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Editor's Note



OUR MISSION. *Omnium: The Undergraduate Research Journal at North Carolina Wesleyan University* is a collaboration between the Writing Program and the Writing Center at NCWU, providing our undergraduate students with the opportunity to explore the major genres of academic writing, join in scholarly conversations, share their ideas, perform original research, and see their work published in a professional venue. *Omnium* also serves as a teaching resource for NCWU faculty—and faculty at other institutions—as the essays and research articles published here reflect the skill and knowledge of real students at various stages of their academic careers, from first-year composition essays to projects created in senior seminars and honors theses. The materials lend themselves well to in-class discussion, analysis, and emulation, and we hope that students will be energized when they realize that there is no single arcane secret to writing well. All it takes is practice, motivation, and direction.

Welcome to the fifth issue of *Omnium*, a joint effort of the Writing Program and the Writing Center at NCWU, collecting written work by promising undergraduate scholars. Where students tended to hone in on issues of animal welfare and environmental protection in the 2022 issue, this year's essays, perhaps in response to current political trends, cluster around questions of identity, discrimination, justice, and freedom. In the same spirit, this issue of *Omnium* also features a forum of op-eds written by Dr. Kelvin Spragley's students in support of protecting African American history, Native American history, and women's history courses for high-school and college students. I thank Dr. Spragley for entrusting his students' writing to the journal.

My thanks also go to Drs. Dimitri Blondel, Jarrod Kelly, Jackie Lewis, Chad Ross, Rachel Roy, John Temple, Lee Templeton, and Shane Thompson for reviewing submissions to the Academic Writing Competition in their respective disciplines and for doing so speedily and conscientiously. They helped select the most outstanding essays in each of the traditional five categories, following the structure of our Schools: First-Year Composition, Humanities, Social Sciences & Education, Business & Computer Information Sciences, and Natural Sciences & Mathematics.

The *Omnium* Editor,

Doreen Thierauf
Assistant Professor of English
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A photograph of two young women sitting on a wooden bench outdoors. The woman on the left is a Black woman with short dark hair, wearing a white tank top and light blue jeans, smiling as she looks at a silver laptop. The woman on the right is an Asian woman with long dark hair, wearing a dark blue tank top and denim jeans, writing on a purple notepad with a yellow pencil. The background is filled with lush green foliage. The text 'FIRST YEAR COMPOSITION' is overlaid in large white letters across the center of the image.

FIRST YEAR COMPOSITION

WHY DOES STUDYING ABROAD IMPROVE EDUCATION?

One of the most crucial pillars of human civilization is education. It equips people with the knowledge they need to contribute to society's growth (Brand and Xie 273). Given the value placed on education, many governments have worked to give their citizens access to the best educational possibilities. In nations all across the world, there are 23,635 schools of higher learning. Additionally, there are more students enrolling in colleges and universities today than at any previous point in history. However, there are differences in the possibilities and educational standards across different nations. As a result, some people choose to travel abroad in search of better educational prospects. This has raised concerns about which type of education—local schooling or education abroad—is more advantageous.

There is no doubt that one is more equipped to enter the global labor market after studying overseas. The planet is largely globalized today, and most countries are setting up international businesses (Black and Duhon 141). Thus, it is becoming more crucial for people from all nations to be globally competitive. The requirements for an internationally focused education among potential candidates are rising. For the majority of individuals, especially from poor countries, studying abroad is the only opportunity to obtain an education that will meet the requirements of the global job market. Since these individuals are more likely to possess the

abilities essential to operating in a global business environment, multinational corporations prefer to hire employees who have some foreign experience (Black and Duhon 142). Therefore, among the main incentives for studying abroad are the huge economic and talent rewards it delivers.

Studying abroad enhances a person's capacity for navigating other cultures since students engage with people from various nations and cultural backgrounds when they live in a foreign country. They can appreciate various cultures thanks to this exposure. A student who has studied abroad, according to Black and Duhon, gains a wider perspective on life as a result of their interactions with others who have various viewpoints (144). Interaction with people from different cultural backgrounds will strengthen one's tolerance for diversity. This intercultural education is crucial because today's workplace is made up of employees from a variety of ethnic and national backgrounds (Black and Duhon 142). Therefore, a student who has studied abroad will have an advantage while interacting with coworkers in a diverse workplace.

Studying abroad further contributes to the expansion and improvement of the student's native nation. A more contemporary and international labor force is crucial to the health of the modern economy. The lack of resources in many developing nations prevents the



Photo by Carl Lewis.

development of this global workforce. The majority of domestic education programs are distinguished by a scarcity of diversified knowledge (Huang 118). This reduces a student's exposure and falls short of preparing them for a global workplace. For such nations, the only workable alternative is for the population to study overseas and then return with the requisite abilities and information. The study abroad strategy gives the populace of a nation access to the learning resources required to create a sustainable economy in the current era.

A student who chooses to study abroad will often have access to research and technological opportunities that are unavailable in their home nation. Regarding the facilities and academic faculty, different cultures' educational services are provided in different ways. Some multinational schools have a stellar reputation for their cutting-edge technology and top-notch research facilities (Harman 110). The top professors are drawn to the schools with the greatest international reputation. The majority of Western countries have made a name for themselves as technological and academic powerhouses. When a person goes to school in these countries, they have the opportunity to take advantage of the resources available. As a result, the level of education obtained by a student is higher than that gained in local institutes. One has more options for courses and universities to attend when studying overseas. In some nations, the number of courses available for pupils in an educational institution is limited. The majority of developing countries, according to Huang, provide their students with only a small selection of course options (120). The absence of the desired course from the list of options available in their country could prohibit a

student from pursuing the specific program they are interested in. The vast array of courses offered by international institutions gives students more options (Brand and Xie 273). An individual can choose the appropriate course from the many possibilities available by studying abroad.

When a person chooses to study abroad, they have a lot of options from which to choose their perfect institution. Studying abroad can assist students to overcome the problem of limited enrollment in local educational institutions. Higher enrollment rates in educational institutions are a result of more individuals now realizing the benefits of education (Olcott 99). Students are finding it

more challenging to gain employment at nearby institutes as the need for education rises. An individual has the possibility to consider various possibilities by studying abroad. Despite the limited options locally, a person can follow their educational objectives by finding a school in a foreign country.

A student's proficiency in a foreign language is improved by studying abroad.

Students occasionally travel to pursue education abroad in countries where the majority of people speak languages other than their own. The student can improve their level of communication skills in this situation. Hunley believes that, while exposure to local speakers and the language's culture can be learned through conventional pedagogic experiences, it is very necessary to be immersed in the language for a sustained length of time (3). The most crucial communication tool is language, and learning another language improves a person's marketability. Today's globe is distinguished by a significant degree of economic and cultural convergence. As a result,



made a name for themselves as technological and academic powerhouses. When a person goes to school in these countries, they have the opportunity to take advantage of the resources available. As a result, the level of education obtained by a student is higher than that gained in local institutes. One has more options for courses and universities to attend when studying overseas. In some nations, the number of courses available for pupils in an educational institution is limited. The majority of developing countries, according to Huang, provide their students with only a small selection of course options (120). The absence of the desired course from the list of options available in their country could prohibit a

there is a lot of connection with people from other languages. When a student studies internationally, they develop language proficiency, which is advantageous when they apply for jobs. People who have better language skills are seen as having greater advantages by organizations.

According to research, students who spend time abroad graduate more quickly than those who study locally and earn overall marks that are higher. Redden reports that pupils who studied abroad had a 23% greater rate of timely graduation than those who did not (1). This correlation between studying away and graduating on time can be linked to the strong commitment to learning and drive of students who study abroad. A large number of these students desire to finish their coursework successfully and benefit from their education. The high cost of studying overseas acts as a strong motivator for students to put in the necessary effort and produce successful outcomes for themselves.

Despite a modest decline in the number of students studying abroad in recent years, campuses indicate that the number of students participating in study abroad is beginning to rebound, perhaps due to renewed student interest in global current events and the emphasis placed on gaining global and intercultural communication skills. Students may also be encouraged to study abroad because both employers and institutions increasingly expect students to possess strong global competencies (Hunter et al. 269). In response to the increasing demand for international opportunities, campuses have diversified their study abroad program models. On many campuses, students not only have opportunities to study abroad during academic year, semester, and short-term programs, they can also elect to participate in non-credit volunteer, internship, and work abroad programs. In addition to university-organized international



opportunities, students often have access to informal and recreational travel experiences through connections with student groups, religious organizations, friends, and family. Some students opt to participate in study abroad programs through their own institutions while others participate in study abroad opportunities through another institution or consortium of programs. Additionally, college students often travel abroad for recreational purposes and obtain cultural experiences that are not directly tied to an academic experience (Hunter et al. 282).

Studying abroad encourages personal development since it pushes students to handle problems independently. Traveling to study abroad locations typically includes leaving behind an established routine and moving to an unfamiliar place. The person does not have the same level of social and financial support in their new location as they did in their own country. For that reason, living in a different place can be challenging, and if someone struggles to adapt well, their experience can be negative. The substantial expense of pursuing an international degree is one of the primary drawbacks of studying abroad. Since government agencies may finance local universities and because students do not have to pay large living costs, studying locally is typically less expensive (Hunley 4). Therefore, it is expensive to pursue higher education abroad, and the student typically must pay a large sum of money to

attend a foreign university. The cost of living abroad, which usually is extremely expensive compared to one's home country, must be considered by the student in addition to the fees at the educational institution.

Furthermore, as mentioned above, a person who chooses to study abroad needs to shift from a comfortable environment to an unfamiliar one. Many individuals experience culture shock and may struggle to adjust to their new surroundings (Pyvis and Chapman 24). Some students experience social isolation and an absence of support as well. It may become very hard to study abroad without the support of friends and family. According to Hunley, lacking enough social support causes those who study abroad to face psychological issues like fear and hopelessness (14). Some people prefer to go back to their native country because they feel the foreign environment is too demanding. A student will needlessly spend time and money if they choose to return home before finishing their education.

Studying abroad has the notable consequence of causing certain nations to lose cognitive and human resources. When they complete their education, a large percentage of students who leave their own countries for higher education abroad choose not to return. Instead, they look for career opportunities in the country in which they are staying for university and make use of their expertise in their field to the host's advantage. The decrease in knowledge and human resources is a key problem in emerging nations. According to Tansel and Naomi, a great number of students from developing countries depart for higher education and do not come back, causing a loss of talent from such countries (54).

The incentive for many nations to build their own domestic educational institutions that

satisfy international standards decreases as more people choose to study abroad. As has been mentioned, the majority of students choose to study abroad to take advantage of the research and advancements in technology made through foreign universities. Since it is possible to get a comparable education overseas, there is no need for the home country to establish its own highly developed educational system. According to Olcott, most developing countries favor these short-term plans since they are the more affordable choice and make use of the expertise and skills of other nations (98). Studying abroad reduces a country's ability to establish an independently superior educational system, which results in overall subpar educational outcomes for the nation.

While everyone recognizes the importance of education, the debate over whether the local or foreign education system is superior has grown significantly. Proponents of attaining an education argue that studying abroad imposes an unnecessary burden on students, forcing them to incur large financial expenditures without a guaranteed return on investment. Although everyone recognizes the value of education, discussions on whether the educational system—local or foreign—is superior are noticeably becoming more prevalent. Local education advocates contend that sending a student overseas puts an extra burden on them because they are required to make large financial commitments with little assurance that their money will be well spent.

Opponents of studying abroad also point out that some nations are deterred from making investments in their own world-class educational facilities by this system. Although this argument is valid, studying abroad has many benefits for both the student and their native



country. Students gain expertise that they could later employ to develop their native nations. Some countries are even inspired to upgrade their educational facilities in order to draw in international pupils.

According to Harman, educational organizations must embrace internationally focused curricula and broaden their programs in order to operate successfully on a global scale (113). These innovations, which result from students wishing to study abroad, help the host country in turn. Harman acknowledges that those who study abroad face a variety of difficulties because they are cut off from the comfortable surroundings at home. However, these difficulties aid the student in maturing and in gaining an understanding of their life. In addition, the difficulties are momentary in nature. Dwyer observes that students who study abroad for a longer period of time are able to get through the first obstacles resulting from the cultural adjustment and profit from the educational resources available to them in the new setting (152). Students who persevere through these challenges grow to become emotionally more mature and are more likely to succeed in life as a result of their experiences.

After outlining the major components of studying abroad, it is feasible to draw a few inferences. This article sought to make an argument that going abroad to study is a good idea because it has many advantages. The introduction of the essay emphasized how an individual student's international education provides them with a competitive edge in the job market. Individuals who study abroad have a higher standard of knowledge and therefore various chances since they are exposed to distinct cultures and methods of living. The essay has also covered some of the main drawbacks of studying abroad. It has been highlighted that many students struggle to adapt to living in another country, along with the fact that studying outside the country is a costly process. However, the majority of students do succeed in overcoming these challenges and reap the rewards of studying abroad. The benefits of studying abroad for the person and their home nation clearly outweigh the disadvantages, according to the points made in this essay. In order to guarantee that more countries benefit from the development and growth in their economies that can be fostered by studying abroad, this activity should be supported. ❖

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VICTORIA SEGGIARO PARMA

SAME OR DIFFERENT?

FINDING THE BASIS OF DISCRIMINATION

INTRODUCTION

Have you ever felt like an outcast, cast aside by society? Being isolated from the rest of your community because you were considered "different" in some aspect? That is what people who suffer discrimination feel every day of their lives. Discrimination, as explained by the American Psychological Association, is "the unfair or prejudicial treatment of people and groups based on characteristics such as race, gender, age, or sexual orientation." Some people can even be discriminated against based on characteristics that would seem positive, such as being intelligent or showing strong academic performance. The victims of these acts are constantly being harassed, which has a profound effect on their psychological wellbeing, which, in turn, leads a considerable number of individuals to commit acts of self-harm, including suicide, because they believe that it is the only way to stop their suffering.

When compared to experiencing no discrimination, a middling level of discrimination is linked with doubled odds of reporting suicidal thoughts, while the highest level of discrimination is related with a five to six-fold increase in odds for those who face such adversity (Oh et al). Their workmates, classmates, neighbors, or even friends and family members make them feel isolated and unheard—as if they have the plague. And, in the end, some of them start believing that they are the actual problem.

Discrimination is deeply ingrained in society, and we should become conscious of this in order to eradicate it from our communities. The aim of this work is to research discrimination, define it, analyze its types, and inform readers of diverse discriminatory acts and practices. This research will be carried out by focusing mainly on the Argentinian perspective. In order to achieve this, a historical



Photo by Nothing Ahead.

analysis will be included, in which human rights and their importance will be tackled. There will also be an overview given of the different organizations that fight to promote the cessation of discrimination and for compliance to those rights, such as the United Nations and the National Institute against Discrimination, Xenophobia and Racism (INADI). Furthermore, in this work, I will present a legal framework including various laws, as well as agreements that were made over time, including an international legal section and a national Argentinian one, which are deeply related due to Argentina's adherence to international conceptions to promote the fight against discrimination, both in my home country and on the planet as a whole.

This project is of interest not only to Argentinian citizens, but the general public, as discrimination is present in every society around the world. Readers will be able to acquire a better awareness of society's conceptions regarding this social aspect, and of how our perception of this topic has been modified over the years due to the changes and the advancement of anti-discrimination ideology. I am of the opinion that it is relevant for the population to know how to recognize when a discriminatory act is taking place, regardless of whether this act is directed against them or someone else, as well as being informed about the available resources to assist victims.

WHAT IS DISCRIMINATION?

The word "discrimination" comes from the Latin *discriminatio* and, according to the Cambridge Dictionary, it implies "treating a person or particular group of people differently, especially in a worse way from the way in which you treat other people, because of their race, gender, sexuality, etc." In all its forms and expressions, discrimination is one of the most common forms of abuse and violation of Human Rights. Discriminating against a person or a community consists of actively or passively depriving them of enjoying the same rights enjoyed by others; this is why there is a close relationship between the right to equality and the right to non-discrimination ("The Right").

In Argentina, since 1988, Law No. 23,592, known as the Anti-Discrimination Law, establishes that to discriminate means to prevent, obstruct, limit, or arbitrarily impair the full exercise of the rights and guarantees of someone, using as a pretext their gender, ethnicity, religious or political beliefs, nationality, social or economic situation, sexual orientation, age, abilities or physical characteristics, among other conditions that may be variable but that arise from the same value scheme. If any right recognized by law is being damaged and its exercise is restricted, the law assumes that discrimination is taking place. There is a large number of situations of discriminatory social practices that do not imply the restriction of a right recognized by law. Therefore, although they are discriminatory in social terms, such acts



Photo by marco allasio.

do not constitute discrimination in legal terms, such as making fun of someone because of a personal trait ("Ley N° 23.592").

The majority of people being discriminated against are individuals who form part of a "minority," usually considered to be small groups inside society, but they are not always small. These minority groups are in a position of "perpetual subordination," as society does not allow them to fully integrate. This situation is reflected in the economy, as those who are in a less favored class are more likely to experience discrimination, and in politics, as minoritized groups do not have political representation, as well as in community life (INADI).

The fight against discrimination responds to an ancient humanitarian ideal and has a long history; its elimination is presented to us as a goal that, if one thinks in absolute terms, often seems unattainable. Historically, societies have made social, cultural, or physical differences an argument for hostility or exclusion, showing great difficulties in assimilating the simple fact that humanity is varied and that all people are different. Making different societies and their institutions facilitate everyone's inclusion and respect their singularities is a task that faces significant obstacles, since it means mobilizing and eradicating deeply rooted discriminatory social practices, prejudices and stereotypes that are used to support diverse forms of inequality (INADI).

TYPES OF DISCRIMINATION

To begin with, individual discrimination occurs between two individuals, that is, a person treats another in a different and negative way without there being a differentiated contextual reason. On the other hand, collective discrimination occurs when one group gives a differentiated, negative, and inferior treatment to another, for the same reasons (INADI). For example, this type of treatment threatens LGBTQ groups, and it also takes place in racial discrimination cases, as in the 1960s in the United States.

Apart from this, there is a distinction between direct and indirect discrimination. Direct discrimination occurs when an "explicit distinction is made between groups of people which results in individuals from some groups being less able than others to exercise their rights" (INADI). An example of direct discrimination according to sex would be a law that asks only women to prove a certain level of education in order to exercise their right to vote

(INADI). Indirect discrimination, on the other hand, occurs when a "law, policy, or practice is presented in neutral terms" (INADI). In other words, there is not a straightforward distinction in the law's text, but a group (or groups) would be inordinately affected. Continuing with the previous example, that law would have an indirect discriminatory effect on any groups that might have smaller chances of attaining that education level, such as disadvantaged ethnic groups (INADI).

Structural discrimination refers to patterns of human rights violations to the detriment of groups violated by their social, economic, and cultural situation and who have been historically or contextually marginalized, excluded, or discriminated against without any legal justification. These groups can include women, people with disabilities, members of the LGBTQ community, migrants, older adults, or those in a situation of poverty (INADI). Structural discrimination incorporates historical and social information that demonstrates inequalities in law (*de jure*) or in fact (*de facto*), as a consequence of social exclusion or submission of violated groups, in a systematic way ("La discriminación").

Regarding disability discrimination, a large number of people are repeatedly discriminated against for having a disabling condition, which can be physical, intellectual, sensory, or related to a chronic mental disorder. In these cases, discrimination is manifested in diverse areas like law, education, urban planning, culture, administration, economy, and employment (INADI). The barriers that individuals with any of these features have to face become clear when considering the social approach to discrimination. Across the globe, one in ten people are disabled. However, despite such large numbers, in a considerable number of communities, disabled people suffer ignominy, ostracism, and being looked at with shame or terror. Eighty percent of citizens with disabilities form part of developing countries, and most of them, 82 percent, live below the poverty line (INADI).

Considering gender discrimination, it is "a social phenomenon that is based on socially constructed roles, behaviors, activities, and attributes that a society considers appropriate and inappropriate for men and women" (INADI). It includes any distinction, exclusion, or restriction in sex whose aim is to impair or annul the concession or exercise of a right by gender (INADI). This includes harassment based on sex, gender identity, or gender expression. Gender

discrimination is often rooted in preconceived false societal and personal notions about what gender is, how gender "should" look, or how gender is performed. It is really harmful because it limits the ways in which individuals express and identify themselves, and isolates members of the community who do not conform to historical, limited, and traditional views of gender.

Regarding women, jobs they have historically performed are those related to satisfying family and daily life needs. In this sense, it is one of the few areas in which women have achieved job growth, compared to men (although I recognize that there are not just two genders but a spectrum of them). Around the world, women are not only paid less on average than men, but are more likely to do unpaid work and work in informal, insecure, and unskilled jobs. Much of these conditions are due to social norms that consider women to be of inferior status, even though they are fifty-one percent of humanity (INADI).

In addition to this, some countries' laws prohibit women from dressing as they like (Saudi Arabia and Iran), working at night (Madagascar), or applying for a loan without their husband's signature (Equatorial Guinea). In many countries, discriminatory laws limit women's rights to divorce, to own property, to exercise control over their own bodies, and to enjoy protection from harassment. Furthermore, their opinion is not taken into consideration, girls are forced to marry strangers who are twice their age, and rape or beatings within marriage are not even explicitly punished by their laws (INADI). In the ongoing fight for justice, hundreds of thousands of women and girls have taken the streets to demand the state's enforcement of their human rights and ask for gender equality. However, despite the stratospheric rise in women's activism, the stark reality is that many governments around the world publicly support policies, laws, and customs that subjugate and repress women. Worldwide, forty percent of women of childbearing age live in countries where abortion remains restricted or inaccessible, even if permitted by law, and around two hundred and twenty-five million women do not have access to modern contraceptive methods (INADI).

Regarding sexual orientation discrimination, the term "homophobia" refers to the obsessive aversion (phobia, from the ancient Greek *phobos*, "panic") against homosexual men or women, although it generally also includes

other people who make up sexually diverse groups, as is the case with bisexual or transgender people, and those who maintain attitudes or habits commonly associated with the other sex, such as metrosexuals and men with gestures considered feminine or women with gestures considered masculine (INADI).

Around the world, people experience discrimination for loving who they love, for being attracted to certain people, and for who they feel themselves to be. LGBTQ people may be treated unfairly in all spheres of their lives, be it education, employment, housing or access to health services, and may experience harassment and violence. Some countries punish individuals for their sexual orientation or gender identity with prison terms or even death. For example, in October 2019, Uganda's Minister of Ethics and Integrity announced that his government planned to introduce the death penalty for consensual same-sex sexual acts (INADI).

Religious discrimination can be manifested in the limitation of access to education, health services or public office, and even members of religious communities can be imprisoned or killed due to their affiliation or their beliefs. Likewise, this form of discrimination can affect those who publicly state that they do not believe in any religion, known as discrimination against atheists (INADI). Throughout its history, the United Nations have fought to defend freedom of belief as a human right, including the prohibition of discrimination for religious reasons in all its basic international instruments.

HUMAN RIGHTS AND INTERNATIONAL ANTI-DISCRIMINATION REGULATIONS

The concept of human rights has its origin in the mandate that the group of countries granted to the League of Nations (1920) and later to the United Nations (1945) had to establish rights that states should respect and guarantee beyond any prevailing regime. After the world had gone through the two World Wars, the awareness of the necessity to create international institutions to preserve peace and respect for the rights of all people led to the implementation of a new paradigm of equality in dignity and rights against all types of discrimination ("The Right").

In this context, in 1948 the Universal Declaration of Human Rights was proclaimed by the General Assembly of the United Nations, and it marked a milestone in terms of human rights by stating that "all human beings are born free

and equal in dignity and rights and, endowed as they are with reason and conscience, they must behave towards each other in a brotherly manner" (UN). This affirmation was opposed to arguments for the alleged superiority of some races over others. Due to the lack of international consensus that existed at that time on the obligation to protect and respect human rights, the document failed to be formalized as an international treaty that was binding for the signatory states, and was instead limited to a declaration, which was taken as a guiding ideal for humanity (UN).

It is important to point out that human rights are those related to the dignity of all people for the mere fact of being human and that they are based on the principle of equality and non-discrimination. The states committed through the signing of various international treaties must comply with their obligation to respect, protect, guarantee, and promote the right of people not to be discriminated against, seeking in the long term "the elimination of discriminatory situations in their population, through changes in legislation, education, accessibility of public institutions, among many other measures" (UN). They have both the obligation to combat discriminatory practices and to exclude all discriminatory regulations from their legal system.

Apart from this document, the French Revolution of 1789 is considered by many historians as the first great milestone in the history of human rights. This is because it expanded the already existing rights and emphasized that they were natural. These ideals extended through Europe, especially in historically occupied territories that saw their basic rights endangered (INADI).



ARGENTINIAN ANTI-DISCRIMINATION REGULATIONS

The history of anti-discrimination regulations in Argentina has two main antecedents: the year 1813, when the "freedom of wombs" was established, i.e. the legal principle that consisted of granting freedom to children born to slave women of Black ethnicity, and the year 1853, when the slavery of women was abolished for good. In Argentina, since the return of democracy in 1983, significant progress has been made to combat discrimination (INADI).

In 1988, Law No. 23.592, the Anti-Discrimination Law, was passed, and it establishes that to discriminate is to

"prevent, obstruct, limit or arbitrarily impair the full exercise of the rights and guarantees of someone, using as a pretext their gender, ethnicity, religious or political beliefs, nationality, social or economic situation, sexual orientation, age, abilities or physical characteristics," among other conditions that may be variable, but that arise from the same value scheme ("Ley N° 23.592").

Apart from this relevant law, in 2005, the Decree 1086 approved the document "Towards a National Plan against Discrimination: Discrimination in Argentina; Diagnosis and Proposals," and the INADI was entrusted with coordinating the execution of the proposals contained therein. This document proposes specific and efficient measures to combat discrimination, xenophobia, and other forms of intolerance to be applied in the Argentine Republic and which, in turn, make it possible to effectively protect the victimized sectors by promoting the principles of equality and equity within Argentine society (INADI).



Photo by Ceci Figueroa

Argentina is currently a world benchmark in terms of anti-discrimination regulations. In recent years, legislative progress has been made aimed at establishing a broader framework of inclusion, necessary to structurally combat discriminatory acts and stereotypes present in society, and build a community with greater spaces for representation, recognition, and citizen participation (INADI).

INADI

In July of 1995, INADI was created through Law No. 24,515, and it was placed under the orbit of the National Ministry of Justice and Human Rights in Argentina. It develops initiatives to stimulate, from an intercultural perspective, the appreciation of diversity as a social wealth; dismantle prejudices and stereotypes that divide society; and promote and help guarantee respect for the rights inherent to human dignity. In other words, it has the main aim, along with other state and societal organizations, of building an anti-discriminatory culture based on the importance of diversity and the respect for human rights. This must be accompanied by society as a whole in order to build a more fair, humanitarian, and nonviolent society (INADI).

INADI is a recognized body both nationally and internationally. It was in charge for two consecutive periods, from 2014 to 2016 and from 2016 to 2018, of the presidency of the Ibero-

American Network of Agencies and Organizations against Discrimination (RIOOD), which validated its status as a benchmark in the matter. It receives and centralizes complaints about discriminatory, xenophobic, or racist conduct and keeps a record of them at a national level. In addition, it provides a comprehensive and free advice service for people or groups discriminated against or victims of xenophobia or racism, while designing and promoting awareness campaigns on this subject (INADI).

Regarding the complaints it receives, INADI's number has grown every year as a result of a greater social recognition of the discriminatory situations present in Argentina, as well as an acknowledgment of the INADI's existence as a state apparatus to manage complaints. However, there is still a great disparity between Argentina's large urban centers and the peripheral areas regarding the population's access to the Institute, either due to naturalization of problems, the greater distance from urban centers, or lack of knowledge of the institutional tools available (INADI).

According to the complaints the INADI received in the 2014-2020 period, of every one hundred complaints filed with the Institute, twenty-eight of them pertained to discriminatory situations that took place in the workplace, and twelve in the educational field and in other

public institutions. Regarding the main types of discrimination that were denounced by INADI, disability discrimination is the main reason for filing complaints, adding up to more than twenty percent. In second place we can find discriminatory acts against people from the LGBTQ community, representing twelve percent of the total. Discrimination cases based on ethnicity/nationality and health status make up nine percent of the total complaints made at the Institute in that period of time (INADI).

Between 2007 and 2009, the National Map of Discrimination was designed by the INADI. The project included the collection and analysis of statistical data on discrimination in the country in order to provide indicators on discrimination, xenophobia, and racism that would serve as tools for the development of public anti-discriminatory policies. The map made it possible to detect a significant level of awareness across Argentine society regarding discrimination, as sixty-seven percent of individuals consider it as a topic of high importance, and twenty-eight of medium importance. Regarding the most discriminated groups in this country, the majority of those surveyed in this research, eighty-five percent, perceive there is a lot of discrimination against people living in poverty; against overweight or obese people for seventy-eight percent; and against migrants from bordering countries seventy-one percent, followed by people with HIV-AIDS and members of the LGTBI collective. Sixty-five percent of the population surveyed actually experienced a situation that they identified as discriminatory, of which forty-five percent suffered it in the first person and fifty-

five percent witnessed a discriminatory act towards a third person. Regarding the areas in which discriminatory practices occur to a greater extent, the map indicates that those which concentrate the greatest number of experiences mentioned in the surveys are the educational field, the labor field, and transportation and public roads.

CONCLUSION

Discrimination is a topic which is profoundly ingrained in society, and a large majority of individuals have been victims or witnesses of this horrendous and vile practice. Whether we realize it or not, discriminatory situations surround us every day of our lives, so it is of great importance to raise awareness of this topic in order to improve as a community. If more people have the tools to detect and analyze acts of discrimination, there will be greater chances of stopping the aggressor and aiding the sufferer. The Argentinian government as well as most governments around the globe provide their citizens with multiple tools to report and denounce discriminatory acts and offer psychological support to recover from the possible damage that the attackers might have caused. Moreover, it is relevant for everyone to understand that there is nothing in the person or group being discriminated against that can justify this hostility; and that we should collaborate to eliminate all the prejudices and stereotypes associated with social conduct patterns that promote discrimination.

I believe that, although we are improving as a society in recognizing the importance of not discriminating against individuals because they



Photo by Tope A. Asokere.

seem "different" from us in any aspect, there is still more we could do. Citizens should raise their voices and ask for discriminatory acts to be punished judicially as we encounter these situations every day but no one does anything about them. Moreover, people who have power should listen to those claims and take action to promote more anti-discriminatory policies that would help building a more empathic, understanding, and compassionate society. ❖

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FRANÇOIS-XAVIER BOUIN

A WHOLE NEW BALLGAME: THE EVOLUTION OF BUSINESS IN SOCCER

Soccer, also known as football, is the most popular sport in the world, with about 4 billion people interested in it. This popularity can be attributed to a number of factors, including its simplicity—it is relatively easy to understand and follow—and its global appeal. Additionally, soccer has a long and rich history, with many famous players, teams, and moments that have helped to create a passionate fan base around the world. However, the sport has undergone significant changes in recent years, particularly in terms of its business aspect losing its true essence and what made "The Beautiful Game" beautiful in the first place. The evolution of business in soccer has transformed the sport into a multi-billion dollar industry, significantly impacting player salaries, club finances, and global marketing. This essay will examine the evolution of business in soccer, its impact on the sport and its stakeholders, and the ways in which some are combatting its negative effects. Soccer has traditionally been viewed as a sport played for the love of the game, but in recent years, it has become a lucrative business. With the influx of big money from sponsors, investors, and media companies, the sport has transformed. While some view this evolution as positive, others argue that it has negatively impacted the sport's integrity and its grassroots community. The paper will begin by examining the problem of the evolution of business in soccer and its impact on the sport's stakeholders. It will then delve into the positive and negative aspects of this evolution, including increased revenue and global reach of the sport, as well as these developments' negative impact on player salaries, the clubs' finances, and the sport's grassroots community. Finally, the paper will explore how some stakeholders are combatting the negative effects of the business evolution, including the implementation of financial fair play regulations, fan ownership models, and the push for greater transparency in club finances.

The evolution of business in soccer is a topic of great interest to sports enthusiasts, business professionals, and policymakers alike. The transformation of soccer from a sport played for the love of the game to a multi-billion dollar industry has significant implications in the world. This essay will provide a comprehensive analysis of the evolution of business in soccer, its impact on the sport, and the ways in which some are combatting its negative effects.

Money has played a significant role in shaping the landscape of modern soccer. Throughout the years, the sport has evolved from being a mere pastime to becoming a highly lucrative business. While money has brought several positive changes to the sport,

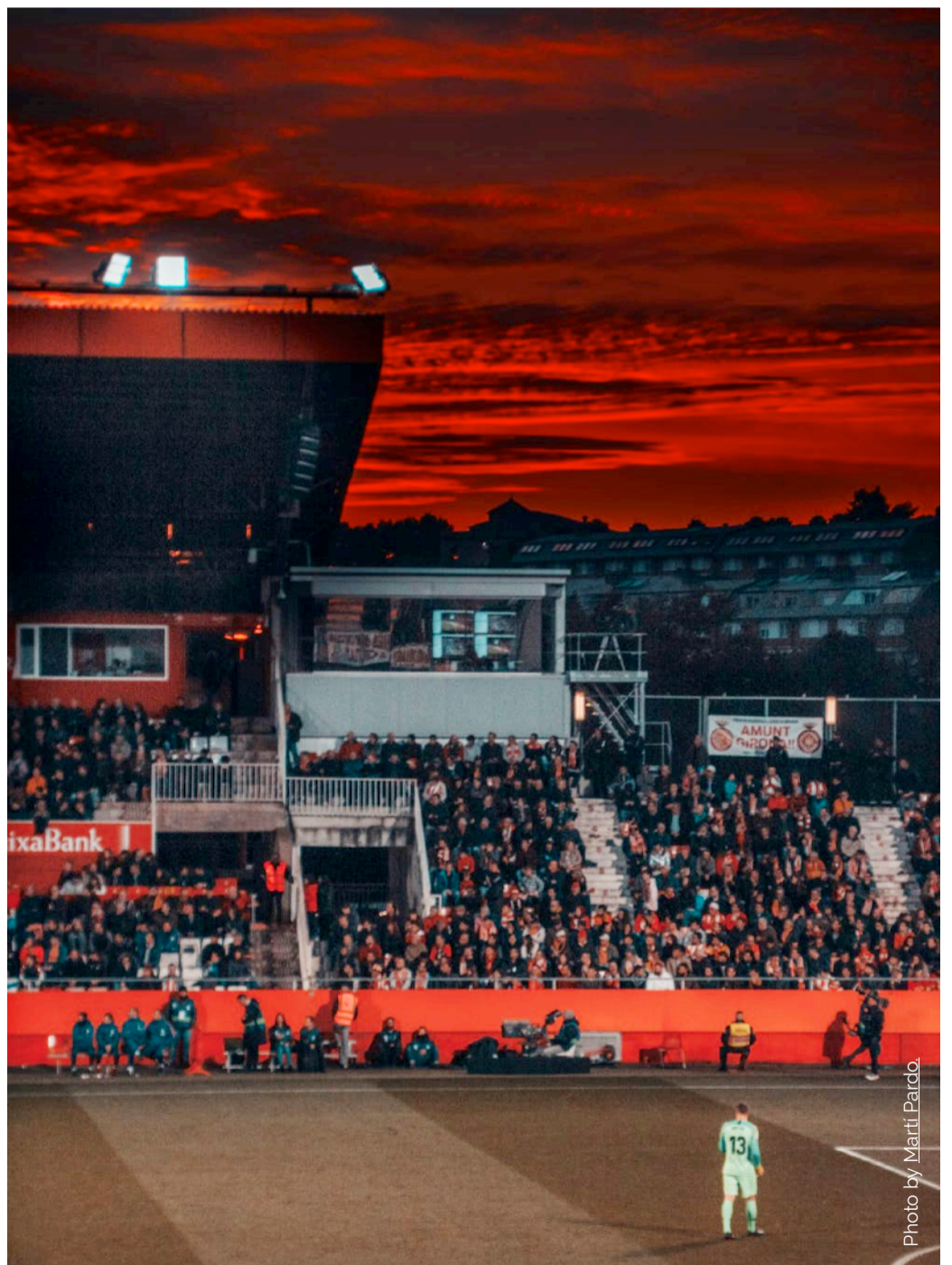


Photo by Marti Pardo.

such as improved facilities, better training programs, and increased fan engagement, it has also had some negative impacts. Nowadays, players are viewed more as assets than as people, and the transfer market has become a race between rich clubs and less fortunate ones. For instance, according to data provided by Transfermarkt, Paris Saint-Germain spent over \$650 million in the transfer market from 2017-2019, while the entire French Ligue 1 spent less than half of that in the same period (Transfermarkt). It's clear that the sport's financial inequality is growing, meaning that we see a marked divide between extremely wealthy and relatively poor clubs. Moreover, the higher-ups and rich club owners are trying to change the fundamentals of the game by pushing for a European Super League or altering the World Cup's format. Consequently, the most accessible sport on the planet is becoming less and less accessible to fans and players alike. TV rights have made it harder to watch football because of steep paywalls, and there have been increases in the price of jerseys, balls, and other merchandise. Ultimately, the focus on money is hurting soccer, and it's essential to find a balance between profitability and maintaining the sport's integrity.

According to a journal article written by Richard C. K. Burdekin and Michael Franklin, the rise of billionaire owners and investors has revolutionized soccer clubs' finances. The effect of sponsorship deals on club revenues has become significant, with many clubs securing lucrative deals with various companies. This increase and focus on money in the sport has led administrative powers to implement some rules to try and level the playing field with the rules of Financial Fair Play (FFP), a set of regulations that have been introduced by the Union of European Football Associations (UEFA) to ensure that clubs participating in their competitions do not spend more than they earn. The aim of FFP is to promote financial stability and sustainability within soccer, and to prevent clubs from going into debt in order to fund their activities. Under FFP, clubs are required to balance their books and limit the amount of money they can lose each season. This is done by monitoring a club's finances over a three-year period and ensuring that they do not exceed certain thresholds for losses and debt. Clubs that breach the regulations can face a range of sanctions, including fines, points deductions, and even exclusion from UEFA competitions. The implementation of FFP has been



controversial, with some critics arguing that it unfairly favors wealthy clubs that are already established at the top of the game. However, supporters of the regulations argue that they are necessary in order to promote financial responsibility and to prevent clubs from engaging in reckless spending that could lead to their financial ruin (Cofrini). The FFP regulations have had mixed results, with some clubs still operating at a loss. Additionally, some clubs have found loopholes in the regulations, such as Manchester City, who were banned from European competitions for two seasons for breaches of the rules.

While the impact of money on soccer has caused some negative effects, there is still hope of reinvigorating the sport. New business models developed by individual clubs have started to revolutionize soccer. Brentford FC, for example, has implemented a "Moneyball" strategy that leverages data analytics and scouting to find undervalued players who can outperform their market value. Their motto is stated by their co-director of football, Rasmus Ankersen: "If David wants to beat Goliath, you can't do that by using the same weapons," and it demonstrates perfectly the ideology of the club. Here we see how Brentford does so well even if they don't follow the common practices of the majority of their opponents. What they do is that they implement statistics in every domain and always keep in mind that soccer is not a completely predictable sport, though they always trust the process. The owner and mastermind behind the project is Matthew Benham, who comes from developing a company, "Smartodds," a team of "genius" statisticians who calculate the outcome of football matches to gain an edge over bookmakers. This illustrates the fact that the club has had great success in the transfer window thanks to their special insights which gives them an edge and enables them to generate more than £120 million on transfers over five years. Similarly, Hashtag United has emerged as the world's first social media-made club. The club was founded in 2016 by YouTube personality Spencer Owen and started as a team of friends playing five-a-side football. However, the club quickly gained a following online through Owen's YouTube channel which documented the team's matches and behind-the-scenes footage (O'Brien). As the club's popularity grew, so did their ambition, and they began to enter amateur leagues and play against other teams. In 2018, they gained

promotion to the ninth tier of English football, and they now compete in the Essex Senior League, which is the eighth tier of the English football league system, capitalizing on its online following to drive success both on and off the pitch (Cole).

Additionally, technology has brought fresh ideas and advancements into the sport. The implementation of goal-line technology and VAR has reduced the risk of incorrect refereeing decisions. Moreover, semi-offside video technology has brought clarity and consistency to an often contentious set of rules. New data and analytics have also been introduced to improve insight into player performance, with metrics like expected goals and expected assists providing a more nuanced understanding of player contributions (Cotton and Miller). According to *The Analyst*, this data has come from betting sites and has now made its way into mainstream media with Sky Sports and BBC (Whitmore). This tool measures the quality of a chance by calculating the likelihood that it will be scored from a particular position on the pitch during a particular phase of play. This value is based on several factors from before the shot was taken. This chance, called "xG," is measured on a scale between zero and one, where zero represents a chance that is impossible to score, and one represents a chance that a player would be expected to score every single time. Essentially, xG is a way of quantifying the quality of a scoring opportunity, taking into account factors such as the distance from the goal, the angle of the shot, the type of shot (e.g., header, volley, or strike), and the number of defenders in the way. This can determine if a player takes smart shots and if he underperforms relative to his expected goals, maybe proving to be a bargain in the transfer market. *The Analyst* goes on to warn us about the common misconceptions regarding the tool sometimes being used incorrectly and how exactly it is calculated. There are many factors considered, but it is still and may never be perfect (Whitmore). This data has pushed soccer into a new field of development, making goal-scoring ability in players more quantifiable and so more precise and, above all, profitable.

Finally, the fans have always been a driving force in soccer, and their passion and support continue to inspire the sport's growth and evolution. Therefore, there is still hope of reinvigorating the sport, and it is vital to leverage new ideas and advancements to find a balance

between profitability and maintaining the sport's integrity.

Global marketing in soccer has become increasingly important in recent years as the sport has continued to grow in popularity around the world. There are a number of ways in which businesses can capitalize on the global appeal of soccer, including through the use of social media and digital marketing, the growth of soccer-related merchandise and tourism, and the globalization of the sport itself. Social media and digital marketing have become an increasingly important part of soccer marketing, with businesses using platforms such as Twitter, Facebook, Instagram, and TikTok to engage with fans and promote their brands. This includes creating content such as videos, images, and live streams that are tailored to specific audiences, as well as using targeted advertising to reach fans in different countries and regions. The growth of soccer-related merchandise and tourism has also created significant opportunities for businesses, with fans around the world eager to show their support for their favorite teams and players. This has led to the creation of a wide range of soccer-related products, from jerseys and hats to scarves and souvenirs. In addition, the growth of soccer-related tourism has led to an increase in demand for travel packages and tours that allow fans to attend matches and visit iconic soccer stadiums around the world. Finally, the globalization of soccer itself has created new

opportunities for businesses looking to reach a global audience. The sport is now played and watched in countries around the world, providing businesses with a platform to promote their products and services to a diverse and engaged audience. Overall, global marketing in soccer presents a significant opportunity for businesses to connect with fans around the world and build their brand on a global stage (Rodriguez-Pomeda et al.).

Soccer, like any other business, faces its

fair share of criticisms and challenges. Some of the most pressing issues facing the sport today include the widening gap between top-tier and lower-tier clubs, criticisms of soccer as a "business" rather than a sport, and the impact of the COVID-19 pandemic on the soccer business. One of the major criticisms of soccer is the widening gap between the top-tier and lower-tier clubs. The most successful clubs are often backed by wealthy owners who can afford to invest heavily in their teams, while smaller clubs struggle to compete and are at



risk of financial ruin. This has led to concerns about the fairness and competitiveness of the sport, as well as the sustainability of smaller clubs. Another criticism of soccer is the perception of the sport as a "business" rather than a sport. This is particularly evident in the way that soccer is marketed and broadcast around the world, with many fans feeling that the sport has become overly commercialized and focused on profit rather than the game

itself. This has led to a growing sense of disillusionment among fans, who feel that the sport has lost its soul and become too focused on financial gain. Finally, the COVID-19 pandemic has had a significant impact on the soccer business, with many clubs struggling financially as a result of the disruption to the season and the loss of revenue from ticket sales and broadcasting rights. This has resulted in calls for greater financial support for smaller clubs as well as increased regulation and oversight to ensure that the sport remains sustainable and competitive in the long term. Overall, these criticisms and challenges highlight the need for greater transparency, fairness, and sustainability in soccer, as well as a renewed focus on the sport itself rather than just its financial potential. While there are certainly challenges ahead, there is also hope that the sport can continue to thrive and evolve in the years to come (Zhu).

In conclusion, the evolution of business in soccer has indeed transformed the sport into a massive global industry, but it has not been without challenges. The increasing focus on profit and commercialization has had significant impacts on player salaries, club finances, and the sport's grassroots community. The widening gap between top-tier and lower-tier clubs has also created an unequal playing field, leading to concerns about the sport's integrity. However, despite these challenges, there are also positive aspects to the business evolution of soccer, including increased revenue and global reach. It is essential to find a balance between profitability and maintaining the sport's integrity to ensure the continued success and sustainability of soccer. Stakeholders are taking steps to combat the negative effects of the business evolution, including implementing financial fair play regulations, and fan ownership models, and pushing for greater transparency in club finances. Furthermore, technological advancements and data analytics offer new business models and opportunities for growth and innovation in the soccer industry. In response to the thesis statement, it is clear that the evolution of business in soccer has had a profound impact on the sport and its stakeholders. Addressing these challenges will be crucial for the continued success of soccer as a global industry and a beloved sport. All in all, it is essential to maintain a balance between profitability and the love of the game to ensure that the sport remains a source of enjoyment and passion for fans around the world. ❖

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HUMANITIES

THE PARADOXICAL NATURE OF HEROISM

John Gardner's *Grendel* and Susan Morrison's *Grendel's Mother*, though retellings of the original poem, offer different perspectives on many of the ideas presented in *Beowulf*, namely the shining ideal of heroism. In *Beowulf*, heroism is celebrated as the epitome of what a warrior should be: honorable, generous, and loyal. In *Grendel* and *Grendel's Mother*, these idealistic and magnanimous celebrations of heroism are questioned and reassessed from the perspectives of Grendel and Grendel's mother, respectively. Rather than embellishing the image of heroism, *Grendel* and *Grendel's Mother* seek to redefine it by removing the idealism surrounding the heroic actions of a warrior or king and presenting their actions as they are perceived by outsiders such as Grendel and his mother. Specifically, the hypocrisy demonstrated in Hrothgar's reaction to the revelation of Brimhild's ancestry and its disastrous implications, the blatant dishonesty exhibited by the Shaper's stories, but also the triumph of Beowulf's heroism over Grendel's nihilistic tendencies all serve to bring nuance to the idea of heroism by presenting it as paradoxical in nature: inspiring honor, but upheld through dishonor.

From the very beginning of *Grendel's Mother*, the idea of heroism, portrayed as honorable and righteous in *Beowulf*, is called into question by revealing the tainted honor of the noble Hrothgar and foreshadowing the dishonor he shall commit. Aelfsciene, a healer in Hrothgar's kingdom, recalls a familiar story about Scyld Scefing, characterizing him as "a great killer. . . the son of a drab and drunken lay-out . . . he slaughtered and raped his way across

the sea" (Morrison 31). This directly parallels the beginning of *Beowulf* in which the story of Shield Sheafson is narrated in the following verses:

There was Shield Sheafson, scourge of many tribes,
A wrecker of mead-benches, rampaging among foes.
This terror of the hall-troops had come far. (lines 4-6)

And yet, in the original poem, Sheafson is still described as "one good king," beloved to his people and powerful in his reach. His actions are presented as noble, because, to his people, they are. However, as Oxford University professor David Clark points out, "The portrait of Scyld with which *Beowulf* begins sets up a paradigm of heroic society which the rest of the poem gradually shows to be unworkable" (621). A society built on greed and violence is doomed to decline because it cannot exist without perpetrating dishonor, and yet, outlaws it within its own setting. Clark's interpretation is exactly what is shown in Morrison's retelling, as the nobility surrounding Scefing's actions is stripped away when Aelfsciene, an outsider, recounts Hrothgar's dishonor through the eyes of one not

bewitched by the safety and security that such heinous actions ensure. In revealing this unfiltered narrative of Scefing's story, Morrison forces the reader to reevaluate the notion of heroism by revealing the barbarity that it sanctions. Morrison does this in order to lay the groundwork for the revelation of the results of Hrothgar's 'heroic' actions: his marrying of his own daughter, birthed due to his dishonor upon another woman, which eventually leads to the ruin of the entire society. This revelation masterfully shifts the narrative of heroism from one of admiration to one of shock and disgust, especially in the hypocrisy demonstrated in Hrothgar's reaction to the results of his dishonor.



Photo by shahin_khalaji.

The revelation of Brimhild's ancestry very cleverly distorts the idea of heroism, but it's Hrothgar's reaction, his reluctance to accept that his so-called "honor" has bred such dishonor, that really demonstrates the paradoxical nature of heroism in *Grendel's Mother*. After learning that he is the father of Brimhild, Hrothgar almost kills her immediately, but ultimately decides to exile his wife-daughter and son-grandson, Grendel (Morrison 117-8). Hrothgar's refusal to take responsibility for his fault in dishonoring another woman, Brimhild's mother, stems from his desire to remain loyal to his heroic ideals. He cannot accept that in following in the footsteps of his great-grandfather, Scefing, and epitomizing the honor of heroism, he has instead been dishonorable. This is because the heroism expected from the Danes is itself dishonorable in nature, and therefore can only breed dishonor, both figuratively and literally in the case of Brimhild's conception. Daniel Anlezark describes this paradox in *Beowulf* as "The desire to reconcile this aspiration [heroism] with the perennial attraction of violence to those uninterested in social cohesion presents a tension between ideal and reality" (2). The ideal reality that the warriors believe their actions have created in *Beowulf* is exposed as a cruel and destructive reality in *Grendel's Mother*. Years after Hrothgar's exile of Brimhild, the paradox of maintaining such "heroic" ideals finally comes full circle to illustrate the inevitable doom facing the Danes as a result of their dishonorable actions. Hrothmund, the second son of Hrothgar, confides in Brimhild, "My mother told me your secret, lady, who your father was. It means our hall here is doomed. Wrongs don't go unavenged. Time makes sure of that" (Morrison 183). In Hrothmund's confession comes the very explicit message from Morrison about heroism: it's a paradox, one that justifies its destruction of others by ensuring the eventual destruction of itself and vice versa. And yet, she never explicitly condones it. Heroism is a system of life, imperfect, but also convenient in a society whose foundations are built upon dishonor and doomed to it. Interestingly, the ending of *Grendel's Mother*, with the foretold obliteration of both Hrothgar's kingdom and Beowulf's, coincides with the ending of the original *Beowulf*, further questioning the role of heroism in Germanic societies.

The ending of the original *Beowulf* is often seen as abrupt and unsatisfying by many readers because it seems to contradict the embellishment of heroism throughout the poem

in its final pages as Beowulf dies and dooms his kingdom to be slaughtered (3150-3155). However, when analyzing the deeper nature of heroism in both the poem and later retellings, the original ending perfectly captures the contradictory and conflicting nature of heroism. As Clark explains, "The hero may be launched at the start of the poem, but by its end he serves only as a beacon for ships and his own society has run aground (639). Beowulf is undoubtedly a hero, but ultimately he achieves nothing for his people, who are killed shortly after his death. In wholeheartedly dedicating himself to the role of a hero as the heroic code dictates, he dooms his society to dishonor after ruling "dishonorably" for decades, just as Hrothgar and eventually Beowulf do in *Grendel's Mother*. This is significant because it directly links the interpretation of heroism in Morrison's retelling to the original poem which itself hints at the inconsistencies of heroism as it is presented in the poem.

However, there is an alternative view on Beowulf's death by Judy King, in her *Launching the Hero*, where she points out that Beowulf did not embody the "dishonor" that is depicted in *Grendel's Mother*, because he did not go beyond his borders and seek to dishonor other nations (7). In this interpretation, heroism remains illogical, and Beowulf, in failing to live up to these "heroic" ideals, is not the hero of the poem, but a real hero in the sense that he does not conform to the terrible conventions of his society. This is intriguing because it contradicts the notion of heroism that is portrayed in the poem, but aligns with it in the sense that Beowulf is still a hero. Ultimately, regardless of their individual interpretation of the poem, most scholars agree that even in the original *Beowulf* heroism seems illogical, a sentiment that is shared by John Gardner's portrayal of the monstrous Grendel.

The stories of grand kings and noble warriors presented in *Beowulf* in order to idealize heroism are regarded as blatant lies in Gardner's *Grendel*. The introduction of the Shaper, a harp-playing old man who narrates the heroic history of the Danes, is used by Gardner to reveal how heroism, historically, is a multitude of lies used to motivate men to fight for glory and kingdom. When Grendel observes the people's reaction to the Shaper's songs, he describes it as "a great roar . . . an exhalation of breath that swelled to a rumble of voices and then to the howling and clapping and stomping of men . . . they would seize the oceans, the farthest stars, the deepest secret rivers in Hrothgar's name" (Gardner 43). In

Gardner's retelling, heroism is presented as merely another aspect of this society, meant to inspire men to become warriors and kings, and, although steeped in lies, intending good for one's kingdom. Because this retelling follows the unreliable narrative of Grendel, the reader can understand Grendel's rage at the people for believing in such obvious deception, as only he seems to remember the true barbaric history of the Danes. Authors Barry Fawcett and Elizabeth Jones summarize it best as "To believe in heroic ideals is to be dishonest, to foster illusion" (14). Heroism, from Grendel's perspective, is a lie that warriors buy into in order to avoid facing the consequences of their actions. Because he is very clearly marked as an outsider who does not understand the customs of humans, Grendel's final belief surrounding heroism is that it is a meaningless construct of society. Therefore, for much of the novel, this seems to be Gardner's definitive belief surrounding heroism and

surrounding heroes. As Fawcett and Jones point out, Gardner's portrayal of the warriors is akin to that of "pattern-making creatures, who hypocritically proclaim allegiance to something larger than themselves when they are actually driven by instinct or greed" (14). Heroism as presented in *Grendel* seems to be nothing more than a hypocritical lie that the warriors use to justify their desires for violence and mayhem. However, in the final pages of the novel, with the introduction of Beowulf, the epitome of heroic ideals, this understanding of heroism is completely flipped, and the necessity of its ideals becomes clear.

In the climax of Gardner's *Grendel*, the reader is not only presented with the victory of Beowulf over Grendel, but also the metaphorical victory of heroism over nihilism. As Beowulf subdues Grendel, Grendel imagines Beowulf speaking, saying "A meaningless swirl in the stream of time, a temporary gathering of bits . . .

Though you murder the world, turn plains to stone, transmogrify life into I and it, strong searching roots will crack your cave and rain will cleanse it: The world will burn green, sperm build again. My promise" (Gardner 170). This monologue by Beowulf singlehandedly defeats Grendel's nihilistic ideology by instead labeling the world as meaningless without ideology. Beowulf rebukes Grendel's belief that heroism is meaningless because he insists that it will bring about rebirth, cleansing away Grendel's evil and paving the path for goodness to rise again. While others, such as Fawcett and Jones, may interpret Gardner's idea of heroism as "arguably all vainglorious strut and posture, concerned with itself rather than the people it purports to serve," Gardner seems to speak through Beowulf and reveal otherwise (Fawcett and Jones 13). Beowulf's final speech is an acknowledgment of the understanding that heroism is paradoxical, but he maintains that heroism is necessary in society; that even with all of its dishonor and dishonesty, it is crucial for rebirth and inspires goodness. There is a hint of the Shaper's words in Beowulf's, inspiring men to maintain their heroism, no matter how flawed



Photo by Andrii Chepelovskiy

it may be, for the sake of honor and glory. When Beowulf quite literally forces Grendel to sing his tune, it is a callback to Grendel wanting to believe in the Shaper's stories, but ultimately rejecting them as meaningless. This time, however, he is forced to sing the tune of heroism, succumbing to its whims, although he continues to reject it as "blind, mindless, mechanical" (Gardner 173). This communicates to the audience the inevitable and inescapable nature of heroism in this society, just as it is in the society of *Grendel's Mother*. Even those like Grendel and Brimhild, rebels against the idea of heroism, are eventually forced to submit to it. In his 1983 *The Art of Fiction*, Gardner describes Grendel as a "symbol of unreason" in the original poem, who is eventually defeated by Beowulf's heroism (101). Symbolically, it's almost as though Gardner demonstrates that, despite its inexplicable nature, heroism will always defeat unreason because it provides some type of meaning to its followers, namely the warriors that use it to rationalize their actions, as opposed to Grendel's meaningless outlook on life. And yet, Gardner purposefully leaves it to his

audience to decide whether Beowulf's victory, his character, is merely another mechanical cog in the machine of heroism, or if he is the epitome of what a hero should be within the context of the novel: one whose noble ideals trump his dishonorable actions.

The idealistic and unwavering notion of heroism as a symbol of good, as presented in *Beowulf*, is instead much more nuanced and contradictory in Gardner and Morrison's retellings. In both novels, the notion of heroism is explored not from the perspective of the heroes that it favors, such as Hrothgar and Beowulf, but from the outsiders' perspectives; those who view heroism as flawed, barbaric, and yet strangely necessary. In the hypocrisy exhibited by Hrothgar in his reaction to Brimhild's ancestry, the blatant lies surrounding heroism spread by the Shaper, and Beowulf's monologue to Grendel about the meaningful nature of heroism, the shining idealism of heroism is distorted into something paradoxical in nature, but purposeful in its execution. For many experts of the original poem and *Grendel*, the paradox lies in the fact that, in the upholding of honor, heroism dictates dishonor, and therefore ensures that such dishonor will breed further dishonor in a cycle of violence that becomes the foundation of Germanic societies. While Gardner and Morrison unravel some of the mysteries of heroism, they ultimately leave the audience with the paradox as to whether heroism was the birth of sanctioned dishonor or the result of its enactment. ❖



Photo by shahin khataji

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CRITICAL MASCULINITY IN PREDATOR (1987)

Gender studies and film go hand in hand. Analyzing gender in film gives the viewer a better understanding of how gender is constructed within a film's storyline and universe. For the most part, feminism is the most popular topic to study in film, especially when looking at horror films and the idea of the "final girl" in films such as *Halloween* and *Aliens*. However, masculinity is also essential when looking at dynamics of a film, for it helps the larger picture of the feminist project. Movies that revolve around masculinity typically depict muscular men fighting against evil and, of course, winning against said evil. Yet behind the violence and muscular men lie homoerotic undertones through character interaction. This is particularly the case in the 1987 sci-fi horror film, *Predator*. Therefore, *Predator* contains perfect examples of the theory of critical masculinity, for it depicts the ideas of the male body, violence, and homoeroticism through the film's *mise-en-scene*.

WHAT IS CRITICAL MASCULINITY THEORY?

Before diving into the universe of *Predator*, it is important to peel back the layers of critical masculinity as part of a setting of a film. Ruth Doughty and Christine Etherington-Wright, in their textbook *Understanding Film Theory*, define masculinity as "the state or fact of being masculine; an assemblage of qualities regarded as characteristics of men; maleness, manliness" (2018).

Instances that people would generally label as masculine would be the straight macho man with big muscles or commando men who save the day without any flaw.

In film, this type of masculinity is typically seen in action movies such as *Terminator* which shares a leading role with the *Predator*: Arnold Schwarzenegger, who is the perfect example of a muscular "macho man." Not only that, these types

of movies depict men as violent, with guns blazing and fists fighting. Furthermore, these types of movies, especially testosterone-fueled movies such as *Top Gun*, subtly nod to the notion of homoerotic tensions between the characters with scenes depicting shirtless men in tight quarters and intimate interactions between two "alpha" men. The *Predator* franchise not only depicts the imagery of macho violent men, it also nods somewhat to the idea of homoerotic tensions within a group of men fighting against the main predator.

Donald L. Mosher and Mark Sirkin, in their study entitled "Measuring a Macho Personality Constellation," further the understanding of masculinity beyond the male body and homoeroticism. Mosher and Sirkin define masculinity as adhering to three distinct points: (1) callous sex attitudes toward women, (2) violence as manly, and (3) danger as exciting (Mosher & Sirkin, 1984). In order to understand these three defining concepts coined by Mosher and Sirkin, the source of these attitudes must be pinpointed. First, callous sex attitudes toward women. Steve Garlick, in his book, *The Nature of Masculinity*, makes a good point as to why men have these types of attitudes towards women. He believes that these ideas often stem from exposure to online pornography. Sexuality, Garlick writes, is linked to issues of transgression, violence, and death that are



Photo by Bruno Massao.

fundamental to human existence (Garlick, 2016). Furthermore, Garlick believes that this exposure to pornography induces violence generated from sexuality. The general plot of a pornographic scene creates a hierarchy between the man and woman, depicting the man as dominating the woman. Men watching pornography internalize this embodied "affective experience" which establishes not merely men's domination over women but also becomes part of the broader process of achieving technological control over nature, thus establishing control over men's bodies (Garlick, 2016). By establishing this control, contemporary notions of sexuality provide the reason as to why a man would feel the need to control not only his own body but a woman's body and treat her as subordinate.

The next item is the depiction of violence as manly. Many factors can be considered as the reason for why men equate violence with manliness. Eric S. Mankowski and Kenneth I. Maton, in their paper entitled "A Community Psychology of Men and Masculinity," look at potential for why men find violence to be the key to manliness. The authors believe that these beliefs stem from the fact that men must reject all things feminine and push away emotion altogether. Mankowski and Manton write that denial of emotion is what fuels violence against women and even themselves (Mankowski & Manton, 2010). Emotions have historically been seen as a weakness and as feminine. For men, by wanting to reject anything non-masculine and suppressing those emotions, they torment themselves and thus allow aggression to take over, leading to violence.

Finally, the idea that viewing violence causes excitement. In the book of essays entitled *Theorizing Theories*, an essay by David H. J. Morgan, entitled *Theater of War: Combat, the Military, and Masculinities*, looks at how war and violence are linked with masculinity. War, especially in movies, can be seen as exciting due to the violence and glory being depicted as the dominant factors of war. Morgan argues that the major cultural achievement of the war hero has influenced not only the powerful, in whose interests it might be to maintain such a model, but also those who seek to distance themselves from harmful modes of masculinity (Morgan, 1994). However, Morgan thus suggests that many men seek violence as a rush of excitement to reach the high of dominant status. Returning to Garlick's argument, he, too, brings up violence as being exciting for men. However, instead of war, he uses violence in sports to make his point. Garlick declares that the only two socially sanctioned outlets for men's emotions are sports and violence due to both channeling natural energies into social relations via bodily actions (Garlick, 2016). War and sports are both exciting and need bodily



actions in order to induce violent emotional responses which, in turn, help men make themselves seem violent and dominant in whatever field, ballfield or battlefield, they enter.

Donald L. Mosher and Mark Sirkin, in their study, do not cover masculinity and homoeroticism. Many of the articles, including Morgan's, touch upon homophobia, saying that the solidarity of masculine groups organized around violence serves as a defense against homosexuality through the emphasis on aggressive heterosexism and homophobia (Morgan, 1994). However, Patrick Schuckmann's article on *Masculinity, the Male Spectacle, and the Homoerotic Gaze*, considers homoeroticism in action films. Schuckmann points out that the genre's display of the hero's eroticized muscular body as naked, half-clad, or fetishistically dressed to a straight male audience establishes homoeroticism as a constant but vague nuance (Schuckmann, 1998). Schuckman advances his argument by categorizing the portrayal of homoeroticism in action film scenes into three scenarios: (1) violent man-to-man contact, (2) the coupling of male buddies who make homophobic jokes or remarks, and (3) the bad guy as the hero's negative double (Schuckmann, 1998). In these action films, even though they may be intended to be seen from the heterosexual lens, homoerotic undertone are present.

With critical masculinity further understood, it will make it easier to understand how critical masculinity and its underlying concepts are represented in *Predator* and thus determine how the film displays concepts through *mise-en-scene* over the course of nearly two hours running time.

PREDATOR AND THE MALE BODY

Predator, in summary, is a sci-fi horror film which follows a special ops military group composed of mainly hypermasculine men traveling to the jungles of South America. They aim to complete what they believe to be a "hostage rescue mission." However, when they arrive, they become the target of an unknown alien creature they were warned about by a female guerrilla soldier they had taken hostage. As the movie progresses, each man within the original group is taken down by the creature until the leader, Dutch, is left to take on and single-handedly defeat the alien predator.

Throughout the film, the male body is glorified in any way it can fit into the film. The first

instance is through the handshake that takes place between Dutch and Dillon. The two men are seen testing out each other's strength in a handshake-turned-arm-wrestle; however, the camera stays fixated on bulging biceps under tight short-sleeve shirts (Davis et al., 1987). This display can also be considered a fight for dominance between two "alpha males," seeing that each man never loosen their tight grip on the other's hand. Not only do we see this display of bulging muscles in an act of dominance, the way the men (as well as the Predator) are dressed to glorify the male body. Three characters, in particular Billy, Dillon, and Dutch, wear outfits in such a way that show their muscular chests and arms while out in the dense, hot jungle. A lot of the attention is set on these muscular men, unlike Hawkins, Mac, and Poncho, who possess slimmer frames than their teammates and do not show off their bodies on-screen.

However, human men are not the only ones displaying the desired male body. Whenever the audience sees the Predator, especially during the showdown between him and Dutch, he can be seen wearing nearly nothing. He is wearing very minimal armor protecting his head, right shoulder, chest, and groin area as well as being covered in a fishnet-type material (Davis et al., 1987). Even though these fishnets are functional for the Predator to keep warm in other climates, fishnets are typically associated with lingerie fashion and thus allow the viewer to have a better look at the muscular alien that is fighting against the hypermasculine soldier. Not only this, the body of the Predator is on display more than his face because, during this final showdown, the Predator removes his helmet as a sign of accepting an honorable fight against Dutch. Upon seeing the Predator's grotesque face, Dutch tells him he is "one ugly motherfucker" (Davis et al., 1987). This can suggest to viewers that what is more important is the body and not the face, thus promoting the spectacle of the muscular male body as being a must for being "truly masculine."

PREDATOR AND CALLOUS ATTITUDES

Remarks pertaining to the callous attitude towards women are very much present in the film. From remarks about them or directed at them, it is very apparent that these macho men find women to be beneath them and thus objects to be controlled. Poncho makes various jokes degrading women and viewing them as a

sex object. The first joke is made in the helicopter on the way to the jungle. Poncho tells Billy that he asked his "girlfriend that he wanted a little pussy, to which she replies that she did, too, because it was big as a house" (Davis et al., 1987). Billy doesn't respond to this joke, but the next joke occurs after the team finishes taking out the guerrilla camp. Again, Poncho comes up to Billy, telling him, "I was going down on my girlfriend. I said to her, 'Jeez, you got a big pussy. Jeez, you got a big pussy,' to which she replied, 'Why did you say that twice?' and Poncho answered, 'I didn't. See' it's because of the echo'" (Davis, et al. 1987). In this instance, Billy does laugh. These two jokes confirm how Poncho, although not muscular like the others in the group, still holds callous sexual attitudes towards women.

Dillon, too, cultivates these callous attitudes towards women, if more directly. Anna, the woman the group takes hostage, tries to tell the men what she saw happen to Hawkins, but Dillon passes it off as something that doesn't make sense (Davis et al., 1987). Later, she again tries to explain to Dutch what the creature is. Dutch may be listening, but Dillon calls her a "bullshit psych job" because he finds her description of the Predator's chameleon powers unlikely (Davis et al., 1987). Having Dillon brush off Anna's warnings shows that as a masculine "macho man," he doesn't have to reason with a woman. The only time he listens is when Dutch says something, a man he sees as his equal.

PREDATOR AND VIOLENCE

What would the *Predator* be without violence and action? From beginning to end, the film is filled with action and violence. From guns shooting to large explosions, the film is truly testosterone-fueled. The very instant the group of men reach the guerrilla camp, they begin with a lethal explosion as a diversion and thus come out with guns blazing (Davis, et al. 1987). Each man contributes to the fight by firing guns of all sizes, from AK-47s to hang-machine guns, and setting off explosions by ramming gasoline-doused vehicles into wooden huts and shooting at helicopters prior to takeoff. During this montage of shooting and killing, witty one-liners are thrown out by the characters, namely Dutch after he throws a knife at a guerrilla soldier and tells him to "stick around," as well as Blain saying to Poncho he didn't have time to bleed when his companion shows concern for his injury (Davis et al., 1987). This can feed into the idea of danger and violence during warfare as being exciting

because throwing witty one-liners would not be possible unless the men were excited by fighting the enemy, especially as they blatantly win against them while remaining essentially unharmed. Not only this scene but a later scene in which the Predator kills Blain is filled with aggression and violence. After Mac runs up to Blain's dead body and sees the flashing, glowing eyes of the Predator under his invisible cloaking technology, he begins to shoot blindly into the jungle, which causes the rest of the troop to do the same (Davis, et al., 1987). This act of shooting blindly into the woods is quintessential rage and violence; the men shoot their guns until they are out of rounds because their main goal is to kill whatever has killed their fellow soldier.

Suppression of emotions is another key element to a man's violence in the film. After Hawkins's death, the men question Anna again, and she repeats that the jungle came to life and took him. Poncho gets irritated and notices that Billy is brooding. Billy then tells Poncho that he is afraid, and Poncho responds that nothing scares him (Davis et al., 1987). This is a prime example of a man's emotions being brushed off because these men are not supposed to be scared. They are supposed to be aggressive and emotionless; when Billy tells them how he feels about the situation, it is passed over.

Another key instance of violence occurs in the final scene between the Predator and Dutch. This scene showcases both Dutch's and the Predator's combat tactics they use to take each other down; in this scene, primitive warfare is opposed to technological warfare (Davis et al., 1987). The idea of Dutch using primitive ways of warfare against an alien using technology is important for understanding the trope of masculinity because it shows that Dutch is powerful without needing assistance, further confirming that all Dutch needs is masculinity itself. This violent scene of bloodshed, killing, and depicting the "macho men" as the victors fulfill another piece of the masculinity theory.

PREDATOR AND HOMOEROTICISM

Not only does this film exhibit the male body as a spectacle and posits a need for violence, it also subtly hints at homoeroticism on screen. Unlike many films with subtle hints, *Predator* provides them tenfold. Regarding Schuckman's three categories of homoerotic scenarios in action films, *Predator* falls under all three categories, which, to recap, are (1) violent man-to-man contact, (2) the coupling of male buddies who make homophobic jokes or



Photo by Bruno Massao.

remarks, and (3) the bad guy as the hero's negative double (Schuckmann, 1998).

As before, the display of the handshake that turns into an arm wrestle, and the fixation of bulging biceps caters to the homoerotic tension. The camera fixes on the two men's muscles as they grip hands, leisurely tracing both Dutch and Dillon's arms (Davis et al., 1987). Not only is this scene important, but it should also be noted how guns are represented in the movie. In the scene during which the men blindly shoot into the forest, they seem to attempt to "penetrate" the enemy because they are thrusting their weapons, symbolically coded as phallic objects, into the jungle. An article entitled "No Homo: John McTierran's *Predator* (1987)" equates this scene as a circle jerk that aims to see who is "king dong" out of the group (2017).

Referring to Schuckmann's scenario of the buddy coupling, Blain is the character trying to bond with his companions during the movie. The first time he speaks, he offers his companions some chewing tobacco. When they decline, he calls them "slack-jawed faggots" and declares that the tobacco would make them a "sexual tyrannosaurus" like himself, to which Hawkins tells him to "strap this on your sore ass" while gesturing to his gun (Davis et al., 1987). As we

watch these men banter using homophobic jokes and referencing their weaponry as phallic objects, we see Schuckmann's criteria confirmed. Furthermore, Blain's sexuality is questioned since he doesn't protest Hawkins's suggestive comment. However, because these two are "buddy buddy," as Schuckmann would say, the audience is not supposed to assume that the characters might be homosexual. Their homophobic comments are meant to protect them from suspicion.

Furthermore, in the instance where the team tries to escape the Predator, Billy stays behind, takes off his vest, and then cuts himself on the chest as if to say "I'm strong enough to take you on" (Davis et al., 1987). Although this fulfills the "macho-man" trope by displaying a well-built's pain tolerance, it becomes homoerotic when considering that Billy is trying to lure the Predator. Meathook Cinema points out that "taking it like a man" means something very different in gay circles. The pitcher becomes the receiver, and Billy decides to "receive" the alien (Jones, 2017). At first glance, this movie is nothing more than an action film, but looking at homoerotic references, they are more evident the more one looks.

CONCLUSION

In the grand scheme, *Predator* checks all three concepts provided by Mosher and Sirkin using the concepts provided by Doughty and Etherington-Wright. The characters of *Predator* uphold characteristics aligned with the research and findings of scholars who study critical masculinity in film. *Predator* displays the male body, violence, and homoeroticism, as well as callous attitudes toward women and non-masculine/feminine behaviors. Therefore, *Predator* is a perfect example of critical masculinity in a movie. ❖

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**WHEN THE TREATMENT IS ITSELF THE DISEASE:
"THE YELLOW WALL-PAPER"**

"The Yellow Wall-Paper" is a short story by Charlotte Perkins Gilman that chronicles a young woman's suffering from mental illness and her struggle to find an emotional outlet in the stifling environment to which her husband and doctor, John, confines her. The young woman's gradual descent into madness due to the suffocating conditions she's put under can be linked to the progression of her obsession with the yellow wallpaper in her room. Ironically, and somewhat somberly, by the end of the story it becomes apparent that the "rest cure," i.e. the idea that the women should remain in the room with the yellow wallpaper, through which John attempts to rehabilitate his wife is actually the cause of her madness. Through John's role as both the narrator's doctor and husband, the young woman's reluctance to confide in her husband out of fear of not being understood, and the symbolism manifested in the imprisonment of a woman within the yellow wallpaper, the question proposed by Gilman becomes "to what

extent is John the very essence of the disease he's trying to cure in his wife?"

John's role as doctor to and husband of the narrator is an important detail that first hints at John's role in worsening his wife's condition, despite his claims to the contrary. Immediately, the dynamic between the two becomes something more akin to a patient-doctor relationship rather than that of traditional wife and husband. On more than one occasion, John uses the closeness he shares with the narrator as her husband to convince her of his treatment as a doctor. For example, when the narrator breaks down in tears after being denied a visit to her cousins, John's reaction is described by the young woman as "He said I was his darling and his comfort and all he had, and that I must take care of myself for his sake, and keep well" (Gilman 6). Rather than trying to soothe his wife, John uses a type of emotional blackmail as



Photo by Madison Inouye

her husband to convince her that she needs his treatment in order to recover.

In another instance, John presumes that he knows more about his wife's condition than she does, saying "Of course if you were in any danger, I could and would, but you really are better, dear, whether you can see it or not. I am a doctor, dear, and I know" (Gilman 6). The heart of the issue with John's treatment is that he cannot separate himself from either of his roles, husband and doctor, and instead melds them together to take advantage of the authority he holds as a doctor and the emotional ties he has to the narrator as her husband. This results in the narrator being unable to confront her husband in a healthy manner because she submits to his

authority as doctor and is too emotionally compromised by her husband's soothing to challenge him as his wife either. Ultimately, she does confront him at the end of the short story, but by then it is too late because the madness has already taken hold of her.

The narrator's hesitation in confronting her husband about her condition is made apparent in the first pages of the short story and lays the foundation for the real reason for the narrator's "madness" as stemming from her inability to speak freely and express herself as a result of her husband's suffocating nature. By her very nature, the narrator is clearly a woman of great imagination, intelligence, and curiosity, as shown by her passion for writing. And yet, her husband

blames these characteristics as the cause of her madness, going to great lengths to confine his wife to a bland and dull life where her imagination is limited. The narrator seems to accept this and only follows her curiosity in private because she does not feel comfortable challenging her husband's authority. As the young woman herself admits, "But John says if I feel so, I shall neglect proper self-control; so I take pains to control myself—before him, at least, and that makes me very tired" (Gilman 2). Unwittingly, the narrator has exposed John as the primary source of her anxiety because she feels uneasy in his presence and limited in her capability because of his "treatment."

Throughout the short story, what plagues the young woman most is not the threat of madness but the anxiety surrounding her inability to communicate with John. She constantly agonizes over the misunderstanding between herself and her husband, writing "John does not know how much I really suffer. He knows there is no reason to suffer, and that satisfies him" and then following with "Of course it is only nervousness" (Gilman 3). Essentially, the narrator has unconsciously identified the cause of her illness, but she quickly retracts her own opinions in favor



Photo by Vladimir Gladkov

of those of her husband and tries to convince herself of his diagnosis rather than trusting in her own. The narrator consistently succumbs to her husband's endearments and pleadings, and especially to his authority, and is unable to communicate to her overbearing husband that he is the cause of her suffering. Therein, when an opportunity arises as a potential outlet for the young woman's desire to be free and express herself, she becomes obsessed with uncovering the secrets behind the yellow wallpaper and ultimately spirals into madness.

The narrator's relationship with the yellow wallpaper gradually changes from an object of hatred to an obsession as the young woman's desire to express herself cannot be contained within the walls that carry her reflection as a prisoner to her husband's whims. The yellow wallpaper symbolizes the patriarchal society that the woman is trapped inside and from which she finally escapes in her "madness." The description of the wallpaper is very telling of its true meaning: "committing every artistic sin . . . dull enough to confuse the eye in following, pronounced enough to constantly irritate and provoke study, and when you follow the lame uncertain curves for a little distance they . . . plunge off at outrageous angles, destroy themselves in unheard of contradictions" (Gilman 2). The contradictory, irritating, curious, and sinful nature of the wallpaper is a reflection of 19th-century America as a male-dominated society. The wallpaper horrifies the narrator in the beginning, but by the end of the story, she's determined to tear it down and break free from it, and ultimately she succeeds at the cost of being labeled mad.

In another interpretation, the wallpaper also seems to bear a striking resemblance to John as they are described in the same manner by the narrator. The narrator characterizes John as a curious doctor, "dull," somewhat "contradictory" in balancing his role as a doctor and husband, and determined to "study" his wife's mental illness. The narrator's discomfort with the wallpaper is a mirror of her discomfort with her husband, and her fascination with the wallpaper evolves into a desire to see her husband's reaction to her destruction of the paper. In essence, by the end of the short story, the young woman has become obsessed with seeing her husband's reaction to her liberation from a diseased, male-dominated society, with her husband at the center. When he finally arrives, she reinforces this point by saying "I've got out at last . . . in spite of you and Jane? And

I've pulled off most of the paper, so you can't put me back!" (Gilman 10). The young woman has freed herself from the confines of not only her husband, but of the society that suppresses the freedom of expression among women. Interestingly, this poses the controversial question of the existence of the young woman's madness at all. Was the narrator's madness a real mental illness or simply a rejection of male ideals of what a woman should be during this era, something considered akin to that of a disease within a woman by the men of 19th-century America? In rejecting her husband, seemingly the cause of her disease, is the narrator, in her madness, actually been cured by the end of the story? Gilman leaves it open to interpretation by her audience, but the obvious hints and suggestions throughout her carefully crafted tale leave little to the imagination about the true disease that plagued both the narrator and many women of the 19th century.

Charlotte Perkins Gilman's "The Yellow-Wallpaper" is a short story that details a young woman's struggle with mental illness that may stem from the confines of a society that suppresses the mental freedoms of women. The narrator's "madness" at the end of the story seems to suggest a tragic ending for her character, but a closer examination of the text may reveal the contrary. In the young woman's madness there is also a kind of liberation, a cure, from the disease of an overbearing husband and suffocating patriarchal society. By having John fulfill the role of both husband and doctor to the narrator, and in revealing the source of the narrator's anxiety as largely stemming from miscommunication with John, as well as the narrator's obsession with escaping the room in which John confines her, Gilman reveals John, and the oppressive and authoritative ideals that he represents, to be the source of disease and the narrator's "madness" as her salvation at the cost of her sanity. Perhaps, the narrator is herself the only sane individual in a disease-ridden, *insane* society where women are sold a disease when they possess the capacity to be the cure. ❖

WORK CITED

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SOCIAL SCIENCES & EDUCATION

WILLIAM SPEIGHT

EXPLORING AGE-RELATED DIFFERENCES IN WORK-FROM-HOME PREFERENCES

ABSTRACT

This paper explores the relationship between age and work-from-home (WFH) preferences for the non-instructional staff at North Carolina Wesleyan University. Along with age, a variety of other variables are used in the study. These variables include commuting time and cost, segmentation preferences, and the age and number of children at home. The current literature indicates that individuals' attitudes towards work-related and cultural changes are influenced by their age. That literature also suggests that commuting time and the presence of younger children can affect attitudes toward an individual's work environment. Upon reviewing the literature on age, commute time, and having children, there is a clear lack of simultaneous accounting for all these variables regarding work-from-home preferences across generations. These studies have provided key research in their own category; however, this study will attempt to combine aforementioned variables. The present study addresses the effect of age on work-from-home preferences while accounting for variables that may affect an individual's work

preference. According to the study, age does not seem to have a significant impact on WFH preferences. However, commuting costs, segmentation preferences, and having younger children were found to have a statistically significant influence on WFH preferences.

INTRODUCTION

The COVID-19 pandemic has brought about significant changes in the way individuals work, with remote work becoming the new norm (Buffer, 2021). Many companies have adopted remote work policies, and employees have had to adapt to this new way of working. The impact of this change has been significant, and it has affected various aspects of work. One of the most apparent changes has been the blurring of the lines between work and personal life. With more employees working from home, there is no clear separation between work and home life. This has led to many employees working longer hours, resulting in an increase in work-related stress and burnout (Eurofound, 2020). Additionally, the lack of physical interaction with colleagues has made it challenging to maintain



work relationships, which can have an impact on teamwork and collaboration (CIPD, 2021).

Another significant change has been the reliance on technology for communication and collaboration. With employees working remotely, there has been an increased use of video conferencing tools, such as Zoom and Microsoft Teams, for meetings and communication. This has led to a shift in the way meetings are conducted, with many companies adopting more flexible schedules and reducing the need for in-person meetings. However, this increased reliance on technology has also led to new challenges, such as technical difficulties, internet connectivity issues, and increased distractions (Owl Labs, 2020).

The following study will focus on the age of individuals and their work-from-home preferences to test whether this assumption is borne out by locally collected data. The study will consider other variables that could have an impact on work preferences, such as children, commute time to work, and workers' attitudes toward their current job. Based on previous literature, it is predicted that, as age increases, individuals would not prefer working at home when compared to their younger counterparts. The results of this study build upon previous literature and add other variables, such as commute time and costs, segmentation preferences, and number of children, that affect work-from-home preferences.



THE CONTEXT OF REMOTE WORK

The rise of remote work has become a growing phenomenon in modern times, especially in the 21st century. However, the history of remote work dates back to the 1990s when the concept was first introduced to the business world. The origins of remote work can be traced to the introduction of the personal computer in the 1980s (FlexJobs, 2020). The invention of the personal computer revolutionized the way people worked, as it enabled individuals to work from home and communicate with colleagues and clients remotely. This technology enabled the rise of remote work in the 1990s. According to Gallup's State of the American Workplace report, telecommuting was first introduced in the 1990s by technology companies in Silicon Valley as a way to attract and retain talent (Gallup, 2017).

One of the first examples of remote work was IBM's Work-At-Home (WAH) program, which was introduced in 1995. The program allowed employees to work from home or any other location, provided they had the necessary technology and equipment. The program was a success, with IBM reporting increased productivity, reduced overhead costs, and improved employee satisfaction

(IBM, n.d.). This success led to other companies adopting remote work policies, resulting in a significant increase in the number of remote workers in the late 1990s.

Despite the initial success of remote work, there were concerns about its effectiveness and potential drawbacks. One of the main criticisms was that remote work could lead to decreased collaboration and communication among employees (Golden and Veiga, 2008). In response, companies began to adopt technologies such as video conferencing and instant messaging to facilitate communication among remote workers. According to a study conducted by Global Workplace Analytics, the rise of these technologies in the early 2000s led to a significant increase in the number of remote workers (Global Workplace Analytics, 2020).

The early 2000s saw a surge in remote work due to the development of cloud computing technology, which enabled employees to access company files and systems remotely (Bostrom et al., 2002). Cloud computing technology made it easier for employees to work from home or any other location, as they could access the same tools and resources as they would in the office. This technology also enabled companies to track the progress of remote workers and ensure that they were meeting their targets. Another major milestone in the history of remote work was the introduction of coworking spaces in the mid-2000s. Coworking spaces are shared workspaces where individuals can work alongside others in a communal environment (Spinuzzi, 2012). Coworking spaces were initially popular among freelancers and entrepreneurs, but they soon became popular among remote workers as well. Coworking spaces provided remote workers with a sense of community and networking opportunities, which were often lacking when working from home.

The global financial crisis of 2008 also had a significant impact on the remote work landscape. Many companies were forced to downsize and cut costs, resulting in an increase in the number of remote workers. According to a study by the Society for Human Resource Management, the number of companies offering remote work options increased from 34% in 2005 to 63% in 2011 (Society for Human Resource Management, 2011). This increase was partly due to the financial crisis, which made remote work an attractive option for companies looking to cut costs.

The so-called "gig economy" in the late 2000s also contributed to the growth of remote work. The gig economy refers to a labor market characterized by short-term contracts and freelance work (Katz and Krueger, 2016). The gig economy provided individuals with more flexibility and autonomy over their work, which made remote work a more attractive option. According to a report by Upwork, the number of freelancers in the United States increased from 53 million in 2014 to 57 million in 2019 (Upwork, 2019). This increase in the number of freelancers contributed to the growth of remote work, as many freelancers work from home or other remote locations.

While these changes can be tracked across industries, there has been a noticeable difference in preferences for working from home among younger and older generations (PwC, 2021). Generally, the assumption is that younger generations tend to prefer working from home, while older generations tend to prefer working in a traditional office environment.

RELATED RESEARCH

Aging and Attitude towards Change

One key component of the work-from-home shift is the change in cultural environment in the wake of the 2020 COVID-19 pandemic. Large swaths of the population went from working in a "traditional" office setting to performing their work duties from home. Tyler and Schuller (1990) analyzed previous studies relating to age and attitudes toward change in general. While they note that the relationship between age and attitude change is complex and multifaceted, they suggest that older adults may be more resistant to change in some circumstances. For example, some studies have found that older adults may be less likely to change their attitudes related to religion and politics, perhaps because these attitudes are more closely tied to their personal identities and sense of self. Additionally, older adults may have had more time to develop their attitudes and beliefs, making them more entrenched and resistant to change.

Other research has suggested that older adults may be less open to changing their attitudes in response to external cues, such as persuasive messages or social influence (Tyler and Schuller, 1990). Older adults may be less likely to be influenced by these external cues because they have already formed their attitudes and beliefs based on their past

experiences and personal values (Tyler and Schuller, 1990). This research indicates that older adults may be resistant to the change in the work environment because they have already formed strong attitudes and beliefs about the importance of working in an office or workplace, which could make them resistant to the idea of working from home.

Another study, conducted by James McElroy and Paula Morrow (2010), examines employee reactions to an office redesign in a multi-generational setting. The study employed a quasi-field experiment design in which an office space was redesigned to create more open and collaborative workspaces. The researchers sought to understand how different generations of employees (Baby Boomers, Gen X, and Gen Y) would react to the changes in the redesigned space. The study found that, overall, employees had positive reactions to the office redesign. Specifically, employees reported feeling more connected to their colleagues and more satisfied with their work environment after the redesign (McElroy and Morrow, 2010). However, the study also found some differences in reactions across generations. Baby Boomers reported feeling less comfortable in open workspaces and less satisfied with the overall office environment than their younger colleagues (McElroy and Morrow, 2010). In contrast, Gen Y employees reported feeling more comfortable and more productive in the open workspaces. The authors suggest that these differences in reaction may be due to different generational values and preferences. For example, Baby Boomers may have been more accustomed to traditional office environments and may value more privacy and individual space, while Gen Y employees may have grown up in more open and collaborative work environments and may value more opportunities for interaction and collaboration. Overall, McElroy and Morrow's (2010) study suggests that office redesigns can have positive effects on employee satisfaction and engagement, but that reactions to these changes may vary across generations due to differences in values and preferences. This study highlights the impact of generational differences and implementing changes in the workplace such as moving remotely.

Work Sentiment Based on Commute Time

Prior research points to commute time as an important determinant of job satisfaction. This is an important variable to study in the correlation

between generation and work-from-home preferences. Gardner and Hagan's (2018) study examined the impact of commute time on job satisfaction and turnover intentions in the United States using a nationally representative sample of U.S. workers. The study found that longer commute times are associated with lower levels of job satisfaction and higher turnover intentions. Specifically, the researchers found that, for each additional minute of commute time, job satisfaction decreases by 0.011 points on a 4-point scale and the likelihood of turnover increases by 0.019 points on a 4-point scale (Gardner and Hagan, 2018). These effects are statistically significant and hold even after controlling for a range of demographic, job, and work-life factors (Gardner and Hagan, 2018).

A study conducted by Loannis Nikolau and Sofia Loukakou (2021) examines the relationship between long commutes and employees' organizational commitment and job satisfaction. Using data from a large Greek organization, the authors find that employees who have long commutes experience lower levels of organizational commitment and job satisfaction than those who have shorter commutes (Nikolau and Loukakou, 2021). The study suggests that long commutes can negatively impact employees' well-being and work attitudes, which can lead to increased turnover and decreased productivity.

Zhang and Chen (2021) conducted a study in China to investigate the impact of long commuting time on job satisfaction, and the role of work-life conflict and social support in this relationship. The researchers collected survey data from 709 full-time employees across various industries and analyzed the data using regression analysis. The results of the study showed that longer commuting time is negatively associated with job satisfaction. Specifically, the researchers found that for each additional 30 minutes of commuting time, job satisfaction decreased by 0.23 points on a 5-point scale (Zhang and Chen, 2021). The study also found that work-life conflict mediated the relationship between commuting time and job satisfaction, indicating that employees who experience higher levels of work-life conflict are more likely to have lower job satisfaction due to longer commuting times.

Moreover, the study found that social support moderated the relationship between commuting time and job satisfaction. Specifically, the researchers found that employees who receive more social support,

such as emotional support from family and friends, are less affected by longer commuting times and have higher levels of job satisfaction (Zhang and Chen, 2021). The findings of this study have important implications for employers and policy-makers. The study highlights the need for organizations to provide employees with support for work-life balance, such as flexible work arrangements, to reduce the negative impact of commuting on job satisfaction. Additionally, the study suggests that promoting social support within the workplace can be an effective way to mitigate the negative effects of commuting on employee job satisfaction.

Kim and Lee (2021) conducted a cross-sectional study to examine the relationship between commuting time and work-from-home preferences. The study utilized a survey of 341 employees from various industries in South Korea. The results of the study indicated that employees with longer commuting times tended to have a greater preference for working from home. Specifically, the study found that for every additional hour of commuting time, the odds of preferring to work from home increased by 1.4 times (Kim and Lee, 2021). One possible explanation for this relationship is that

employees with longer commutes may experience more fatigue and stress, making working from home a more attractive option for reducing these negative effects. Another possible explanation is that longer commutes may result in less time for other important activities, such as spending time with family or pursuing hobbies, which can lead to a greater desire for work-from-home opportunities.

The findings of this study are consistent with prior research on the negative effects of commuting time on job satisfaction and well-being (Gardner and Hagan, 2018; Nikolau and Loukakou, 2021). However, the study by Kim and Lee (2021) provides new insights into the relationship between commuting time and work-from-home preferences, which has important implications for employers and employees in terms of designing and implementing effective work-from-home policies.

The Impact of Children on Work

Several studies have explored the relationship between having young children at home and the desire to work from home. One study by Gatrell and Cooper (2007) found that the ability to work from home was an important factor for working



Photo by Ketut Subiyanto.

parents, particularly mothers, in managing work-life balance. The authors note that working from home can provide parents with greater flexibility in caring for their children, which can in turn reduce stress and increase job satisfaction. Similarly, a study by Hill et al. (2010) found that parents with young children who worked from home reported greater job satisfaction and work-life balance than those who did not. The authors suggest that the ability to work from home may allow parents to better manage the demands of work and childcare, leading to greater well-being. However, not all studies have found a positive relationship between having young children at home and the desire to work from home. A study by Golden and Veiga (2005) found that the presence of young children at home was not a significant predictor

of the desire to work from home. The authors suggest that this may be because parents are often able to rely on external childcare arrangements, such as daycare, that allow them to work outside the home.

Another study, "Patterns of Childcare Use for Young Children within Women's Work/Family Pathways: A Group-Based Multi-Trajectory Modeling Approach" by Shattuck (2019) presents a comprehensive analysis of childcare use among working mothers. The study aims to identify and characterize different groups of mothers based on their work and family trajectories and to examine how these trajectories are related to patterns of childcare use. The author uses data from the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), which follows a nationally

representative sample of children born in the U.S. in 2001. The sample includes 10,700 children and their mothers who were interviewed when the children were nine months, two years, and four years old. Shattuck (2019) employs a group-based trajectory modeling approach to identify distinct patterns of maternal employment and family structure over time and to explore how these patterns are associated with different types of childcare arrangements. The findings of the study reveal that there are four distinct groups of mothers based on their work and family trajectories: stable non-employed, stable part-time employed, unstable part-time employed, and stable full-time employed. The results also indicate that there are different patterns of childcare use associated with each group. For example, mothers who are stably non-employed are more likely to use informal care provided by relatives, while mothers who are stably full-time employed are more likely to use center-based care.

The study provides important insights into the complex relationship between maternal employment, family structure,



and childcare use. The findings highlight the need for policies that support working mothers, particularly those in unstable or part-time employment, and provide affordable and high-quality childcare options that are responsive to the diverse needs of families. Shattuck's (2019) study is an important contribution to the literature on childcare use among working mothers as it employs a novel methodological approach to identify distinct groups of mothers based on their work and family trajectories.

Working at home can provide several benefits for mothers with childcare responsibilities. Del Boca et al. (2020) found that during the COVID-19 pandemic, working from home allowed mothers to combine work and childcare responsibilities more easily than working outside the home. This is especially important as women are often expected to take on a larger share of domestic and childcare duties. By working at home, mothers can be more present for their children and take care of their needs while still being able to work. Additionally, working at home can provide mothers with more flexibility in their schedules, allowing them to better balance their work and family responsibilities. This flexibility can lead to less stress and higher job satisfaction among working mothers (Hill et al., 2008). Furthermore, mothers who work at home may also have access to more affordable or flexible childcare options, such as family members or babysitters, which can help reduce the financial burden of traditional childcare arrangements.

Overall, the literature suggests that having young children at home can constitute an important factor in the desire to work from home, particularly for mothers. Working from home may provide parents with greater flexibility in caring for their children, leading to greater job satisfaction and work-life balance. However, the relationship between having young children at home and the desire to work from home is not always straightforward and may be influenced by external factors such as access to childcare.

THE CURRENT STUDY

Based on previous research, I theorize that older age groups are less likely to prefer to work from home compared to younger age groups. This theory leads to three hypotheses based on the variables mentioned above. First, I predict that younger workers are more adept at working from home and are willing to do so as opposed to their older colleagues.

Hypothesis 1: *Individuals in younger age groups will express more positive work-from-home attitudes.*

Secondly, I predict that the longer the commute time, the greater the desire to work from home. Moreover, the higher the commuting costs are, the higher the desire to work from home.

Hypothesis 2a: *As individual commuting time increases, individuals will express more positive work-from-home attitudes*

Hypothesis 2b: *As individual commuting costs increase, individuals will express more positive work-from-home attitudes.*

Thirdly, I predict the individuals who have children in younger age groups have an increased desire to work from home.

Hypothesis 3: *Individuals with young children under five years of age will express more positive work-from-home attitudes.*

Fourthly, I predict that as segmentation preferences increase, the desire to work from home decreases.

Hypothesis 4: *Individuals who have higher segmentation preferences will express less positive work-from-home attitudes.*

These four hypotheses will be tested using an original survey described in the following section. A survey is the best method for testing these hypotheses because it allows causal inferences to be made. This study is limited to non-instructional staff at North Carolina Wesleyan University (NCWU), a small liberal arts college located in Rocky Mount, North Carolina, and therefore only represents a niche portion of the workforce. Nevertheless, the results can be informative within the higher education sector.

METHOD

Participants. A total of 50 participants, drawn from the non-instructional staff at NCWU, participated in this survey. The demographics of the participants are as follows: The participants self-identified into five age groups. The first age range, 18-25 years, included 1 participant (2%). The second age range, 25-34 years, included 9 participants (18%). The third age range, 35-44 years, included 11 participants (22%). The fourth age range, 45-54 years, included 15 participants (30%), with this age range being the median. The fifth age range, 55-64 years, had 10 participants (20%). The final age range, 65+ years, included 4 participants (8%). 13 participants identified as male (26%), 35 participants identified as female

(70%), and 2 participants did not disclose their gender (4%). 40 (80%) of the sample identified as white/Caucasian, 7 (14%) identified as Black/African American, 1 participant (2%) identified with another racial/ethnic group not listed, and 2 (4%) did not disclose their race/ethnicity.

Procedure and Measures. The data was collected through an online survey between March 14th and March 28th, 2023. The key measures conducted in the survey were work-from-home preferences, segmentation preferences, commuting time, commuting cost, age, and number of children.

Work-From-Home Preferences. Participants' attitudes about work-from-home were measured using five items to form a Work-from-Home (WFH) Preferences Scale. Participants were asked to indicate their agreement with each statement using a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). The WFH Preferences Scale contained two items about participants' personal attitudes toward working from home and three items about their general attitudes about working from home. The scale contained a Cronbach's alpha value of 0.86, indicating high inter-item reliability. The text of the items is as follows:

- If given the option, I would prefer working from home rather than going to an office.
- Working in an office leaves me more satisfied with the quality of my work than working remotely. (Reverse-Scored)
- I feel that most people can do their job effectively from home.
- I feel most people are more productive working at home than in an office.
- I feel that most people get easily distracted when working from home.

Segmentation Preferences. The specific measure used for segmentation preferences in this survey was based on respondents' answers to a set of questions using a 7-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree" (Formplus, 2019). Respondents were asked to choose the option that best reflected their level of agreement or disagreement with each statement. The scale ranged from 1 (Strongly Disagree) to 7 (Strongly Agree). The questions used to measure segmentation preferences were as follows:

- "I don't like to have to think about work while I'm at home."
- "I prefer to keep work life at work."
- "I don't like work problems creeping into my home life."
- "I like to be able to leave work behind when I go home."

Commuting Time. The specific measure used for commute time in this survey was based on respondents' answers to a written response question that asked: "What is your average one-way commute time to work in minutes?" This question captured the amount of time that respondents typically spend commuting to work on a daily basis. Respondents were asked to provide a specific number of minutes as their response, providing a quantitative measure of their commute time.

Commuting Cost. The specific measure used for commuting cost in this survey was based on respondents' answers to two questions that used a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Respondents were asked to choose the option that best reflected their level of agreement or disagreement with each statement. The questions used to measure commute cost were

- "The commute to my workplace is too long."
- "Costs related to commuting to work significantly affect my budget."

These questions aimed to capture how strongly respondents felt about their commuting experience and the impact it had on their work and personal lives.

Age. The specific measure used for age in this survey was based on respondents' answers to the question "How old are you?", which asked for their age as a discrete variable. The age scale used in this survey included the following options: "Under 18," "18-24 years old," "25-34 years old," "35-44 years old," "45-54 years old," "55-64 years old," and "65+ years old." Respondents were asked to choose the option that best described their age range. Due to a relatively small sample size, these groups were collapsed into three representing 18-34 year-olds, 35-54 year-olds, and 55 or more years old, roughly corresponding to younger, middle-aged, and older cohorts.

Number of Children. The specific measure used for the number of children in this survey is based on the respondents' answers to the question: "Please indicate the number of children that currently reside with you in each age group." The scale included the following different age groups for children: "0-2 years," "3-5 years," "6-9 years," "10-13 years," "14-17 years," and "18+ years." The respondents were asked to indicate the number of children who currently reside with them at least 50% of the time in each of the age groups listed above. The total number of children five years of age or younger was then calculated.

RESULTS

The results of the survey were analyzed using ordinary least squares (OLS) regression. Age, Segmentation Preferences, Commute Cost, Commute Time, and Number of Children Under 5 were included to predict work-from-home preferences. An interaction between Age and Segmentation Preferences is also included to identify if the impact of segmentation preferences varies by age group. The results of the variables in relation to work-from-home preferences are presented in **Table 1**.

	WFH Preferences	Table 1.
Age	0.474 (0.79)	
Segmentation Preferences	-0.469 (3.06)***	
Age * Segmentation Preferences	-0.137 (1.20)	
Commute Cost	0.171 (2.00)*	
Commute Time	-0.011 (1.01)	
# of Children Under 5	0.466 (2.59)**	
Constant	6.092 (7.14)***	
R ²	0.68	
N	50	

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Independent Variables Relationship to WFH Preferences

Age

Based on the regression table, the coefficient for age is 0.474, with a standard error of 0.79, indicating that age is not a significant predictor of WFH preferences at the 0.05 conventional level of significance. While I cannot substantively interpret the constituent terms of an interaction, **Fig. 1** highlights the weak, but negative, relationship between age and WFH preferences. The youngest age category expressed the most positive attitudes toward work-from-home, though the middle category possesses roughly equivalent attitudes. The older group, however, is less positive, though this is not a statistically significant difference. When comparing the mean of the oldest age group with the two younger groups combined, the difference does approach statistical significance, $t(1, 49)=1.54, p=0.13$.

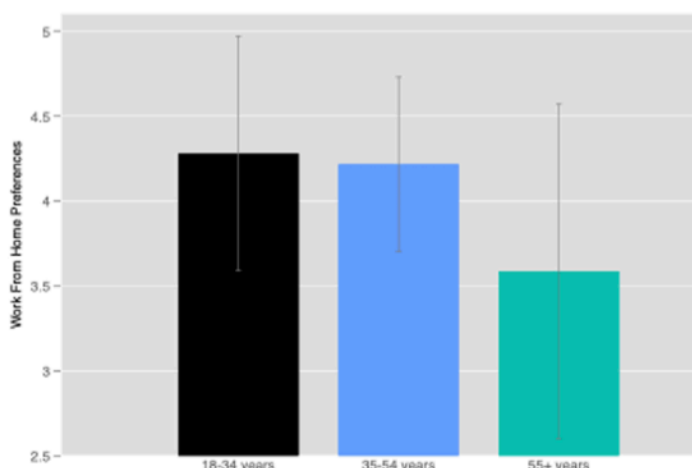


Fig. 1. Mean of WFH Preferences by Age Group.

Commute Time and Cost

In the table, the coefficient for commute cost, 0.171, is significant at the 0.10 alpha level ($p=0.051$), which means that as commute cost increases by one unit, WFH preference also increases by 0.171 units, holding other factors constant. Similarly, the coefficient for commute time is negative, -0.011, though not significant ($p > 0.1$), indicating that there is a non-significant but negative relationship between commute time and WFH preferences in this sample, contrary to expectations. These results suggest that commute cost, but not commute time, is a significant factor that influences WFH preferences. **Fig. 2** illustrates the relationship commute costs have on work from home preferences.

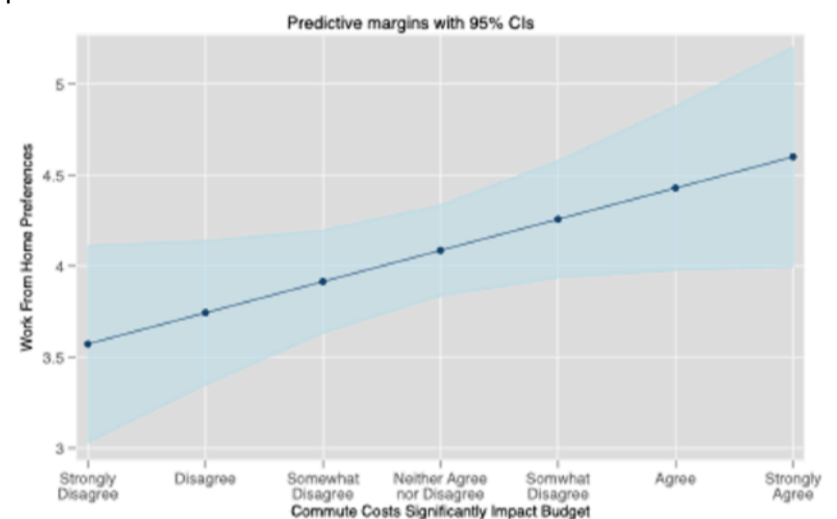


Fig. 2. Commute Costs and WFH Preferences.

Based on **Fig. 2**, as an individual's budget is impacted by their commute costs, the increase in preference to work-from-home.

Number of Children under Five Years of Age

The regression analysis shows that the number of children under the age of five has a statistically significant positive relationship with WFH preferences at the 0.05 level ($p = 0.01$). This indicates that as the number of children under five residing with the respondent increases, their preference for working from home also increases. The coefficient of 0.466 indicates that holding all other variables constant, a one-unit increase in the number of children under five is associated with a 0.466 unit increase in WFH preferences. **Fig. 3** illustrates this relationship between children under five and WFH preferences.

Below figure shows the significant relationship between the number of children under five years of age and WFH preferences. As the number of children under five increases, WFH preferences increase. Participants with

young children seem to express much more positive attitudes toward working from home.

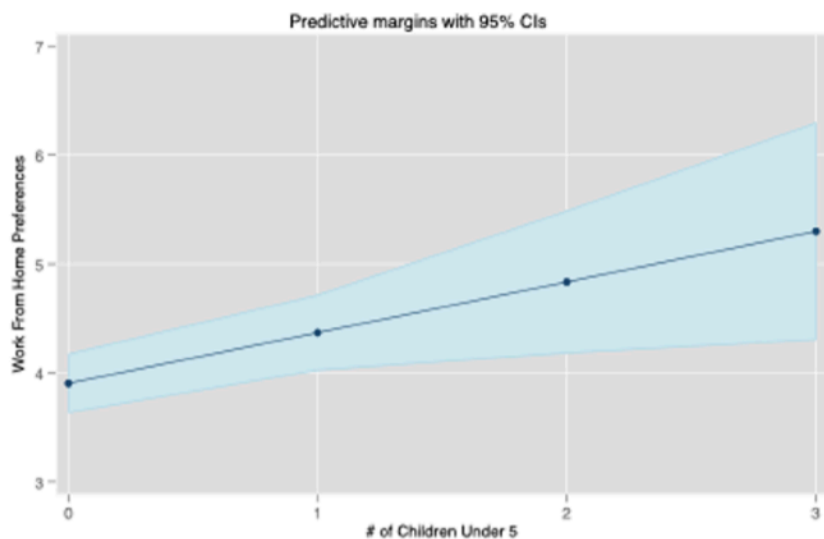


Fig. 3. # of Children under 5 and WFH Preferences

Segmentation Preferences

The regression results show that segmentation preferences have a significant negative effect on WFH preferences (coefficient = -0.469, $p < 0.01$). This means that individuals who strongly prefer to keep their work and personal life separate are less likely to prefer working from home. The interaction between age and segmentation preferences did not reach statistical significance (coefficient = -0.137, $p > 0.05$), suggesting that the effect of segmentation preferences on WFH preferences is consistent across different age groups. Overall, this suggests that segmentation preferences are an important factor to consider in understanding individuals' preferences for working from home. **Fig. 4** illustrates segmentation preferences by age group to WFH preferences.

The results of the survey based on the sample size at North Carolina Wesleyan University show that age does not have a statistical significance in WFH preference; however, commute cost, number of children under five, and segmentation preferences do.

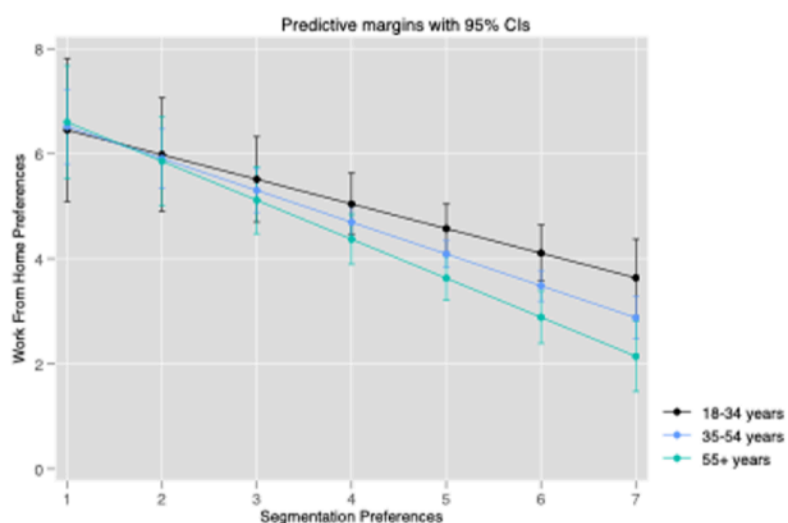


Fig. 4. Segmentation Preferences on WFH Preferences by Age Group

DISCUSSION

In summary, the regression analysis shows that age does not have a statistically significant effect on work-from-home preferences ($p = 0.435$). Therefore, we cannot accept the first hypothesis that younger individuals express more positive work-from-home attitudes. The regression table shows that commute time does not have a statistically significant effect on work-from-home preferences ($p = .318$). Therefore, we cannot accept hypothesis 2a that, as individual commuting time increases, individuals will express more positive work-from-home attitudes. However, the regression table shows that commute cost has a statistically significant effect on work-from-home preferences ($p = 0.051$). The positive coefficient suggests that, as commuting costs increase, the desire to work from home also increases. Therefore, we can accept hypothesis 2b that as individual commuting costs increase individuals will express more positive work-from-home attitudes. The regression table shows that the number of children under 5 has a statistically significant effect on work-from-home preferences ($p = 0.013$). The positive coefficient suggests that individuals with young children express more positive work-from-home attitudes than those without. The results show a significant positive association between having young children under five years of age and expressing positive work-from-home attitudes, which was in alignment with our 3rd hypothesis. This finding is consistent with the idea that caring for young children can be a significant factor in work-from-home decisions. The regression table shows that segmentation preferences have a statistically significant effect on work-from-home preferences ($p = 0.004$). The negative coefficient suggests that individuals with higher segmentation preferences express less positive work-from-home attitudes than those with lower segmentation preferences. Therefore, we can accept the fourth hypothesis that individuals who have higher segmentation preferences will express less positive work-from-home attitudes. This finding is consistent with the idea that some individuals may prefer more separation between work and home life.

CONCLUSION

This study addressed a gap in the literature relating to WFH preferences by proposing a unique survey that measured a range of variables. The study was not able to provide statistical importance for age and its relation to

WFH preferences. However, it was successful in providing statistical importance for other variables that do affect WFH preferences. This study was able to find that commuting cost, number of children under five, and segmentation preferences do affect attitudes toward WFH. These results show that staff at North Carolina Wesleyan University WFH preferences depend on how much their commute time affects their budget, if they have children who are under the age of five, and their segmentation preferences towards work.

The findings from this survey have several implications for the staff at North Carolina Wesleyan University who participated in it. One of the main implications is that younger age categories (below the age of fifty-five) are more positive (attitudes above the midpoint) towards working from home, although this difference was not found to be statistically significant, possibly due to the small sample size. Nonetheless, this suggests that NCWU may want to take into account the age of their employees when considering a remote work policy. This implies that workplaces with a younger workforce may benefit from offering more work-from-home opportunities to attract and retain younger talent. By doing so, NCWU

can maintain employee satisfaction and productivity while also potentially reducing the costs associated with maintaining an office.

In addition, the study found that as commuting costs increase, the desire to work from home increases. This finding implies that workplaces that provide financial incentives for employees to work from home, such as reimbursement for home office equipment or a transportation stipend, may be more attractive to employees who face higher commuting costs. By doing so, NCWU can retain employees who may otherwise leave for a job with lower commuting costs.

Personal values regarding the separation of work and home are more important than age, according to the study. The study found that individuals with higher segmentation preferences expressed fewer positive attitudes toward working from home. This suggests that the importance of work-life balance and the desire for a clear separation between work and home life varies across individuals, regardless of age. While age may play a role in work-from-home attitudes, it is not the only determining factor. Instead, NCWU may need to consider individual preferences when developing remote work policies.



Furthermore, the study's finding on segmentation preferences implies that NCWU may need to provide more flexibility in their remote work policies. For instance, some employees may prefer a hybrid model where they can work from home on certain days but be in the office for others. Such a model would allow individuals to customize their work arrangement to their preferences and better balance their work and home life. Additionally, by providing flexibility, NCWU may be able to attract a wider range of employees with different work styles and preferences, leading to a more diverse and inclusive work environment.

The study found that individuals with young children express more positive attitudes toward working from home than those without. This finding suggests that providing work-from-

home opportunities can be of great benefit to employees with young children. For working parents, the ability to work from home can allow for a better work-life balance, as they can more easily tend to their children's needs while still being able to complete their work tasks. By offering work-from-home options, NCWU can support working parents and help to alleviate the stress and challenges associated with balancing work and family responsibilities.

In addition, offering remote work options for parents with young children can also lead to increased employee satisfaction and retention. When parents feel supported by their employer, they are more likely to stay with the organization long-term, reducing turnover costs and potentially increasing productivity. Additionally, remote work options can make NCWU more attractive to potential employees with young children.



Factors Specific to NCWU

There are several other factors besides the variables studied in the research specific to NCWU that should be taken into account when considering remote work policies. One of these factors is the geographic dispersion of the university's employees. NCWU has multiple campuses across the state of North Carolina, meaning that many employees may live far from their primary worksite. In such cases, offering work-from-home options can help to alleviate the burden of commuting and allow employees to better balance their work and personal lives. Additionally, remote work options can help increase collaboration and communication among employees located at different campuses, as virtual meetings and other tools can be utilized to bridge the distance between locations. If employees are dispersed across a wide area, a remote work policy can help to reduce the need for long commutes and make it easier for employees to collaborate and communicate with one another. Additionally, remote work options can help improve the work-life balance of employees who live far away from campus, potentially reducing turnover and increasing employee satisfaction.

However, there are also potential challenges associated with geographic dispersion and remote work policies. Communication and collaboration can be more difficult when employees are not physically present in the same location, and managers may need to put additional effort into building and maintaining team cohesion. Additionally, there may be technological barriers to remote work, such as insufficient internet access in some areas. Therefore, NCWU may need to carefully consider the needs and challenges of their geographically dispersed workforce when developing remote work policies, and may need to invest in technologies and processes to facilitate effective remote work across the organization.

The uniqueness of higher education is another factor that is specific to NCWU and should be taken into consideration when developing remote work policies. Higher education institutions have specific requirements and responsibilities that may differ from those of other organizations. For example, faculty members may need to be physically present on campus for certain activities such as lectures, office hours, and committee meetings. Additionally, the availability of certain equipment, such as specialized lab equipment, may be limited to on-campus locations. However, there are also aspects of higher education that may lend themselves well to remote work opportunities. For instance, administrative staff members may be able to complete many of their tasks from home, such as answering emails, conducting virtual meetings, and completing paperwork. Remote work opportunities may also allow faculty members to engage in research activities that require extended periods of focused work, without the distractions that can arise in a busy office or lab setting. Therefore, when developing remote work policies for NCWU, it will be important to consider the unique requirements and opportunities that exist within higher education. By tailoring policies to the specific needs and circumstances of the university, NCWU can ensure that remote work opportunities are effective and beneficial for both employees and the institution as a whole.

In addition to the factors mentioned previously, it's important to consider the specific culture and values of NCWU when developing remote work policies. As a higher education institution, NCWU has a unique culture and set of values that may differ from those of other

organizations. For example, NCWU may place a high value on collaboration and face-to-face interactions among faculty and staff, which could potentially be impacted by remote work policies. It's important to consider how remote work may affect the sense of community and shared purpose that exists on campus. While remote work can offer many benefits, such as increased flexibility and reduced commuting costs, it can also lead to a sense of isolation and disconnection from colleagues. This is particularly relevant in the higher education context, where collaboration and knowledge sharing are crucial for academic success.

Therefore, when developing remote work policies at NCWU, it's important to strike a balance between accommodating individual preferences and needs, and maintaining a strong sense of community and shared purpose. This may involve offering a hybrid model, where employees have the flexibility to work from home on certain days but are required to be on campus for others. Additionally, NCWU may want to consider implementing regular in-person meetings or events to foster a sense of community and collaboration among remote workers. Furthermore, the values and priorities of NCWU may differ from those of other organizations, and this should be taken into account when developing remote work policies. For instance, NCWU may prioritize work-life balance and family-friendly policies over strict adherence to traditional work schedules. By aligning remote work policies with the unique culture and values of NCWU, the institution can create a work environment that supports employee wellbeing and productivity, while also promoting its mission and values.

Overall, the study's findings suggest that remote work policies can have significant benefits for both employees and employers at NCWU. By accommodating individual preferences and needs, NCWU can improve employee satisfaction and retention, while also potentially reducing costs associated with maintaining an office. Furthermore, by offering work-from-home options for parents with young children, organizations can support their employees in achieving a better work-life balance, ultimately leading to a more productive and engaged workforce. ❖

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AN EDUCATION PAID IN BLOOD: TACTICAL DEVELOPMENTS AND EVOLUTION OF THE BRITISH EXPEDITIONARY FORCE 1914-1918

INTRODUCTION

The First World War, or Great War, as it will be called in this paper, is often overshadowed by its sequel, the Second World War. The Great War is most often summarized in history classes as four years of pointless trench warfare and portrayed as merely the war that set the stage for the Second World War. This was my thinking before I began studying infantry tactics as part of my Reserve Officer Training Program (ROTC). It was in those classes, specifically in the doctrinal manuals, that I found the origins of this paper's thesis. Already having an enthusiastic curiosity for military history, I began to wonder how the doctrine I was being taught first developed, and where its origins lie. In my

search, I realized that the Great War, rather than its sequel, was the origin of modern warfare.

The trench warfare of the Great War on the western front was a unique tactical and strategic problem that both sides proved unprepared to confront and solve. The Entente and Central Powers would spend four years trying to break the stalemate of the western front at the cost of tens of millions of lives. It is from the perspective of the British Expeditionary Force (BEF) that will be used to discuss how trench warfare was overcome.

It is important to note that this work will almost exclusively focus on the BEF's *offensive* tactical developments rather than defensive developments. This is done because the British government's political and strategic objectives



British volunteers for "Kitchener's Army" waiting for their pay in the churchyard of St. Martin-in-the-Fields, Trafalgar Square, London, August 1914. Photo Credit: Imperial War Museum via [Wikimedia Commons](#).

as well as the British military ethos during this period prioritized the offensive before and throughout the Great War.

This thesis will rely primarily on Andrew Rawlinson and his *British Expeditionary Force 1914-1918* series as well as Dr. Spencer Jones's many books covering the BEF on the Western Front from 1914-1917. Both are authors of numerous other well-researched works on military history, with Dr. Jones being a senior lecturer in armed forces and war studies at the University of Wolverhampton. Both give special focus to the composition of the BEF and offer excellent detail on tactics used in any given engagement that is difficult to find in most other books on the Great War. These works combined offer an exemplary chronicle of the BEF's offensive tactical evolution over the course of the Great War.

All participants entered the Great War unprepared for the realities of modern industrial warfare and even less prepared for the static trench warfare that typified the war. The British Army, however, entered the war with a unique perspective built from experience that shaped their approach to war, one that would both hinder and help in the BEF when it fought in France. Before the Great War, the BEF was a small professional volunteer army that was used in small-scale colonial conflicts and in the policing of the vast British Empire. This was the army that entered Belgium in the summer of 1914, an army that would be pushed to the breaking point by its numerically superior German foe. By 1918, however, the BEF would be transformed into a conscription-based army

that was a technologically and tactically superior force that would push the German army out of Belgium and into their own heartland.

There was no single revolutionary technology that turned the tide or genius general who simply thought up the key to victory over night. While studying history, it is easy to simply look at one battle or one general and declare that "this is the battle where (insert well known general) came up with the strategy or tactics that revolutionized warfare as we knew it!" The reality is that there are rarely, if ever, any revolutions in military history; more often, there is a gradual and a not necessarily linear path of tactical developments. The BEF during the Great War was no exception, as it struggled with its tactical development throughout the war and was slow to adapt to the new realities of modern warfare.

To study this evolution, we must first analyze the prewar British Army, its doctrine, and the forces that influenced it to develop differently from the Great War's other belligerents. Therefore, the first section of this paper will focus on the pre-war British Army's doctrine, then go into detail on the three core branches of the army at the time: infantry, cavalry, and artillery. Once the groundwork has been laid, we will dive into the BEF's baptism of fire in 1914 and chart, year-by-year, the long brutal evolution of the BEF: from the intense battles of maneuver in 1914 to the BEF's first stumbling attempts to break the stalemate of trench warfare in 1915. In 1916, at the definitive battle of the Somme, we will see the development of innovative technology and new



tactics that will continue in the somber year of 1917. Finally, 1918 will open with an all-out offensive from Germany that, though pushing the BEF to its limits, could not break it. This German failure would give the BEF an opportunity to see the fruits of four years of trial and error harvested in a 100-day-long allied advance that would lead to Germany's surrender.

THE PRE-WAR BRITISH ARMY

The British Army of 1914 was a unique force that owes its quirks to the lessons learned in past conflicts, and, for the British Army, no war had such a major influence as the Anglo Boer War (1899-1902).¹ The hybrid conflict saw both conventional field battles and hybrid guerrilla warfare that taught the British Army many hard lessons on modern warfare.² Delving into details on the war, especially the guerrilla warfare phase, is beyond the scope of this paper. However, the traumatic events of the "Black Week" during the conventional phase of the war would become the inspiration for the British tactics and doctrine going into the Great War.³ In the following sections, we will analyze the British Army that entered the Great War, first looking at its doctrine and ethos, then looking at the three branches of the BEF and their roles.⁴

Pre-War "Doctrine" and Ethos

The British Army before the war was a global police force first and foremost, with imperial forces expected to maintain order and fight near constant small-scale conflicts anywhere around the world.⁵ Therefore, the British Army had a strong emphasis on lower-level unit tactics, individual soldier's skills, and flexibility of leadership and command.⁶ This came at the expense of any overarching doctrine for soldiers and officers to follow and learn from. This lack of doctrine would have far reaching consequences for the BEF as it entered the Great war, which we will analyze in later sections of this paper.

The lack of doctrine in the British army stemmed from a fear of the rigidity and inflexibility of their tactics that led to the

humiliating defeats of early days of the Boer War.⁷ The Boer war demonstrated to the British that following any set way of attacking or defending created vulnerabilities that a more flexible enemy could exploit. As a result, there was never any higher authority willing or able to establish a set doctrine, leaving officers from across the army to craft their own theories on military tactics.⁸ Without a higher authority to instruct officers, there were only ever guidelines and essays written by other officers recommending *their* preferred methods of training and coordination between infantry, artillery, and cavalry tactics.⁹

The hundreds of articles and essays on modern warfare left no unity in the British army on how to conduct war.¹⁰ During colonial police actions and small far-flung conflicts of peace time, this proved no issue; however, on the western front of the Great War, this would prove to be a major obstacle to the organization of the BEF. This would also have major effects on the coordination of formations within the BEF as it expanded over the course of the war. Officers would find themselves leading their men into battle without a solid idea of how to coordinate with their peers and sometimes how to even communicate with them. The consequences of this lack of coordination and systems for successfully disseminated ideas and experience efficiently and from a position of authority can be seen in the common troubles that the three arms of the British Army had before the Great War began.

The Three Arms

By 1914, the BEF's core of infantry had a significant head start in critical areas of marksmanship and individual skills achieved through rigorous training and professionalism. British soldiers, taking note from their Boer opponents, were trained to become expert individual marksman capable of both accurate and rapid fire at ranges of up to 300 yards.¹¹ British infantry were also well-trained at fighting while dispersed and from cover, and they were even trained in how entrench themselves

¹ Spencer Jones, *From Boer War to World War: Tactical Reform of the British Army, 1902-1914* (Norman, OK: University of Oklahoma Press, 2013), 10-16.

² Jones, *From Boer War to World War*, 25-34.

³ Jones, *From Boer War to World War*, 34-35.

⁴ Jones, *From Boer War to World War*, 25-28.

⁵ Jones, *From Boer War to World War*, 67.

⁶ Jones, *From Boer War to World War*, 67-70.

⁷ Jones, *From Boer War to World War*, 67-70.

⁸ Jones, *From Boer War to World War*, 49.

⁹ Jones, *From Boer War to World War*, 51-52.

¹⁰ Jones, *From Boer War to World War*, 57.

¹¹ Spencer Jones, *The Great Retreat of 1914: From Mons to Marne* (Sharpe Books, 2018), 17.

without direct instruction from superior officers.¹² These skills, combined with their short barreled bolt action rifles, made the BEF infantry especially well-equipped and trained for fighting against the Germans in Belgium in the summer of 1914.

However, political interference would prevent the infantry from equipping themselves with more modern weapons such as grenades as well as heavy and light machine guns by 1914.¹³ This political interference would also affect the other two branches in regards to quality and quantity of essential equipment.

The artillery branch, by 1914, was wrestling with their own doctrinal and tactical problems in the fields of concealment, infantry support, and indirect fire.¹⁴ Boer use of long-range heavy artillery to fire at British artillery gave commanders serious headaches during the Boer War.¹⁵ The fact that the Boers would often fire from concealed positions and even without direct line of sight only added British troubles with countering Boer artillery batteries.¹⁶

After the Boer War, British artillery would receive new light field artillery and a variety of heavier howitzers and cannons meant for long-range counter battery fire. Another debate was the question of how close the lighter field guns should be to the front line. This became part of the doctrinal debate, and a lack of formal doctrine prevented any consensus from being reached by 1914.¹⁷ There was also no consensus on how to conceal artillery batteries or even if they should be concealed at all.¹⁸ Once again, the focus on flexibility and lack of doctrine lead to debate and confusion.

By 1914 the artillery branch's informal "doctrine" was to have field artillery batteries act as fire support for the infantry by setting their guns up to the frontline and firing using direct line of sight.¹⁹ The heavy artillery, which, due to persistent political and budgetary restraints were relatively few, focused on countering enemy artillery.²⁰

The cavalry, despite widely held beliefs, still had an integral role on the battlefield to play, even in 1914. Their primary role were those of scouts and dismounted infantry meant to reconnoiter enemy forces, skirmish with scouting enemy cavalry, and protect the main BEF from being reconnoitered themselves.²¹ There was, of course, their traditional role of shock cavalry, meant to ride down fleeing enemies or charge through a weakened one. However, this was secondary to their role as scouts or dismounted infantry with a charge with "cold steel" (swords and lances) against modern firepower was seen as dangerous at best and suicidal at worst, unless carried out with expertise.²² Regardless, British cavalry were trained to perform all these tasks spectacularly and were widely regarded even before 1914 as the best cavalry in Europe.²³

British cavalymen were better trained and equipped than their German counterparts in every aspect of modern mounted warfare. While German cavalymen were equipped with short carbines which lacked range and accuracy, British cavalymen used infantry rifles and trained to the infantry marksmanship standard.²⁴ German cavalry doctrine still emphasized a charge with cold steel neglecting the marksmanship training and dismounted tactics that would be crucial in 1914.²⁵ British cavalymen were significantly better trained in dismounted combat as well as in how to maintain their mounts over the course of a campaign. The Germans were woefully undertrained in how to maintain their mounts and lost thousands of horses to exhaustion and over-exertion, riding their horses to death.²⁶

However, for all their advantages, the British cavalry still had vulnerabilities as war broke out in 1914. The lack of coordination between commanders regarding tactical preferences or standard procedures that plagued the BEF was present in the cavalry as well.²⁷ This, combined with British cavalry being

¹² Jones, *From Boer War to World War*, 71-79.

¹³ Jones, *The Great Retreat of 1914*, 18.

¹⁴ Jones, *From Boer War to World War*, 125-145.

¹⁵ Jones, *From Boer War to World War*, 114-118.

¹⁶ Jones, *From Boer War to World War*, 114-118.

¹⁷ Jones, *From Boer War to World War*, 56.

¹⁸ Jones, *From Boer War to World War*, 151, 137-139.

¹⁹ Jones, *From Boer War to World War*, 118, 124.

²⁰ Jones, *From Boer War to World War*, 125-127.

²¹ Jones, *From Boer War to World War*, 196, 205.

²² Jones, *From Boer War to World War*, 205.

²³ Jones, *From Boer War to World War*, 204.

²⁴ Jones, *From Boer War to World War*, 205.

²⁵ Jones, *From Boer War to World War*, 187.

²⁶ Jones, *From Boer War to World War*, 203.

²⁷ Jones, *From Boer War to World War*, 188.



The Battle of the Somme, July-November 1916: Troops of the 10th Battalion, Royal Fusiliers (37th Division) Marching to the Trenches, Saint-Pol-sur-Ternoise, November 1916. Photo Credit: Ernest Brooks via [Wikimedia Commons](#).

outnumbered 5:1 in 1914, left the BEF at risk of losing its eyes and ears constantly throughout the chaotic 1914 campaign.

1914: FIRE AND MANEUVER

The BEF's strategy in the summer of 1914 was a simple and vague one: to advance to contact with the Germans and defend their Belgian ally while cooperating alongside the French as a junior partner as the need arose at the front.²⁸ This strategy would run headfirst into reality as the seven divisions of the BEF, a total of 120,000 men, found themselves outnumbered 2:1 by the German 1st and 2nd Armies.²⁹ The Germans' objective was to smash through Belgium and then swing south to Paris to end the war before Christmas.

The Germans would annihilate Belgian defenders on the border, then quickly defeated

the advancing French 5th Army at the Battle of Charleroi, forcing it to retreat.³⁰ This sudden defeat left a gap in the BEF's right flank where the 5th Army had been, forcing the BEF into a hasty withdrawal to a new defensive line and avoid being encircled and destroyed by the outnumbering German forces.³¹ The speed and ferocity of the German attacks in Belgium would catch the British and French by surprise and send the BEF into a two-week, nonstop fighting retreat.³² This series of sharp and intense battles would collectively be known as "The Great Retreat" and would push the BEF to its limits.

The BEF would fight numerous rearguard actions during the Great Retreat between August 22 and September 5, with the most prevalent being the Battle of Mons and the Battle of the Marne. We will use the Battle of Mons on August 23 as our primary case study

²⁸ Andrew Rawson, *The 1914 Campaign* (Barnsley, UK: Pen & Sword Military, 2014), 24-27.

²⁹ Rawson, *The 1914 Campaign*, 26.

³⁰ Jones, *The Great Retreat of 1914*, 30-31.

³¹ Jones, *The Great Retreat of 1914*, 30.

³² Jones, *The Great Retreat of 1914*, 40-41.

since it demonstrates the strengths and weaknesses of the BEF without support of its French allies. We will also look at how the role of the cavalry was so crucial in this campaign as well as at how the British cavalry performed against the outnumbering German cavalry.

On August 23, the BEF's 2nd Corp, comprised of two divisions totaling roughly 36,000 men and 152 guns, attempted to delay eight German divisions at the Belgian city of Mons.³³ The city itself, and thus the British defense, was bisected by a large canal. This canal's bridges and crossings would come under heavy assault throughout the battle and become its focal point.³⁴

The Germans opened the battle with a withering artillery bombardment that the British were unable to counter with what few heavy guns they had.³⁵ After this, the German infantry would begin assaulting the town in close-order formations. Undeterred by the German bombardment, British infantry began cutting down the first tightly packed waves of advancing German infantry with accurate rifle fire. These first attacks were thrown back, with following attacks made in extended lines with German machine guns suppressing British riflemen as they attempted to cross the canal.

Both British and German artillery would be brought forward to fight alongside the infantry as the fighting intensified, with the outnumbered British field guns taking heavy casualties from their exposed positions due to rifle and counter battery fire.³⁶ The overwhelming German small arms and artillery fire would eventually create cracks in the defensive line along the canal, allowing the Germans to begin crossing and getting behind British lines.³⁷ The 2nd Corp was forced to withdraw from Mons as their defensive positions along the canal were at risk of being enveloped. Due to heavy German casualties, the professionalism and discipline of the soldiers of British 2nd Corp was able to retreat in good order, having taken 1,600.³⁸

As the retreat from Mons would continue, skirmishes with between German and British cavalry were constant, and often one-sided in favor of the British.³⁹ The British would lay in ambush for German cavalry, routing them and forcing them to return with supporting light infantry for a coordinated attack. However, by the time these attacks could be organized, British cavalry had already mounted and repositioned to restart the process all over again. Unable breakthrough the British cavalry screens, the German high command was effectively



A German prisoner helps British wounded make their way to a dressing station near Bernafay Wood following fighting on Bazentin Ridge, 19 July 1916, during the Battle of the Somme. Photo Credit: Ernest Brooks via [Wikimedia Commons](#).

³³ Jones, *The Great Retreat of 1914*, 32-33.

³⁴ Jones, *The Great Retreat of 1914*, 33.

³⁵ Jones, *The Great Retreat of 1914*, 34-35.

³⁶ Rawson, *The 1914 Campaign*, 36-54.

³⁷ Rawson, *The 1914 Campaign*, 50-54.

³⁸ Rawson, *The 1914 Campaign*, 53.

³⁹ Jones, *The Great Retreat of 1914*, 77-84.

blinded and unable to pursue the BEF close enough to be able outmaneuver and cut its line of retreat. British cavalry, in contrast, was able to feed British General Headquarters (GHQ) information about German movements constantly, allowing the BEF to stay one step ahead, avoiding encirclement and delaying the German pursuit with hastily planned defenses.⁴⁰

Throughout the Great Retreat, the BEF would show the value of their hard-earned professionalism and training, but also its vulnerabilities. The Battle of Mons provides an example of how that training and discipline translated not to victory, but rather to an ability to avoid defeat by the outnumbering Germans. The intensity and frequency of these engagements caused heavy casualties among the small but well trained BEF, costing it experience, training, and manpower that could not be easily or quickly replaced.⁴¹ More intense maneuver battles and attrition would follow in the late summer and early fall of 1914 that would additionally drain the BEF until the establishment of static trench warfare.⁴²

Although the BEF performed well under the circumstances, it would need rapid reinforcement and expansion on a scale unknown in British military history up to this point. That expansion, along with the new tactical problems that trench warfare brought to the table, left the BEF with many deficiencies to rectify moving into 1915.

1915: STUMBLING IN THE RIGHT DIRECTION?

Entering 1915, the BEF would be forced to rapidly expand beyond its prewar systems of mobilization and organization's limits to meet the demands of the insatiable western front.⁴³ The quality of the average British soldier and officer declined as thousands of reserves and new volunteers were called up and rushed through hasty training courses and given second-hand and older stockpiled equipment.⁴⁴ With 25% of the prewar professionals that entered Belgium made casualties in 1914, those

remaining were too few to disseminate their experience in the time required to remedy this lack of training.⁴⁵ Young new officers were sent to the front with minimal training to learn from the few remaining professionals left. Lack of training doctrine as well as a lack of experienced officers to learn from led to many mistakes and many more avoidable casualties.⁴⁶

These problems were overshadowed by the massive roadblock that entrenched German positions had become for the offensively minded BEF. Seeking to liberate both French and Belgium territory as well as to support the French and Russians by taking pressure off their fronts' offensive operations, the BEF in 1915 would launch several small (in comparison to later in the war) offensives.⁴⁷ We will therefore be analyzing the BEF's first set piece battle against an entrenched enemy of the war and its major attempt at to break the stalemate, the Battle of Neuve Chappelle on March 10, 1915.

Neuve Chappelle itself was not strategically significant; however, the high ground of Auber's ridge beyond it and the railway hub and city of Lille beyond that, were.⁴⁸ It was with these objectives in mind that the offensive was planned. Intelligence was gathered by ground observation as well as still new aerial photographs to give the artillery accurate German positions for the preliminary bombardment.⁴⁹ Unable to get close enough to fire oversights, the artillery was forced to adapt to new indirect firing methods using observers to correct their fire until the guns were accurately ranged on their target.⁵⁰

The battle opened with a 30-minute-long artillery bombardment, followed by an infantry assault on German positions, while the artillery targeted pre-sighted targets following a strict timetable.⁵¹ This proved to be effective, as the infantry cleared German trenches with bayonets and grenades then captured Neuve Chappelle itself before noon. However, this success would prove to be short-lived.⁵² Undiscovered, and thus unsuppressed, German positions wreaked

⁴⁰ Jones, *The Great Retreat of 1914*, 77-80.

⁴¹ Rawson, *The 1914 Campaign*, 390-394.

⁴² Rawson, *The 1914 Campaign*, 390-394.

⁴³ Andrew Rawson, *The 1915 Campaign*, The British Expeditionary Force (Barnsley, UK: Pen & Sword Military, 2015), 19.

⁴⁴ Spencer Jones, *Courage without Glory: The British Army on the Western Front 1915* (Warwick, UK: Helion, 2019), 40, 46-47.

⁴⁵ Jones, *Courage without Glory*, 38.

⁴⁶ Jones, *Courage without Glory*, 35-36.

⁴⁷ Jones, *Courage without Glory*, 35-36.

⁴⁸ "The Battle of Neuve Chapelle 1915," Western Front Association, <https://www.westernfrontassociation.com/world-war-i-articles/the-battle-of-neuve-chapelle-1915/>.

⁴⁹ Rawson, *The 1915 Campaign*, 27.

⁵⁰ Rawson, *The 1915 Campaign*, 27.

⁵¹ Rawson, *The 1915 Campaign*, 25-27.

⁵² Rawson, *The 1915 Campaign*, 46-66.

havoc on British troops as they moved across no-man's-land and eventually beyond Neuve Chappelle.⁵³ This, combined with German artillery fire, made reinforcing the early success difficult, along with communications with high command, and the artillery's task was nearly impossible to fulfill.⁵⁴

The morning of the 11th saw British attacks on newly established German positions fail with heavy casualties. These positions could not be accurately targeted by artillery due to poor weather obscuring observation, leaving the Germans unsuppressed.⁵⁵ By March 12th, Germans began launching counterattacks, with German forces suffering heavy casualties and both sides artillery unable to accurately target the other's positions due to continued poor visibility.⁵⁶ After these counterattacks, GHQ would cancel further attacks, and the battle would effectively come to an end by the 13th of March.⁵⁷

The Battle of Neuve Chappelle is an interesting battle due to how relatively successful it was initially despite this being the BEF's first large offensive action since static trench warfare began. It would provide the blueprint for future British offensives. British commanders saw how effective use of preliminary artillery bombardment could destroy and suppress enemy trenches and allow infantry to advance and take ground in the initial stages.⁵⁸ This could only be achieved with extensive planning and organization, both of which would disintegrate upon contact with the enemy. This was especially true if there were any positions that were not targeted by the initial bombardment. The absence of cavalry and its role as scouts were felt heavily here, since without mounted scouts, the BEF was forced to use less effective and in need of new forms of reconnaissance.

The Battle of Neuve Chappelle showed the BEF that their infantry was unable to coordinate with the artillery and unable to advance without them. Artillery was unable to efficiently find and destroy the enemy without

the eyes and ears of cavalry, especially while still developing the science of indirect firing artillery. Even so, there was still the initial success of the attack to give British commanders hope for future offensives and breakthrough. The BEF would need to find a way to capture the early success of the Battle of Neuve Chappelle and mitigate the shortcomings of their combat arms in 1916.

1916: THE YEAR OF THE SOMME

In 1916, the Allied powers would attempt to overwhelm and break the Central Powers by launching massive offensives on all fronts simultaneously. The largest of these being the Russian Brusilov Offensive and the subject of this section, the British Somme Offensive.⁵⁹

To prepare for this offensive, the BEF saw its number of divisions expand from 10 to 60 combat divisions in France.⁶⁰ This was possible due to the introduction of conscription in late January of 1916, putting an end to the old professional volunteer army.⁶¹ Such a rapid expansion inevitably led to inconsistencies regarding training and equipment. However, there were still many veteran formations from 1915 to help balance the newly raised recruits and divisions.⁶² Before the battle, every infantryman was also equipped with grenades, and some platoons were equipped with newly developed light machine guns as standard to give infantry additional organic firepower to suppress the enemy while crossing no-man's-land and clearing trenches. This massive expansion was undertaken in order to cope with the losses of not just the past two years of conflict, but also to prepare for the planned massive offensive on the Somme River. GHQ had planned for the offensive to be an attritional battle in their favor, hoping to bleed the Germans white and eventually break through the exhausted German defense.⁶³

The center of the British offensive was, just as it had been in 1915, the preliminary artillery bombardment, this time lasting an entire week and covering a 15-mile wide front.⁶⁴ Once the

⁵³ Rawson, *The 1915 Campaign*, 50-66.

⁵⁴ Rawson, *The 1915 Campaign*, 50-66.

⁵⁵ Rawson, *The 1915 Campaign*, 41-44.

⁵⁶ Rawson, *The 1915 Campaign*, 46-66.

⁵⁷ Rawson, *The 1915 Campaign*, 46-66.

⁵⁸ Rawson, *The 1915 Campaign*, 46-66.

⁵⁹ Spencer Jones, *At All Costs: The British Army on the Western Front 1916* (Warwick, UK: Helion, 2018), 39-41.

⁶⁰ Jones, *At All Costs*, 42.

⁶¹ Jones, *At All Costs*, 43.

⁶² Jones, *At All Costs*, 51.

⁶³ Jones, *At All Costs*, 38.

⁶⁴ "First Battle of the Somme," *Encyclopedia Britannica*, <https://www.britannica.com/event/First-Battle-of-the-Somme>.

preliminary bombardment lifted, the artillery would shift to the next line of German trenches to delay reinforcements as infantry crossed no-man's-land and cleared trenches.⁶⁵ However, even with more than 400 heavy guns as well as 1,000 field guns and howitzers, the weeklong bombardment would not be able to suppress the Germans anywhere as effectively as planned.⁶⁶ Combined with the infantry's slow advance in close, compact ranks, the first day of the battle would see more than 60,000 British casualties as consequence.⁶⁷ By the end of the battle in November, the BEF would suffer a staggering and debilitating 420,000 casualties.⁶⁸

Despite the common belief that the battle was a complete failure and only got hundreds of thousands killed for no gain, this is not completely accurate. From July 1st until the battle's official conclusion on November 13th, there would be minor tactical successes and failures for the BEF to learn from. The first use of

tanks is arguably the largest innovation seen during 1916, although mechanical problems and a lack of tactical doctrine would leave their impact on the Battle of the Somme negligible.⁶⁹ It would not be until 1917 that we would see tanks being used in large numbers and not until 1918 that they would be used to their full potential.

The developments in infantry and artillery planning and coordination are far more significant in 1916. The British 13th Corp would see success at Pozieres Ridge with what would soon be known as the Creeping Barrage.⁷⁰ Artillery would fire just 30-40 yards ahead of advancing infantry, continuously suppressing the enemy without the need for scheduled shifts on any specific position.⁷¹ When planned and executed well, this allowed infantry to advance across no-man's-land and beyond using a wall of steel and shrapnel as a shield. Before the battle, the entire BEF was also equipped with



Company of the Public Schools Battalion, i.e. 16th Battalion, The Middlesex Regiment, at "White City," opposite Beaumont Hamel prior to the Battle of the Somme, 1916. Photo Credit: Ernest Brooks via [Wikimedia Commons](#).

⁶⁵ Jones, *At All Costs*, 140.

⁶⁶ Jones, *At All Costs*, 157-158.

⁶⁷ "First Battle of the Somme."

⁶⁸ "First Battle of the Somme."

⁶⁹ Jones, *At All Costs*, 394-401.

⁷⁰ Jones, *At All Costs*, 260.

⁷¹ Jones, *At All Costs*, 338-339.



British infantry advancing in support during the Battle of Morval, 25 September 1916, part of the Battle of the Somme. The site is near Ginchy, and the troops belong to the British 14th Corps, possibly the British 5th Division. Photo Credit: Ernest Brooks via [Wikimedia Commons](#).

grenades and newly developed light machine guns as standard to give infantry additional organic firepower to suppress the enemy while crossing no-man's-land and while clearing trenches. However, attacks using the Creeping Barrage were the exception at this point in the war, and hastily planned artillery bombardments, followed by costly and ineffective small scale infantry attacks, would be the standard mode of attack for most commanders on the Somme.⁷² These attacks would either flounder immediately or break through the initial line of German defense and lose momentum without the organization and artillery support of the initial assault.⁷³

As the battle of the Somme ended and the BEF counted their dead, British commanders had yet to cement their strategy that they would use to break through German defenses. While the BEF did see some tactical successes, there was no significant ground gained at high cost.⁷⁴ The BEF would struggle to implement the tank throughout 1916 and 1917, with debates raging on their future doctrine, tactical uses, and

mechanical improvements.⁷⁵ 1916 demonstrates the BEF's continuous struggle to mass and apply firepower effectively at the beginning of an attack as well as when the attack broke through the initial German line of defense. 1917 would see the continued development of artillery and infantry tactics with the development of the creeping barrage, along with further experimentation with the implementation of tanks on the battlefield.

1917: IN FLANDERS' FIELDS

1917 was arguably the darkest year of the war for the British and the other combatants as a whole, despite plans for a possible breakthrough offensive.⁷⁶ There were cracks beginning to show, however, as manpower, even after the implementation of conscription, would be lacking from 1917 onward.⁷⁷ This manpower shortage was the one of the results of a general feeling of exhaustion among the British people due to the unsustainable casualties of the war, with over 600,000 casualties in 1916 alone.⁷⁸ Both France and Russia were also reaching their

⁷² Jones, *At All Costs*, 342-356, 357-360.

⁷³ Jones, *At All Costs*, 357-360.

⁷⁴ "First Battle of the Somme."

⁷⁵ "First Battle of the Somme."

⁷⁶ Spencer Jones, *The Darkest Year: The British Army on the Western Front 1917* (Warwick, UK: Helion, 2022), 29-32.

⁷⁷ Jones, *The Darkest Year*, 36-37.

⁷⁸ The War Office, *Statistics of the Military Effort of the British Empire during the Great War, 1914-1920* (London: H. M. Stationery Office, 1922), 360.

breaking points in 1917, with widespread mutinies in the French army due to constant failed attacks, and Russia on the brink of military and economic collapse, starvation, and revolution for similar reasons.⁷⁹ Nevertheless, Russia would launch the ill-fated "Kerensky Offensive" from the 1st to 4th of July while the British would launch the Third Battle of Ypres from the 30th of July to the 10th of November.⁸⁰

As 1917 began, planning of the offensive around the Ypres Salient in Flanders became the focus of the BEF due to the political gains from further liberating Belgium as well as threatening the U-boat bases in the area. The offensive would see the BEF advance a mere 5 miles at the cost of 250,000 casualties and be considered an unnecessary and bloody failure by many in Britain.⁸¹ Despite the offensive's strategic failure, the BEF would find some tactical success due to maturing tactical developments of the infantry and artillery. These tactical developments as well as the troubled development of tanks' tactical doctrine can be seen in the 47th Infantry Division's attacks on Messine ridge.

The 47th Division began its attack on Messine ridge on the 7th of June with the intent to control the plateau of the ridge by seizing German trenches that ran along a canal running through the area.⁸² Preparations for the attack included trench-clearing rehearsals for the infantry and a focus on the improvement of telephone and telegraph lines.⁸³ Infantry platoons were also prioritized as the most critical unit in the attack, being small enough to be adaptable, self-sufficient in combat, and being equipped, as the new standard dictated, with light machine guns, rifles, rifle grenades, and hand grenades, along with in the rest of BEF.⁸⁴ New tactical instruction manuals were given to guide training regimes, which espoused the lessons learned in artillery and infantry coordination along with individual infantry skills.⁸⁵

To support the infantry, eighty-eight tanks would be used to cross over and through the German trenches and press on to the secondary and tertiary lines of defenses to disrupt the Germans' communication and reinforcements.⁸⁶ Tanks in 1917 were still extremely vulnerable to artillery and often acted as tempting targets for German spotters and artillery batteries.⁸⁷ This, combined with frequent breakdowns before and during combat, as well as the tendency to get easily stuck in the muddy cratered ground of no-man's-land made infantry hesitant to rely on these new machines.⁸⁸ These tanks would not play a role in the 47th assault on Messine ridge specifically but are still worth noting as they while tracking the tactical developments of 1917.

Training of infantry-tank cooperation was also underdeveloped, adding to a growing poor perception of the usefulness of tanks from British and German observers on the battlefield.⁸⁹ This was due to a still incomplete doctrine on how tanks should operate: either as mobile bunkers for infantry to advance behind or as an iron fist smashing rapidly through enemy lines and onto their rear to sow chaos. Regardless, when tanks were able to make breakthroughs without breaking down, getting stuck, or being hit by artillery fire, they had a devastating effect on German morale.⁹⁰

The attacks on Messine ridge also saw the application of advanced artillery tactics in counter battery fire and the continued use of the now doctrinal Creeping Barrage.⁹¹ German artillery was neutralized by accurate British counter battery fire from heavy guns before the attacks on 15th of June began. Counter battery fire, along with sporadic night barrages and feints with heavy bombardments in other sectors of the line, left the Germans guessing where the attack would come and when.⁹²

As the men of the 42nd went over the top on the 15th of June, they were covered by a creeping barrage that would advance ahead of them one hundred yards every four minutes.⁹³

⁷⁹ Jones, *The Darkest Year*, 39-41, 50.

⁸⁰ Jones, *The Darkest Year*, 41-48.

⁸¹ Jones, *The Darkest Year*, 45-48, 50.

⁸² Jones, *The Darkest Year*, 448.

⁸³ Jones, *The Darkest Year*, 460.

⁸⁴ Jones, *The Darkest Year*, 456-458.

⁸⁵ Jones, *The Darkest Year*, 456-458.

⁸⁶ Jones, *The Darkest Year*, 395-399.

⁸⁷ Jones, *The Darkest Year*, 486-496.

⁸⁸ Jones, *The Darkest Year*, 500.

⁸⁹ Jones, *The Darkest Year*, 500.

⁹⁰ Jones, *The Darkest Year*, 500.

⁹¹ Jones, *The Darkest Year*, 458-461.

⁹² Jones, *The Darkest Year*, 460.

⁹³ Jones, *The Darkest Year*, 460.

This barrage provided enough cover and suppression to allow the 42nd to cross no-man's-land, clear the German trenches, and advance to the German second line of defense quickly while sustaining relatively few casualties (11,000).⁹⁴ New trench mortars that could fire in the close quarters of British frontline trenches also provided rapid and accurate fire support to the troops as it was needed.⁹⁵

The infantry, using the suppressing fire of light machine guns, cover fire tactics, and grenades as they advanced, succeeded in taking their objectives, going on to hold off German counterattacks until they were relieved on the 2nd of August.⁹⁶ There was some debate and controversy on whether the 47th could have pushed further beyond their objectives rather than dig in. However, artillery continuing to fire according to their timetable, regardless of battlefield conditions, along with strained communications, left any further unplanned advance as dangerous, to say the least.⁹⁷

The 47th Division's attack on Messine Ridge is an excellent example of the lessons of 1916 being learned and applied successfully while also continuing to acknowledge shortcomings in planning and execution. Focusing on the details of planning, communications, and training made the admittedly limited attack a success for little loss of life. The standardization of training manuals, use of new artillery and infantry tactics and organization, as well as the use of tanks in larger and larger numbers were the result of experience, expansion, and reorganization since 1914.

However, this tactical success could not overshadow the failures of 1917 BEF at Ypres and in the allies as a whole. The Russian Empire would collapse in November of 1917 into a communist revolution in the wake of the failed Kerensky Offensive, while both France and Britain were left exhausted, with morale becoming a serious concern at home and at the front.⁹⁸ 1918 would see more German divisions move from Russia to the western front, seeking another victory after breaking the Russian

Empire. The British and French would try to survive an anticipated German offensive until American troops arrived in France in significant numbers.

1918: KAISERSCHLACHT AND 100 DAYS TO VICTORY

The Kaiserschlacht

1918 would open with the German Empire seemingly on the verge of victory over the allies after the signing of an armistice with now Soviet Russia in November of 1917.⁹⁹ Germany would spend the following months moving troops from east to west and began making plans for a decisive offensive in March.¹⁰⁰ The BEF and French forces would use this time to consolidate their defenses and rest their battered and exhausted troops as much as possible.

The beginning of 1918 would see the BEF unable to replenish its losses from the offensives of 1917, falling short 100,000 men in at the start of the year.¹⁰¹ Manpower shortages on the western front were exacerbated by the sending of ten divisions to the mountains of Italy, while also extending their lines to cover portions of French trench lines.¹⁰² With insufficient reserves, inexperienced replacements making up the understrength divisions, the BEF braced for the Germans' offensive.¹⁰³

The Germans' grand offensive would begin with a massive morning artillery bombardment.¹⁰⁴ The Germans would follow up the bombardment with an infantry assault; stormtroopers would use new submachine guns and deadly flamethrowers, along with aggressive tactics to overrun British strong points and advance beyond the trenches.¹⁰⁵ However, the speed of the offensive proved unsustainable for German logistics, communications, and, most importantly, manpower, and they suffered devastating losses that could not be replenished.¹⁰⁶ With the Germans exhausted, over-extended, and without formidable trench systems to defend from, the BEF, French, and newly-arrived American troops would begin the 100-Days offensive.

⁹⁴ Jones, *The Darkest Year*, 481.

⁹⁵ Jones, *The Darkest Year*, 461.

⁹⁶ Jones, *The Darkest Year*, 471-473.

⁹⁷ Jones, *The Darkest Year*, 479-481.

⁹⁸ Andrew Rawson, *Somme Offensive: March 1918*, The British Expeditionary Force (Barnsley, UK: Pen & Sword Military, 2018), 228, 15-20.

⁹⁹ Rawson, *Somme Offensive*, 16.

¹⁰⁰ Rawson, *Somme Offensive*, 16.

¹⁰¹ Rawson, *Somme Offensive*, 298.

¹⁰² Rawson, *Somme Offensive*, 298.

¹⁰³ Rawson, *Somme Offensive*, 301.

¹⁰⁴ Rawson, *Somme Offensive*, 38.

¹⁰⁵ Rawson, *Somme Offensive*, 38-40.

¹⁰⁶ Rawson, *Somme Offensive*, 38.

The 100-Days Offensive

The "100-Days Offensive" saw numerous battles and small skirmishes to show how BEF applied the last four years of tactical developments from August 8 to November 11. However, the attacks of Third Army from August 21 to 23 are possibly the most effective offensive the BEF would launch in the war. The German defenses would be swept aside in this battle by what was arguably the first modern combined arms offensive of the war. We will also step back and look at the broader tactical developments being applied at this point in the war.

The Third Army would attack on a ten-mile front from between the villages of Arras and Albert, part of the allied effort to widen the allied offensive and continue to put pressure on the now reeling German forces.¹⁰⁷ Tanks would

lead the infantry to their first objectives, while armored cars and Whippet light tanks would exploit gaps in the German defenses.¹⁰⁸

Although still vulnerable to anti-tank guns and direct artillery fire, the improved reliability of newer Mark IV and V tanks made tanks a more serious threat on the battlefield compared to years prior.¹⁰⁹ The entire advance would be covered by effective artillery firing ahead of the tanks and infantry using the now perfected Creeping Barrage.¹¹⁰

Artillery would be ordered to fire a Creeping Barrage across the front up to the limit of their guns' range, and they were then repositioned quickly to keep up with the advance.¹¹¹ The mobility of artillery would be further explored using the first self-propelled guns mounted on tank chassis, enabling artillery



A German trench occupied by British Soldiers near the Albert-Bapaume road at Ovillers-la-Boisselle, July 1916 during the Battle of the Somme. The men are from A Company, 11th Battalion, The Cheshire Regiment. Four men in the photo are sleeping. Photo Credit: John Warwick Brooke via [Wikimedia Commons](#).

¹⁰⁷ Andrew Rawson, *Advance To Victory: July to September 1918*, The British Expeditionary Force (Barnsley, UK: Pen & Sword Military, 2018), 106.

¹⁰⁸ Rawson, *Advance to Victory*, 107.

¹⁰⁹ Rawson, *Advance to Victory*, 106.

¹¹⁰ Rawson, *Advance to Victory*, 106.

¹¹¹ Rawson, *Advance to Victory*, 270.

to fire and maneuver significantly faster. Aerial spotters as well as organic infantry artillery spotters were also critical to ensuring that the guns could adjust and hit their targets accurately.¹¹² Gun registry was now a well-developed science, taking weather into account and using advanced mathematics to hit their targets with accuracy.¹¹³ This accuracy allowed the artillery to be able to shift and fire at new targets as they revealed themselves no longer hamstrung by a ridged fire plan.

The Germans were unable to resist the combined artillery, armor, and infantry assault as each division of Third Army overwhelmed German strong points and drove the German army from its entrenchments. This, combined with attacks from the British 4th Army through the venerable "Hindenburg Line" of defenses, exhausted the German manpower reserves built up from pulling troops from the east.¹¹⁴ Although this breakthrough may have been possible due to strategic or operational factors, such as the manpower advantage of Germans diminishing

after the Kaiserschlacht as well as exhaustion, it was the tactics employed by the BEF that allowed it to exploit this advantage and begin the offensive that would break the stalemate of trench warfare and eventually end the war. The rest of the 100-Days Offensive would be characterized by intense maneuver warfare over open terrain, sending the German army reeling back to Germany.

CONCLUSIONS

The BEF's tactical developments function as a method of demonstrating how military innovation and military "revolutions" often follow a slow and not always linear evolutionary path. The British Army, although well-trained, better in some respects to their adversaries, and highly disciplined, entered the war not even half the size of its contemporaries. In 1914, without a distinct strategy or doctrine to use as a crutch, the BEF survived only due to its tactical superiority and the skills of individual officers and soldiers. Trench warfare, however, would

force the BEF to experiment with innovative technology and tactics as well as emphasizing their strengths and overcoming their weaknesses on the battlefield. The BEF, over the course of four years of bloody fighting, evolved slowly into a formidable modern army.

Although outnumbered and outgunned in 1914, British artillery developed into one of the largest, most technologically and tactically advanced corps in Europe. Adapting the prewar focus on flexibility and maneuverability in the form of the first self-propelled guns, the BEF allowed artillery to keep up with the advance, thus keeping the momentum of any attack. British artillery also developed advance mathematics and new methods of spotting, such as aircraft, to fire more accurately anywhere on the battlefield. New weapons, such as trench mortars could also allow infantry access to rapid fire. Specific new tactics such as the Creeping Barrage to suppress the enemy and give infantry a chance to cross no-man's-land and clear enemy trenches.

Although cavalry were mostly pushed off the battlefield, their roles in the combined arms pyramid of infantry,

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A recruiting poster for the Royal Flying Corps, 1914. Photo Credit: [Wikimedia Commons](#).

¹¹² Rawson, *Advance to Victory*, 107.

¹¹³ Rawson, *Advance to Victory*, 271.

¹¹⁴ Rawson, *Advance to Victory*, 268.

artillery, and cavalry were picked up by other means. Aircraft became an essential part of battlefield reconnaissance while the tank, along with armored cars, was able to perform the role of exploiting gaps and breaks in enemy lines, wreaking havoc in enemy rearward areas.

The infantry would see their own individual firepower and adaptability increase significantly from 1914 on. Infantry would focus on the flexibility of smaller unit organizations of men in the form of platoons and sections of less than a hundred men. Adding the additional firepower of man-portable light machine guns as well as the equipping of every infantry man with rifle and hand grenades gave these smaller units the firepower needed to support themselves on the battlefield.

Although the BEF discovered the methods that would win the war and break the western front's stalemate at Neuve Chappelle in 1915, it would take 2 ½ more years to implement effectively. The lack of a formalized doctrine inadvertently led to a lack of infrastructure within the BEF to spread the latest ideas or even successful ones in any efficient manner. Although higher British command would eventually distribute training guides around 1917 it was still not sufficient due to the complex and challenging realities of the Great War. Thus, the evolution of BEF was slow, and it would not be until 1918 where the tactical developments from various commanders and units in the 100 Days Offensive.

These tactical developments coalesced into a doctrine that was applied in 1918 and can be summarized as follows: suppression of the enemy artillery batteries and trench systems with overwhelming artillery fire, followed by an infantry assault supported by tanks to break through German trench lines. Artillery was to be used to constantly suppress areas just ahead of the tanks and infantry as they advanced. Then, shifting guns destroyed German strongpoints identified by aircraft or ground forces. Armored cars and light tanks exploited the newly formed gaps in the German lines to disrupt reinforcements and other critical infrastructure in the rear areas.

This is a summary of the methods used by the BEF in 1918 to achieve the final victory over the German army, and as with the rest of this work, is oversimplified for the sake of brevity. Military evolution is a slow and complex process that is made even more complicated and costly during wartime. At first glance and with the

seemingly transparent lenses that hindsight provides, it can be easy to ignore the slow process of this evolution in favor of considering tactical developments as more seductive, sudden, and spectacular military revolutions.

However, in doing so we do not fully comprehend the significance of those developments, of the lessons learned, and of the lives lost. Every lesson learned cost tens of thousands of lives on both sides, as leaders failed to learn from mistakes, or learned the wrong lessons from repeated mistakes. This thesis was written to highlight one example of military evolution at a tactical level, and to highlight the constant struggle to change and adapt to modern tactical problems. ❖

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CHILDHOOD EFFECTS ON MEMORY: A LITERATURE REVIEW**INTRODUCTION**

Joseph was six years old when he witnessed his mother being beaten by her boyfriend whom Joseph called dad. This man, who Joseph called his father, also sexually abused him, making Joseph touch his father in his private parts while in the shower. His mother did not believe him and took the father's side. Auerbach (2013) had a chance to be Joseph's therapist, and he learned that Joseph was disassociating, among many other things, due to past trauma. When people hear stories about children being abused, many of them do not think about the aftereffects that can arise from traumatic events like this. When someone experiences a traumatic event, most people feel sympathy or even empathy for the person, but after the person has supposedly healed, the abuse can be forgotten. Through almost eleven years of therapy, Joseph's life has started to look up compared to when he started, but he will never be the same. Many people do not get help to work through their past traumas in life and they might not know that such trauma could still be affecting them in unknown ways. An important question that is not asked frequently is whether traumatic events like this affect the child's memory, and that is the aim of this literature review to find out.

Child abuse and neglect are understood to be the act or failure to act of a parent or caregiver which results in potential or actual harm or threat to a child, regardless whether it is intentional or not (Dodaj et al., 2017, p. 618). The forms of abuse and neglect are physical, sexual, and psychological abuse, neglect, and witnessing family violence. This has become increasingly important as a greater number of cases of child abuse have come out. 14.3% of 73 million children in the United States have suffered child abuse or neglect during the past year (Conroy & Perryman, 2022, p. 143). Another reason this type of research is important is that testing the accuracy of childhood memories can help in eyewitness cases involving children. Links between trauma, PTSD, and increased risk of dementia have been suggested through recent research (Burri et al., 2013, p. 1). 70% of those with dementia have experienced at least one severe traumatic event (Burri et al., 2013, p. 1). Knowing that trauma is associated with dementia and that PTSD, which someone can

experience after a traumatic event as well, are linked to changes within the brain, it is important to continue studying the effects associated with childhood trauma to better help those affected.

POST-TRAUMATIC STRESS DISORDER

When some children are sexually abused, they may learn how to survive by developing an avoidant encoding style to disengage from the threatening stimuli and direct it elsewhere (McNally et al., 1998, p. 596). This is typically seen in children with chronic abuse rather than one-time trauma. While this may seem like a good thing, long-term cognitive avoidance may produce amnesia for traumatic events (McNally et al., 1998, p. 596). Disassociation during traumatic events has been shown to increase the risk for PTSD symptoms based on previous research (McNally et al., 1998, p. 596). The researchers conducted a study using the direct-forgetting method to test whether this avoidant encoding style was impairing adult survivors of childhood sexual abuse.

The researchers, McNally et al. (1998), tested three groups of participants. Groups were the PTSD group, the trauma-exposed group, and a control group. McNally et al. (1998) used an item-cuing directed-forgetting task to assess memory. The researchers predicted the control group would show standard memory forgetting, regardless of the type of words given, and that the PTSD group would forget a standard amount regarding positive and neutral words (McNally et al., 1998, p. 597). They found no support for their hypotheses that the avoidant encoding style impairs recall information related to trauma. The PTSD group had memory deficits for non-trauma-related words that they were supposed to remember (McNally et al., 1998, p. 598). It is suggested that this forgetting is more related to PTSD rather than the history of abuse. There was also no evidence of enhanced encoding of trauma words in the PTSD group as all groups recalled trauma words rather than positive ones (McNally et al., 1998, p. 599). It is noted that these findings contrast the findings of other studies and theories in literature. The previous studies, however, were different as they looked at borderline personality disorder instead of PTSD with an association of sexual abuse in childhood (McNally et al., 1998, p. 600).

Another difference is the previous studies did not use cue words the same way McNally et al. (1998) did, so there is more research to be done on PTSD and memory.

There have been studies conducted that reveal that there might be an increased risk of dementia in those people who have trauma and PTSD. Youths who have been diagnosed with PTSD have displayed lower verbal memory scores in past studies, but there were no significant differences in general memory or visual memory (Burri et al., 2013, p. 2). Burri et al. (2013) also mention that childhood trauma may be impacted by the severity of trauma and by trauma in adulthood. Burri et al. (2013) investigated the association between childhood trauma exposure, PTSD symptoms, and cognitive functions in older adults. They hypothesized that exposure to trauma in childhood and PTSD symptoms would be linked to poorer cognitive function, especially regarding memory (Burri et al., 2013, p. 2). The researchers gained samples from child labor workers who were taken out of their homes in Switzerland to work on farms. It was reported that these children were also sexually and emotionally abused and beaten regularly during this time. The researchers used the assessments of SIDAM, SISCO, GDS, and SSS to measure PTSD, depression, and cognitive functions such as dementia (Burri et al., 2013, p. 3). The researchers discovered that there were no gender differences detected; however, males reported more physical abuse while women reported more sexual abuse (Burri et al., 2013, p. 4). Their results included support for their hypothesis that there was an association between exposure to trauma, PTSD symptoms, and cognitive functions. Those who had PTSD symptoms scored lower on cognitive functions, including construction skills and verbal numeracy (Burri et al., 2013, p. 5). It is reported that when accounting for depression, there was a stronger relationship between PTSD symptoms and lower levels of cognitive functions. Most PTSD symptoms have a biological component, such as hyperarousal (Burri et al., 2013, p. 6). When the body reacts to stress, it activates the HPA axis that releases a hormone increasing cortisol. When more cortisol is released for a long time, it can have neurotoxic effects like

problems with cognition, somatic, and other processing (Burri et al., 2013, p. 6). Having higher cortisol levels has been linked to an increased risk of dementia within this study and others in previous literature.

OVERGENERALIZED & AUTOBIOGRAPHICAL MEMORY

Overgeneralized memory, or OGM, refers to a difficulty in retrieving certain autobiographical memories, which can also be identified as AMs (Valentino et al., 2012, p. 491). This has been studied with and without depression and connected with those with post-traumatic stress disorder, or PTSD, and children with a history of physical and sexual abuse (Valentino et al., 2012, p. 491). Some of the main views on overgeneralized memory include functional avoidance. This hypothesis suggests that children who experience early trauma can have



difficulty developing from general memory to specific (Valentino et al., 2012, p. 492). The researchers suggest that the hypothesis can be adaptive because having an overgeneralized memory can shield them from recalling painful events (Valentino et al., 2012, p. 492). A researcher, Williams, has tied depression and OGM to those who are highly depressed become stuck at the general stage and stay there to ruminate in the negative representation of themselves and not progressing to a specific memory (Valentino et al., 2012, p. 492). Executive control is thought to be relevant to this type of memory because one must maintain the goals of retrieving one single memory and blocking out other memories (Valentino et al., 2012, p. 492). This is synonymous with executive function.

Valentino et al. (2012) conducted a study to objectively measure executive functioning processes to see which processes are associated with OGM. The researchers' hypotheses included that the abused group would display more OGMs than the no-abuse group and that depressive symptoms would be related to overgeneralized memory. In addition, the researchers thought that executive functioning would mediate interactions of depressive symptoms and that inhibitory control, shifting, and updating information would be negatively correlated to OGM (Valentino et al., 2012, p. 493). Valentino et al. (2012) found, based on this study, that the association between OGM and depressive symptoms was not significant. They hypothesized that this could be due to high levels of OGM in abused children regardless of depressive symptoms in relation

to children not who were not abused and with low depressive symptoms (Valentino et al., 2012, p. 496). Valentino et al. (2012) found that abused children did display more OGMs than those without a history of abuse at the low-level depression symptoms. This supported their hypothesis and is consistent with other studies that have been conducted. At high levels of depression symptoms, the opposite was found to be true. Those with a history of abuse had lower levels of OGMs than those with no abuse history (Valentino et al., 2012, p. 496). The results did not support the hypothesis of OGM and inhibition or shifting, but there was support for executive functioning, specifically the category fluency part in association with OGM (Valentino et al., 2012, p. 496). The researchers noted that this association was for an additive, not mediational, model like they had hypothesized previously (Valentino et al., 2012, p. 497)

Autobiographical memory research suggests that childhood maltreatment may be associated with difficulty in recollecting certain autobiographical memory, specifically when given cue words. This is known as the overgeneral memory effect (Valentino et al., 2009, p. 1029). It is also suggested that OGM could be a marker for future vulnerability to depression (Valentino et al., 2009, p.



1029). OGMs have been reported to also be associated with current circumstances rather than self-reported childhood abuse history (Valentino et al., 2009, p. 1030). The researchers state that retrieval is a top-down process, which means that general descriptions are activated and become points for later retrieval of a certain event (Valentino et al., 2009). Deviations in self-development and functioning are the most well-documented consequences of child maltreatment. Children's narratives have been interpreted to show that children who have been maltreated have a more negative representation of themselves and their caregivers than those who have not been maltreated (Valentino et al., 2009, p. 1030). It has been suggested that child maltreatment increases the risk for depression, which is also associated with a change in autobiographical memory.

Valentino et al. (2009) claim that their study analyzes maltreated children's autobiographical memories and evaluates the role of self-representation. The researchers also investigate the role of representations concerning maltreatment and overgeneralized memory (Valentino et al., 2009, p. 1031). They hypothesized that abused children would have more OGMs than non-maltreated children and that older children would have more OGMs than younger children. Lastly, they suspect that negative self and maternal representations would mediate the relationship between maltreatment and OGM and that depressive symptoms would mediate the relationship between maltreatment and OGM (Valentino et al., 2009, p. 1031). Child cognitive performance and gender were significantly correlated to several of the variables studied. The results found by Valentino et al. (2009) supported the first part of their hypothesis of abused children showing more overgeneralized memory than neglected and non-maltreated children. Age was also a significant main factor, supporting the researchers' hypothesis. In addition, younger children displayed more OGMs than older children, which was the opposite of Valentino et al.'s (2009) predictions. For the third hypothesis, children's representation of self was related to maltreatment subtypes but did not mediate the relationship between abuse and OGMs. Depressed adolescents with a history of trauma had fewer OGMs than those depressed without any history of trauma (Valentino et al., 2009, p. 1035). Depression was significantly related to OGMs and supported by previous research and studies (Valentino et al., 2009, p. 1035). Valentino

et al. (2009) suggest longitudinal studies would further the knowledge of depression in OGM and over generality as markers of vulnerability.

LONG-TERM MEMORY

There has been a lot of research on how accurate an adult's memory of a traumatic childhood event is, and this recollection of the abuse is important because many people can now bring justice to their abusers years later via the legal system (Goodman et al., 2019, p. 3). Previous research has shown that memory for negative emotional events is stronger than for positive ones. This is based on the activation of the prefrontal hippocampal-amygdala complex that enhances attention and encoding, which can improve memory later (Goodman et al., 2019, p. 4). The researchers conducted two longitudinal studies to see maltreatment in childhood and related events. They studied subjects who had been prosecuted for sexual child abuse, so they had documentation ready for interviews (Goodman et al., 2019, p. 6). Many of the subjects remember their traumatizing events, but 30% failed to report former abuse. It was shown, based on the study, that being older when the abuse ended, experiencing more severe abuse, or having more support maternally predicted better memory later (Goodman et al., 2019, p. 6). Those with severe PTSD symptoms and greater closeness to the perpetrator also had greater memory accuracy for the event.

In the second study conducted by Goodman et al. (2019), the researchers tested a group of subjects who experienced sexual and physical abuse as well as neglect, alongside those who did not experience childhood maltreatment. The children in the maltreatment group had been removed from the home based on suspicions listed previously (Goodman et al., 2019, p. 6). The researchers suggest that the children in the second study showed response bias, as in arguing with the misleading questions because they are more traumatized and dissociative. Memory for childhood events can be retained as shown in this study by Goodman et al. (2019). The researchers suggest that the relationship between emotional events and memory is complex, and there is no uniform effect.

WORKING MEMORY

Exposure to abuse and neglect in childhood is a serious stressor that can cause cognitive deficits in adulthood. The effect of abuse and neglect

includes short-term memory capacity but also verbal memory, working memory, speech, planning, organization, and language abilities, ability to retain attention, and difficulty in learning and remembering (Dodaj et al., 2017, p. 619). Previous literature has been written about neglect being one of the most significant influences on these difficulties, and the relationship between abuse and memory capacity has been present in previous studies, specifically the one by Majer et al. in 2010 (Dodaj et al., 2017, p. 619). This has also been contrasted by other studies which found that these difficulties are more closely related to psychological and physical abuse rather than neglect. The researchers want to show the difficulties in daily functioning as there has been a lack of this in previous studies (Dodaj et al., 2017, p. 619). Dodaj et al. (2017) investigated the specific childhood maltreatment with different working memory difficulties to see the effect of the form on these various difficulties.

The researchers used self-reporting surveys applied in some previous studies to assess the various childhood maltreatment and working memory difficulties. Dodaj et al. (2017) discovered that physical abuse and witnessing family violence were the most common forms of childhood maltreatment. In addition to this, it was made apparent in the study that people who were exposed to some form of childhood maltreatment experienced more difficulties than those who have not had that experience (Dodaj et al., 2017, p. 626). Psychological abuse ties in with difficulties in working memory capacity, trouble maintaining attention, and verbal information recall (Dodaj et al., 2017, p. 627). The researchers, Dodaj et al. (2017) state that this exposure can create a higher secretion of norepinephrine, which can increase activities of the HPA axis, which then increases another hormone that allows for neural changes in the prefrontal and anterior cortexes. There is also an increase in cortisol when dealing with psychological abuse that can be tied to several emotional disorders such as anxiety (Dodaj et al., 2017, p. 627). When the body is stressed and wanting to combat that stress, problems of attention may arise. Dodaj et al. (2017) bring the discussion back to developmental psychology which assumes the environment of the child plays into the development of verbal functions, which could explain the lack thereof in the children who witnessed family violence and were subjected to psychological abuse. While psychological abuse and witnessing family

violence effects were the most prevalent findings in this study, Dodaj et al. (2017) say that all forms of maltreatment were related to the entire array of difficulties in working memory.

THERAPIES & THEORIES

Early maladaptive schemas have been linked to the development of different psychological problems such as depression, personality disorders, and attachment difficulties. Early maladaptive schemas are defined as a broad theme or pattern comprised of memories, emotions, and sensations that regard the person or their relationships with others, developed in childhood or adolescence (Pilkington, Bishop, & Youman, 2021, p. 569). Schemas can distort how events and experiences are processed and perceived, which can influence behavioral responses. The idea behind Young's Schema therapy is that these maladaptive schemas form in response to traumatic events and repeated experiences of unmet emotional needs in childhood (Pilkington et al., 2021, p. 570). This therapy is based on the idea that early adverse experiences in life can develop these schemas that can make someone vulnerable to mental illnesses (Pilkington et al., 2021, p. 570). There are 18 schemas identified by Young which are then sectioned into four domains. These four types are toxic frustration of needs, traumatization, and victimization, and overindulged or overprotected, and lastly, selective internalization or identification (Pilkington et al., 2021, p. 570). Toxic frustration occurs when a child has "too much of a good thing," such as lack of care and nurturing from a parent. This can manifest in schemas of emotional deprivation (expecting that needs for emotional support will not be met), and abandonment (expectation that others will not provide support or connection) (Pilkington et al., 2021, p. 570). Traumatization or victimization refers to a child being harmed in the ways of sexual, physical, and emotional abuse. Schemas associated with this are mistrust (thinking that others will hurt, abuse, or manipulate them) and defectiveness shame (thinking that one is defective, bad, or unwanted) (Pilkington et al., 2021, p. 570). The terms "overindulged" and "overprotected" refer to children whose agency and healthy boundaries are not met or established. Parents are too involved in a child's life, and the schema that arises is dependence incompetence (the belief that one cannot handle everyday responsibilities) (Pilkington et al., 2021, p. 570). Selective internalization or identification occurs

when a child adopts the thoughts and behaviors of the parent. The schema associated with this negativity is pessimism (the expectation that things will go wrong) (Pilkington et al., 2021, p. 570). This type of therapy can help those with depression and heal the inner child of adults.

Pilkington et al. (2021) reviewed different studies on this topic, collected statistics regarding the Young Schema model, and found that maternal emotional neglect was correlated with the emotional deprivation schema, accompanied by medium correlations with social isolation. Paternal emotional abuse had medium correlations with emotional deprivation, mistrust abuse, defectiveness shame, and social isolation schemas (Pilkington et al., 2021, p. 575). Emotional neglect and physical neglect were associated with the schemas relating to lovability, capacity to trust and connections, and emotional expression (Pilkington et al., 2021, p. 579). Emotional neglect by a caregiver was related to schemas of impaired autonomy, failure, dependence incompetence, and vulnerability to harm. This suggests that a lack of emotional support can create a lack of confidence, an inability to succeed and handle everyday life, and an inability to prevent themselves or others from committing harm (Pilkington et al., 2021, p. 580). Adverse childhood events are not related to being independent but are associated with the social isolation schema. This latter schema was more strongly associated with sexual and physical abuse (Pilkington et al., 2021, p. 580). As expected, Pilkington et al. (2021) found that child physical abuse is linked with social isolation in three separate ways, such as difficulty developing attachments, impaired social competence, and low self-esteem.

Childhood abuse has been linked with betrayal trauma theory. This theory suggests that psychogenic amnesia is an adaptive response to childhood abuse (Freyd, 1994, p. 307). The theory is based on the violation of ethics and does not provide information on the memory component but rather focuses on the analysis of cognitive structure and pressure that can be blocked when a child is abused (Freyd, 1994, p. 308). Freyd (1994) believes that the block will create a type of amnesia that will be understood by cognitive means. The

theory is made to explain the issue of forgetting abuse and then remembering it later (Freyd, 1994, p. 309). Amnesia associated with abuse in general has been a challenging topic to study, as it has been shown that if people have experienced several types of abuse, the incidence of amnesia is very high. According to a study done in the 1950s, one in four women has experienced childhood sexual abuse (Freyd, 1994, p. 309). From other studies gathered, 59% of those who experienced sexual abuse reported amnesia at some point in the history of their traumatic event (Freyd, 1994, p. 310). The idea that betrayal is adaptive comes from Freyd (1994), connecting the information from people able to detect cheaters. Those who have been cheated on feel betrayed and typically want to avoid being betrayed again; the negative arousal



Photo by Oriane Conceição.

can motivate the attention of those who may betray them (Freyd, 1994, p. 311). Dissociation during traumatic events, amnesia for these events, and repression are tactics of psychological defenses against pain (Freyd, 1994, p. 311). We see this in Auerbach (2014) with his experience with Joseph dissociating when trying to discuss his feelings and the events during which he experienced sexual abuse.

These defenses created to stop the pain can also be used for survival tactics. Freyd (1994) states that, based on previous literature, the ways of survival, both mentally and physically, are related to attachment styles in developmental psychology regarding the relationship between child and caregiver. There are greater adverse psychological effects on children when the abuse or betrayal come from a trusted person (Freyd, 1994, p. 312). If a child reacts to betrayal in a typical way, then they would have to stop interacting with the caregiver, but that is not possible at an early

age, so they are forced to ignore the betrayal and keep up actions to support attachment (Freyd, 1994, p. 312). For a child to be able to forget something as prominent as abuse, there are theories that they might have problems with processing that allows them to recall the memory but not the action. Cognitive scientists suggest that different mental modules allow different processing of the same event (Freyd, 1994, p. 313). Freyd (1994) mentions Hilgard's (1986) idea of divided control, which is a type of dissociation that is not pathological and is more akin to an automatic process. This is why people can say that they are not angry in an angry voice, but fully mean that they are, indeed, not angry.

Something that has been recently studied regarding trauma and dissociation is the combination of transactional analysis ego state theory and relational approaches to provide treatment to patients who have experienced both trauma and dissociation. Transactional analysis ego state theory is defined as the interpretation of the mind as a multiplicity of self-states that forms a nonlinear system (Novak, 2013, p. 187). This structural approach deals with the client's internal organization, with an emphasis on their ego states that may be disconnected from their personality (Novak, 2013, p. 187). This approach also focuses on systems such as emotion, action, and motivation. The idea is that these systems make up the whole personality (Novak, 2013, p. 188). Since the therapist deals with trauma, this can look different in terms of trying to discuss the event and the dissociation.

The relational approach comes from relational psychoanalysis, and its basis is a group of psychoanalytic approaches that include interpersonal, object relations, self-psychology, and more (Novak, 2013, p. 187). The relation approach focuses on reenactment to recognize and work on in terms of their dissociation (Novak, 2013, p. 187). The enactments are used to be understood retrospectively. This approach brings in ideas from Freud's ideas of repression and a singular self. Novak (2013) suggests that this approach be used for the learned abusive power and other trauma-related patterns that need to be worked out. The



Photo by Akshay Bineesh

therapist is more involved in this process than in the structural approach as the therapist can influence the enactment. Once the therapist recognizes a pattern, they can navigate the experience better (Novak, 2013, p. 190). Novak (2013) says that this therapy can include a dissociation barrier that can have a reflective awareness of the dissociation state to help with trauma.

The polyvagal theory was discovered in 1995 to help change the way the body responds to threats. Conroy and Perryman (2022) discuss that this theory is based on the three branches of the vagus nerve that controls the regulation capability of the body. The first branch is the dorsal vagal complex, which handles the freeze response and activates when there is a life-threatening situation (Conroy & Perryman, 2022, p. 144). This reduces body movement and increases the pain threshold. The second branch is the sympathetic nervous system which allows the body to go into fight-or-flight mode in the face of danger (Conroy & Perryman, 2022, p. 144). The last branch is the ventral vagal complex which is activated during safe interaction and soothes the defensive responses (Conroy & Perryman, 2022, p. 145). Activating this part of the branch can have the potential to decrease trauma responses. Play therapy has been used building upon the polyvagal theory to prevent or resolve difficulties in achieving growth in those who experienced traumatic events, social-emotional challenges, and more (Conroy and Perryman, 2022, p. 145). Play therapy is described as using a model to establish a process. Therapists and researchers look at this therapy regarding children and call it child-centered play therapy. Then it is looked at through a SECURE lens which stands for safety, engagement, coregulation, understanding of self, regulation expansion, and exploration (Conroy & Perryman, 2022, p. 149).

Each of the terms creates a meaning within therapy and with children who have experienced trauma. In the safety part of the SECURE lens, children like to make sure that their environment is safe (Conroy & Perryman, 2022, p. 146). As mentioned before, those children who have experienced trauma can be hyperaware of those around them, and Conroy and Perryman (2022) state that the anterior cingulate cortex is responsible for assessing facial expressions, eye contact, and nonverbal communication. Children who have a high ACE score (Adverse Childhood Experiences) have a tough time knowing what is safe because they

have not had a lot of environments that they deem safe (Conroy & Perryman, 2022, p. 146). This part of the SECURE lens is important because the children must learn to feel safe to progress toward change. Next is the engagement part. Conroy and Perryman (2022) state that children who have high ACEs display more distrust in interacting with others. This distrust is activated by eye contact and vocal tones. Conroy and Perryman (2022) mention that trauma has been associated with lower social cognition in previous studies. Having lower social cognition can make the detection of eye contact and tone difficult. Coregulation is next on the list, which, based on past literature, refers to the fact that children who have experienced trauma have a harder time recognizing and processing their emotions (Conroy & Perryman, 2022, p. 146). This is due to those children not developing safe relationships with others. To have emotional regulation, people need to have secure relationships as this is how such regulation develops (Conroy & Perryman, 2022, p. 147). In therapy, therapists focus on making sure the child feels heard and understood. The children will be able to coregulate once the social engagement system is activated and they feel safe (Conroy & Perryman, 2022, p. 147). Understanding of self correlates to traumatized children being overwhelmed by their bodily responses which activates their threat response (Conroy & Perryman, 2022, p. 147). Once their social engagement system is activated, then the children can have experiences without feeling threatened. Regulatory expansion happens after the child is about to coregulate to do it on their own without guidance (Conroy & Perryman, 2022, p. 148). Lastly, exploration allows children to try new things, new challenges, and ideas. Having the SECURE lens offers an understanding of this complex process to people like guardians and teachers. Conroy and Perryman (2022) caution, however, that this therapy can be flawed because healing is not dependent on verbal processing.

OTHER THEORETICS & MODELS

Some long-term memory models touch on the developmental effect that trauma can have on memory. An impairment model states that maltreatment causes deficits or distortions in cognitive and socioemotional processes in neurobiology and brain development (Goodman et al., 2019, p. 4). Another view is the conditional adaptation model, i.e. the idea that maltreatment in childhood results in special mental functions

that help children adapt to stressful and threatening environments (Goodman et al., 2019, p. 4). Avoidance of memory has been mentioned throughout the literature regarding childhood maltreatment, especially with the help of attachment theory. The basis of this theory is that the expectations that children develop about those around them can influence the way the children react and remember negative events (Goodman et al., 2019, p. 5). More secure children remember more accurately the distressing and emotional events later than those with an insecure or avoidant attachment style (Goodman et al., 2019, p. 6). This is due to the attachment system not being active in these children with other attachment styles; therefore, the arousal or memory processing occurs differently than it would for those children with a secure attachment (Goodman et al., 2019, p. 6).

DISCUSSION, LIMITATIONS, AND FUTURE RESEARCH

Regarding autobiographical memory and trauma, the study that was conducted by Valentino et al. (2012) noted several limitations. The first one mentioned was the sample size. The researchers believed it to be modest and warn that this could have affected the statistical power and might have given rise to errors in finding meaningful effects (Valentino et al., 2012, p. 497). Valentino et al. (2012) think that their approach would allow testing across age groups as well. They also did not have the structure in terms of assessing PTSD symptoms which could have inhibited their ability to account for specific memory (Valentino et al., 2012, p. 497). The researchers Valentino et al. (2012) stated that the study was cross-sectional which could lead to causal conclusions and that longitudinal studies are needed to consider risks and interactions over time. Mindful meditation has been recently shown to decrease OGM and depressive symptoms, but more research is needed (Valentino et al., 2012, p. 497). In addition, other treatment methods must be tested to see if abuse affects treatment effectiveness.

In addition to the previous research regarding OGMs, autobiographical memory, and trauma, Valentino et al. (2009) talked about the limitations of their study as there were no additional measures taken for memory performance or executive functioning. The researchers state that this could hurt their ability to differentiate OGM processes from general memory deficits (Valentino et al., 2009, p. 1035). The researchers also note that the AMT

paradigm that was used had not been validated for use with children but has been successfully used in the past in studies (Valentino et al., 2009, p. 1036). There is also a lack of data regarding children's PTSD symptoms in response to a certain abuse experience. Valentino et al. (2009) suggest further research targeting memory-specific interventions.

In the journal article about childhood maltreatment affecting long-term memory, researchers Goodman et al. (2019) state limitations on studying this topic. The researchers mention that the groups cannot be randomly assigned to an abused or non-abused group, so there can be correlational findings and other confounding variables such as family dysfunction (Goodman et al., 2019, p. 4). Goodman et al. (2019) suggest using quasi-experimental designs to help eliminate some of the confounding variables. Goodman et al. (2019) also mention the classification issues mentioned previously. Many researchers do not use a universal method of assigning people to non-depressed and depressed groups or trying to separate people who have PTSD and those who do not. Another concern is re-victimization of the patients as well when questioning them as this can affect their memory. This is a different effect from what the event's memory effects could be (Goodman et al., 2019, p. 5). Lastly, testing the accuracy of the events recalled is difficult, as reports may not be checked completely (or not at all) to support the subject's account (Goodman et al., 2019, p. 5).

In the study conducted by Dodaj et al. (2017), the limitations they include are demographics and representation. They could not account for age and education which could have affected the results. The grouping of participants could be a problem, since a participant in the physical abuse group could have experienced psychological abuse as well (Dodaj et al., 2017, p. 628). Since this was a retrospective report, participants could have forgotten the abuse or were dishonest in the survey. Dodaj et al. (2017) did not account for abuse or intensity of abuse or existing disorders. The researchers suggest that future testing should be done on preschoolers to see changes in cognitive functioning and longitudinal studies. Dodaj et al. (2017) say that, in order to generalize and objectify the results more, there could also be studies done on certain types of abuse and the use of documents from social services.

The study conducted by Burri et al. (2013) was unique, including Swiss child labor workers,

which makes it hard to replicate the study for future research. This also caused sample sizes to be small, so the test statistics could have been affected. The study was also extremely specific, so it could not be accurate in terms of generalizing (Burri et al., 2013, p. 6). The researchers, once again, did not account for adulthood traumas that may be in addition to the childhood trauma they experienced (Burri et al., 2013, p. 6). It is also mentioned that those with PTSD symptoms are sensitized to the effects of stressors due to early trauma.

Childhood adverse events and schemas are still new, so there is a lot more research that can be done in this area. Pilkington et al. (2021) relate the schemas to Erikson's theory of childhood stages and state that future research could explore the relationship between schemas and childhood adversity. Since this study was done by comparing other studies to one another and putting them through statistical analysis and testing, there is a possibility that there is some important research that may have been left out (Pilkington et al., 2021, p. 581). Not all adverse events were able to be included, and there may be a lack of generalizability in the studies they reviewed. The study was not inclusive as it did not include other languages besides English (Pilkington et al., 2021, p. 581). Despite this, the researchers say their process of going through the articles and doing the tests was rigorous and thorough.

Based on all of the literature discussed here, many effects can happen when children are exposed to traumatic events. While memories of the events hold accurately, there are times of amnesia due to dissociation and that can cause long-term forgetting of the memory. In addition, there are problems with working memory as well, changing its capacity. There is also a risk of overgeneralized memory in those who experience trauma. Children, when suffering abuse, do not have an opportunity to leave the situation. Therefore, they must ignore the feelings they have. Children who experience abuse experience changes in their behavior, do not feel safe, and feel heightened threats which all have biological

components that show that how abuse can be damaging long-term, such as greater risk of dementia and mood disorders such as anxiety. There are recent therapies and theories to understand biological processing and bring emotional processing together. These are a good start, but further testing on these would help narrow down what to do in different scenarios, and there might be different methods for several types of abuse that the child may experience. Understanding trauma responses, as well as long-term and short-term effects can help understand better ways to support children. Future research can identify more relationships and present deeper knowledge on the physical effects that trauma can bring, and more on the accuracy of these events. This can help the court system to bring justice to those who commit heinous crimes against children. ❖



Photo by Trần Hồng Công.

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KANIYA CROMARTIE, KAYRISMA HARRISON, ZACK B. SCOTT, AND MAKAELEA STOKES

STUDENT FORUM: THE IMPORTANCE FOR HIGH-SCHOOL AND COLLEGE STUDENTS TO TAKE CLASSES IN AFRICAN AMERICAN HISTORY, NATIVE AMERICAN HISTORY, AND WOMEN'S HISTORY

KANIYA CROMARTIE

It's essential for high school and college students to have the opportunity to learn about ethnic studies. Basic United States history can't be fully discussed without going over other races' history. Ethnic studies will fill in several gaps in American history and provide a more accurate view of it. Students will learn about Americans' true upbringing that deals with racism, sexism, discrimination, and colonization. It's proven that classes having to do with students' actual history make them more academically engaged in the topic at hand.

The benefits of learning ethnic studies include developing a stronger sense of self-efficacy and personal empowerment, and having a better understanding of social issues and movements. It can motivate students to act on present-day social issues and movements. Learning ethnic studies can help students understand and grapple with complex questions and dilemmas by examining how the past has shaped and continues to shape global, national, and local relationships between societies and people.

It's important for African Americans to know why and what makes Black communities face institutional racism, police violence, increased incarceration, substance education, housing, and health care. They should know about segregation and the years of protest for racial equity and social justice. They should also learn the meaning and origin of stereotypes or racist slurs such as "nigger," "jigaboo," "monkey," and "coon." They should learn what the Ku Klux Klan is and the terror it imposed on African Americans' lives. It is crucial for African Americans to know why they face so much racism still to this day.

It's important for Native Americans to know that European settlers stole and forced indigenous people off their lands while murdering, raping, and giving them diseases in

the process. Then these settlers justified their actions by saying it was "Manifest Destiny." Students should know that Thanksgiving is really a day of mourning for the centuries of oppression and genocide the settlers committed toward the Native Americans.

Ethnic studies are important to teach in high schools and colleges because they provide an in-depth understanding of the United States' people's true upbringing. Students can gain more information on racism, sexism, discrimination, and colonization. Such courses can make students feel empowered, and give them closure. Ethnic studies help students learn why and how present-day America came to be. ❖

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KAYRISMA HARRISON

The history that we are taught in school fails to mention the parts that built this country—not the World Wars or breaking away from the British. History is connected to the development of many cultures and people today. The history of African Americans, Native Americans, and women are important parts of history that provide those who aren't white men a sense of identity. It is important that students learn this

history, so history does not repeat itself. Laws are being made to take rights away from African Americans and women as they did in the past. There are parts of our history to show us how strong we are as a people and as women. As an African American woman taking a class such as African American history has made me comfortable talking about my race without fearing a condescending teacher or professor. These courses are not meant to make others feel bad about being born with a certain skin color but to highlight the actions of their ancestors and why certain privileges continue to exist. There were always two perspectives on our history. Unfortunately, one side of history is consistently taught and sugar-coated. Without the other perspective, I would have never known about Olaudah Equiano and his first-hand experience of the Middle Passage as described in *Sources of the African-American Past*. In this primary source, Equiano describes the psychological and physical pain that he endured on the ships and during his years of slavery. Slavery and early colonization may have happened a long time ago, but they still affect people of color today. To understand the present and future, the past must be acknowledged. ❖

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ZACK B. SCOTT

Ethnic studies is what shapes American history today. But in most educational systems, whether that be elementary, high school, and even college, the history of minorities in this country is not really discussed. I am a member of the Lumbee Tribe of North Carolina. Up until college, I always attended a predominantly Native American school. I know from my own experiences that the information in textbooks about native people is very limited. The only thing that is taught in schools is the Trail of Tears. That's it. There is rarely any mention of native people and all the trials and tribulations that indigenous people had to and continuously go through at the behest of the United States' Founding Fathers.

I am currently taking an African American studies class at my college. As we have studied, I know now that African Americans experienced some of the same things as my people with



regard to miseducation. The only things you are taught in many public schools are about Harriet Tubman, Rosa Parks, Martin Luther King Jr., etc. You learn a little bit about slavery, but not much at all. Currently, there are some states that would like to regulate these teachings more than they already do. As an example, the state of Florida is discouraging people from taking an Advanced Placement African American studies course. The governor of Florida, Ron DeSantis, said that the course lacks significant educational value. It was said that the only way that Florida would approve the course is if it is changed to meet the state's guidelines. Their reasoning behind this is to prevent students from feeling guilt and blame based on their skin color. The message I am receiving from this is that the full American History should not be taught because it would make a white child feel guilty about what their ancestors have done. This, however, comes at the expense of minority students everywhere as children of color must grow up not knowing the truth of their ancestors. This cannot continue. Once you begin to remove facts from history, you remove people's identity. By doing this, politicians imply that people of color in this country do not matter. Unfortunately, that reasoning seems okay since it does not hurt white children's feelings. ❖

MAKAELA STOKES

In 1908, Israel Zangwill introduced and coined the idea that the United States of America are a melting pot, an idea that seems quaint today because our current national body appears to be running cold. The idea of the melting pot was first used as a metaphor to describe the union of many nationalities, cultures, and ethnicities which is exactly what the U.S. is, although it is nearly impossible to unify a nation when there is a divide between its peoples. Given that there are various ethnicities and cultures embedded in the fabric of this country, it only makes sense that each of these cultures and ethnicities are taught and embedded in the minds of the citizens who embody this country. Studying African American, Native American, and women's history allows for us as a whole to understand the foundation of the soil we stand on. With this understanding comes appreciation and acknowledgement that the history that has been neglected to be taught is that of the utmost importance to this country. This country has had "a pervasive culture of division that has

been on display for years" and will continue to be on display unless a change is implemented in the ever-growing roots of this country: our youth (Branson). As Eilidh Branson puts it, "Healing and growth begin in the place where a child develops their sense of self and understanding of the world around them," which highlights that the fear of these histories causing a divide in the country can be put to rest. The divide only occurs and is prevalent when some citizens know the full truth and some don't, and they find themselves clashing in the workplace because of years of mistruths implanted into young and impressionable minds. This country cannot operate on a lie; the truth is the most important factor to truly set us free. As citizens, being truthful means that we can grow, mature, and learn from our mistakes. For society, truthfulness makes social bonds, and lying and hypocrisy break them. There is truth in African American, Native American, and women's history that needs to be told, and, in order for the melting pot to stay hot, it must be taught in the school systems of the United States. ❖

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BUSINESS & COMPUTER INFORMATION SCIENCES



RESEARCH MARKETING ANALYSIS: CAIA COSMETICS**ABSTRACT**

Research marketing analyses examine how the creator of a company affects an individual's purchase choices. The alternative hypothesis of this research study is that CAIA Cosmetics quickly became a success because of the creator of the brand, Bianca Ingrosso. The second alternative hypothesis states that consumers' purchase decision-making is highly influenced by the creator of the brand. The null hypothesis is that the creator of a brand does not affect an individual's purchase choice, and that individuals purchase by quality rather than brand. Ingrosso is one of the most famous influencers in Sweden, and social media is the main marketing source for her company. The research method is analysis of secondary data in form of customer reviews on the CAIA Cosmetics website as well as feedback on social media platforms, and a survey. The sample size of this research is delimited to CAIA customers in addition to individuals who never purchased CAIA Cosmetics before. The results suggest that social media marketing activities have a positive effect on brand loyalty. The survey results show a correlation between the choice of purchasing from a popular brand with higher price and the importance of the creator. The alternative hypothesis was supported while the null hypothesis was not.

INTRODUCTION

CAIA Cosmetics is a company founded 2018 in Stockholm, Sweden, by Bianca Ingrosso (CAIA, 2023). Ingrosso is one of the most famous influencers in Sweden who reaches over 1 million followers through her social media platforms. She appears on all media, from TV to YouTube, podcast, and songs, and she always had a passion for beauty products. Bianca's mother, Pernilla Wahlgren, is one of the most famous singers in Sweden and, therefore, Bianca spent a lot of time with her mother while the latter was getting prepped for shows. However, it was not until a couple of years ago that her dream of making her own beauty products came true.

The motto for CAIA Cosmetics is to produce products of high quality while keeping the prices as low as possible by selling the products directly to the consumer without

having other channels involved. When it comes to what kind of quality products CAIA offers, according to the company, the cosmetics are easy to use and of high diversity to match a great variety of skin tones and skin types (CAIA, 2023). They also claim that they are working for more sustainable products with a list of ingredients that they avoid in their products to make their products environmentally friendly. They call this list their own blacklist of forbidden ingredients. In addition, they follow the laws of use and production of cosmetics in Europe and the national cosmetic law for products sold in Sweden (CAIA, 2023).

The company also has strong ethics when it comes to animal testing which they strongly disagree with. A majority of their products are vegan, such as skin care, beauty tools, and brushes, but only 86 percent of their cosmetics are vegan. According to CAIA, they are in the process of making their cosmetics 100 percent vegan, and they have calculated a completely vegan assortment at the end of this year, 2023 (CAIA, 2023).

All the products at CAIA Cosmetics are manufactured in France, Italy, and Korea (CAIA, 2023) and they have high expectations and demands with their choice of suppliers. To make their point of view clear for their business cooperation, they created a Code of Conduct that has to be signed by any involved supplier (CAIA, 2023). The Code of Conduct includes what is expected when it comes to ethical, social, and climate questions.

When it comes to the logistics at CAIA, they transport the majority of their products from the manufacturer to their own warehouse center through road and sea shipment. They always use the maximum capacity of the trucks and the containers to avoid unnecessary effect on the climate and minimize the carbon footprint (CAIA, 2023).

CAIA Cosmetics started by selling cosmetics, but, over the years, they have developed both skincare and haircare as well. On their website, they provide the customers with a detailed map detailing each step of the process creating a new product. However, the products that they offer are all products that already exist on the market from other brands,

but since the founders of the company was not satisfied by the products already on the market, they decided to create their own to make them perfect.

Social media is the main marketing source for the company, with Instagram, YouTube, and TikTok being the three main platforms where the products are marketed. As mentioned, Ingrosso has her own YouTube channel where she usually uploads videos of her daily life or sponsored collaborations with different brands that she promotes. In the majority of her videos, some kind of marketing for her own brand CAIA will appear, no matter what the video itself is about. I have personally watched all of those videos and it is difficult to not be convinced to try her brand. CAIA Cosmetics' Instagram account has 298,000 followers (Instagram, 2023).

RESEARCH OBJECTIVES

The research question of this study is: How does the creator of a company affect an individual's purchase choice? The research objectives of this study are to find out whether individuals choose to purchase by brand rather than quality. In this case, the alternative hypothesis of the research study is that CAIA cosmetics quickly became a success because of the creator of the brand who already was a big influencer in Sweden. The second alternative hypothesis of the research study is that consumers' purchase decision-making is highly influenced by the creator of the brand. The null hypothesis of this research is that the creator of a brand does not affect an individual's purchase choice, and that individuals purchase by quality rather than brand.

RESEARCH DESIGN

The method for this research is analyzing secondary data in form of customer reviews on CAIA Cosmetics website, as well as feedback on social media platforms. In addition to analyzing secondary data, a smaller survey will be conducted to receive more specific answers from customers or possible future customers. The survey will be online and consist of 10 questions, where 5 of the questions will be "yes" or "no" questions, 3 will be multiple choice questions, and, lastly, 2 questions with a self-typed answer. The questions will be as following:

1. Did you ever purchase any products from CAIA Cosmetics? Yes/No
2. Would you ever purchase any products from CAIA Cosmetics? Yes/No

3. Do you know who Bianca Ingrosso is? Yes/No
4. Is the brand or the creator of a product important for you? Yes/No
5. Do you think that the quality is important for a product? Yes/No
6. Which of the following would you prefer while purchasing a product:
 - Popular brand with a higher price
 - Unpopular brand with lower price
7. What would you do if you purchased a product that you do not like from a popular brand?
 - Never buy from the brand again
 - Give another product a try
8. Which of the following, if any, have you purchased in the last 12 months?
 - Makeup products
 - Skincare products
 - Haircare products
9. What is your reasoning behind purchasing a certain product from a certain brand?
10. Have you ever been influenced to by a certain product because of the creator of the brand?

SAMPLE

The sample size of this research is delimited to CAIA customers in addition to individuals who never purchased from CAIA Cosmetics before. There are over a hundred reviews from customers on almost every product on CAIA's website which makes the sample size of the customers appropriate to generalize the conclusions to a larger population. When it comes to the survey, the group of individuals who will fill out the survey will be delimited to individuals who frequently use cosmetics, skincare, or haircare. CAIA Cosmetics also uses several different social media platforms, such as TikTok, Instagram, and Facebook where the comment section consists of customer feedback that will be used in this research.

DATA COLLECTED

Customer Reviews

One of CAIA Cosmetics best-selling products, the glow bronzer, which can be found under the tab "best sellers" on caiacosmetics.com, has mixed reviews despite being one of the best-selling products. The product has 703 reviews and an average of 4 stars, and I have looked through the reviews where I found one characteristic of the product that all the negative reviews had in common. 200 reviews described the product as being difficult to apply and work with because of its bad pigmentation. What is also interesting is that those negative reviews commonly would say that the product is bad and continue with justifying how it can work with

more patience and time. An example of this kind of review where the verified customer chose to grade the product with 3 stars is the following (Fig. 1):



Fig. 1. Review from Caia.com (CAIA, 2023). Translated: "I love this product even though it is kind of difficult, since you really have to put in a lot of work to build it up, but it stays on and it does not stain. One disadvantage, however, is that the packaging of this product and other products as well has broken and forced me to buy a new one even though I did not use much of the product at all."

What needs to be taken into consideration while collecting data from reviews is that nobody will ever be completely satisfied with a product, and what works well for one person might not work at all for someone else. However, what I am looking for are certain patterns or trends that can be connected to the same conclusion in this research. In this case, looking at only the stars of the product could possibly be misleading since many customers seem to give multiple stars even though their own typed description of the product tells a more negative story. To be able to make a fair and correct assumption, I calculated the total number of reviews and subtracted the number of bad reviews in the different categories of CAIA, such as makeup, skincare, and haircare where I researched one product from the categories within the different groups (Figs. 2-5).

CAIA Makeup

Product	Positive Reviews	Negative Reviews	Total Reviews	Stars
Setting Spray	99	92	191	4
Foundation	215	306	521	3
Bronzer	603	200	703	4
Concealer	95	205	300	3
Blush	62	54	116	5
Mascara	184	320	504	4
Lipstick	57	38	95	4

Fig. 2. CAIA Makeup Reviews. Data collected from caiacosmetics.com (caiacosmetics.com, 2023).

CAIA Skin

Product	Positive Reviews	Negative Reviews	Total Reviews	Stars
Cleanser	31	22	53	4
Moisturizer	33	16	49	5
Sheet Mask	19	6	25	4
Body Lotion	33	7	40	5

Fig. 3. CAIA Skin Reviews. Data collected from caiacosmetics.com (caiacosmetics.com, 2023).

CAIA Hair

Product	Positive Reviews	Negative Reviews	Total Reviews	Stars
Hair Oil	5	8	13	4
Heat Protection Spray	8	7	15	4
Hair Mask	13	2	15	5
Dry Shampoo	9	13	22	3

Fig. 4. CAIA Hair Reviews. Data collected from caiacosmetics.com (caiacosmetics.com, 2023).

Other

Product	Positive Reviews	Negative Reviews	Total reviews	Stars
Makeup Brushes	65	7	72	5
Toiletry Bag	84	37	121	5
Perfume	144	136	280	4

Fig. 5. CAIA Other Reviews. Data collected from caiacosmetics.com (caiacosmetics.com, 2023).

The makeup category consists of more products since this is the focus and original plan of CAIA Cosmetics; therefore, there is more data to collect on customer feedback when it comes to these products. CAIA skincare was launched on November 4, 2021, and is therefore a relatively new category within the company, which means that there is less data than can be collected in this category. CAIA's most recent addition was a haircare line, and it was launched on November 4, 2022, which indicates that there

is even less data to collect on this specific category (CAIA, 2023). The charts show a compilation of the reviews of the different categories, and I read the comments on the products and placed them as either positive or negative based on the actual message from the customer without any consideration to the stars given to the product.

Zhong-Gang et al. (2015) conducted a survey that reveals that approximately 60 percent of customers look through reviews before making their online purchase decision. 93 percent of those 60 percent believes that these online reviews help to improve the accuracy of purchase decisions (Chen et al., 2022). There are five different types of customer feedback included in the data collected, and these are product and brand health feedback, customer satisfaction feedback, brand loyalty feedback, sales feedback, and customer preference feedback (Wonder Flow, 2019). Since this study researches how a creator of a brand can affect a customer's purchase choice, the focus will be on brand loyalty feedback. According to Wonder Flow, 90 percent of customers report themselves as being brand loyal (Wonder Flow, 2019). Passion, affection, and self-brand connection are three components that influence brand loyalty (Hemsley-Brown, et al., 2016). Brand loyalty involves the commitment to rebuy a product consistently in the future despite situational influences and marketing efforts from potential companies (Hemsley-Brown, et al., 2016).

According to Michael Duffy, a Global Creative Director for a big corporation, consumer choice is not so much about the product itself, but the connection between the consumer and the brand as an emotional attachment (Duffy, 2022). Marketing today has changed, and where once big brands with big budgets controlled the message of mass marketing campaigns on a global scale, the consumer is now the one in control. Brands creating customers due to reputation because consumers passionately spread the word. A quote from Duffy's article that explains how consumers rather choose a specific brand without considering factors such as price and quality is the following: "A brand's value is merely the sum total of how much extra people will pay for, or how often they choose, the expectations, memories, stories, and relationships of one brand over the alternatives." (Duffy, 2022). Therefore, it can be said that consumers choose to buy a brand

rather than the product itself. As mentioned, the focus is not on high quality and low price, but it is the power of the brand that influences a customer's purchase choice (Cow, 2022).

As mentioned in the introduction of this research study, CAIA Cosmetics focuses on environmentally friendly products and manufacturing. When consumers purchase products and services from socially responsible companies and avoid purchasing from companies considered unethical, this is called ethical consumption, a form of consumer activism (Zollo et al., 2018). Increasing concerns for sustainability and environmentally responsible behavior creates attention for eco-friendly consumption, and this is something of which younger generations are aware. Ingrosso herself preaches about the importance of the environment on her YouTube channel which reaches thousands of people. Consumers often take the expectations and behavior of others into consideration when it comes to their decision of purchasing certain products or brands (Melnyk et al., 2019). Marketers benefit from a having a good understanding of social norms and their effectiveness when influencing consumer behavior.

Almost everyone uses social media in their daily lives and spend many hours scrolling through different social media platforms, such as Instagram, TikTok, and YouTube. Ingrosso has 406,000 subscribers on her YouTube channel, and her videos can reach up to 700,000 views (YouTube, 2023). YouTube is a place where Ingrosso decides to market her brand and promote her own products. YouTube is the most popular social networking site for watching videos and second in terms of overall active users (Raja et al., 2021). There is a study that compares the effects of word of influencers, such as communication through YouTube and word of mouth, such as comments by consumers and their effects on consumer decisions. The study suggests that YouTube shapes consumer perceptions and behaviors, where marketers and advertisers can rely on influencers as tool for effective branding (Raja et al., 2021). A study researching the influence of perceived social media marketing activities on brand loyalty suggests that social media marketing activities will have a positive effect on brand loyalty (Ismail, 2017).

Social media has gradually evolved from a single marketing tool to a marketing intelligence source (Li et al., 2021). Several businesses take advantage of social media platforms to reach

buyers and to build closer connections with customers. Social media studies include research of the importance of social influence when it comes to affecting consumer decisions. Recent studies show that people's connection patterns and the strength of social connections can signify the intensity of social interactions, as shown in **Fig. 6**. (Li et al., 2021, p. 3).

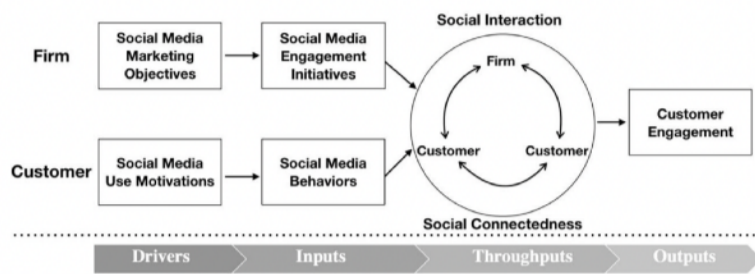


Fig. 6. The process of developing social media marketing strategies (Li et al., 2021, p. 4).

Individuals who make their living through social media income often need to adapt their styles to suit the brands that they promote. This is a way for influencers to become experts in marketing, content creation, and self-promotion (Nizri, 2022). When they later decide or launch their own products and create their own brands, they can use everything they learned to work accordingly to their own values and preferences. With this they already have reached their target audience even before launching their first product. When individuals identify with a brand, a purchase from that specific brand is something that helps them to both reinforce and express their self-images. Therefore, individuals who choose to buy a certain brand proudly identify with the tribe a company has created around the brand (FrogDog Marketing, 2020). The majority desires to be involved with an individual who they like and with whom they identify or admire, and whose story excites them. This highlights the importance of a creator of a brand when it comes to consumer purchasing decision-making. When a creator creates a compelling story for the public, the public wants to "befriend" the creator of a brand by supporting the creator's vision, and they do this by purchasing their products (FrogDog Marketing, 2020). When it comes to a new company, most of which may have new or even nonexistent brand equity, the creator's story can be critical to its success. However, when the creator is already well known by the public, brand equity will most likely arise quickly.

SURVEY DATA ANALYZED WITH STATISTICAL RESULTS

The survey had 42 respondents. Below are the statistical results (**Figs. 7-15**).

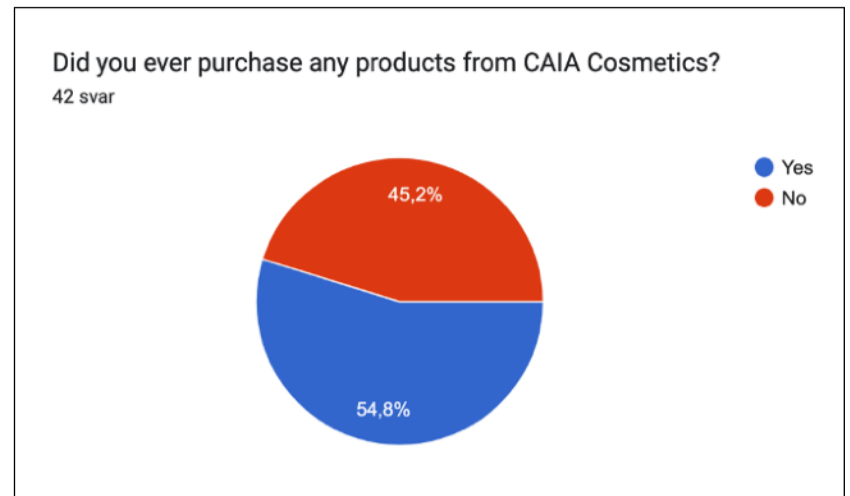


Fig. 7. Responses to Q1: "Did you ever purchase any products from CAIA Cosmetics?"

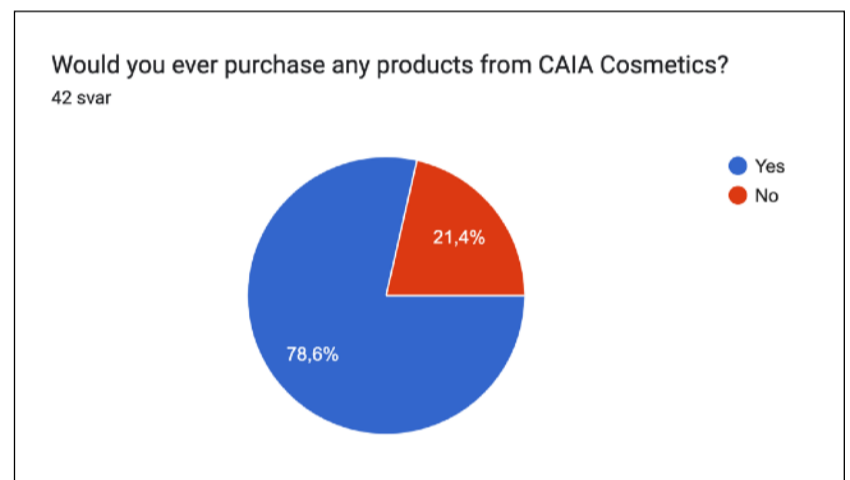


Fig. 8. Responses to Q2: "Would you ever purchase any products from CAIA Cosmetics?"

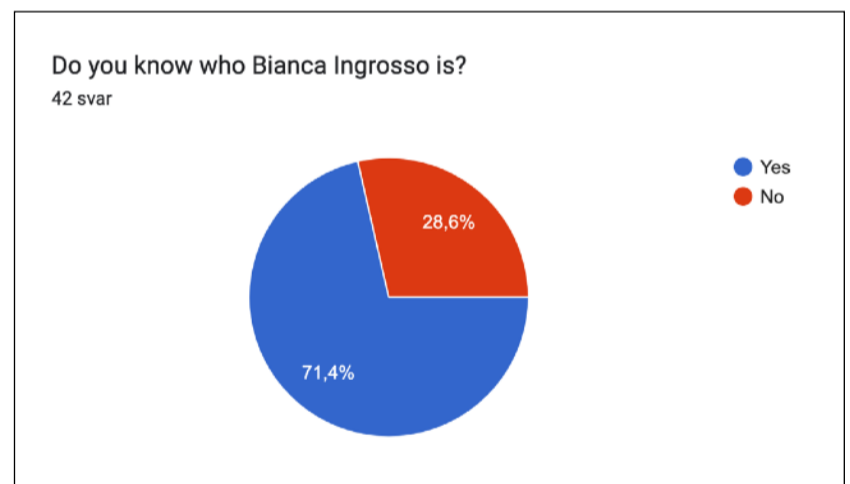


Fig. 9. Responses to Q3: "Do you know who Bianca Ingresso is?"



Fig. 10. Responses to Q4: "Is the brand or the creator of a product important for you?"



Fig. 11. Responses to Q5: "Do you think that the quality is important for a product?"

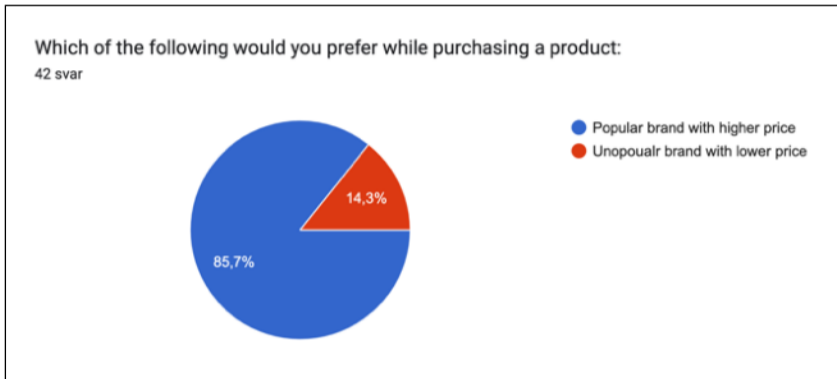


Fig. 12. Responses to Q6: "Which of the following would you prefer while purchasing a product?"

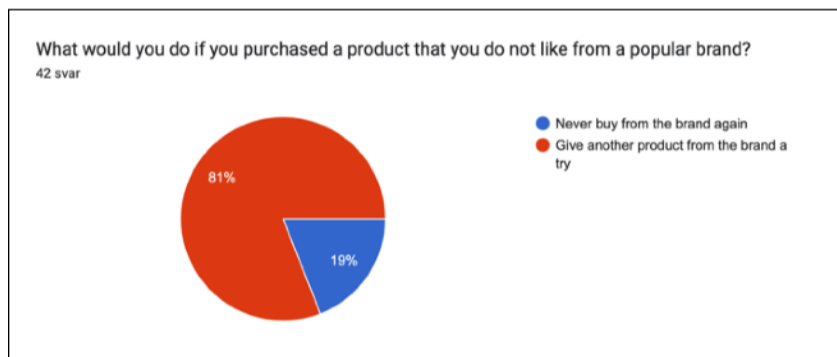


Fig. 13. Responses to Q7: "What would you do if you purchased a product that you do not like from a popular brand?"



Fig. 14. Responses to Q8: "Which of the following, if any, have you purchased in the last 12 months?"

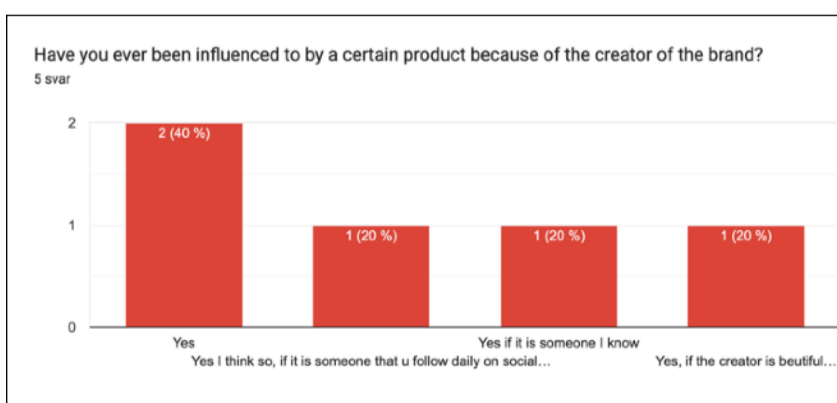


Fig. 15. Responses to Q9: "Have you ever been influenced to buy a certain product because of the creator of the brand?"

RESULTS

Two of the results from the survey questions where the respondents are remarkably similar are importance of quality and importance of the creator of the brand. There is also a correlation between the choice of purchasing from a popular brand with higher price and the importance of the creator. 81% of the respondents will give a popular brand a second chance and buy another product if they purchased a product that they did not like. There is also a correlation between the respondents who would choose an unpopular brand with lower price and their choice to never buy a product from the brand again if they would be dissatisfied with a purchased product. Approximately half of the respondents have purchased products from CAIA Cosmetics and the other half have not. However, 78,6% of respondents answered that they would purchase products from CAIA Cosmetics, while 71,4% answered that they know who Bianca Ingrosso is. The respondents who answered that they know Ingrosso also answered that they would purchase from her brand; on the other hand, the majority of the respondents who did not know who she is would not buy from her brand.

CONCLUSION

The results of the qualitative data survey, including the survey conducted and customer reviews, makes it possible to draw a connection to the quantitative data collected. When it comes to how the creator of a company affects an individual's purchase choice, the majority of respondents desires to follow an individual they like, with whom they identify or admire, and whose story excites them. All the respondents who answered the question whether they have been influenced to purchase a certain product because of the creator of the brand answered "yes" with a short explanation. What the answers all had in common were that they are influenced if the creator is someone that they admire or follow daily on social media. When it comes to the quality of products, all respondents answered that quality is important; however, they also said that they would most likely buy from the brand again even if they would be dissatisfied with a product, and this is something that could indicate that individuals choose to purchase by brand rather than quality, and that consumers' purchase decision making is highly influenced by the creator of the brand. Since all the data collected and analyzed proceeds over 50% the proportion can be considered credible,

especially since this study focuses on a relatively new brand on the market. From this study we can draw the conclusion that the creator of a brand is an important factor in customer loyalty, predicting possible success of a company and how it can affect a customer's purchasing choices. We can therefore see clear connections in the data collected and the alternative hypotheses of the research study, which is that consumers' purchase decision-making is greatly influenced by the creator of the brand, and that CAIA Cosmetics quickly became a success because of the creator of the brand who already was a big influencer in Sweden. The null hypothesis of the research study was not supported. ❖

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PERLA GARCIA

THE ETHICAL IMPLICATIONS OF THE COMMERCIALIZATION OF HUMAN GENETIC MATERIAL

As of 2021, the global genomics market was valued at 21.81 billion USD, according to a genomics market dynamics analysis report by DelveInsight (2023). From 2022 to 2027, that market is projected to reach 55.45 billion USD. The genomics market is growing rapidly due to several factors, including advances in technology and the increasing demand for personalized medicine. According to the World Health Organization (WHO), genomics is referred to as "the study of the . . . genetic or epigenetic sequence information of organisms and attempts to understand the structure and function of these sequences and of downstream biological products" (WHO, 2023). In other words, genomics is the study of an organism's entire genetic material to understand their structure, functions, and interactions with the environment. Because of ongoing research on the manipulation of genetic material (like DNA), several breakthroughs occurred in the biotechnology world in the past two years. For instance, scientists were able to develop vaccines against variants of SARS-CoV-2 quickly. Another scientist, Svante Pääbo, was able to reconstruct ancient human DNA and discovered a new hominid species, Denisovans (Thompson, 2022). Another breakthrough occurred when

scientists from Yale University were able to revive a dead pigs' organs using something called OrganEx which could potentially keep human organs alive longer during transportation or even reverse sudden death in humans. In the summer of 2022, scientists were also able to grow mouse embryos in a lab without using sperm or eggs, only stem cells. On a similar note, the FDA also approved a California company called Upside Foods to create lab-grown chickens in 2022 (Thompson, 2022). All these innovations have various ethical implications. The commercialization of human genetic material has been a topic of debate for many years, and resulting ethical implications must be considered. While there are potential benefits to the commercialization of genetic material, such as advancing medical research and improving treatments for genetic disorders, there are also concerns about the exploitation of vulnerable populations, the commodification of human life, and the potential for discrimination and stigmatization.

One of the main ethical concerns surrounding the commercialization of genetic material is the exploitation of vulnerable populations. Historically, certain populations, such as minorities and people with disabilities,



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Photo by Polina Tankilevich.

have been exploited for medical research without their informed consent or proper compensation. This is the case with the HeLa cells controversy. HeLa cells are a line of human cells that were first isolated from a cervical cancer patient named Henrietta Lacks in 1951 (Fissore-O'Leary, 2022). These cells were the first human cells to be continuously cultured in a laboratory setting and have since become one of the most widely used cell lines in scientific research. HeLa cells are an important tool in biomedical research and have had a significant impact on the economy, particularly in the field of biotechnology and medical research. HeLa cells have been used to develop treatments for a variety of diseases, including cancer, HIV/AIDS, and polio (Fissore-O'Leary, 2022). These treatments have generated significant revenue for pharmaceutical companies, which, in turn, has contributed to the growth of the biotechnology industry. However, the use of HeLa cells has been controversial because they were taken without Henrietta Lacks's knowledge or consent, and there have been ethical concerns about the commercialization of her cells and the use of her genetic information (Fissore-O'Leary, 2022). According to Fissore-O'Leary,

Billions of people around the globe owe their lives, or at least their longevity, to Lacks's cells. Accordingly, the profits reaped from the innovation borne of HeLa cells are so extensive the sum is effectively incalculable. Despite this, Lacks died extremely poor, and she was buried in an unmarked grave. Today, her descendants are not even able to afford health insurance. (2022)

The potential for genetic material to be commodified and sold for profit raises concerns that vulnerable populations may be further exploited.

Another ethical issue is the commodification of human life. Some argue that the commercialization of genetic material turns human beings into commodities, reducing them to mere objects that can be bought and sold. This view is particularly concerning when considering the use of genetic material for reproductive purposes, such as creating "designer babies" with certain desired traits. This was the case for John Moore, a patient who had undergone medical treatment for a rare form of leukemia at the University of California, Los Angeles (UCLA) Medical Center. During his treatment, Moore's doctors discovered that his cells had unique properties that could be used for medical research (Alexander, 2022). Without Moore's knowledge or consent, UCLA researchers patented a cell line using his

genetic material and licensed it to a biotechnology company for commercial use. Moore sued UCLA, arguing that he was entitled to a share of the profits generated from the commercial use of his genetic material. The case went to the California Supreme Court, which ultimately ruled against Moore, stating that he did not have a property right in his own cells or genetic material. The court's decision in *Moore v. Regents of the University of California* had significant implications for the commercialization of genetic material (Alexander, 2022). It established that individuals do not have property rights in their own cells or genetic material, and that researchers and institutions can patent and commercialize genetic material without obtaining consent from the individual. According to lawyer, Natalie Alexander, "Moore and informed consent do not adequately protect genetic material, creating unjust results in which "donors" of genetic material have little to no recourse against researchers that may seek to exploit them" (2022). This case highlighted the need for ethical guidelines and legal frameworks to protect the interests of individuals and communities in the context of genetic material commercialization.

Furthermore, the commercialization of genetic material may contribute to discrimination and stigmatization. According to German sociology professor Thomas Lemke, "the history of genetics is closely linked with eugenic practices directed at individuals deemed "genetically inferior" because of their family background" (Lemke, 2013). Dr. Lemke is referring to the eugenics movement that occurred in the US in the 1900s. Eugenics is the pseudoscience study and practice of improving the genetic quality of a human population through selective breeding and sterilization. Millions of people underwent sterilization without their consent, predominately African Americans, who were deemed "genetically disabled." This is why many fear that new advances in genetic manipulation can lead to new forms of discrimination. Dr. Lemke also goes on to state that "the history of eugenics shows that (predictive) genetic testing is not necessarily required for discriminatory practices to take place. Apart from social prejudices and stereotypes, adverse treatment can also be based on an individual's medical reports or family history" (2013). For example, insurance companies or employers may use genetic information to deny coverage or employment

based on potential future health risks. The fear of such discrimination may also prevent individuals from seeking genetic testing or treatment, leading to a lack of access to important medical care.

In conclusion, the commercialization of human genetic material raises complex ethical issues that must be carefully considered. While there are potential benefits to the commercialization of genetic material, including advances in medical research and treatments, there are also concerns about the exploitation of vulnerable populations, commodification of human life, and the potential for discrimination and stigmatization. As genetic technology continues to advance, it is important to address these ethical concerns to ensure that the use of genetic material is conducted in an ethical and responsible manner. It is also important to ensure that the benefits of genetic material commercialization are distributed fairly and that ethical and legal frameworks are in place to protect the interests of individuals and communities. The commercialization of genetic material in the biotech industry has brought significant benefits and challenges, highlighting the need for a balanced approach that considers these activities' scientific, ethical, legal, and social implications. ❖

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NICHOLAS PARRISH

LIBERTARIANISM VS. UTILITARIANISM: ECONOMIC DISTRIBUTION AND DISTRIBUTIVE JUSTICE

In today's world, there is much debate over how money should be distributed and the justice that goes with such distribution. This is often presented using the example of billionaires who have made their money from owning large corporations such as Tesla or Amazon. Many raise the point that these men have a massive amount of money; therefore, they should use it to help others. Meanwhile, others will state that it is these billionaires' hard-earned money; therefore, they should keep it for themselves. Another good example of the question of distributive justice was raised when many people received stimulus checks from the government during the COVID-19 pandemic. People received stimulus checks based on their income, employment status, number of people in household, and other factors. Distributive justice is more prevalent in our daily lives than we often think, and there are varying opinions on how this economic distribution should be handled. Within this topic, there are two main

different perspectives on how money should be distributed in society. These perspectives are utilitarianism and libertarianism. Utilitarianism would follow the rules regarding the stimulus checks and give out money to those to produce the most happiness among the highest number of people. On the contrary, libertarians would argue based on freedom. Therefore, they are less inclined to the idea of government involvement and would not favor taking money from the rich and giving it to the poor, such as a Robin Hood figure would do. The principles of freedom and happiness constitute a key difference between the two theories and are foundational for each respective concept. With these varying viewpoints, the question to be raised is which one has the most valid evidence as to how economic distribution and distributive justice should be handled in our society. Based on the sources I have collected, I favor the libertarian point of view and I argue that the libertarian position should be used regarding



Photo by Mati Mango.

economic distribution and distributive justice because freedom is more important than happiness. In my opinion, the entitlement theory has fairer attributes than a utilitarian approach, and utilitarianism does not respect the negative and natural rights of an individual while libertarianism does.

Many people would argue that happiness is the ultimate pursuit of life; however, happiness should not be one's main priority, but rather be seen as a byproduct of freedom. To analyze why freedom is more important than happiness, they first must be defined. Freedom is often defined as the right to choose

(Veenhoven, 2000). From a libertarian standpoint, freedom is a prized value and one of the main rules is that there should be an opportunity for us to choose something, particularly the way we live our life. Also, our freedom should never be impeded on. From a utilitarian point of view, it is happiness that is their most prized value. Happiness can be defined as a satisfying state of living where you are not struggling physically, mentally, or economically (Veenhoven, 2000). It can also be defined as a peaceful quality of mind.

In a study done by Ruut Veenhoven, 46 nations were studied on the relationship their populations drew between freedom and happiness. When conducting the study, certain questions were asked, such as: "Does Freedom Raise Happiness?" Based on the results among the nations, freedom tended to be associated with happier nations (Veenhoven, 2000). Countries such as the Netherlands and Switzerland performed far better than communist countries or countries stricken by poverty (Veenhoven, 2000). Therefore, there is linear evidence to suggest that there is a correlation between the two principles discussed among libertarians and utilitarians. These results are great, but one might refute the point by asking: "How do we know that happiness raises freedom?" This can be simply refuted based on other results gathered by the study performed by Ruut Veenhoven.

The study grouped nations that had a degree of freedom that matched their capabilities. In other words, wealthier nations were inhabited by people who have the opportunities and freedom to pick whatever they wanted. They decided to group these nations to see if freedom only allowed for happiness if you had capability to choose. Their hypothesis was wrong when it came to economic freedom. Economic freedom



Photo by Matti Mango.

was an outlier and was more likely to increase happiness in poverty-stricken countries that provided said freedom (Veenhoven, 2000). Some of these countries were Nigeria and South Africa. This result helps show evidence for why distributive justice and economic distribution requires freedom more than happiness. People who lived in terrible conditions were stated to be happier than wealthier nations due to the main fact that there was economic freedom. Both Nigeria and South Africa are capitalist societies providing economic freedom for many of their citizens and were two of the countries studied by Ruut Veenhoven. Meanwhile, other nations studied were communist countries that provided little to no economic freedom. These countries were ranked on the lower end of the spectrum when it came to happiness (Veenhoven, 2000).

Another hypothesis set forth by the study states that freedom only led to happiness in wealthier nations. However, this was also proved to be false. Economic freedom followed a strong correlation with happiness in developing countries, but not in rich countries (Veenhoven, 2000). Since economic freedom had little to do with happiness in wealthier countries, it can raise the validity about how economic freedom is more important than happiness. However, the fact helps support the argument because economic freedom is fundamental in wealthier nations and can lay the foundation for happiness from other types of freedom such as political or private freedom. With these results in mind, it stands to reason that freedom is more important than happiness because freedom is a catalyst, especially when it comes to economic distribution and distributive justice, for more happiness, regardless of one's circumstances or capabilities which furthers the supporting evidence for a libertarian point of view.

Now that there is evidence for why libertarians' viewpoints are valid for promoting freedom in terms of economic distribution, the second point to support this is the entitlement theory formed by Robert Nozick, a Harvard professor. The main premise of this argument is that people are entitled to their holdings if they have obtained them in a fair and just manner (Shaw & Barry, 2015). This is a much fairer approach than utilitarianism because this theory proposes that individuals are not bound by moral constraints (Lloyd, 2003). Essentially, this means that individuals cannot and should not be affected morally when it comes to making decisions economically or in any ethical

situation. If someone received their holdings or property in an unjust manner, they would be violating the moral rights of others. However, a utilitarian would argue for the situation that produces the most happiness. Jeremy Bentham, the founder of utilitarianism, argues that good brings pleasure and evil brings pain (Lloyd, 2003). Bentham would not regard the entitlement theory as fair because the theory does not call for others to share in wealth as a collective society, and the entitlement theory instead focuses on individuals living within a society independently.

Under the entitlement theory, Bentham's statements and ideologies would not work. Assume the situation that someone gained possession of holdings unfairly from wealthy people; however, they were used for a nonprofit organization that maximized the happiness of many who were of lower income. This would seem like an innocent thing to do for utilitarianism. A utilitarian would focus on the result in this situation. However, they would overlook the entitlement theory being violated. Enabling behavior to allow for happiness at the expense of others can cause more people to feel desensitized to societal ethical values which can enable more unethical behavior further down the road. Allowing pleasure to be a measuring scale for economic justice and distribution allows for permissible acts that harm the actions of others, which is unfair (Lloyd, 2003). Going back to the first point in the thesis, constricting freedom in the situation given above would not allow for happiness because the individual's economic freedom would be imposed upon. The wealthy would have their individual rights violated, and the poor would not be happy in the long term because the money would run out if the nonprofit organization was to get caught.

The second principle of Nozick's entitlement theory states that transfer of goods should be a legitimate transfer (Shaw & Barry, 2015). Therefore, transfers of goods should be mutually accepted by both parties. Transfer of goods through other means such as burglary would infringe upon this right. Another prime example that would not be justifiable under this theory is if you falsified your job resume so that you could obtain a job at a managerial position in a large corporation. Once more, the results override the moral aspects that should be considered. In terms of distributive justice and economic distribution, this situation may seem not to relate; however, it does. For a utilitarian,

you have maximized happiness for yourself, your family, and the business would be happy to have a new employee. However, the entitlement theory would be infringed upon because not only would you be lying, but you would be obtaining a job position that someone qualified for should have received. Therefore, economic distribution would go to someone who does not deserve it. The entitlement theory would not permit such a situation and would treat the job to someone in a fairer manner.

The entitlement theory is a foundational principle representative of capitalism. Everybody can pursue the economic goals they want and obtain what products they want, but they must do it in a fair manner. There may be inequality and differing levels of wealth, but freedom is the main driving point because everybody can choose what they want to do. Thus, their happiness will increase far more than if taking a utilitarian approach. In short, the entitlement theory allows fairness to be defined by an individual rather than by an organization or a government such as under socialism. Therefore, this definition of fairness should be a key principle in deciding distributive justice and economic distribution and furthers the evidence in support of a libertarian viewpoint.

The last point to further prove why libertarianism is the most ethical way of economic distribution and distributive justice is that libertarianism respects the natural and negative rights of an individual while utilitarianism does not. These negative and natural rights are Lockean rights which were formulated by John Locke (Shaw & Barry, 2015). These rights may seem cruel at first when compared with the positive duties and rights of utilitarianism; however, there are various points which prove that negative and natural rights are what we base our moral rights on.

Some may argue that our rights on an individual level are not negative; however, there are many examples that allow one to make that case. Many utilitarians would argue that there are positive duties of the law. However, this is not the case. The justice system is a good example because there are numerous amounts of laws that are stated in society. However, most if not all the laws are made to prevent somebody from infringing on the negative rights of an individual. There is no positive duty within the justice system that tells someone to do a kind thing for another. Meanwhile, examples of negative laws are numerous such as burglary, tax fraud, drug possession, and many others that

are negative and can constrict the freedom of others and violate their rights. The justice system is a good example of how distributive justice is fairer than utilitarianism because justice is served when someone violates another's rights but is kept out of our freedom to do things independently.

Meanwhile, some may argue that the rights of individuals are not natural. When Locke argued for natural rights, he argued that, as individuals, our rights are independent of social or political institutions. A good theory that provides evidence for why our rights are natural is Maslow's Needs Hierarchy Theory. This theory has five laddered needs from physiological needs, safety, love, esteem, to self-actualization (Kinicki, 2020). Our needs are natural and begin with food, air, and water. However, our natural needs and rights increase as society becomes more complex and our basic needs are satisfied (Kinicki, 2020). Therefore, our natural rights are independent of society, but grow with society. As stated by Michael F. Reber, distributive justice is guided by a set of virtues in a given culture (Reber, 2010). Every society has a set of virtues that are regarded as morally right even if they are not necessary or enforced. Someone may see it as polite to help an old lady cross the street, but they would be doing this because it is a virtue and not because the social or political institutions tell them to do it. Another virtue or natural right independent of social and political institutions would be the rule that we should generally be kind to each other. This virtue is most likely universal because it is a natural right within us but does not have to be followed or enforced socially or politically.

A deontological approach can also be taken from an agent-centered point of view. Say you are a parent, and two children are about to die, one of them being yours (Moore, 2021). The parent would choose to save their child over the other, and that choice would not be unexpected (Moore, 2021). This illustrates the natural rights and negative rights clearly because the parent does not interfere with the other child and acts independently of social or political institutions. In terms of distributive justice, governments or people not interfering with each other allows people to develop and receive justice of their own merit. With respecting these rights, there is equal chance and opportunity for everyone because nobody or no entity has the authority for people to share or give up their properties such as money or possessions.

When it comes to distributive justice and economic distribution, acknowledging the rights of individuals to be natural and negative allows for a more respectable approach than utilitarianism. Bentham, a pioneer of utilitarianism, argues that an individual is subjugated to society and states that people are an end to a means if pleasure and maximal happiness are obtained (Lloyd, 2003). This is not respectable to anybody and will lead to moral problems if society was to adopt this method. With people being an end to a means, an individual is not considered to possess any property or natural rights and become less of a human being. In this society, people would see other people as inferior and as objects used to further one's own self-interest which would further dilute the ethical views of a society or individual.

Within distributive justice, a prime example would be credit. If two farmers need a plow, but there is only one available and they must buy it with credit, the person with the best credit will receive it. However, a government with redistribution power would force the better farmer to lend the plow to the farmer who is not as deserving and promise reimbursement to the farmer with better credit (Reber, 2010). However, not only are the farmers' negative rights infringed upon, but so are their natural rights because many would see it fit for the farmer with better credit to receive the plow, based on his hard work and better qualities. A utilitarian would argue for this redistribution because it would "maximize" happiness since they would both receive something, even though it would violate their rights. Violations of these rights strip the freedom of others. From the evidence supporting natural and negative rights and why they should be respected in a distributive justice and economic distribution system, libertarianism is a better system to base justice on when compared to utilitarianism.

In all, it has been established that freedom is a more key principle to value rather than happiness. Freedom, especially economic freedom, is more prevalent to increase happiness in poverty-stricken countries. The entitlement theory codifies the laws of how people should receive property and transfer property in a just and fair manner compared to the less fair utilitarian approach. Lastly, respecting the negative and natural rights of an individual is important because it allows for an equal opportunity among everyone and treats

everybody as a human being and not as an inferior. ❖


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NATURAL SCIENCES & MATHEMATICS

INSTAR DURATION OF DRAGONFLY NYMPHS IN RELATION TO DIFFERENT FOOD QUANTITIES (ODONATA: ANISOPTERA)

ABSTRACT

The larval development of many arthropod species is negatively affected by starvation and prey availability. When combined with other stressors like predation, food restriction can lead to resource allocation and trade-offs between survival and growth rates. The objective of this study will be to investigate the effects of food quantity on the instar duration of various dragonfly nymphs. We hypothesized that higher food quantities would lead to a decrease in instar duration. Thirty different types of nymphs were collected that included nymphs in the Emerald family (*Corduliidae*), the Clubtail family (*Gomphidae*), and the Skimmer family (*Libellulidae*). Each group of ten was categorized as either small, medium, or large for their food amount treatments. Results showed that the average instar duration of the "large" treatment group was 17.2 days. The average instar duration for the "medium" treatment group was 15.4 days. The average instar duration for the "small" treatment groups was 14 days. There was no statistically significant difference between the three averages of the treatment groups. Our p-value was greater than 0.05 at 0.9295. Results from this study, however, suggest that there is no relationship between food quantity and instar duration. Even though the "large" treatment group had longer average instar durations, there was no statistical difference in the means of the treatment groups. Therefore, we cannot reject our null hypothesis that there is no relationship between instar duration and food quantities.

Keywords: Instar duration, dragonfly nymphs, ecdysis, exuviae, arthropods, Anisoptera nymphs, food limitation, developmental rate

1. INTRODUCTION

The larval development of many arthropod species is negatively affected by starvation and prey availability. When combined with other stressors like predation, food restriction can lead to resource allocation and trade-offs between survival and growth rates. For the larvae of the damselfly *Ischnura verticalis*, food shortage and predation have been shown to not only reduce the overall mass after emergence but also delay

the rate of ecdysis (Dmitriew and Rowe, 2005). Additionally, foraging behavior was observed to decrease in damselfly larvae that were delayed in growth and were exposed to predators. The American damselfly *Hetaerina americana* has also exhibited a prolonged larval development period and decreased body mass when food availability was low (Jiménez-Cortés et al., 2011). Other studies have also shown similar correlations between food availability and larval developmental rates in various species of damselflies (Stoks, 2001; Schaffner and Anholt, 1998; Mikolajewski et al., 2005; Baker, 1982). For other arthropods like the mosquito, *Aedes aegypti*, intermediate levels of food are enough to cause short developmental rates, large adult body mass, and high survival rates (Aznar et al., 2018). A decrease in adult mass, prolonged developmental duration, and decrease in survival rate were evident in not only the groups with little food but also in those with an excess of food. These variations in food availability cause environmental stress on the arthropod larvae which causes them to take longer to develop to compensate for the loss of nutrition. In these cases of food scarcity, the direct effects were observed to be slower developmental rates with prolonged developmental stages and decreased body mass after emergence.

Within the arthropod community, developmental rates/stages are measured in instars. The instar duration can be measured by the interval of time it takes for the arthropod to grow in between periods of ecdysis (Hunt and Chapman, 2000). Dragonfly nymphs go through numerous instar stages during larval development that can range anywhere from 8-15 instars (Wissinger, 1987). During the instar stages, resource partitioning is quite common since the larvae are more vulnerable and more opportunistic during their development. This means that predation and competition also play a big role in the survival of larvae. The biggest factor that drives both is food availability and lack thereof.

Similar to other arthropods, non-optimal amounts of food negatively impact development in dragonflies. The larvae of the

dragonfly *Palpopleura lucia* had a higher development rate (in terms of instar duration) in a study where they were fed with a specific diet that consisted of copepods and cladocerans. When fed with different quantities of this diet, the instar duration period was much longer in the groups that were fed far less food (Hassan, 1976). Similarly, in cases where survivorship is investigated, dragonfly larvae of both *Libellula lydia* and *Libellula luctosa* had high mortality rates when given very low amounts of *Daphnia magna* to eat (Wissinger, 1987). Therefore, less food resulted in less growth. The time spent on each instar also decreased as food availability increased, suggesting that food quantity greatly influences the instar duration of dragonfly larvae.

The objective of this study will be to investigate the effects of food quantity on the instar duration of various dragonfly nymphs. We hypothesized that higher food quantities would

lead to a decrease in instar duration. Over the course of six weeks, we experimented in a biology laboratory on the North Carolina Wesleyan University campus. During this period, ecdysis was observed and recorded to assess the average instar duration for the different quantities of food.

2. MATERIALS AND METHODS

2.1 Study Area

Our study area encompassed the biology laboratory building at the North Carolina Wesleyan University campus. Collection of the dragonfly nymphs was done by two field technicians via dip netting along the edge of a pond at 35.995462, -77.894163 on September 27th, 2022. Different types of nymphs were collected that included nymphs in the Emerald family (*Corduliidae*), the Clubtail family (*Gomphidae*), and the Skimmer family (*Libellulidae*).

2.2 Nymph Preparation

On September 28th, 2022, thirty dragonfly nymphs were randomly sorted into three groups of ten. Each nymph was placed into its cup which was prepared with dechlorinated water and rocks for support. Each group of ten was categorized as either small, medium, or large for their food amount treatments. The "small" treatment was fed three to five *Lumbriculus variegatus* worms, the "medium" treatment group was fed a pea size amount, and the "large" was fed one eighth of a tsp. The temperature of the room was kept constant as well as the type of food, water quality, water quantity, and treatment category range.

From September 28, 2022, to November 8, 2022, the nymphs were fed daily with their corresponding amount of food. On every seventh day, the frass was removed, and the water was cleaned. As nymphs molted, exuviae was removed and the ecdysis number was tracked and written into a data sheet.

On October 20th, treatment food quantities were changed to 3-5 *Lumbriculus variegatus* worms



Photo by Pixabay

for the "small" treatment group. The "medium" treatment received half a pea-sized number of worms and the "large" treatment was fed 1/16th of a teaspoon. This change was necessary because of the excess of worms not being eaten.

2.4 Statistical Analysis

Instar duration values for each nymph following feeding treatments were measured at the end of the experiment on November 8th, 2022. Data was analyzed using ANOVA. ANOVA included the categorical treatment variables (small, medium, and large) and compared the mean instar duration for each treatment. All analyses were conducted using the statistical software package Tidyverse (Wickham, 2017), R (R Core Team, 2021), and RStudio (RStudio, 2021).

3. RESULTS

The effects that the three feeding treatments had on nymph instar duration are shown in **Fig 1**. Out of the thirty dragonfly nymphs collected, only twenty-seven survived the emergence and only seventeen went through ecdysis. One individual expired from each of the treatment groups. All data available was used (for example, instar duration for the nymphs that failed to survive to emergence were included in the calculation of the average instar durations and the statistical analysis.)

The instar duration of the "large" treatment group ranged from seven to twenty-nine. There were five nymphs from this group that went through ecdysis with an average instar duration of 17.2 days. The instar duration for the "medium" treatment group ranged from four to thirty-three. There were six nymphs from this group that went through ecdysis (with one going through ecdysis twice). The average instar duration was about 15.4 days. The instar durations for the "small" treatment group ranged from seven to thirty-three. There were also six nymphs from this group that went through ecdysis (with two nymphs going through ecdysis twice). The average instar duration was about 14 days.

There was no statistically significant difference between the three averages of the treatment groups. Our p-value was greater than 0.05 at 0.9295.

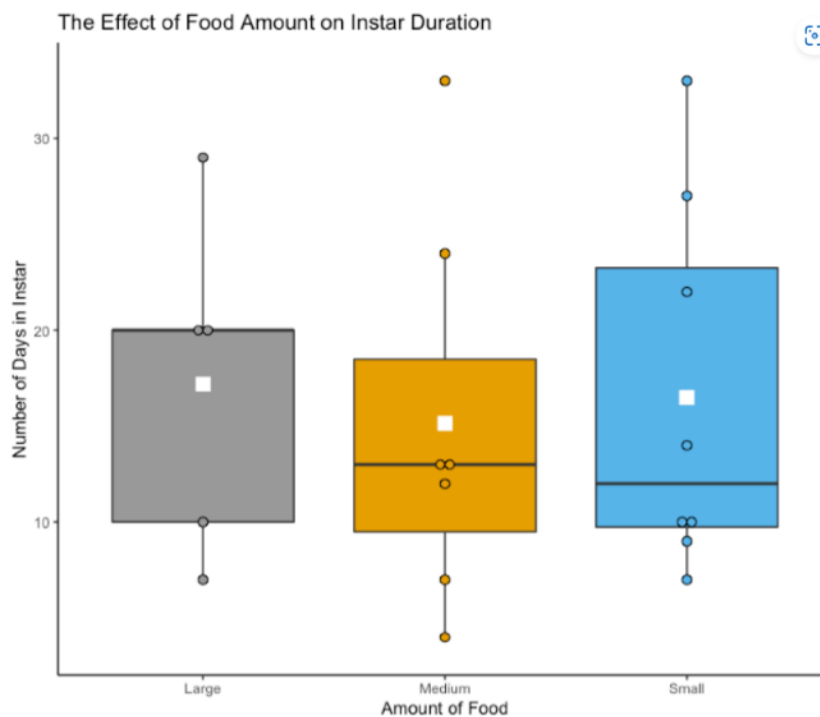


Figure 1. The effects of three different food quantities on instar duration in days. The "small" treatment groups were fed 3-5 *Lumbriculus variegatus* worms. The "medium" treatments were fed half a pea-sized number of worms and the "large" treatments were fed 1/16th of a teaspoon of worms. The dots represent the instar value of each nymph. The white box represents the average value for each treatment. The rest of the box plots are representative of the nymph's traditional instar values.

4. DISCUSSION

For many arthropod species, much support exists for the hypothesis that higher food quantities lead to shorter instar durations (Dmitriew and Rowe, 2005; Jiménez-Cortés et al., 2011; Stoks, 2001; Schaffner and Anholt, 1998; Mikolajewski et al., 2005; Baker, 1982; Hassan, 1976). Results from this study, however, suggest that there is no relationship between food quantity and instar duration. Even though the "large" treatment group had longer average instar durations, there was no statistical difference in the means of the treatment groups. Therefore, we cannot reject our null hypothesis that there is no relationship between instar duration and food quantities.

There are many factors in our experiment that could explain why our results do not line up with other studies. Our statistical analysis might have been skewed or inaccurate due to the synchronicities of the experiment. Our sample size was also relatively small and was not made up of a singular type of dragonfly species. Instead, it was a mixture of different species at different developmental stages. The experiment was also only done in a single location. Not all the assumptions of ANOVA were met either due to how small our sample size was. This could have also skewed our data results and statistical analysis. It is because of this same reason our data distribution was not centered.

Future replications of this experiment would benefit from the following modifications: better control of constant variables such as the

use of the same species, nymphs in the same instar phase, and mortality of the nymphs. The sample size should also be larger, and the experiment time should be longer to accurately analyze the data collected. ❖

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Photo by Ray Bilcliff.

THE EFFECTS OF THYROID HORMONE ON TADPOLE METAMORPHOSIS

ABSTRACT

There are several key factors that influence the metamorphic process in species, specifically amphibians, such as the release of hormone chemicals by the endocrine gland to trigger cellular responses. Certain cellular responses based on environmental stimuli, in addition to hormonal variation, impact physical and functional changes in animals. The thyroid hormone released by the endocrine gland that is gradually absorbed in the tissues of bullfrog tadpoles (*Rana catesbeiana*) affects the physiological responses on a regular basis even when a species is unaware of their own responsive changes. An experiment was conducted to observe the effect of thyroid hormone on the metamorphic development of bullfrog tadpoles (*R. catesbeiana*) over the course of two weeks to observe and analyze the speed at which the development occurs. The findings of the experiment suggest that specific cells and tissues play a critical role in the structure of a species alongside the function of thyroid hormone receptors in amphibians.

INTRODUCTION

The regulation of the metamorphic process in an amphibian is closely associated with the concentration of thyroxine within the organism's blood. The term *amphibian* classifies any aquatic vertebrate that can adapt its body temperature to its environment such as frogs, toads, newts, and salamanders. While they spend most, if not all, of their pre-metamorphic stages of their lives in water, these species later develop a key factor of survival, which is lung-breathing as adults, as they shift from an aquatic lifestyle to a terrestrial one. Biologically, it is the thyroid gland that produces the thyroxine hormone which can vary in dosages as well as bodily functions. Research shows that early development in certain tadpole species has been found to begin as terrestrial, as the tadpoles emerge from jelly capsules after a three-week period of fertilization without a set of lateral line organs and with a coiled gut, cranial cartilage, and a tail which will eventually shrink (Callery and Elinson 2000). The structure of an amphibian during its pre-metamorphic stages is vastly different from

the physical composition of an adult amphibian as shown later on in the study.

Tetraiodothyronine (T₄) and triiodothyronine (T₃) are both produced in the thyroid gland in amphibians which occurs at the beginning of biphasic development. Studies have shown that the transcription of the thyrotropin releasing hormone happens during early stages of feeding, and TR can specifically target genes that act as a catalyst for the development of tadpoles (Fu et al. 2018). In addition, thyroid hormones only affect an animal's development when a hormone is present to encourage the process of protein synthesis (Randall et al. 2001). Furthermore, according to several research experts on the role of the thyroid hormone receptor in amphibians, these receptors play multiple roles for genomic and non-genomic effects in an organism's body (Fu et al. 2018). In other words, studies have shown that the thyroid hormone alone was sufficient to generate metamorphosis with the help of environmental stimuli such as changes in temperature. The endocrine glands which produce the thyroid hormone can be divided into two structures that either release secretions onto an epithelial surface or directly into the bloodstream (Randall et al. 2001).

The purpose of this experiment is to observe the impact of thyroid hormone on the development of bullfrog tadpoles (*Rana catesbeiana*) which initially begin as tadpoles. The tadpoles will be treated with different levels of dosages, one being high, another being low, and a control dose to see how rapidly these tadpoles develop into adult frogs. The experiment is significant because the endocrine system plays an important role in the physiological development of many species and being able to test an animal that is both aquatic and terrestrial will be beneficial for understanding how the metamorphic process is regulated. The development of bullfrog tadpoles can be seen externally such as with the shrinking of their tail as well as internally as the function of their vital organs evolves. The null hypothesis states that the incorporation of thyroid hormone into the environment of the frog will have no effect on the metamorphic

process. The alternate hypothesis states that the high dose of thyroid hormone will have the highest effect on the bullfrog tadpoles because it will speed up the developmental process.

METHODS

The experiment was performed as a second trial over the span of two weeks from Wednesday, October 5, 2022, to Wednesday, October 19, 2022. It is important to note that the previous research from the first trial was omitted and restarted following the death of the majority of the bullfrog tadpoles (*Rana catesbeiana*) due to probable skin infections or contaminated feedings and less frequent water changes. Five researchers conducted the experiment where each person worked individually and was responsible for four bullfrog tadpoles (*R. catesbeiana*) each.

Each researcher's two tanks were separately treated with their same assigned doses of the thyroxine hormone or the control dose but the researchers were unaware of which treatment they were using on the bullfrog tadpoles (*R. catesbeiana*) because it was a blind study. Furthermore, each researcher was given two plastic tanks in which two bullfrog tadpoles (*R. catesbeiana*) were placed in each tank after carefully cleaning out the tank of any plastic

residue which could have been left over from the manufacturing company as well as any soap that would have been harmful to the species. Each tank was filled with water that consisted of a mixture of 2,000 ml dechlorinated tap water and 5 ml of the unknown treatment solution. The treatment solution was administered to researchers in refrigerated glass bottles covered in tinfoil and labeled alphabetically, as *Treatment A*, *Treatment B*, and *Treatment C*.

Although the experiment was a blind study, the control solution was simply dechlorinated water; the low dose of thyroxine was 0.01 mg/ml and the high dose of thyroxine was 0.5 mg/ml. The bullfrog tadpoles (*R. catesbeiana*) were fed a pinch of boiled spinach on Mondays and Wednesdays, and the water was changed every other day, while waste and old food were netted out of the water and disposed of in the trash. While the water was changed every other day, it was the responsibility of the researchers to come into lab preparation room 105 to ensure that the tadpoles remained alive, mobile, and that their environments were as clean as possible. This process was undertaken with gloves to avoid any skin contamination, and researchers washed their hands after handling the bullfrog tadpoles (*R. catesbeiana*), materials, and treatment solutions.



Measurements of each bullfrog tadpole (*R. catesbeiana*) were taken every other day over the course of two weeks. To complete the measurements, each bullfrog tadpole (*R. catesbeiana*) was placed in a small glass water dish filled halfway with dechlorinated water, one at a time, and the total body length, the trunk length, the size of the mouth, and the tail length were recorded in centimeters. Measurements were kept consistent between all researchers throughout the experiment, and researchers came together at the end of the experiment to share their personal findings and calculate the average values and standard deviation errors for each treatment. Any bullfrog tadpoles (*R. catesbeiana*) that died during the experiment were still measured, collected, placed in a paper napkin, and refrigerated.

RESULTS

Treatment group A, also labeled as the high dose of thyroxine, showed an overall significant decrease in the trunk length, tail length, and total body length as the experiment progressed. All measurements were recorded in centimeters. Initially from days 1 through 3, there were little to no changes to the measurements of the bullfrog tadpoles (*R. catesbeiana*) which indicated that the metamorphic process has not yet occurred. As the days increased from 1, 2, 3, 6, 7, and 8, all of the average measurements were the smallest for the high treatment dose of thyroxine compared to any of the numbers representing the low and control treatments.

The minimum average measurement for the trunk length in treatment group A, based on the data from eight tadpoles, was 2.33 cm on the first day of the experiment, while the average value was 1.93 cm on the final day. Furthermore, the tail measurement, in centimeters, showed an average measurement of 3.91 cm on the first day; however, the average on the eighth day decreased to 1.51 cm. This data suggests that the tail length for each tadpole significantly decreased as the tails began to shrink and legs began to grow. Lastly, the average value for the total body length of all eight tadpoles in treatment group A revealed 6.24 cm on the first day and 3.44 cm on the final day. This trend shows that, as the thyroid hormone increased, metamorphic processes began to rapidly change the structure of the tadpoles as it entered the organism's bloodstream.

Treatment group B, also labeled as the low dose of thyroxine, also showed an overall

decrease in the trunk length, tail length, and total body length of the bullfrog tadpoles (*R. catesbeiana*) but at a much slower rate. The mean measurement for trunk length on the first day of the experiment was 2.65 cm while the thirteenth day of the experiment showed a mean of 2.44 cm. It was not until between the sixth and seventh days of the experiment that the daily measurements began to increase. The mean measurement for tail length showed that the average value of measurements on the first day was 4.25 cm and it was not until the thirteenth day that the mean value dropped to 4.19 cm. This shows that the tails were getting smaller but that the changes were less prominent. The mean measurement for the total body length of the tadpoles on the first day was 6.90 cm; however, it decreased to 6.63 cm on the final day. **Figs. 1 and 2** show a difference between the steepness of each slope which shows the rate of change over time depending on the doses.

Treatment group C, also labeled as the control dose of thyroxine, demonstrated a generally constant pattern because no additional thyroid hormone was added to the tadpoles' aquatic environment. The average measurement for the trunk length on the first day was 2.63 cm while the average measurement on the final day was 2.83 cm. It could be that the tadpoles began to get bigger due to the nutrients from regular feedings. The average measurement for the tail length on the first day of the experiment was 4.75 cm while the final day was 4.60 cm. On average, the size of the four tadpoles in treatment group C only decreased by 0.05 cm over the span of two weeks. Lastly, the average measurement for the total body length on the first day of the experiment was 7.38 cm and the value on the final day was 7.43 cm. The trend is steady with an almost unnoticeable numerical change in sizing because their natural development process was not stimulated.

FIGURES

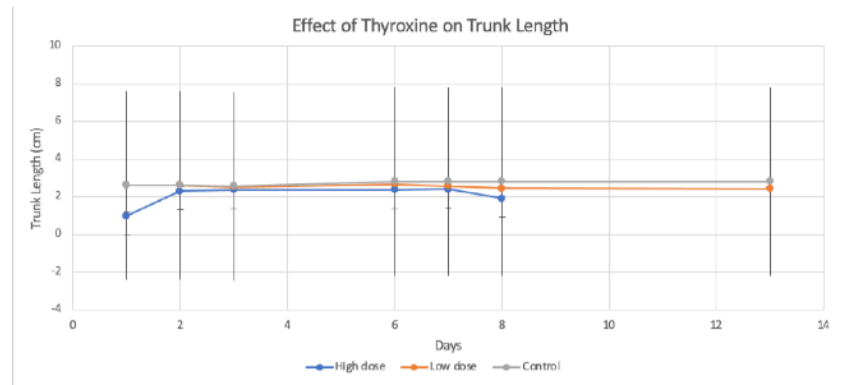


Fig. 1. Demonstration of various measurements of thyroxine hormone on trunk length distributed through a high dose, a low dose, and a control treatment. The high dose represents Treatment A, the low dose is Treatment B, and the control group is Treatment C. While all of the treatment groups have consistent values, the high dose shows the steepest decrease in the size of the trunk of the bullfrog tadpoles (*R. catesbeiana*).

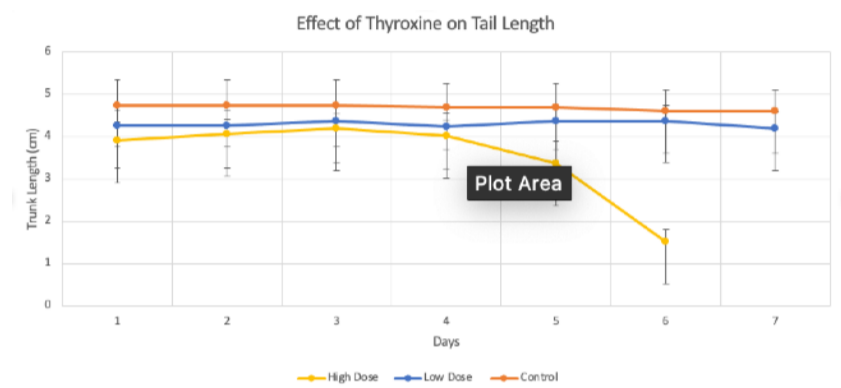


Fig. 2. Demonstration of various measurements of thyroxine hormone on tail length distributed through a high dose, a low dose, and a control treatment. The high dose represents Treatment A, the low dose is Treatment B, and the control group is Treatment C. The high dose shows the largest decrease in the trunk length as time decreases because the development of the bullfrog tadpoles (*R. catesbeiana*) is enhanced the most when the dose is at its highest.

DISCUSSION

The findings of the experiment suggest that varying doses of thyroxine hormone are important in the metamorphic process for amphibians because this hormone stimulates growth into adult stages with different bodily functions. The data from both figures supports the alternate hypothesis which states that the high dose of thyroid hormone will have the highest effect on the bullfrog tadpoles (*R. catesbeiana*) because it will speed up the developmental process. Some general concerns that were taken into account included whether the high doses would be too much for the tadpoles to handle and how it would affect their organ function. The results of the experiment show that there is a positive trend between thyroid hormone release and metamorphic process in small vertebrates because the response variable showed adaptability. The decrease in measurements equates to a positive trend in metamorphosis because it shows that the smaller a vertebrate becomes, the more growth hormone is present.

It is important to note that there can be excessive production of thyroid hormone based on negative feedback to the hypothalamus and

anterior pituitary which regulates the secretion of thyroid hormones (Randall et al. 2001). Overstimulation can cause the gland to become larger which affects the sizing and environmental responses of an organism. Throughout the experiment, waste production was high which could have been due to the high metabolic rate caused by thyroid hormones in addition to regular feedings. The negative results from the control treatment group on the trunk length and tail length indicate that thyroid release hormone can be a lengthy natural process and the effects develop slowly. Genetic transcription is not always a fast process and proteins are not typically being produced at high rates (Randall et al. 2001).

There were some shortcomings of the experiment such as the mortality of the bullfrog tadpoles (*R. catesbeiana*). Thyroid hormone release creates sensitivity within tissues on the liver, kidneys, heart, nervous system, and skeletal muscle (Randall et al. 2001). The first trial of the experiment may have yielded a higher mortality rate because of possible environmental stress from being moved out of their natural habitat to a scientific manufacturing company and then to a lab for observations. Perhaps an alternative to this would be field research in which the tadpoles can be safely marked and observed in their natural habitat for several weeks with some method of thyroid hormone released into their bloodstream. Also, the skin infections that were commonly observed during the experiment may have been avoided with more frequent water changes and slightly larger enclosures. ❖

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ROLE OF PHYSICAL ACTIVITY IN SICKLE CELL ANEMIA

ABSTRACT

The following paper deals with sickle cell anemia and the role of physical activity in its treatment. Sickle cell anemia is a genetic disease that causes the production of defected hemoglobin. There are millions of cases around the world. Moreover, it has two main pathophysiological pathways: hemolysis and vaso-occlusive crisis. Treatment for sickle cell anemia usually includes medications to control symptoms or a bone marrow transplant in some cases. Although vigorous activity probably should be avoided, some studies have found that moderate exercise programs can be beneficial for individuals with sickle cell disease.

INTRODUCTION

Sickle cell anemia can be defined as an inherited defect in the production of hemoglobin (Mangla et al., 2018). This defect causes sickle-shaped, stiff hemoglobin. Moreover, sickle cells tend to die sooner than regular red blood cells which leads to low

hemoglobin levels (CDC, 2022). Pathophysiology of sickle cell anemia includes two main conditions: hemolysis, which is the demolition of red blood cells, and vaso-occlusive crises, which is a condition in which blood sickle cells block blood flow to certain organs or tissues, causing a shortage in oxygen (Mangla et al., 2018). Signs and symptoms of sickle cell anemia can be yellow skin color due to hemolysis, fatigue, and swelling in the extremities (NHLBI, 2022a).

According to Sedrak and Kondamudi (2022), the highest prevalence rate of sickle cell anemia is in Sub-Saharan Africa, South Asia, the Middle East, and the Mediterranean. In addition, around 100,000 individuals in the United States have sickle cell disease, and 1 in 12 African Americans carries the autosomal recessive mutation that can cause sickle cell disease (Sedrak and Kondamudi, 2022).

There are a few treatment options for managing sickle cell anemia. Voxelotor is a medicine that can reduce the formation of red



Photo by Andrea Piacquadio.

blood sickle cells and the demolition of red blood cells. Moreover, Crizanlizumab-tmca can help reduce the chance of vaso-occlusive crises. Both Voxelotor and Crizanlizumab-tmca can have side effects such as headache, diarrhea, abdominal pain, nausea, fatigue, joint pain, back pain, and fever. Additionally, a bone marrow transplant is the only treatment that can potentially cure sickle cell anemia (NHLBI, 2022b).

SICKLE CELL ANEMIA

Epidemiology

According to Sedrak and Kondamudi (2022), the highest prevalence rate of sickle cell anemia is in Sub-Saharan Africa, South Asia, the Middle East, and the Mediterranean. Furthermore, Grosse et al. (2011), mention that 3% of births in some parts of sub-Saharan Africa might be influenced by sickle cell anemia. Nevertheless, there is 50% to 90% mortality in African children who have sickle cell anemia (Grosse et al., 2011).

In addition, around 100,000 individuals in the United States have sickle cell disease, and 1 in 12 African Americans carries the autosomal recessive mutation that can cause sickle cell disease (Sedrak and Kondamudi, 2022). In their work, Ojodu et al. (2014) look at sickle cell

anemia incident rate by state. They find the incident rate varies between the lowest, 0.8 incidents per 1,000 newborns in Montana to the highest, 34.1 incidents per 1,000 newborns in Mississippi (Ojodu et al., 2014). In terms of ethnicity, Ojodu et al. (2014), mention that the incident rate is 73.8 incidents per 1000 newborns in African American newborns and 6.9 in Hispanic newborns.

Although still considered rare, sickle cell anemia prevalence is raising in European Union countries. This is likely due to immigration. In addition, sickle cell anemia is the highest common genetic disease in France and the United Kingdom (Colombatti and Sainati, 2016).

According to Snudd et al. (2019), around 3.2 million people have sickle cell disease around the world, while 43 million carry the mutation that can lead to sickle cell disease. Furthermore, complications of sickle cell disease are responsible for 176,000 deaths per year (Snudd et al., 2019).

Pathophysiology

Sickle cell anemia can be defined as an inherited defect in the production of hemoglobin (Mangla et al., 2018). According to Snudd et al., (2019), sickle cell anemia is induced



by homozygosity, of the Beta-S allele which is part of the 11 chromosome, meaning the individual received the sickle cell gene from both parents, leading to a change in DNA bases from guanine-adenine-guanine to guanine-thymine-guanine. The change between adenine and thymine leads to a change between hydrophilic glutamic acid residue and hydrophobic valine residue in the beta-globin gene, causing the production of mutated hemoglobin (Snudd et al., 2019).

Pathophysiology of sickle cell anemia includes two main conditions: hemolysis, which is the demolition of red blood cells, and vaso-occlusive crises, which is a condition in which blood sickle cells block blood flow to certain organs or tissues, causing a shortage in oxygen. Vaso-occlusive crises are more likely to happen due to the mutation in the beta-globin gene, increasing the chance of sickle cells turning into stiff long polymers (Mangla et al., 2018).

As mentioned earlier, in sickle cells there is a change between hydrophilic glutamic acid residue and hydrophobic valine residue in the beta-globin gene (Sundd et al., 2018). Therefore, when sickle hemoglobin inside red blood cells does not receive enough oxygen it can lead to the uncovering of hydrophobic proteins. This condition leads to the binding of β S-globin chains in order to hide the hydrophobic proteins and eventually to the creation of sickle hemoglobin polymers. Those polymers grow fast and increase the stiffness of the cells, deforming the cells' membranes and causing problems in energy production in the cell, dehydration, and premature death of red blood cells (Sundd et al., 2018). The deformity of red blood cells due to polymerization can block blood vessels and reduce oxygen in the tissues. In tissues with elevated oxygen requirements, this blockage will lead to vaso-occlusion and eventually to ischemia (Sundd et al., 2018). Furthermore, the membrane damage caused by the sickle hemoglobin polymers creates an increased inflammatory process in individuals with sickle cell disease that can speed up the occurrence of vaso-occlusion (Jang et al., 2021). Additionally, the ischemia caused by vaso-occlusion can potentially lead to acute systemic painful vaso-occlusive crisis, that might require medical treatment (Sundd et al., 2018).

Due to the increased risk of vaso-occlusive crisis in individuals with sickle cell disease, they are also at increased risk of acute chest syndrome which is vaso-occlusion in the small blood vessels of the lungs that lead to ischemia

in the lungs. This is the leading cause of death among individuals with sickle cell anemia. About 40% of acute chest syndrome cases are children (Friend et al., 2023).

On the other hand, hemolysis will be more likely to occur in sickle cells due to higher oxidative stress in those cells (Mangla et al., 2018). According to Snudd et al. (2019), polymerized red blood cells are more likely to go through hemolysis, resulting in anemia. Moreover, after hemolysis, cell-free hemoglobin tends to consume nitric oxide at a significantly higher pace (Mack and Kato, 2006). Since nitric oxide is a vital blood pressure regulator, the deficiency caused by hemolysis prevents nitric oxide vasodilatation (Mack and Kato, 2006).

Moreover, the process of hemolysis can lead to damage in blood vessels, and the anemia caused by it leads to higher cardiac output, ventricular chamber dilation, and ventricular wall pressure. The increase in those measures leads to higher pressure on the cardiovascular system (Sundd et al., 2018). Additionally, individuals with high levels of hemolysis have higher chances of vascular injury or organ dysfunction as they grow older (Sundd et al., 2018).

Furthermore, according to Gordeuk et al. (2016), hemolysis and the problems it causes with nitric oxide vasodilation potentially plays a role in the development of pulmonary hypertension in sickle cell disease patients. In Snudd et al.'s (2019) work, it is mentioned that the cause of pulmonary hypertension could also be changes in the intima layer of the blood vessels that increases vascular resistance. Pulmonary hypertension can lead to failure of the right heart, dyspnea, lower exercise capacity, and a higher risk of sudden cardiac death (Sundd et al., 2018).

TREATMENT

According to the National Heart, Lung, and Blood Institute, the only treatment that can heal sickle cell anemia is a bone marrow transplant (NHLBI, 2022b). It has been shown to cure sickle cell anemia in 95% of the cases, the majority of which performed in children. In spite of the promising results, only 10% of the individuals in the United States with sickle cell anemia also have a genetically matched sibling donor (Tisdale et al., 2020). Moreover, the use of medication can help control symptoms and complications crisis (NHLBI, 2022b).

Firstly, Voxletor is a medicine that helps prevent the binding of sickle cells. It reduces the rate of hemolysis and increases blood flow, therefore reducing the risk of vaso-occlusive crisis. Secondly, Crizanlizumab-tmca is a medication that prevents the polymerization of sickle cells and also helps to reduce inflammation, which, as mentioned before, is higher in individuals with sickle cell disease due to membrane damage and may speed up the development of vaso-occlusive crisis (Jang et al., 2021; NHLBI, 2022b). Both Voxletor and Crizanlizumab-tmca can cause side effects such as headache, diarrhea, abdominal pain, nausea, fatigue, and fever. As mentioned earlier, a vaso-occlusive crisis can cause severe pain (Snudd et al. 2019). Therefore, Hydroxyurea is a medicine that shown to reduce pain due to vaso-occlusive crisis (NHLBI, 2022b). Furthermore, a blood transfusion is a possible treatment for acute complications of sickle cell anemia such as stroke, acute chest crises, and multi-organ failure (NHLBI, 2022b).

ROLE OF EXERCISE IN THE TREATMENT OF SICKLE CELL DISEASE

According to Liem (2018), exercise for people with chronic diseases, such as sickle cell disease is vital in the prevention of cardiac events and complications. In their study, Araujo Junior et al. (2021), found that eight weeks of home-based aerobic exercise can improve the cardiovascular abilities of individuals with sickle cell disease. The results showed significant improvement in the distance traveled during treadmill test, ejection fraction, and systolic function. It was mentioned that further research is needed to develop a more accurate exercise prescription for home exercise programs.

Furthermore, in their research, Gellen et al. (2018), conducted a randomized trail to investigate if a moderate endurance exercise program will be safe and advantageous for individuals with sickle cell disease. The exercise group had to complete 45 minutes of aerobic training, three times a week for eight weeks. All participants went through cardiopulmonary exercise tests using a stationary bicycle to measure their baseline cardiopulmonary level. The results have shown that the intervention group improved its cardiopulmonary exercise test results while the control group saw a minimal decrease. Regarding safety, none of the participants in the intervention group needed hospital admission during the eight weeks. Gellen et al. (2018) concluded that a moderate

exercise program improved functional abilities notably and did not put patients at increased risk for complications. Moreover, Gellen et al. (2018) stated that because of those findings, aerobic exercise needs to be examined as part of the treatment for sickle cell disease.

In addition, Alcorn et al. (1984) as cited in Connes et al. (2011), found that exercise was effective in lowering pain in children with sickle cell anemia who were hospitalized due to vaso-occlusive crisis. The exercise included 10 to 30-minute moderate muscular fitness and aerobic exercises. Moreover, Tinti et al. (2010), as cited in Connes et al. (2011), described how warm water exercise, stretching, aerobic exercise, and relaxation lowered pain levels, increased respiratory muscle function, and raised the quality of life in sickle cell anemia patient.

Connes et al. (2011) suggested the next exercise prescription for individuals with sickle cell anemia. Firstly, individuals with sickle cell anemia should not exercise at a vigorous intensity and should stop right when they start feeling fatigued. Secondly, exercise of more than 20 minutes without stopping is not recommended to prevent dehydration and high levels of lactic acid. Nevertheless, Connes et al. (2011) also mention that exercise prescription can vary between patients depending on their level of physical activity. Generally, exercise is safe and favorable for individuals with sickle cell anemia as long that intensity is not vigorous (Connes et al., 2011).

EXERCISE CONSIDERATIONS

According to Connes et al. (2011), there is still a discussion if individuals with sickle cell disease should play sports or conduct vigorous physical activity. Sickle cell anemia causes an earlier change from aerobic energy production to anaerobic energy production. Anaerobic energy production increase lactate creation in the muscle and may trigger polymerization of sickle hemoglobin and small blood vessel occlusion (Connes et al. 2011). Moreover, conditions caused by vigorous exercise such as dehydration, metabolic acidosis, and low blood oxygen may lead to exercise collapse associated with sickle cell trait, although the exact mechanism is not known (Liem, 2018). Additionally, exercise collapse associated with sickle cell trait symptoms are very similar to exertional rhabdomyolysis symptoms such as muscle weakness or pain, dark urine, renal injury, hyperkalemia, and arrhythmias, which are also similar to heat stroke, making it harder to



diagnose (Liem, 2018). Recommendations for reducing the risk for exercise collapse associated with sickle cell trait are: slow progression in exercise intensity to allow acclimation mainly in heat conditions or altitude, lower training volume and intensity after a long illness or rest episodes, availability of fluids during sessions, knowledge of exercise collapse associated with sickle cell trait symptoms, and immediate stop of exercise if symptoms appear (Liem, 2018).

EXERCISE TESTING

There is limited knowledge about the safety of maximal cardiopulmonary exercise testing (Callahan et al., 2001). Moreover, exercise responses such as lower pH, higher inflammation rates, and pressure on the cardiorespiratory system are issues in exercise testing of individuals with sickle cell disease (Cooper et al., 2019). Therefore, Callahan et al.'s (2001) study examined the safety and limitation of maximal cardiorespiratory exercise testing in women with sickle cell anemia. The participants completed ramp protocol on a cycle ergometer, where blood gases and lactate levels were measured every two minutes. The results showed that maximal cardiorespiratory exercise

testing was safe and that none of the participants had an acute crisis during or after the test. Moreover, Callahan et al. (2001) found that the participants had low Vo_2 max, low anaerobic threshold, a high heart rate compared to Vo_2 , and abnormal gas exchange. They contributed those results to anemia, pulmonary vascular disease, and peripheral vascular disease. It was mentioned that pulmonary vascular disease may develop due to acute chest syndrome. As discussed earlier, individuals with sickle cell disease are at higher risk for acute chest syndrome (Friend et al., 2023). Due to the results suggesting pulmonary vascular disease, the researchers concluded that maximal exercise testing may be used as a diagnostic tool for the risk of morbidity or mortality in individuals with sickle cell anemia (Callahan et al., 2001).

CONCLUSIONS

As discussed earlier, sickle cell anemia is a genetic disease that influences million around the world, especially in Sub-Saharan Africa, South Asia, the Middle East, and the Mediterranean.

Sickle cell anemia has two main pathophysiological pathways, hemolysis and

vaso-occlusive crisis. Hemolysis is the result of high oxidative stress and polymerization of red blood cells. It can lead to higher cardiac output, ventricular chamber dilation, and ventricular wall pressure. A vaso-occlusive crisis is caused by blockage of blood vessels by polymerized red blood cells blocking blood flow.

Although there are few medications that help control the symptoms of sickle cell anemia, they can cause several side effects. Therefore, since different studies have shown that exercise may improve symptoms and functional activity in individuals with sickle cell disease, it should be considered as part of treatment. Moreover, maximal exercise testing can be helpful in assessing risk in individuals with sickle cell anemia. Lastly, when prescribing exercise for individuals with sickle cell anemia, vigorous exercise should be avoided since it can trigger a vaso-occlusive crisis or even exercise collapse associated with sickle cell trait.

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