed at a time, and asked them a series of specific questions. They interviewed students of a 94 percent African American demographic from three different locations associated with the flash mobs (Houston et al. 239-240).

From the information they gathered, three main motivations behind the flash mobs appeared (Houston et al. 243). One concept was collective sensibility these flash mobs both stemmed from and grew to foster. Within these flash mobs, new community ties would emerge among youths than would otherwise be there (Houston et al. 238). It was a way for people who imagined
themselves invisible to “step out of the shadows” using the collective power of numbers (Houston et al. 239). In his article, “#Riots: Self-Organized, Hyper-Networked Revolts,” about the international rise of flash mobs and what they could mean, Bill Wasik further explains: “In the US, the biggest and most important of the urban flash mobs that politicians have railed against . . . were essentially about African-American teenagers showing their numbers, about kids taking over—for a brief window of time—some highly visible public spaces where they normally feel less than welcome (Wasik, “#Riots”).

Many teenagers involved in flash mobs may not process the implications of their actions to this degree. In the studies by both Wasik and Houston’s teams, when asked why they take part in flash mobs, the teenagers answered boredom was the number one reason (Houston et al. 244). Additionally in the Kansas City study, when asked why they would show up to a flash mob, the teens said they wanted to look cool, they wanted to be included, and even that the Plaza is close to their neighborhoods so it is an easier location to reach when they have no transportation and would have to catch rides from relations. When close to home where one has little to do, with no money and no car, then congregating on the Plaza as a social outing seems like a logical idea (Houston et al. 244). But the most interesting of the reasons they gave was meeting on the Plaza as a way to exercise their right to be in a public place. One participant even went so far as to say: “So it’s kinda like you know, uh, so let’s go down there and have some fun and kinda prove a point that we are young but we can go down here and hang out just like anybody else can (Houston et al. 244).” Although some teens think a flash mob is just a way to have fun, others understand the social implications.
Flash Mobs on the Plaza

Understanding both the nature of flash mobs and the nature of the neighborhoods surrounding the Country Club Plaza are important to understanding these instances on the Plaza. Flash mobs do not seem like a problem but merely something for young kids to do, according to some people. Unfortunately, several events changed many Kansas City residents’ perspectives from seeing these flash mobs as social gatherings to threatening, uncontrollable forces as testified by the reactions written and the actions taken.

The first event occurred in April 2010. According to the police report, 200 to 300 “juveniles” left Cinemark on the Plaza and gradually moved east along the plaza. As they went along, more teenagers joined them and eventually the crowd grew to 700 to 900 people total as spectators were enveloped into the crowd. During this time they were said to be destroying property, intimidating people, and committing a robbery. Later police reports would confirm these actions. In order to establish peace, police used pepper spray on the teenagers and one youth even suffered blows to the head from an aggravated assault (Corwin, “Plaza Incident”). Later they found out that the event had been assembled through a mass Facebook post, alerting teens to the time and location in advance (“Flash-Mob Event May Have Led To Plaza Melee”).

The next flash mob on the Plaza took place in August 2011. Although there were not as many people, this event garnered extensive media coverage as not only were there shots fired and two people were injured, but the mayor happened to be present at the scene. As the shots were fired, Mayor Sly James was thrown to the ground by his bodyguard. In response to this event, the Plaza curfew was invoked. This curfew dictated that after 9 p.m. during the summer months those under eighteen were not to be allowed
out on the Plaza (Zoschke). This is a rule that continues during the summer months today.

In looking at these incidents, strong histories of community violence may be the factor missing in understanding how these nights ended up how they did. What turned a bunch of kids hanging out into the reported shootings, stabbings, and destruction? The brutality and intimidation present at these events seem foreign to those of us living west of Troost. Reading conservative news articles, we are unable to grasp why normal kids could end up shooting at each other and even the mayor. Was it really just boredom that drove them to this?

It is interesting to note that both of these events were said to have happened at the same time as the phenomenon was popping up around the country. Violent, urban flash mobs were occurring in Chicago, Cleveland, and Milwaukee among others (Zoschke). It was in Northern cities with strong histories of segregation that these urban flash mobs were found. Once again, I argue, this is no coincidence. Negative legacies of segregation and disproportionally high crime rates are keys to understanding the situation.

**Social Disorder as a Motivating Factor in Flash Mobs**

Ken Novak, Professor of Criminal Justice and Criminology at UMKC, fears that an atmosphere of crime has become normal in Kansas City (Ryan and Cummings). Continuously high crime rates are treated with ambivalence as they happen primarily east of Troost (Kraske). Houston’s study notes that because many individuals growing up in areas east of Troost deal with violence, disrepair, school problems, and broken families, these outbreaks are not novel instances, but may be continuations of day-to-day life in their neighborhoods. Houston says that “ultimately, the shootings on the Plaza are seemingly a case of ongoing community violence spilling over into an area of the city where violence is not
normally expected” (Houston et al. 248). The only reason we hear about the violence on the Plaza as compared to myriad others is that it affects an area where money is invested and people with money go (Houston et al. 242).

The flash mobs on the Country Club Plaza stand as a jarring reminder to those west of Troost of how the other half lives. Why do we see the crime and violence in our city that we do? Steve Kraske says the answer is “multifaceted, baked into the city’s long, anguished struggle with racism and our history with racial covenants and redlining; our beleaguered school districts, the lack of development on the east side and the lack of opportunities that so many of our citizens face” (“Why are we so violent?”). Generations are born in neighborhoods where, according to Damon Daniel of the Ad Hoc Group Against Crime, 30% of the homicides are committed by people under the age of twenty-four (Kraske, “Why are we so violent?”). Although this may not be the reality for everyone growing up east of Troost, it is a stark trend that many teenagers will have to grapple with.

Bill Wasik points out that boredom is not the only reason why these protests appear; insufficient policing and legacies of poor police-community relationships in inner-city areas also contribute to the problem. He says that aggression and unfair treatment have led to a disregard and hostility towards the police. Two things have become very apparent in these flash mobs around the country. First is a perceived lack of legitimacy. Wasik notes “the extent to which the crowd feels that the police and the whole social order still deserve to be obeyed (“#Riots”). The second has to do with power and “the perception within a crowd that it has the ability to do what it wants, to take to the streets without fear of punishments” (Wasik, “#Riots”). The teens interviewed discussed how having police around would often only escalate the situation
(Houston et al. 246). Together, these shape what behaviors appear in contemporary flash mobs.

The youths involved in the flash mobs may not realize the full implications of what they are doing, but they cannot be oblivious to the effect. They may not be consciously choosing to protest, yet their actions speak as a protest and the youths involved are aware of the reaction they incite. Teens going to the Plaza just to hang out is innocent, but posting a Facebook event to attract people to have the largest presence possible suggests a different agenda.

**Community and Police Responses to the Plaza Situation**

After analysing flash mobs in Kansas City, Houston’s team considered potential solutions to this potential problem. They called for a ground-up-approach to reform starting with changes in education, public (community) health approaches, and safe activities planned for the youth. Solutions as simple as better after-school programs for youths, they argued, could help a lot (Houston et al. 248). These suggestions suggest the issue of boredom and misused time most commonly stated by the students in connection to the flash mobs. Advocates for these programs say they could alleviate the problems happening with youths on the Plaza and around Kansas City.

In the eight years since the Easter weekend flashmob of April 2010, communities have responded to the problems on the Plaza in several interesting ways, not all involving intolerance towards the teens involved or calls for longer curfews. After a year of rising homicide numbers in 2017, the KCPD seems to be responding to these ideas. In his “2018 Goals” Blog entry, the new Kansas City Police Chief Richard C. Smith says that his force is trying to figure out a way to better engage youths in the Kansas City, Missouri communities. He mentioned starting summer camps or other youth-centered initiatives (Smith). But ultimately the police
representatives say the responsibility falls back on parents to ensure good behavior and respect (Plake).

When interviewing my friend Duncan about how he perceives behavior on the Plaza, he said that many of the approaches that have been suggested by police and community members are not working at the moment. He told a story about the time his manager was having trouble with a movie goer and called security, only to have the security arrive and side with the man making the trouble. With the support of the security guard, the movie goer then accused the manager of only singling him out because he was black, framing the issue as a race-based problem. Duncan also explained how easily the concept of the curfew can break down. When one Cinemark employee lets his friend in, it sets off a domino effect as that friend will let other friends in through the exit doors. In response to the variety of problems he sees on a day-to-day basis, he suggested working with the employees and security staff first to make sure everyone is on the same page. Utilizing better strategies begins with having unity among the staff.

With all of those approaches in mind, if Wasik’s theories about legitimacy and power are correct, these community involvement “goals” can only go so far, especially programs that stem from an arguably biased and broken system of policing. The Police Departments’ programming for teens as well as urging better parenting on the parts of the families are ironic approaches to take. These are many of the same families that have been resisting and struggling against not only societal neglect but corrupt policing for decades—including police shootings that persist to today (Rice, “Police Shot Him 13 Times”). In his talks on race and modern day civil rights, Black Lives Matter founder DeRay McKesson says that sticking surface level programing onto structural problems within our society is merely a band-aid solution and nothing more. The police and community activists suggesting these solutions are
ignoring the fact that these programs only exist because the structure is broken in the first place ("On the Other Side of Freedom").

**Concluding Thoughts**

My goal was to bring attention to the complexity of the situation on the Country Club Plaza. Although each incident is carried out by agents with individual, contextualized stories, taken together they reveal larger truths about our city.

The Plaza, with its Spanish architectural beauty, means something to most every Kansas Citian. Locally, we care deeply about what happens there, as enraged articles note. The interviews by Houston’s group testify to the fact the teens involved care about having a place on the Plaza as well. The violent outbursts that follow even on the Plaza tell us the story of social conditions that we often choose not to see.

In response, there have been continued efforts on the part of prominent community members and activists like Alvin Brooks (Zoschke, “Saving the Plaza”) or the former African American Police Chief Darryl Forte. But the solutions to the problems are yet to come, both in Kansas City and in all the cities across the country with similar problems. These flash mobs work as a significant influence by drawing attention to the underlying issues. But as DeRay McKesson says, realizing the privilege of certain groups and the way the system works is only the first step. After that it’s not about fitting programs into a broken system, but working collectively to search for a new and more equitable system for all going forward ("On the Other Side of Freedom"). In the meantime, as Duncan suggests, we should take small steps to make the experiences better for all.
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Carolyn Nordengren is a senior majoring in Art History with a minor in History. She chose to attend UMKC for its small campus feeling while also enjoying all the opportunities of a major metropolitan area. Her research interests include the early modern period, colonialism, cultural exchange, and artistic influence on the transmission of knowledge. After graduation, Carolyn plans on pursuing graduate education, also in the field of art history. She would like to thank Dr. Rachel Chantos, whose class she wrote this paper for, as well the entire faculty of the Department of Art and Art History for the constant and unwavering support they give each of their students.

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After graduating with an undergraduate degree in Psychology from UMKC, Hannah Doggett is pursuing a Master of Arts in Psychology at West Texas A&M University. She plans to complete a PhD in Clinical Psychology and go on to a Post-Doctoral Internship with the Air Force. She grew up in Texas and after doing two years of mission work based out of Kansas City, she decided to go back to school so she could better help people. When deciding whether to stay in KC or go home to Texas, she decided to stay because of the amazing opportunities UMKC had to offer. As a huge fan of the outdoors, Hannah loves to camp, hike, kayak, and ride horses often. She would like to thank Dr. Erin Hambrick for the constant support and encouragement, her friends Jen and Christine who helped her through school, and very special thanks to her grandpa. Hannah studies PTSD and trauma in adults because her grandpa, her hero and best friend, developed severe PTSD after Vietnam. The stories of his struggles when he returned to the states
sparked a passion in her that keeps her going in her studies. He is her biggest fan and supporter.

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Mastin Tapp is senior majoring in Mathematics and Statistics. He chose to attend UMKC the mathematics department seemed to be a good fit for him. During his free time, he likes to sing and play the guitar. He also loves to hike in the Rocky Mountains. After graduation, Mastin hopes to begin a career at Boeing as a Systems Engineer. He would like to thank Dr. Richard Delaware for guiding him through his research. He put countless hours into editing Mastin's work and helping him to become a better mathematician.

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Emily Rackers is a sophomore majoring in Dance. She chose to attend UMKC because of the world-class dance faculty located in such a culturally diverse city. Her hobbies include reading, yoga, and traveling. After graduation, Emily hopes to get a job with a professional contemporary dance company and eventually return to school to become an arts administrator. She would like to thank Professor Mary Jean Miller for helping her throughout the brainstorming, drafting, editing, and re-editing processes of her research. She also thanks DeeAnna Hiett for inspiring her
research. Emily hopes that through her research in this journal people will become more interested in the modern arts and share even a small piece of the appreciation and love she has for it.

**SAMI GUL**

Sami Gul is a senior double majoring in Political Science and Mathematics and Statistics. She chose to attend UMKC because of its diverse campus and outstanding and knowledgeable faculty members at the UMKC Political Science Department. After she graduates, Sami plans to pursue a doctoral degree in Political Science. She would like to thank Dr. Debra Leiter for her guidance and feedback on this essay and teaching her required statistical software to complete this project. She was always there to help her and teach her whatever she needed. Sami would also thank Dr. Benjamin Woodson for his comments and feedback on her research. She is thankful for the faculty at the UMKC Political Science Department because they helped her both inside and outside of class with great care and prepared her to enter the field of political science.

**CHASE FORD**

Chase Ford is a sophomore majoring in Political Science and Environmental Studies, with a minor in Environmental Sustainability. UMKC was the last school he visited and applied to, and he instantly fell in love with the campus. The rich history and prime in location in Kansas City sucked him in. He is passionate about researching green energy and the role of propaganda on political views. He is the Vice President of the UMKC Mock Trial team and a Big Camper at Royal Family Kids Camp. He hopes to one day write his own movie too. After graduation, he plans on pursuing law school to practice environmental law. He thanks Professor Hayes for allowing him to write this essay for her
Discourse 200 course. He also thanks his friends Kristine Cho, who prompted his essay idea, and to Carolyn Nordengren and Hayley Benton for helping him develop and finalize his work. He is grateful for the opportunity to discuss how a "silly" topic like memes can hold serious political and cultural value.

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Carolyn Kovar is a senior majoring in History, with an emphasis in Modern American History. She chose to attend UMKC because she loves the heavy emphasis on research both in the classes and by faculty members, and she was drawn to the diversity represented in the student body. After graduation, she hopes to continue on her educational journey, completing my Masters in Public Policy. She is particularly interested in the radicalization of space in American cities and hopes to work to innovate housing policies to impact neighborhood. In her free time, Carolyn loves to travel and spent four months abroad during college, getting the opportunity to visit Berlin, Munich, Prague, Amsterdam, and Paris. Her next trip is to visit her friends in Uganda when she graduates. She would like to thank her professor, Dr. Henrietta Rix Wood, for going above and beyond, reading countless drafts of her research into summer break and giving Carolyn the guidance needed to develop an argument she's passionate about.