

Welcome to the 5th Annual Baltimore County Public Schools Student Independent Research Symposium - May 18, 2017

AGENDA

6:00 – 6:20 Poster Sessions

Enjoy some light refreshments in the Library as you visit student research exhibits.

6:20 – 6:35 Welcome & Recognition of Student Researchers

Be seated in the Library for congratulations and presentation of Certificates of Achievement.

6:35 – 8:00 Oral/Multimedia Presentations

Proceed to one of the Presentation locations for the duration of the program.

Please use the provided Comment Cards to share feedback with student researchers.

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Kristina Briscoe

Senior, Parkville High

Title: Juvenile Sex Offender Rehabilitation

Statement of purpose: The proposal of this research is to reduce the recidivism of juvenile sex offenders, by creating a rehabilitation center that will provide the best treatment and safe environment needed in order for the juveniles to develop.

Background: There are issues to consider when working towards rehabilitating juvenile sex offenders. The facility must address age groups and there must be separation between those who are most likely to re-offend and those who are not. To facilitate the main success, the center will need a team of trained professionals such as counselors, pediatricians, psychologists, pharmacists, teachers, social workers and psychiatrists. The staff would work with patients to help improve their mental health, physical health, emotional health and education. Also the facility strives to provide patients with optional therapeutic, educational and living services after completing the program as well, so that they will continue applying what they have learned outside the center.

Significance: The overreaching goals of the facility will be to support patients so they may regain access to a normative social structure, end the cycle of abuse, and pave the way to a better life.

Annalea Cascio

*Two projects

Senior, Parkville High

Title: The Effects of Domestication on Asian Elephants

Statement of purpose: The goal of this project is to explore the social effects of Asian elephants' environment and to find a resolution that would allow for both elephants and humans to be satisfied in their needs. A one year study of four differing groups seeks to explore the differences between the social make up of wild and domesticated elephants in Thailand.

Background: Elephants are known for their intelligence and complex social structures. However, a bias favoring African Elephants over Asian elephants has created a gap in conservation efforts. This issue is apparent in Thailand, where elephants are held in the same regard as cattle. While there are efforts to change the environment where Thai elephants live, the issue is not easily resolved as both humans and elephants are reliant on each other for survival.

Significance: This research also hopes to increase conservation efforts for Asian elephants as a species in order to fill the gap in said conservation between Asian and African elephants.

Title: The Effect of Queer Representation in Media

Statement of purpose: The purpose of this research is to explore the effects of this misrepresentation in order to find a way to engender appropriate and accurate representation.

Background: The LGBTQ community has seen an increase in the amount of representation in media. However, this representation is not always positive. The effects of queer representation in media are complex and diverse, as each individual internalizes what they see differently. While there are positive representations of queer characters in media, the vast majority of LGBTQ characters are misrepresented.

Significance: This research puts forth a survey that asks takers to think of how characters in media have affected their understanding of the queer community. These answers will be analyzed and sorted based on the takers sexuality and gender in order to gain a better understanding of the effect media has on different subgroups of the community.

Mackenzie Brooks & Hailey Ludwig

Senior & Junior, Patapsco High

Title: Gender Discrimination in STEM fields

Statement of purpose: Robotics is traditionally viewed as a male dominated field. We conducted research in order to identify historical examples in which there have been discriminatory actions against women participating in traditionally male dominated fields. We are inspired by this topic because we are young women heavily involved in engineering and robotics.

Background: Vex Robotics releases a new challenge every year in which thousands of teams compete. Patapsco has an all-female robotics team, and we have sometimes felt restricted and been treated differently due to our all-female status.

Significance: Many companies such as Vex and Microsoft have taken initiatives to promote women being involved in STEM. As a result of our research and experience, we believe that it is critical for K-12 schools, colleges, universities and private companies to encourage and promote female participation in STEM fields. Gender equity is an essential aspect of creating truthful results in both science and technology which will ultimately allowing for progress and innovation that can benefit everyone.

Anna Bacharach

Senior, Pikesville High

Title: The Myth of the American Dream, as Shown Through Literature

Statement of purpose: By drawing comparisons between the literature from the 1920s and modern literature, it becomes possible to establish a trend of inequality throughout American history. The object of this research is to use a string of novels written at different points across the 20th and 21st centuries, to show that the promise of equality and equal opportunity for social mobility in America is a myth.

Background: In recent years, national attention has become hyper-focused on economic inequality. The cries of progressive political leaders like Bernie Sanders and Robert Reich have invigorated an entire generation. Millennials, calling for massive economic reform, are rallying against a system that only seems to benefit the top 1%, leaving the middle class to fend for themselves in a dwindling job market. This seemed to be the perfect opportunity for me to merge my interest in economics and politics with my love of literature and the humanities. I remembered having read a book called *And So We Read On* by Maureen Corrigan, about the life of F. Scott Fitzgerald, and how his experiences contributed to themes in *The Great Gatsby*. I am fascinated by this type of in-depth analysis of literature, and I wanted to complete my own analysis, but with a research component that would tap into the relevant political and economic questions of today.

Significance: This research will reveal the ways that economic and social trends affect people on a personal and human level, and will motivate Americans to look beyond the illusion of the American Dream, and to see that economic inequality is an issue that must be faced before it is irreversible.

Myshko Chumak

Senior, Pikesville High

Title: Crossing Invisible Borders: Improving Migrants' Ability to Integrate into their Host Societies

Statement of purpose: There has been a recent surge in arrivals of migrants from the Middle East and Northern Africa, owing to conflicts in the area such as the Syrian Civil War. These new arrivals have placed great pressure upon the extant economic systems within their host nations, especially seeing as economic integration is an important step in overall integration into society. Thus, the objective of this research is to find ways in which that economic integration can be expedited or made easier.

Background: I grew up in Ukraine, a country that has historically found itself under some greater ruling power and having its people caught up in conflicts outside of their control, and find that the Ukrainian part of my identity has become indelible from the rest of my largely American self. I have great sympathy for innocent people that have found themselves attacked and often forcibly removed from their homes, their birth countries. The war in Kosovo, the Syrian Civil War, and Russia's conflicts in Chechnya and Georgia are a few of the events that have sparked my interest on the topic of immigration and handling refugees. Moreover, I am interested not only in the success and well-being of those migrants but also of the societies they are moving into. Whether the reason they are moving there is more closely related to labor or humanitarian reasons, all migrants require knowledge of their host nation's language, skills for interacting in the workplace, and job-specific skills that they may not have learned in their nation of origin.

Significance: This research will present a survey that can be used to evaluate the effectiveness and compatibility of mostly vocational training programs, but can be expanded to include adult education classes such as those dealing with lingual or technical skills unrelated to specific job areas. Data collected will be distilled into key figures and graphs as to provide the government bodies responsible for these programs to improve them, if need be.

Alexandra Efron

Senior, Pikesville High

Research Question: How do stories told in the American comic book industry reflect Jewish themes, values, and the long-term struggles of Jewish immigration and assimilation?

Statement of purpose: To explore the Jewish themes and history prevalent in the growth of the American comic book industry and relate them to the Jewish history of immigration and assimilation into America.

Background: Superheroes have been a long term obsession of mine. I love the universes, the characters, and the stories told in comic books—there's no other medium that can provide such complicated, fun, and long-running fantasy worlds. As a Jew, I have also long been interested in examining American Jewish culture and influence on popular media. Considering that nearly every comic book writer who is even slightly known in the popular consciousness is Jewish, it seemed an obvious connection.

Significance: A lot of media nowadays tends to gloss over the deeply Jewish roots of these characters in either ignorance or in an attempt to avoid controversy. In fact, several new stories and movies involving Superman in particular—one of the most coded Jewish of the Golden Age heroes—have been using Christian symbolism instead. It's valid as an interpretation, but it's a little frustrating that such a Jewish-led industry continues to gloss over these cultural roots or even include canonically Jewish characters in their stories.

Allen Khodab

Senior, Pikesville High

Research Question: How will growing concern over the effects of Chronic Traumatic Encephalopathy (CTE) affect the future of the sport of football?

Statement of purpose: Recent findings on the effects of CTE on retired football players has made parents concerned over their children's safety playing football. The sport is a multibillion dollar entertainment industry, but the safety of its players could lead to its demise.

Background: I have always been a big fan of the NFL and College football, but my recent commitment to a very big football school has spiked my interest in the sport. After seeing the movie *Concussion*, many questions were raised but unanswered about the future of football given the effects of CTE, so I wanted to further explore this topic.

Significance: My research explored every aspect of the future of the sport; the big money-making industry that College Football and the NFL are, as well as what we know about concussions and CTE and how they relate to football.

Munisa Makhmudova

Senior, Pikesville High

Title: Projection Mapping: Where Will it Take Us Next?

Statement of purpose: Projection mapping dates back to the 19th century, yet this phenomenon goes under-studied and under-analyzed. I want to share this project by presenting its history, detailing its applications, and giving an overview of its recent megahits. Moreover, I want to establish a link between what projection mapping shows and audience interaction and reaction. Lastly, I want to use this human-media interaction in order to predict the future of projection mapping based on current trends.

Background: My interest in animations and motion graphics led me to choose to research projection mapping. I find projection mapping at the intersection of science, music, art and technology, which are the subjects that interest me the most.

Significance: My research will examine how a visual phenomenon can shape our consciousness. I hope that my project reveals how projection mapping has the potential to affect and/or motivate the viewer.

Kaiana Mullen

Senior, Pikesville High

Title: Building Awareness of Teenage Females about the Risks vs. Benefits of Birth Control Pills

Statement of purpose: My purpose is to create awareness for everyone that every female should be taught about her body when puberty occurs. If there are safer methods to regulate the menstrual cycle other than the pill, women should be educated about this, whether it be from their doctor/pediatrician or in their health classes.

Background: Before I got to high school, I was still very uneducated about a women's menstrual cycle. It only ever occurred to me to research more about my body when I first started getting my period. My mother assumed I had previously learned everything about the menstrual cycle in school. Because I was under-informed, I was unaware of the options I had all this time to help control my irregular periods. I want to help other young women to avoid some of the issues I have dealt with.

Significance: My research will create awareness in my target audience on the side effects of using the pill. My research could even spark ideas for creating new, safer, and more affordable methods to not only help prevent pregnancy, but to help control menstrual periods.

Favour Agu

Senior, Randallstown High

Research Question: How does the media influence Western views of Africa?

Statement of purpose: The aim of this investigation is to examine how the media affects Western views of Africa and contributes to stereotypes and misconceptions about African culture.

Background: I was born in Belize, and my parents were born in Nigeria. When I started school in America at age six, I was bullied because of my accent. I changed schools, but the taunting and bullying followed me throughout my elementary and middle school years. When I got to high school, I realized that others were bullying me because of my culture. This made me wonder what was influencing their perceptions of my culture.

Significance: This research amplifies how media contributes to stereotypes and misconceptions of African cultures. Although my research focuses on Africa, studies show that media contributes to stereotypes and myths of other cultures; when people believe these misconceptions, it can create racial and cultural divides. The findings from this research could serve as a justification for why media literacy and cultural awareness classes should be mandatory.

Jordan Davis

Senior, Randallstown High

Research Question: Why do students who love to learn hate school?

Statement of purpose: Identify why high school students are disengaged in the classroom, and discover possible solutions that would increase student engagement.

Background: Over my high school career I have evolved as a student, from being a C average student in 9th grade to being an honor roll student as a senior. I have realized that my commitment to the process of learning and being engaged has been the driving force of my growth. Research shows that engagement and attentiveness is the most important factor in achieving academic success.

Significance: High school is a vital place for a student, because it is where they begin to place the stepping stones to their college and career path. Many jobs not only require employees to have a high school diploma, but they require them to have the essential skills and knowledge to be proficient in performing various tasks. Students who are disengaged are not learning the material and skills taught in school, which is reflected upon their grades. Engagement will provide a better chance for the student to develop knowledge and skills, and will make what they have learned applicable in the classroom as well as beyond the classroom.

Kevin Hendricks

Junior, Randallstown High

Title: Cultural Influences on Teenage Male Perceptions of Homosexuality

Statement of purpose: The purpose of my research is to examine and identify cultural influences that affect teenage male perception of homosexuality.

Background: I have noticed the way that many teenage males speak negatively about homosexuals. For example, they use homophobic epithets like "that's so gay" to describe negative experiences. These observations fueled my interest to find out what contributes to these teenage male perceptions of homosexuality.

Significance:

Homophobia often leads to bullying, which has psychological and social effects on the victim. If we can figure out how culture influences homophobia, we have the potential to eradicate it.

Kayla Saint Fort

Junior, Randallstown High

Title: Why Do People Hate? A Historical and Psychological Analysis of Racism in America

Statement of purpose: Racism is a form of hate that divides our nation. The aim of this research is to examine the origins of racism and the psychological factors that contribute to racism.

Background: I became interested in this topic because my family and I have experienced and witnessed racism. These experiences have left me emotionally scarred and made me question why people hate.

Significance: The world we live in is very diverse. This research will help us to understand why racism exists, in order to help people build a tolerance of other races and cultures.

Amani Stevens

Junior, Randallstown High

Title: Diversity in America's Pastime: The Disappearance of African Americans in Major League Baseball

Statement of purpose: Diversity in the game of baseball has been an issue since the game was created. Historically, African American representation among ethnic groups in the sport increased, but more recently has declined.

Background: Baseball has been my passion since I was two years old. As a baseball player, I have always had an interest in expanding my knowledge of the sport. One of my burning questions I wanted to know: why African American baseball players were declining in major league baseball.

Significance: Baseball is America's favorite pastime. By understanding the factors that have contributed to the decline of African American baseball players, sports organizations can develop strategies to increase the number of African American baseball players.

Rilynn White

Sophomore, Randallstown High

Title: What Makes a Mean Girl? Environmental and Psychological Factors Contributing to Social Aggression in Female Teens

Statement of purpose: Research shows that females are known for their malicious and covert behaviors, while males are considered more overt and straight forward. Many of us have heard of, or used the term "mean girl," but have we ever stopped to think: what made her a "mean girl"?

Background: I was bullied in elementary and middle school, mostly by girls. Once I got to high school the bullying stopped for me, but I noticed that it happened to some of my friends. They were also bullied by girls. This led to my interest in understanding what makes a "mean girl."

Significance: Social aggression is the harming of one's relationships through overt or covert behaviors. Bullying is a form of social aggression. Victims of bullying often experience anxiety, depression, and in some cases commit suicide. Aggressors can grow up to be mean, malicious, and controlling for their entire lives. I want to bring light to this dangerously continuous cycle.

Habiba Abbasi

Sophomore, Western Tech

Title: Les Normes de Beauté: Standards of Beauty in France

Statement of purpose: Society often places pressure on women and men to look a certain way, through social media and other outlets. Each country has its own beauty standards which are considered to be "perfect." My purpose for this project is to highlight France's beauty standards and their effects. Most importantly, I want to bring awareness to the problems associated with such beauty standards.

Background: As a child, I have always been interested in beauty including hair, makeup, and fashion. So, I was interested in beauty standards and how they differ from country to country. Standards of beauty in France and many other countries started long ago during the Renaissance, when artists would paint portraits of women exaggerating reality. From then on, women were expected to look like the paintings that were considered beautiful, even though what was painted was unrealistic. We can see a similar trend in today's beauty standards looking at Photoshopped pictures of women in magazines.

Significance: I want to bring awareness to the problem of societal expectations on women and their negative impacts. All people are affected directly or indirectly, so I wish to raise awareness.

Brian Anderson

Sophomore, Western Tech

Title: Effects of Music on the Brain

Research Question: How do different genres of music affect different people?

Statement of purpose: To better understand how music can affect listeners' brains and how we think about the world and other people.

Background: I have been a musician for almost 10 years; that is two thirds on my life. I grew up with music in my family. For example, my sister plays the piano, and my dad and I would always listen to music together on car rides. I always wondered what it would be like to perform in front of a crowd of 40,000 people. I chose to research how music affected the brain, because I tend to listen to heavier music like Avenged Sevenfold and Veil of Maya; people would always tell me that heavy music was bad for you because it gives a bad influence. I knew this wasn't true, and I wanted to learn more about how music can impact a person's life, both mentally and physically.

Significance: Music affects everyone in some way. There are many myths out there about how heavy music is bad for the listener, but this is false. It all depends on how the listener interprets the message. Understanding that music is almost always a great creation is important. If people believe that heavy music is bad for youth, then schoolmates may choose to cast out the individual who enjoys more aggressive genres, which is a travesty because the individual will become secluded and alone. This person would fulfill the stereotype that metal-heads are loners and shouldn't be associated with.

Benjamin M. Glaser

Senior, Western Tech

Title: Powering the Future: Advancing Battery Technology

Statement of purpose: To evaluate the history and current status of battery technology, plus examine new battery developments to identify options that could be key for replacing current standards and providing viable energy for the future.

Background: Smaller batteries with greater capacities are needed to power energy-hungry devices that are becoming increasingly popular, smaller and more compact; this has led to compromises in the construction of batteries by reducing design margins to the point that safety has been undermined.

Significance: Lithium-ion (Li-ion) batteries were commercially introduced close to 30 years ago. While electronics technology has grown exponentially, battery technology has remained stagnant. There is concern that Li-ion battery technology cannot be made more powerful and condensed, and that opportunities for development have run out. A replacement for common Li-ion battery technology is critical for ensuring that there will be safe and sufficient battery power sources for the increasingly sophisticated and complex devices that are continuously being developed.

Loida Gutierrez

Sophomore, Western Tech

Research Question: How do residents' descriptions of life in the banlieues compare to media portrayals of life there?

Statement of purpose: Areas like the banlieues are frequently overlooked and neglected by the government, and misrepresented by the media. For that reason, it is important to analyze exactly what the citizens in these areas experience and to be able to distinguish what is true or exaggerated in what media outlets say.

Background: The banlieues are communities found in the outskirts of large French cities. In English, "banlieues" would translate as suburbs. A well-known banlieue neighborhood is Clichy-Sous Bois, and much of my project centers on this region. In 2005, after a police-related incident where two adolescents died, many riots erupted. But the banlieues had hard times long before that. Since these communities are usually heavily populated by immigrants, there have been issues with discrimination. Many people believe that these places are breeding grounds for terrorists and other criminals. After hearing about the incident that preceded the riots of 2005, I decided that it would be worthwhile to investigate further into the reality of living in these suburbs.

Significance: Although my project is mainly about the suburbs found in France, the things these people experience can be experienced by residents of a similar neighborhood here in United States. It is important to investigate how these people live and figure out a way to help in any way they need. Neighborhoods like these are often overlooked by the government, other citizens, and media outlets. These communities also tend to be misrepresented in the media, and are made out to be much worse than they are. My project aims to uncover different misconceptions about the banlieues, and investigate the truth as told by residents of these communities.

Dedelolia Olungwe

Junior, Western Tech

Title: The French Paradox: Considering that the French cuisine is a diet high in saturated fats, why are French people less likely to get heart disease than Americans?

Statement of purpose: The purpose of this research is to understand why French people, who are known for their unhealthy lifestyle, are not likely to end up on hospital beds due to diseases linked with saturated fats, like a majority of Americans are.

Background: Many individuals who have problems associated with the cardiovascular system, such as heart attacks, stroke, high cholesterol, etc., need the devices that will ensure care for the most important organ in their body—the heart. This research revolves around Biomedical engineering in France and Francophone countries, like Cameroon, including methods and techniques developed by engineers that link both the devices and sciences of living organisms for therapeutic care.

Significance: This topic is significant because the risks of people dying from heart problems is increasing rapidly. This research will bring to attention the dangers of a habitual, unhealthy lifestyle and reveal devices industrialized through Biomedical engineering that have saved the lives many individuals, from the 1900's to the present day.

Monali Saraf

Senior, Western Tech

Title: Impact of the Berlin Conference of 1884 on Perceptions of Africa

Statement of purpose: The media often portrays African civilization as simply impoverished, violent, and all-around underdeveloped compared to the rest of the world. However, most people are not educated about the underlying cause of these stereotypes, and I hope to tell the story of how these hardships came to be.

Background: The Berlin Conference of 1884 established the majority of the colonial holdings of major European powers in Africa, without the presence of a single African representative. When the colonial borders were established, ethnic groups who had previously established borders were disregarded. This led to disputes among the ethnic groups. In addition, the colonial subjects were often exploited for labor and natural resources. All of these factors contribute to the shallow portrayal of poverty in Africa in mainstream media.

Significance: I want to show that the media's portrayal of impoverishment in Africa has been shallow and uninformed. This research will educate the audience on the factors and conditions that have created stereotypes about African civilization, and help to promote more accurate perceptions of Africa.

Aidan Shipperley

Junior, Western Tech

Title: Effects of Competitiveness in Teenage Sports and Recreational Activities

Statement of purpose: Competition and sports are two things that almost all adolescents go through in their day to day life – this is something that can bring a different perspective on how we play sports in general.

Background: I have been playing basketball since I was 8 years old, and it was always just for fun until I started to get older. Things shifted from a fun game to a lethal competition, which didn't fit my playstyle in the slightest. Ever since then I have always wondered what competitiveness does to an individual; I noticed that for some people it brings out the best in them, while, with others it can also bring out the worst. It wasn't until I conducted the research for this project that I was able to find out about different psychological terms that described what I was observing and experiencing.

Significance: With the awareness that I can raise with this project, I can spread the knowledge that each person plays differently in certain environments, and that not every player will play his/her best in a competitive situation.

Title: The Difference Between Sex and Gender

Statement of purpose: We often see sex and gender as one in the same. Sometimes on official documents it will list "sex/gender" and gives two options: female or male. With this project, I hope to demonstrate that there is a big difference between one's sex and one's gender identity, and will argue that they shouldn't be categorized as the same thing.

Background: Sex is one's identification based on the reproductive parts they were born with. Gender describes whether you identify as masculine or feminine based on your characteristics. All over the world, many people can't seem to understand how one can be born a female but identify as masculine. Increasing numbers of people are coming out as transgender or gender fluid, which is often met with opposition.

Significance: With this project I hope to educate people on the difference between sex and gender, and change attitudes about people that may deviate from the gender-based standards that are considered the societal norm. The world is rapidly changing around us, and though it may be hard, we must learn to be understanding of others and who they are.

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