LENSES

St. Michael's Sixth Form Academic Journal
SPECIAL EDITION

SCAN ME

EDITOR'S NOTE

Dear Readers,

It is with great pleasure and anticipation that we introduce this new special edition of our academic journal. We are excited to showcase the brilliant work of the winners of the first Interform Mini- Academic Papers for all to see.

We would like to express our appreciation to the talented writers who have contributed their exceptional work to this special edition. Without the passionate writers who have shared their insights and research findings, this journal would not be possible.

In this issue, readers will find a diverse array of contributions that help focus our attention on a wider range of topics. The articles featured within these pages are the result of rigorous research, critical analysis and innovative thinking, all done by the hard work of our amazing winners.

As editors, we are immensely grateful for the support and enthusiasm we received for the launch of the academic journal and we extend our gratitude to all those who have read the journal and joined us on this intellectual journey. Your engagement and interest in the ideas presented in this journal are what make our efforts worthwhile. We hope that the articles in this edition will stimulate your intellectual curiosity.

Once again, thank you to our readers and writers and all KS3 as well as Madame Gray for your unwavering support and help for the smooth launch of this journal. We hope that this edition will captivate your intellect and spark your imagination, inspiring you to delve deeper into the world of knowledge.

Happy reading,
The Editors. (Shireen Simgy and Reenal Dias)

CONTENTS

COMPARING SHAKESPEARE'S STAGING TO MODERN STAGING IN THEATRE

Alice Simbault 9S

The works of William Shakespeare have endured, captivating audiences with their timeless themes and exciting characters. With the shift in societal ideology surrounding gender and race, these popular plays have, however, raised controversy about its place in 21st century society. This essay aims to compare Shakespeare's staging to modern staging, shedding light on the evolution of staging practices since Tudor times. The comparison will look at performance style, setting and scenery, casting and costumes and make-up.

Performance style

Shakespearean plays were performed in open settings, requiring actors to project their voices and use exaggerated gestures. Modern staging, with microphones and indoor venues, allows for more natural and subtle performances. In open stages, audience and actors shared the same environment, while modern theatre separates them with a symbolic 'fourth wall.' (Sarwar, S. 2017) (Zafar-Arif S, 2016).

In Tudor times, actors would self-direct as the script supplied small cues, but there was no stage direction per say. The creative onus was on the actor rather than on the director as it is now (Zafar-Arif S, 2016).

Setting and scenery

Shakespearean staging relied on language, candle-light, music, and limited special effects, such as the rolling of a cannon ball to simulate thunder (Crawford, 2011). Staging relied on the script to not only relay dialogue, but to paint a complex scenery, triggering the audience's imagination (Gurr, A. 2000). In contrast, modern staging utilises advanced technology like elaborate lighting, surround sound, multimedia projections, and computer-generated effects. These create sensory experiences that were unimaginable in Shakespeare's time (Illuminated Integration, 2020).

Casting

Shakespearean theatre was exclusively performed by male actors, with young boys often playing female roles. Cross-gender casting was a product of societal norms and legal restrictions (Zafar-Arif S, 2016). In modern staging, casting has become more inclusive and flexible. Race and gender-blind casting allows for diverse interpretations, challenging traditional roles and providing new perspectives on the text (Carmichael-Davis, I. 2020).

Costumes and make-up

In Shakespeare's time, costumes conveyed social status and identity but were often inaccurate. Modern staging prioritises historical accuracy and lavish designs. Make-up techniques have advanced with prosthetics and special effect, transforming actors into various human and fantastical characters (Davies, 2021).

In conclusion, this essay has explored the evolution of staging practices from Shakespearian theatre to the modern era, examining various aspects that make up the theatre experience. These have led to remarkable changes. Modern staging combines advanced technology, intricate sets and designs, elaborate costumes, and realistic performances to create sensory immersive theatre experiences. In contrast, Shakespeare relied on descriptive language, individual creativity of the actors and the audience's imagination. Despite the controversies, the enduring power of Shakespeare's words continues to be celebrated and reinvented through innovative staging in today's world.

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HOW CAN MUSIC HELP PEOPLE WITH DEMENTIA?
Niyah Rosario and Julia Kumaraku 9S

Have you ever listened to a song and been reminded of a certain day or person? Well, that is because listening to music has been linked to memory. It can trigger intense emotions from the past and provoke strong emotions from those earlier experiences. In this essay, we write about the link between music and our memories using a study from 2018.

Dementia and Alzheimer's disease have been previously linked to preventing AD. AD is the low destruction of networks between the brain that are used for memory. It is a decrease, particularly, in the Default-Mode Network (DMN) which has a connection to the hippocampus. Neuroimaging studies, in healthy amounts, can suggest that repeated exposure to music can change functional brain connectivity (FC) in areas that have been connected to cognition and even DMN. Exposure to long-known music could change whether AD does affect you and/or how much it does affect you.

In 2018, a study was published to show how repeated exposure to familiar music helps functional connectivity in people with Alzheimer's disease(AD). They used neuroimaging to see if exposure to long-known music can improve functional brain connectivity(FC) and cognitive outcomes in people with mild cognitive impairment(MCI). They recruited 11 people with AD and MCI for this. Before participating, they had been asked about their music habits and music that had been known to them for 20+ years. They completed a log at home for 3 weeks where they listened to a playlist of known music for at least an hour every day on an MP3 player. This was validated by a spouse or caregiver. Participants visited St. Michael's hospital once before and after completion of this 3-week period. Each session there included cognitive testing. In the end, they found out that the scans taken prior to the trial had significant differences when compared to the ones taken after the trial. Repeated music exposure showed decreased FC outside the DMN and increased FC in the DMN.

In conclusion, music is a very easy way to help people with dementia, particularly people with AD. It can help people access long forgotten memories as the subconscious links one memory to another. It can also help create new memories that they will be able to access easily due to the musical connection. Therefore music is very beneficial for patients with dementia and early AD.

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ACCIDENTS ON SEA- WHY ARE SOME STORIES MORE POPULAR THAN OTHERS?

Michelle Laud 9T

Over time, people have improved ways to travel over water. However, as more ships were used, more accidents occurred, creating stories that were told throughout history. This essay will discuss two disastrous events: the Titanic and the MV Wilhelm Gustloff, and suggest reasons as to why one story may be considered more known than the other.

Titanic

The Titanic was a passenger ship which set sail from Southampton in 1912 and was expected to arrive in New York. On April 14, the Titanic was hit by an iceberg, causing damage which led to the sinking of the Titanic.[1] There were around 2200 passengers on board but only 700 managed to survive.[2]

Before the Titanic set sail, the ship was advertised, particularly through posters. An example of this is a poster sold in 2018, which promoted the ship's return voyage. The poster referred to the Titanic as the "Queen of the Ocean" and listed a lot of its features. Some examples include its size, which was 883 feet, making this one of the biggest ships ever built at the time.[1][4] There was also a list of the facilities available, making the ship seem extremely luxurious and sophisticated compared to other ships.[3][4] In addition, the ship had compartments with secure doors, giving the impression that it was watertight and unsinkable.[1][4] Because of this, it would have been shocking to those who heard about the Titanic's sinking.

The incident still continued to gain popularity even after it happened. For example, lots of movies were made, such as *Saved from the Titanic*, which was made only a few weeks after the event.[5] Furthermore, some survivors had talked about their experiences, such as Edith Russell who was interviewed by the BBC.[6]

MV Wilhelm Gustloff

The MV Wilhelm Gustloff was a military ship that helped evacuate Germans, until it was sunk by a Soviet submarine on January 30 1945.[8] Around 10000 people were on the boat and 9000 died, making this considered as one of the worst maritime disasters in history.[8]

However, despite having so many casualties, the incident did not gain as much popularity as the Titanic. One factor that contributed to this is that many other ships had also sunk during Operation Hannibal, the mission the ship was working towards, and therefore it would have been unsurprising for something like this to happen.[7] It had also occurred during World War II, meaning that people would have been anticipating for the war to end rather than focusing on any

more disasters. Moreover, only a few had survived compared to the total number of passengers (around 1000 [9]) and therefore not as many accounts of the event could be heard.

To conclude, many maritime disasters have occurred and, despite being recorded or not, they have all had an impact on our history and continue to interest people in the future. However, why are some stories much more well-known? As shown by some of these events, it is clear that their popularity is dependent on the time the event happened, how famous the subject had been beforehand and how the story had been retold afterwards.

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GUERNICA
Mia and Millie 9M

WHERE IS GUERNICA LOCATED?

Guernica is located in Spain,Biscay.This village is centered in the region of Busturialdea.,in the valley of Oka River. It boarders the following 4 towns: Forua, Kortezubi and Arratzu, Ajangiz, Muxika Errigoiti

SPORTS:

JAI ALAI IS A FORM OF PELOTA- IT WAS DESIGNED BY SECUNDINOZUANO, ONE OF SPAINS LEADING ARCHITECTS OF THE 20TH CENTURY AND FIRST OPENED IN 1963.ITS ACKNOWLEDGED AS THE WORLD'S FINEST COURT.

MARKET DAY:

THE PHRASE "LUNES GERNIQUÉS, GOLPERIK EZ" IS A CATCHPHRASE IN GUERNICA. FOR DECADES, THE COMMUNITY HAS CELEBRATED THE MONDAY MARKET DAY AS A HOLIDAY. SINCE THE DAYS WHEN PEOPLE COULDN'T AFFORD TO GO FAR, THE MONDAY MARKET HAS SERVED ITS TRADITIONAL PURPOSE OF BRINGING PEOPLE TOGETHER AND GIVING THEM AN OPPORTUNITY TO INTERACT

HISTORY OF GUERNICA

- On April 28, 1366, Tello Alfonso, Lord of established the town of Guernica at the m the roads leading from Bilbao to Elantxobe and Bermeo to Durango. The site's locatio significant river estuary, where ships could port of Suso
-The first industrial concerns were set up in the early years of the 20th century. This encouraged population growth, and the town grew from 4,500 inhabitants in 1920 to 6,000 in 1936.
-Guernica was the target of a bombing on April 26, 1937, by the Italian Aviazione Legionaria and the Condor Legion of Nazi Germany's Luftwaffe during the Spanish Civil War.1,654 individuals were killed in the explosion, according to official Basque numbers, however German sources put the exact death toll in the range of 300.
- In order to help him overturn the Basque government and the Spanish Republican government, Francisco Franco requested the raid. The Biscayan assembly and the Oak of Guernica survived, although the town was completely destroyed. The continuous three-hour bombing of Guernica is seen as the start of the Luftwaffe doctrine of terror bombing civilian targets to demoralise the enemy.
- Pablo Picasso's artwork Guernica, which expresses his rage at the carnage, was inspired by the attack.

SYMBOL FOR PEACE:

ALTHOUGH THE CITY HAD NO MILITARY SIGNIFICANCE, IT WAS SYMBOLIC OF THE BASQUE CULTURE.THE GERMAN CONDOR LEGION AIRCRAFT, DISPATCHED BY HITLER TO REINFORCE FRANCO'S FORCES DURING THE SPANISH CIVIL WAR, DESTROYED THE TOWN ON APRIL 26, 1937. EXPLOSIVES DETONATED FOR ABOUT FOUR HOURS ON.GERNIKA HAS TWINNED WITH A NUMBER OF CITIES AS PART OF THE "SYMBOL FOR PEACE" PROGRAMME, INCLUDING BERGA (CATALONIA - 1986), PFORZHEIM (GERMANY - 1988), AND BOISE, IDAHO (UNITED STATES - 1993). COOPERATION IN THE AREAS OF INDUSTRY, EDUCATION, AND CULTURE IS COVERED BY THE TWINNING AGREEMENTS.

HOW THE BEATLES INFLUENCED MUSIC AS WE KNOW IT TODAY
Orla Earnshaw 9M

It was the 22nd of March, 1963, that the world changed forever. The Beatles album, 'Please Please Me' was released. Up until then, they would play in the dank, dark nightclubs in their home town in Liverpool, England at the Cavern. Brian Epstein saw them and was 'impressed by their music, their beat, and their sense of humour on stage' and quickly decided they would 'be the biggest in the world.' They gained popularity after their first modest hit 'love me do' in late 1964. They acquired the name ' The fab four' by Tony Barrow and by early 1964 they had become international stars.

How did they change music as we know it today?
The Beatles changed their music style from rock n' roll to more experimental music styles. Rooted in skiffle, beat and 1950s rock 'n' roll, their sound incorporated elements of classical music and traditional pop in innovative ways; the band also explored music styles ranging from folk and Indian music to psychedelia and hard rock. The Beatles have influenced countless artists and bands. For example, some of the bands that have been influenced by the beatles including Oasis, Nirvana, Black Sabbath, Queen, The Beach Boys and David Bowie that owe a lot to the beatles. Noel Gallagah, Oasis stated that they 'mean everything' to him and 'have the best tunes hands down.' Queen's member, May recalled that 'The Beatles were our bible' and 'were models.'

One way the Beatles revolutionised music was the use of recording. They were amongst the first to use advanced technology such as multitrack recording, effects pedals and tape loops. Beginning with 1965's Rubber Soul, they started exploring new sounds. This continued in 'Abbey Road'. This led to technical innovation; in 'Strawberry Fields Forever' which took the form of two takes with distinctive different arrangements. Thanks to the Beatles experimentation and exploration in music, they were able to

work with a 'splice between the first and second takes for each half of the song'. They had challenging factors such as different keys; the team had to come up with a way of connecting the second take to the correct pitch and increasing and decreasing different speeds of the song so it could be arranged before the edit point at one minute into the song. Due to their immense popularity their use of studio technology was heard all over the world and set new standards in musical production. Musical development would've been hindered and other great musicians would not have been able to involve music development in their own music, changing music as we know it today.

The Beatles are the most famous band the world will ever know. They were pioneers of sound and in just 7 short years became the best selling band of all time. They have the most No 1 hits of all time ;have sold the most records with more than 600 million records worldwide. They have sold over 1.6 billion singles in the United states. Their influence on music and culture is undeniable and their popularity continues to this day.

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ANIMATIONS
Elena Wu Condorchoa and Anne Jessica Alfred 9C

Introduction:

Animations are described as static photos successful in creating the illusion that they are moving. An animation that lasts up to 90 seconds would usually take 8-10 weeks to finish as there would be around 24 frames per second of animation. There are many enjoyable things about animating such as creating an idea for a series or movie, the drawing techniques or even just watching it. A very popular style of animation is anime which is the japanese art style of animation. Throughout the years it has become more and more popular reaching its peak in 2020 with series such as Haikyuu, Attack on Titan and Jujutsu Kaisen.[1] However, there are also other famous animation companies such as Disney, Pixar, Illumination etc.

Junyao Lin:

We managed to interview someone who works for Disney as a production manager, Ms Junyao Lin[2]. We asked her 5 questions: what do you like about your job, do you know how different things manage to be published into a movie or series, what do you do in your day to day life, would you recommend your job to others and do you think your job is hard? About her job, she enjoys being able to see things from a different point of view and she gets to work with the behind the scenes crew and speaks to many important people, including celebrities every day. She works on films by working in the financial areas and calls herself the "middle man" as everyone has to go through her before they go to Disney. For ideas to be published within a movie, she needs briefs from her clients and so, she sends it to the 3rd party animation department and once approved, the animation is done. There is always constant communication in her line of work as graphics, music, imagery and branding always need to be approved by her and her colleagues. They also need the actors/voice actors to sign legal documents such as NDA (Non-Disclosable Agreement) and FDA (Financial Disclosure Agreement). FDA is used for actors so that the company is able to use their imagery. In her everyday life, she manages spending, invoices, others' salaries and schedules and also to make sure that the budget control is on track. The main pressure for her is that she can't make mistakes as otherwise the wrong person could get the money. Ms Lin gets to meet many producers to discuss plans and what kind of ideas they may have for Disney. This job is definitely recommended to those who are very creative and intelligent as she has also said she gets to meet many people like that every day and you also get to work in the field with many other people. Lastly, when I asked her if she thought her job was hard, she said that there was no such thing as a hard job. Yes it may be difficult to get used to in the beginning but in the end, when you get used to it, it's not that hard anymore.

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DEEP FAKE VIDEOS- IS IT GETTING HARDER TO STOP THEM?

Christabella Nwandison 10S

Deep fake videos. What even are they? What is their purpose & is it a good or bad one? In this academic paper, we will dive into the hidden world of deep fake videos and discover how they could impact us all.

Deep fake videos are AI-generated media that have been digitally manipulated to replace somebody's likeness plausibly *(Johnson, 2023)*. It is known that these types of videos can be particularly troublesome and could be used to create fake news or misleading videos *(Johnson, 2023)*.

The actual word deep fake has been made by combining the words 'deep learning' and 'fake' *(Ellis, 2018)*. This is because this is what the AI does. Firstly, thousands of face shots of the two people have to be run through an AI algorithm called an encoder; it then finds similarities between the two people and reduces them to shared features, compressing the image in the process *(Sample, 2020)*. The two faces are different; for this to work, you train one decoder to recover the first person's face and another decoder to recover the second person's face. To finish and complete this process, you simply input the images into the 'wrong' encoder *(Sample, 2020)*.

Photo manipulation was developed in the 19th century and soon applied to motion pictures. Technology steadily improved during the 20th century; deep fake technology has been developed by researchers at academic institutions (in the 1990s) and later by amateurs in online communities. More recently the methods have been adopted by industry.

For years, technology has improved and advanced and deep fakes are a prime example of this. The reason why most politicians or celebrities are targets of deep fakes is because there is so much visual date available online *(Foley 2019)*. Originally, deep fakes were created to have no malicious intent of the software. It was used for a multitude of purposes (like photoshop) in the entertainment industry and hobbyist use but this obviously didn't stop people from using it for malicious purposes *(Foley 2019)*. Deep Fakes are a major threat to our society because they can be made to look like anyone and people can manipulate it to spread whatever message they want.

Many examples of deep fakes have been seen in society and have actually tricked many people. One example which you may or may not know is the Pope wearing a puffer jacket and Balenciaga. An image of Pope Francis dressed in a Jet-Puffed jacket winter-white, ankle-length hooded down jacket went viral over the weekend and it was understandable that many people thought it was real. In addition to this, a silver cross hung down on his neck. Many people

thought that at first, the image was AI and checked for obvious signs of AI. However, they couldn't find concrete evidence and so many people were fooled and shocked, causing them to repost it, which made this hoax a viral piece of news.

In conclusion, it goes to show that AI and deep fake technology can actually be very troublesome. It can be used for purposes such as simple face- swapping (apps like Snapchat use this when it comes to the use of filters) but equally, can be used for malicious intent, such as blackmailing, fake news, hoaxes, bullying, financial fraud and many more unfortunately. From entertainment to gaming, deep fake technology has definitely evolved over the years and has become increasingly convincing and has managed to trick people. We've seen this in videos such as Obama's public service announcement, and Donald Trump lecturing belgium. However, as this piece of software is available to the public, it has allowed the disruption of the entertainment and media industries.

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THE BENEFITS OF LEARNING A MUSICAL INSTRUMENT

Beatrix Ayres 10S

Musical instruments date back to the beginnings of human culture, when they were used for rituals – like signalling success on a hunt, or religious ceremonies. Now, learning a musical instrument is a popular pursuit as it is enjoyable and provides a creative outlet. It also has numerous cognitive, emotional, and social benefits. This paper explores the advantages of learning a musical instrument and highlights its impact on different aspects of human development.

Cognitive benefits are likely the most evident of learning a musical instrument. Research consistently shows that musical training enhances cognitive skills such as memory, attention-span, speech perception, and problem-solving ability. A study conducted by Schellenberg in 2004 demonstrated that children who had keyboard lessons had significant improvements in their IQ compared to those who did not. As well as this, playing a musical instrument requires mental coordination, which strengthens the connections in the brain where memory and cognitive functions take place.

Learning a musical instrument has significant emotional and psychological benefits, as it is a form of self-expression. This allows people to channel their emotions and helps to release stress. Playing and creating music is linked to increased production of endorphins and dopamine, and leads to a sense of euphoria and well-being (Hodges, 2019). Furthermore, playing a musical instrument serves as a healthy coping mechanism for people dealing with anxiety, depression, or other such mental health issues, as it is a positive outlet for their emotions.

Learning a musical instrument also fosters social connections and improves interpersonal skills. Playing in an ensemble – such as a band, orchestra, or choir – requires teamwork, cooperation, and communication skills, as well as requiring that those in the group listen attentively and respond to others' cues, therefore coordinating their playing with fellow musicians. Such experiences improve empathy levels, enhance social bonding, and create a sense of community. Participating in musical performances and events also provides people with opportunities to connect with others who have common interests and a passion for music.

Lastly, the benefits of learning a musical instrument go beyond the music itself. Many studies have shown a positive correlation between learning, musical training and academic performance.

It improves concentration, discipline, and time management skills. These can transfer to other academic pursuits (Corrigall and Schellenberg, 2015). In addition, research suggests that musical training enhances mathematical abilities and spatial-temporal reasoning – the ability a person has to see three dimensional relationships of objects in space and to mentally manipulate them as a series of transformations over a period of time -, which contributes to a better performance in subjects like mathematics and science (Hetland, 2000).

To conclude, learning a musical instrument has many benefits that include cognitive, emotional, social, and academic aspects of human development. The act of playing a musical instrument has a major impact on people – from promoting emotional well-being to enhancing cognitive abilities. Moreover, many skills learnt from playing a musical instrument are transferable, and can therefore influence various aspects of life. Integrating musical education or training into the academic curriculum and encouraging people to learn musical instruments can have a long-lasting positive effect on personal growth and development.

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WHY IS ANIMAL TESTING BEING DONE TO TEST PRODUCTS
Sierra Sui 10T

Animal testing is the experimentation of non-human animals to produce safe products that can be used by humans. In education, animal testing is sometimes performed for biology or psychology, although the practice is regulated to differing levels in different countries.

There are multiple ethical concerns surrounding animal experimentation, as many believe it to be immoral to value human life over any other life. In 1822, the first animal protection act was enacted in British Parliament, but shortly after, the Cruelty to animals act (1876) was also published, which specifically targeted the regulating of animal experimentation. Charles Darwin, who wrote to Ray Lankester in 1871, said "You ask about my opinion on vivisection. I quite agree that it is justifiable for proper investigations on physiology; but not for mere damnable and detestable curiosity. It is a subject which makes me sick with horror, so I will not say another word about it, else I shall not sleep to-night."

In 2021, a short film was created, named "Save Ralph" was created to campaign against animal testing. This video went viral online and started many campaigns and raised awareness for animals' rights.

In the UK in 2017, 3.79 million procedures were performed, which have been categorised as:
- 43% (1.61 million) being sub-threshold
- 36% (1.35 million) being mild
- 15% (0.55 million) being moderate
- 4% (0.14 million) being severe
- 4% (0.14 million) being non-recovery

An example of a mild procedure may be a small blood sample or an MRI scan. An example of a severe procedure would likely be any test where death is the endpoint of the experiment, or fatalities are expected.

However, instead of animal testing or experimentation, there are other options to assure the safety of products for the consumers, such as in vitro and in silico models. This is where scientists use cultured cells, tissues, and organs, as well as computer simulations, to allow researchers to mimic human biology and study drug effects without relying on animals. These methods offer the advantages of increased precision, reproducibility, and reduced ethical concerns.

Another option instead of animal testing is through human organs-on-chips. This innovative technology recreates the structure and functions of human organs, enabling researchers to study drug responses and disease mechanisms more accurately. If there are all of these options and improvements in technology, why was animal testing necessary?

In 1938, the S.G Massengill company created Elixir Sulfanilamide, which was supposed to be used as an antibiotic and was made by using diethylene glycerol (DEG) into sulfanilamide. DEG is lethal to humans and other mammals, but the company was not aware of this. Raspberry flavourings were mixed in the drug and then dissolved to be added to the Elixir Sulfanilamide. The company began selling the Elixir Sulfanilamide in September of 1937, and by October, there were many reports of death caused by the drug. The Food and drug administration was notified and an extensive search was conducted to retrieve the medicine. At least 100 deaths were thought to be the cause of this medicine, so the US Congress implemented laws that requires safety testing of drugs on animals.

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LANGUAGE AND CULTURE- DO WE NEED A UNIVERSAL LANGUAGE?

Liya Gebrehiwot and Bieza S 10T

Language is one of the most important aspects of human communication. It helps us connect with one another on a deeper level and express our ideas and thoughts. However, given that there are about 6,500 languages spoken all over the world, language barriers can frequently result in misunderstandings and disagreements. Thus, many people wonder if there should be a language that everyone can understand. Or, perhaps having a universal language can reduce the feeling of individuality and culture.

First and foremost, a universal language has many advantages, particularly in education, travel, and business. People are able to communicate with one another more effectively and efficiently when there is a universal language, which opens up more opportunities for trade and economic expansion. It would be simpler for people to learn and interact with various societies around the world, thus advancing in a social sense. Additionally, in times of emergency or natural disaster, a universal language would be of great assistance because it would enable relief efforts to be communicated to everyone affected in a universal language, thereby increasing response and relief effectiveness.

Additionally, a common language would make international negotiations and diplomacy easier. Misunderstandings and confusion brought on by language barriers can result in a breakdown in diplomacy. It would be simpler for nations to communicate their ideas and negotiate agreements and treaties if they all spoke the same language. As a result, relationships between nations would improve, misunderstandings would be less likely to occur, and disagreements would be less difficult to resolve.

Having a universal language, on the other hand, is not without problems. The introduction of a universal language, for instance, may result in a lack of preservation of minority languages and an erosion of cultural diversity because language is entwined with culture and identity. One of the biggest reasons not having a universal language is because of this. Likewise, it could require a long investment for the entire world to progress towards the widespread language, and, meanwhile, it could prompt the prohibition of many individuals who don't approach this language.

Moreover, being as realistic as possible, having a universal language would require lots of time, effort, and also money. For example, governments would have to fund schools and local councils in order to teach children and adults alike this new language. It could be particularly challenging in 3rd world countries, where literacy rates are significantly lower than the western world. Also

staying as realistic as possible, a language doesn't stay the same forever. For instance, language use changes over time, with one language being used but then changes over generations. The area in which you live also depends on and contributes to certain aspects in which a language evolves as well.

In conclusion, although there are concerns about a universal language's potential drawbacks, the advantages outweigh them. The introduction of a universal language would ease diplomacy and negotiations, reduce language barriers, promote greater cultural understanding, and improve global communication. As a result, it would be beneficial for the world to adopt a universal language that could reduce cultural divides, encourage inclusion, and foster greater global unity. Perhaps it's time for us to learn a second universal language?

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OCCULTISM
Nancy Carr 10M

Occultism in its most basic form is the belief in the mystical or supernatural. The word occult comes from the latin word "occultus" which means clandestine, hidden and secret. Occultists are mostly people who attempt to control these hidden powers, either releasing them into our world or using them for their own gain. "Occultism" is an umbrella term for all kinds of different things and there are records of it from long, long ago.

The first place that we see this magic and witchcraft on a large scale is in ancient mesopotamia. At the time, there was no real line between science and magic and this led many people to have superstitions that would now be considered stupid, but magic was a way of life at the time. They believed that magic could be used to combat actions by demons and such. It could also protect against the curse "Akkadian *mamitu*" which came from unknowingly committing a sin. Mesopotamian gods and myths can be found at the bottoms of almost every occult group.

The next and possibly most well known instance of witchcraft and the occult is the Salem witch trials. The most famous were from the 15th to 18th centuries. The witch trials were when people, mostly unmarried women, were accused of being witches and were hung, burned or drowned. Women who were "crone-like" or ugly were likely to be tried as witches and even owning a cat could be seen as proof that you were in fact a witch. A man called Matthew Hopkins was named witchfinder general and his method of finding out if women were witches was poking all their warts and moles with a three foot long needle. Another way of figuring this out was the infamous swimming test in which women would be thrown into the water and if they drowned they were not a witch, but they were now dead. If they floated they were witches and would be burned.

Though at the time, the witch trials were seen as a fight against dark magic believed in at the time, many now consider it not a fight against superstition but a fight against women and a way of men putting women in their place. This is why witchcraft and the witch trials in the modern day are considered by some to be a crime towards women.

Another time we see a resurgence in mainly occultism and not so much witchcraft is in the mid 20th century, around the time of the second world war. Occultism is also deeply entwined with the Nazi party. A major Nazi and occultist figure is named Rudolph von Sebottendorf who was involved in a secret society called the Thule society- a far right occultist group. Von Sebottendorf was involved in this society with a man who made good luck charms and sold them to german soldiers during world war one, his most popular design was meant to represent thor's hammer against the sun, we would recognise it today as a swastika, the symbol of what is probably the most evil political party to date, the Nazis.

Although the occult is traditionally regarded as a very taboo topic, it has a very rich and interesting history which helps us learn more about what ideology has shaped the world around us. It also shows us belief systems from a different angle which is fundamental for well rounded education.

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BIOROBOTICS- THE SOLUTION TO SOME OF THE EARTH'S BIGGEST PROBLEMS, OR AN UNETHICAL MISTAKE?

Natalia Florczak 10C

Biorobotics is a field of science combining biomedical and genetic engineering, cybernetics, and robotics. It depends on the idea of combining conventional robots made of material such as metals and plastics, with biological materials, animal cells and tissues, to create new constructions, half synthetic, half biological, or giving robots characteristics normally assigned only to living organisms, such as sensory input leading to consequent actions, and even reproduction, which hold the potential to open to us a new world of solutions to the many problems on this earth. In this essay, I will discuss and explore the history and development of biorobotics, how it could be useful to us today and in the future, as well as the potential questions that may arise over the ethics of this field of study.

The simplest example of integrating biology and robotics is biomimicry. This is when a whole robot or part of a robot is designed based on something that a living organism already does or has. The earliest example would be Leonardo da Vinci's observations of birds in flight, and attempts to make a flying machine for humans, but a more recent example would be Spot the robot by Boston Dynamics. Spot first became known to the public in 2016. It is an example of how we can learn from living organisms to enhance our use of technology and robots to aid us in our day to day lives. Spot is based on the body of a dog. It walks and runs like a dog, and its reactions to physical input, for example being kicked or tripping up, then stumbling or slipping, is identical to what you would observe in a real dog. In 2020, Boston Dynamics gave Spot a mechanical arm, which greatly increased its use. It can now perform simple day to day tasks and easily pick up objects when directed to, without having to enter complicated code relating to size, shape, texture, and general nature of the object because of built in sensors that allow it to work this out itself. It also has the function of keeping the end of its arm in one place while moving the rest of its body, inspired by the chicken, which has this same ability.

The next step in biorobotics is integrating biotic and abiotic materials to form robots. For example, a group at Harvard has recently made a biohybrid robot inspired by the manta-ray. Its body is made of elastomer, with a gold skeleton which is flexible yet keeps it strong. It is coated in genetically modified heart cells, which have been engineered to contract when they are exposed to light. Therefore, they can be made to move by using a small flashing light, and thanks to differently arranged cells on either side of the ray it can be made to turn and move in different directions.

While developments like this are still in early stages, they could have immense impacts in the future. They can greatly develop our understanding of animal tissue, leading to the engineering of artificial organs, even hearts, which will not be rejected by our bodies, and are also a step

towards synthetic cognition. In the future, robots like these could be fitted with cameras and designed to respond to different stimuli in their environments, making them become more independent, consequently allowing us to explore places where we have never been before, such as the depths of the oceans, much more efficiently and without disturbing the ecosystems there.

Nevertheless, some may be concerned about the ethics of using things such as heart tissue in robotics, as it most likely must be taken out of a living organism, and may be concerned about the possibility of an animal eating something like this or it being destroyed in action, consequently polluting the sea because of the non-biodegradable materials it contains. However, with proper development and careful planning and monitoring, situations like this could be avoided, and robots like these could provide us with much knowledge about the world that we live in.

One of the key parts of life which allows it to continue throughout the ages is the ability to reproduce. If robots were to be put out into the environment and left to do what they were designed to do without human intervention, they would need to have the possibility to reproduce on their own and overcome the various challenges they would come across. In 2020 Michael Levin at Tufts University in Massachusetts and his colleagues made the first robot constructed entirely of biological material. They took tissue from 24-hour old embryos of the *Xenopus laevis* (African clawed Frog), and using a model designed by an AI computer system constructed, by hand, the living robot under a microscope. The original model used heart cells to move while later models use only skin cells and have developed cilia like structures on their surface.

 Levin says: "The fundamental finding here is that when you liberate skin cells from their normal context, and you give them a chance to reimagine their multicellularity, they can build other things than what they normally build. To me, one of the most exciting things here is plasticity. This idea that even normal cells, not genetically modified, with a normal frog genome, are in fact capable of building something completely different." The cells were able to form a previously unknown type of organism-robot hybrid, despite containing identical DNA to an animal that already exists.

 The AI system was made to test different shapes for the xenobot to be to ideally perform a specific task, and eventually made it into a simple Pac-man shape, which idealised it for the function of pushing and moving things around it easily. The xenobot can heal itself when cut, and later models even demonstrate a new type of reproduction, where they work together in robot swarms, demonstrating swarm intelligence, also seen in real animals, to push stem cells into piles, eased by their pac-man shape, which after some time form into a new xenobot.

These living robots have the potential to solve many issues in our world. Scientists believe that with further development, xenobots could soon be used to combat cancer, as well as other currently terminal or degenerative diseases, helping many to live for longer and with a better quality of life. This would work well as the xenobots are very small and so could easily be put inside our bodies without causing disruption, and would be able to deliver medication, or even kill cancer cells in only a specific area of our body. After they have done their job, there would also be no problem with getting them out, as they are biodegradable, and so could be left for our

body to naturally dispose of. Another useful thing that these robots could do for us is clean the ocean of microplastics which are too small for current technology to remove, without harming marine organisms and therefore disrupting whole ecosystems.

Their ability to reproduce would also mean that once they were introduced into the sea, they should be able to become a part of its ecosystem, without disrupting it like traditional robots may because of their non-biodegradable parts, and instead help the ecosystem to thrive. They could also process nuclear material in no way anything else can now, therefore being a significant help to those suffering through a nuclear accident, and even potentially helping us to solve the issue of disposing of nuclear wate.

However, developments like this can also understandably lead to concerns. While it can be argued that this is an ethical thing to do as it is done with good intentions, and never harms or modifies an already living organism transforming it into a robot, as it only uses cells from an embryo, some may argue that it counts as destroying life as this embryo would have grown into a living organism, and we are ultimately creating something that has never existed before, a hybrid blurring the line between life and synthetic machines. People may also be concerned that as this half living, half robot creation may be introduced into the real world, it could begin to evolve, potentially becoming a threat to the ecosystems it was originally designed to protect. Also being part robot, it could have very different abilities to those we have, perhaps giving it the ability to gain too much power and threaten life on earth as we know it. While this is very unlikely, it would definitely be an issue of concern to the public if these living robots were to be introduced into the real world.

In conclusion, I believe that although biorobotics may raise some concerns, with careful evaluations of these issues, we can work around them to develop the ability to use this field of study to help solve many problems in our lives. The integration of in silico and in vitro technology to form hybrids such as the robot manta ray or xenobot holds significant potential, from treating deadly diseases to cleaning the world's oceans and disposing of nuclear waste, biorobotics holds the answers to so many questions, and if we control it and develop it in the right way, then we could have the capability to fix many of the problems that we have caused on earth.

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ARTIFICIAL INTELLIGENCE- THE PROS AND CONS
Angelene Jose and Maria Shine 10C

From healthcare to transportation, artificial intelligence (AI) has the potential to completely transform a variety of industries. It is something that can be used in a variety of fields, from assisting surgeons to self-driving cars, the uses of artificial intelligence seemingly have no boundaries. However, many concerns exist on how AI will affect employment, society, and the future in general, as well as a number of questions on whether or not it truly is ethical.

On the positive side of things, AI has the ability to improve our quality of life and productivity. In the healthcare industry, AI can be used to analyse medical images and identify illnesses. AI can prove to be a great help in the medical industry, as mentioned in an article on 'AI in Healthcare', by Foresee Medical, especially when giving medical diagnosis and treatment. According to the article, "By leveraging AI technologies like machine learning for tasks such as disease diagnosis or drug discovery and development, doctors can more accurately diagnose illnesses and customise treatments to individual patients' needs". This means that doctors are able to accurately give a diagnosis and improve treatments that will directly help the patient for a cheaper price too. Also, due to how well AI is able to process data and information, which can prove to be incredibly helpful when it comes to "making predictions about medical outcomes" accurately and finding correlations in data about diseases or even detect unnoticeable yet vital signs that could cause a patient problems later on.

AI can also be applied to the transportation industry to improve traffic flow and lower accident rates. According to the site "MindTitan", AI can be incredibly effective in traffic surveillance and speed management control systems. Furthermore, by using this type of AI, it is also able to give information with urban traffic control systems and work hand in hand with the system. The article states that with AI, "Vehicles nowadays interact with each other and the road infrastructure", helping to provide road safety and surveillance.

Despite this, the use of Artificial Intelligence does come with its fair share of dangers. The possibility that AI may displace human employment in numerous areas is one of the major threats. There is a chance that as AI systems advance, they will eventually replace human workers in previously performed tasks. Job losses and economic upheaval can result from this. In an article written by the European Parliament, it shares that the "Use of AI in the workplace is expected to result in the elimination of a large number of jobs". Though AI may not be a threat to people's jobs now, it may very well affect them badly in the future and in an article by Zdnet, it speculates that ai could automate around 300 million jobs, which can be a great risk to those working in such fields.

Concerns have also been raised about the possibility of AI being used maliciously. Artificial intelligence systems may be used to spread misinformation, propaganda, and fake news. AI systems might be utilised to create autonomous weapons for use in conflict. Malicious use of AI might endanger physical security (such as non-state actors arming consumer drones) and political security (such as by criminals teaching machines to hack or socially engineer targets at human or superhuman levels of ability).

To conclude, Artificial Intelligence can prove itself to both bring great improvements, however with the responsibility of these improvements also brings great risks, threatening to take over things commonly dealt with by humans and not AI. AI seems to have the power to both give and take, and depends almost entirely on how it is used, for good or for malicious reasons. Though there are still worries concerning AI, so far it has mostly proved to be useful and provide great help and discoveries in a wide range of fields and hopefully will continue to do so.

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THE PHENOMENON OF HANDEDNESS
Kate Ryan 9T

This essay will explore the understanding of why people are right handed, left handed and ambidextrous. Along with the biological, genetic and environmental factors that contribute to the shaping of an individual's preference to hand.

For centuries Scientists have been intrigued by the phenomenon of Handedness. The majority of the literate population show a clear preference towards either their left or right hand, with only roughly 1%[1] being ambidextrous.

Many studies have suggested that the main factor towards handedness is biological. Brain lateralization is when the left and right side of the brain each carry out separate activities and processes, to process sensory inputs in different ways and to control different types of motor behaviour.[2] Brain lateralization is a key determinator with handedness. The left hemisphere governs the right side of the body and vice versa. In right-handed individuals, the left side of the Brain is dominant for language and motor control (the process of initiating movement voluntarily). Left handed individuals show greater bilateral brain activity, indicating a less prominent brain hemisphere.

Researchers have also found genetic influences to handedness, finding that if both parents are right handed the child has a 10% chance of being left handed, however if one parent or both are left handed the child has an 18 to 22 and 27% chance of being left handed.[3] Studies have shown that genetics contribute 25-35% of handedness. Interestingly, identical twins are more likely to share handedness compared to fraternal twins. A fair amount of genes have been proved to contribute to handedness, with the LRRTM1 gene being the most known. Variants of this gene are linked to a higher probability of left-handedness.

Prenatal circumstances may be linked to preference of hand. Certain studies have shown that hormone levels in early foetal development can affect brain asymmetry, leading to a dominant side. The exposure to testosterone in utero is associated with right handedness, though lower levels of testosterone usually link to left handedness. Lower levels of exposed testosterone create less functional asymmetry, thus increasing left-handedness.[4]

Discrimination towards left-handedness has been around since Ancient times. The inhabitants of Mesopatania believed left-handedness was a punishment from the Gods. Ancient Egyptians even depicted their enemies as left handed and themselves as righteous dextras [5] (a latin word meaning right handed or skilled). Religion has also had a negative impact on left handed people in the

past, as it was thought to be 'the devil's hand', in religious schools and orphanages children who wrote with their left hand were even beaten as punishment. Religious reasoning lead to social norms and stereotypes. Most schools started punishing children and making them swap hands to write as lefties were perceived as messy and unorganised. The punishment in schools stopped about 60 years ago. Observational learning is when children copy their parents, so hand preference can be generational. Additionally, early childhood experiences, such as the use of specific tools or toys that favour one hand over the other, can shape handedness preferences.

Ambidexterity is the ability to use both hands proficiently. Some lucky individuals are naturally ambidextrous, while others develop it through practice or necessity. There is ongoing research examining the potential differences in connectivity and brain structure in ambidextrous individuals compared to clear preference handers.

In conclusion, handedness is a complex phenomenon influenced by many factors, such as biological, genetic and environmental. While the majority of people are right-handed, left-handedness and ambidexterity are rare and individualistic characteristics that truly show the wonder of human diversity.

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THE IMPACT OF SOCIAL MEDIA ON THE YOUNGER GENERATION
Connie Bromberg and Freya Domonique 10M

The media has a great impact on society nowadays **[1]** , with the average person in the UK spending 4 hours and 14 minutes on devices per day in 2022. These astronomical figures show the impact, that could be harmful, of social media on society. Social media can create many negative effects on people, although some argue that there are also positives.

One negative effect of social media is negative body image. Negative body image is **[2]**"When a person is generally unhappy with how they look." Social media enforces this by only promoting unrealistic body types and unrealistic beauty standards. These can have a very, very negative effect on the younger generation, who see these as "how they should look". When a person is exposed to these all the time, it can cause eating disorders and very poor mental health.**[3]** According to a News Medical study "about 52% of girls and 45% of boys opt for skipping meals, heavy exercise, and other behaviours associated with eating disorders. Of all participants, about 75% of girls and 70% of boys have been found to have at least one social media account, with Instagram being the most common." This indicates that exposure to social media can have a dangerous impact on body image, especially for the younger generation.

Another negative effect of social media is cyber-bullying. Cyber-bullying is **[4]** "the activity of using the internet to harm or frighten another person, especially by sending them unpleasant messages." Bullying is **[5] "**the behaviour of a person who hurts or frightens someone smaller or less powerful, often forcing that person to do something they do not want to do:" Bullying usually happens away from home, but thanks to social media, cyber-bullying is now a prominent issue with the younger generation and home is no longer an escape from these issues but cyberbullying can follow you everywhere and can be very damaging.

Social media is definitely looked down upon by certain people, however it definitely has some benefits. Most parents find social media to be a very dangerous place and they tend to steer their children away from these so-called "dangers". It is true, social media can be a harmful place, but you can also learn a lot from social media.

A study shows that only 4.1% of the world don't use social media **[6].** This means social media is very significant in people's daily lives. Tiktok is a good way to start new hobbies. Many people post content that is full of tutorials of how to crochet, paint, draw, edit, etc. This makes people learn more things and they can use their brain more and become more creative. For

example, I have taken up the hobby of making edits. It is a very enjoyable pastime of mine and I learn how to improve my edits daily.

Moreover, social media is a great tool for advertisement. You can create content for everyone to view and you can get recognition for your talent. It could be artwork, acting, music, designs, and so on. In addition, businesses can profit and more people can know about their company. Take Duolingo for example, their engaging marketing on social media helps them to gain followers as they now have 6.7 million followers which is extremely impressive. Likewise, other companies can do the same and gain fame and earn more money.

Additionally, social media is a great way to interact with others and make new friends. You can find people who share the same interests as you or people who are just genuinely interested in your wellbeing. These friends may live in different countries so you can update your friends about the events happening in the country and they can do the same for you.

Social media cannot be frowned upon nor applauded because it really depends on how safe you are being. If you know that what you are doing is not dangerous, then you should be able to use social media. If not, you should stay away from it. Remember to always stay safe online.

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