Promoting wellbeing in young lives: the importance of space, connection and voice

Academic essays on how emotions influence our financial behaviours and fighting inequality in education from Brilliant Club Scholars.
Welcome to the latest edition of The Scholar!

We are delighted to be celebrating the incredible work of pupils who have taken part in The Scholars Programme and Uni Pathways from schools across the UK.

In this edition, you will find 30 outstanding assignments with course titles ranging from ‘The unseen enemy – diagnosing bacterial infections’ to ‘Social media, mental health and you’. This edition of The Scholar features some of the most impressive articles ever produced by pupils who have taken part in The Scholars Programme and Uni Pathways. The university-style learning that pupils are exposed to on our programmes is designed to provide pupils with the freedom to develop their own ideas and approaches. Not only will this help pupils who go on to study at university, but we believe these are crucial skills to develop in the adult world. The development of independent study skills and support with critical thinking provides young people with a platform to share their ideas. We hope it will empower these young people to engage in debates that shape our world, whether they concern the neurobiology of parenting behaviour or understanding whether there is an external world. The Brilliant Club is passionate about exposing pupils on our programmes to these important aspects of university.

We hope that these projects encourage pupils to dig a little deeper into subjects that matter to them and to seek opportunities to make unique contributions to their fields. In doing so, pupils can change their own lives by enriching them with opportunities for learning and being inspired by the topics they cover. This year, we had a record number of nominations for The Scholar, so we would like to say a huge congratulations to the pupils published in this edition and to the pupils who completed The Scholars Programme and Uni Pathways. All the pupils who graduate from the programmes should be very proud of themselves! On Page 4, we are delighted to have a guest article from Ella Devereux, who took part in The Scholars Programme when she was in Sixth Form. She is now studying Journalism at Kingston University. We would like to say a massive thank you to Ella for taking the time to write her thoughtful piece on the importance of reading and research.

Welcome to the latest edition of The Scholar!
If 2020 taught me anything as an undergraduate student, it is that rejigging my love for reading, writing and researching was the main thing which helped navigate through a very unpredictable time. Amidst the chaos I sought refuge in finding practical things to fill the days to keep my mental health in check. Whether it was finally picking up that book which I had been meaning to read, double checking a fact I had heard on the news, listening to a podcast, or getting an old notepad and scribbling down what I was feeling that day, it all made three national lockdowns a little more manageable.

I was finally doing all of these things for pleasure again, and it was a breath of fresh air. After years of compulsory academic study, I think we can often feel burnt out and it was a breath of fresh air. After years of compulsory study, I was finally doing all of these things for pleasure again, and it was a breath of fresh air.

I took part in The Scholars Programme when I was in sixth form. I appreciated any alternative forms of examination and particularly enjoyed delving into topics beyond the realms of my A-Level specification. Since then I have always held onto the feeling of accomplishment when an idea hits the page, or one question leads you onto another and you are free to explore new concepts and change your mind along the way.

As always, this edition of The Scholar is rich with ideas from bright young brains. It is a testament to inquisitiveness and enjoyment of reading, writing and researching which makes these papers so wonderful. Particularly with the challenging year, which was 2020, I think we can often feel burnt out at the thought of voluntarily conducting research, reading or writing. We lose joy and pleasure in these skills because we see them as things which serve a narrow purpose to help us pass exams. All too often by association we see them as a means to an end in our studies, rather than things which can be experimented with and that we can do for fun.

COVID-19 came along and created a rift in academia which we weren’t overshadowed by rigid mark schemes and core textbooks. This is why programmes like The Brilliant Club should be cherished by education institutions and those within them: it is in these moments of analyses, lateral thinking, and inspiration which we will find joy in studying again.

**Find the joyous moments when you read, write and research and cherish them**

Ella Devereux, Scholars Programme Alumna, 2017

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**Arts and Humanities**

In the eleventh century, the difference between invader and native was a matter of perspective. Do you agree?

**Year 6, Key Stage 2**

Pupil Name: E. Kos
School Name: Ashwood Spencer Academy, Derby
Supervised by: Dr. R. Shields
Tutor University: Royal Holloway, University of London
Course Title: Invasion, Integration and Identity - Britain in the Eleventh and Twelfth Centuries

A matter of perspective is the way you see something, based on your nationality, the sources you have access to, what people think around you and your culture. An example: let’s say you are from a country, and one day a random person or group of people decide to take over. You would think that they are invaders. They on the other hand might think they are not invaders and are just settlers trying to grow crops or just live their life happily.

I believe that the difference between native and invader is a matter of perspective, and not how it happened in real life. Proof of this is shown in the 10th, 11th and 12th centuries as many people believed they were native even though the true ones were the Britons.

One of the pieces of evidence is the fact that Geoffrey of Monmouth (a historian and bishop from the twelfth century) believed the true natives of Britain were the Cornish and Welsh (called Britons), William of Newburgh (another historian) thinks that Geoffrey is incorrect and possibly Anglo-Saxons are natives. Another piece of evidence is the fact that the Vikings were thought to be aggressive pagans. But that was not true. That shows how culture can affect your point of view. The way it proves that culture affects your point of view is because one of the reasons they are hated by other medieval people is because they are pagans.

Vikings were always thought to be aggressive and were also thought to be only invaders. But was that true? No, the truth was that they were peaceful settlers just looking for land due to the fact that they could not grow any food in Scandinavia (Denmark, Norway and Sweden). That means that they would have not attacked if they were not so desperate for food. An example of Vikings settling in England due to desperation is shown in Viking story called Havelock the Dane. Havelock the Dane is about a boy called Havelock who is killed by a wicked man, called Godart. Luckily, he’s saved by a servant named Grim. Grim and Havelock sailed to England and founded the town of Grimsby. Havelock acts as if he’s Grim’s son and while he’s grown very strong physically. One day the old English king dies, but before that happens, he asked his second in command to marry his daughter to the best man in England. Instead, he married her to the strongest man in England to trick her out of the king’s kingdom. When they got married the king’s daughter was woken by a light coming from his mouth. It turns out that the light was a Kyne mark. A Kyne mark is a birthmark that is in a shape of cross. It is a mark given to true kings. In a dream an angel says to her that he’s the king of Denmark. When Havelock found out, he went back to Denmark, where he won over the people and defeated the Godart. After that he sails back to England with his Danish army (Here). While he’s sailing Godrich (previous kings second in command, gave a speech. In that speech he states that the Vikings will hang them, and kill them, make them slaves, tie up priests and strange nuns and monks. When Godrich is defeated, they do none of the things described by him. After that they rule for sixty-six years. All too often by association we see them as a means to an end in our studies, rather than things which can be experimented with and that we can do for fun.

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Anglo-Saxons were the Saxons who were driven away by food in their homeland (Germany). Just like the Vikings, they only invaded England because they were desperate. They did not specialise in wars. What they did specialise in was woodwork and farming. They also made jewellery out of metal. They were the first people to live in England after the Britons. They also were the people who established the kingdom of England and made half of medieval language. They were living in England from the year 450 to the year 1066. The last Saxon king was Harold Godwinson (Earl of Wessex). His name is written in the Gospel of St. Matthew during the Norman conquest. A famous historian from the twelfth century was Anglo Saxon. His name was William of Newburgh. William used to criticize other historians and historical figures. William was born in Yorkshire and was a priest. He was especially critical of one person. That person was Geoffrey of Monmouth. According to William of Newburgh, Geoffrey was writing fictions about Britons, and that he was better than Marcop and Romans. The Saxon’s praise my point as the last saxon king (Harold 3rd) believed he should be king because he belonged in England because of his point of view.
The Britons were the Natives of England. They owned all of England until the Saxons. The last British king of the house of Mercia, King Alfred the Great, ruled from 871 to 899.

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index.html

The laws are in place to protect humans from AI who have done wrong.

for policy makers, governments in this way could become the catalyst for a global dystopian society.

There are many examples of environmental dystopias depicted in the media, and they often include warnings about the dangers of climate change. One popular science fiction film The Day After Tomorrow tells the story of a massive global climate event that people ignore until it is upon them. It is very similar to current climate warnings and highlights how serious the threat is to the planet. There is a real possibility that Amazon could take the voice data without the knowledge of the customer and sell it to companies who make targeted advertisements.

Despite movements such as the Paris Agreement, countries around the world are failing to meet the emission targets necessary to prevent global warming above the target threshold of 1.5°C. [9] The IPCC, the Intergovernmental Panel on Climate Change, has identified several solutions to impacts of climate change, published a special report in which they discuss the predicted impacts of global warming and the knock-on effects that may occur. But, it may be too late to stop the climate crisis at this point, as the atmosphere worldwide.

The Bulletin of Atomic Scientists, who own and operate the Doomsday Clock, said in their latest statement that “over the past year, the world’s leaders have not done enough to avert a result of devastating climate impacts in recent months.

There are many examples of dystopian works that have centred around a political problem. In George Orwell’s dystopian novel Nineteen Eighty-Four, the author presents a society in which the government controls every aspect of life. While there has been some criticism of the novel, it has had a significant impact on how we think about government and its role in society.


World One Propaganda | The Britannica Library


Strategic Culture A – ‘Cultural’ Understanding of War, published: 10 February 2019 by BBC – Ethics War_ What is a ‘just cause’_.pdf, published: 04 February 2019 by BBC

The political motivation is another prominent theme in dystopian literature. This can take totalitarianism (where the state, fascists [where a dictator has complete control and enforces aggressive nationalistic], corruption of government and dictatorial rule. They are characterized by police states, surveillance of the people and violations of human rights. These are all themes that represent the totalitarian regime. This was evident in the remarkable essays they submitted. N.’s essay was one of the best essays I have observed this year at a Millfield Club Test. This shows that there will be catastrophic global consequences if we do not put laws in place to limit our technology.

The breakdown of global governments in this way could become the catalyst for a dystopian society.


Seeing an act as an 10. Each of these can be seen as an act of justice: they harm someone who deserves to be harmed because they have done wrong.

Dystopian works that have centred around a political problem. In George Orwell’s dystopian novel Nineteen Eighty-Four, the author presents a society in which the government controls every aspect of life. While there has been some criticism of the novel, it has had a significant impact on how we think about government and its role in society.

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Historically, there have been several political systems that revolved around values we consider to be dystopian. One of the most infamous instances was the Nazi Third Reich, led by dictator Adolf Hitler during World War 2. This fascist dictatorship pushed for racial purification by murdering Jewish, Roma and other ‘impure’ races, and by exploiting and enslaving minority groups that did not comply with their ideal ‘Aryan’ race. [10] This kind of discrimination, while very extreme in this case, has continued throughout history to present-day. For example, many racial groups still fall to this day, and their fanatical beliefs are akin to those of the Nazis. Their ideals are widely rejected by most society, but their methods of achievement are still being used in the UK. The spread of these ideas among young people could cause a generation of people to believe and act similarly to the Nazis, therefore creating a dystopian society.

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As advanced technology becomes readily available, our abilities to modify biological elements of humans and our survival gain traction in medical societies such as the Royal Pharmaceutical Society, even though the true implications of it are still unknown to us.1,2

Biological dystopias have a wide range of categories that vary depending on the changes made. They can be as simple as advancement in medicine, or large scale genetic manipulation. Aldous Huxley, in his novel Brave New World, depicts a world where the ‘World State’ is attempting to reach mass production of humans, by taking a single egg and splitting it into sixty embryos, which could then be de-selected based on their genetic composition. This was very controversial when it was published in 1932 because of its anti-religious themes, leading to it being banned in Ireland.3 Although humanity has not yet evolved to the point where we can edit the human genetic makeup, the principles of the story have some similarities to current events. GM (genetically modified) crops are being mass produced in many parts of the world. There are some security concerns with this, in that companies who own the license to grow GM plants have control of our food chain. Terrorist attacks or corrupt officials could theoretically poison the genetically engineered crop, or altering the genetic composition of the crops to cut off our food supply. These threats would also endanger the process of genetically enhancing humans, as an attack on GM crops would compromise the entire human race in a similar way.

In our recent tutorial, we debated the positive and negative impacts of genetic engineering, and how they apply to individual humans or society as a whole. The most compelling argument in favour of genetic engineering was the fact that genetic alteration could mean the prevention of disease or disability. By altering our genetic make-up, we could theoretically cure all illnesses for future generations. This is a great use of genetic engineering, provided it is the theoretically cure all illnesses for future generations.

In conclusion, I believe that we are moving towards a dystopian society. There are many likenesses between fiction and real-life events that it is very likely our future will be significantly worse than today. Tensions between countries are increasing each year, and with the threat of nuclear annihilation will have more serious consequences should they escalate. Countries are actively choosing to ignore the evident problems our world is facing as a result of climate change, and the illusion of this will inevitably have huge consequences in the future. I believe that governments will continue to disregard the problem, and when they finally realise that we are in real danger, it will be too late.

How did Gender Passing Individuals’ Gender Bodies in Nineteenth Century Britain?

Year 10, Key Stage 6

Pupil Name: K. Kuklys

School Name: Cardinal Heenan Catholic High School, Liverpool

Supervised by: B.G. Thomson

Tutor University: Liverpool John Moores University

Course Title: Gender passing and the body in Nineteenth Century Britain

Gender passing individuals were historic people whose biological sex did not correspond to that which was imposed upon them by society, for reasons which can only be inferred. They held their bodies in high regard, as the performativity of their gender was not solely based on their biological presentation. In other words, in nineteenth century society it meant they had to appropriate the garb and assume the habits of the socially constructed identities of gender, to avoid mass hysteria in the nineteenth century, and live under a façade, rather than being able to express themselves to all their extent. However, this also implies that there can be no universally ‘good’ society.

Many people would consider our world to be a dystopia already. As of 2015, nearly 10% of the global population live in extreme poverty, on less than $1.90 a day.4 For these people, life is incredibly harsh. This brings up the question: who gets to define a dystopia?5 This question is currently being answered, as we continue to disregard the problem, and when they finally realise that we are in real danger, it will be too late.

References
[4] USHMM, ‘What other groups were targeted by the Nazis?’, https://www.ushmm.org/wtc/encyclo/past/wwii/rome-nazi-auschwitz-exhibitions/
[6] To comply with the Academic Misconduct Line, your work should not contain any form of plagiarism.

Tutor comment: “It’seasytoread,anditisreallyshowcaseshis/herhandwriting andnaturaltalent. Iamagreatpieceof workthatwas completed with anadultthoughtfulness to the Noble, and he was always a keen participant in the lively, interesting discussions we had at West Monmouth School. My feedback is that it is well written and well researched.”

Notably, the classification of a dystopia is based entirely on the judgement of the person or group that is defining it. In Margaret Atwood’s dystopian novel The Handmaid’s Tale, the regime of Gilead enforces what seems to be an impossible, yet mitogenic rules.6 This includes banning reading and writing; forcing women out of work; forced impregnation and harsh punishments for breaking their laws. The rules of Gilead believe they are saving their world from a declining population, while those most affected by the regime of Gilead are terrified to stand up against it in fear and oppression. This example suggests that the way a person views the good or evil of something is subjective, and therefore one person’s idea of a dystopia may be another’s idea of a utopia. This also applies to fictional narrative, as there is bias depending on the viewpoint of the story. This means it is very challenging to ever create a true, universal dystopia as there will likely be a person or group of people who agree with it. However, this also implies that there can be no universally ‘good’ society.

Gilead’s most compelling argument in favour of genetic engineering was the fact that genetic alteration could mean the prevention of disease or disability. This is a great use of genetic engineering, provided it is the theoretically cure all illnesses for future generations.

In conclusion, I believe that we are moving towards a dystopian society. There are many likenesses between fiction and real-life events that it is very likely our future will be significantly worse than today. Tensions between countries are increasing each year, and with the threat of nuclear annihilation will have more serious consequences should they escalate. Countries are actively choosing to ignore the evident problems our world is facing as a result of climate change, and the illusion of this will inevitably have huge consequences in the future. I believe that governments will continue to disregard the problem, and when they finally realise that we are in real danger, it will be too late.

The importance of the body is well represented by Hawley’s discussion on beards. This is displayed by how the social construction of identity is epitomised by the image. The beard became the sign of a hero, whereas before it was usually a characteristic that implied a person was either lower class or religious. In this way, the social construction of identity is closely matched to the characteristics of the body, and the visual display of identity is linked to the visual display of the body. This also applies to fictional narrative, as there is bias depending on the viewpoint of the story. This means it is very challenging to ever create a true, universal dystopia as there will likely be a person or group of people who agree with it. However, this also implies that there can be no universally ‘good’ society.

Another example of why the body was significant for Gender Passing individuals is displayed in James Allen’s post-mortem. This pamphlet describes the body of James Allen in such a manner, it makes it seem that their gender identity is in conflict with their biological sex. This is an obvious example of how the body is manipulated, however it is stated that the body was clearly of female proportion. “Exhibiting the truest female proportions as a striking contrast to the general beauty of the person.” This ignores the fact that the body does not belong to the person in order to conceal themselves, but even more so, the hierarchy of a person’s identity. From the description we can assume that Allen focused more on the visibility of the body, rather than the proportion of the body. This is displayed through the use of the adjective ‘handsome’ and ‘colour of face’. Also, we are told that they compressed their breasts with thin bandages to conceal the true body. Therefore, this describes the body’s attempts to escape from the socially constructed identities of gender, and the production of harmful chemicals.
Life Boulton began dressing up and acting as a girl, often as a spectrum of both masculinity and femininity rather than identifying as exclusively one. The attire worn by people was an accurate representation of their gender expression. If this were the case for a lower-class gender passing person, their sexuality and gender could be decisive in the prosecution of gender passing individuals; not only preventing them from living openly but also allowing their wives to work and providing for their families, their social dignity and honour could not be preserved. The upper middle class working class men only barely being able to provide for their sexuality and gender, as conceptualised by the genderbread infographic, so the fact it encompasses a wide variety of a person's life, displays the fact that it was important for gender passing individuals.

Relevance of Macbeth in our modern world?
This essay aims to explore how relevant Shakespeare's Macbeth is on a modern society. Macbeth is the infamous Scottish play written by William Shakespeare. Butler, J. (2004), Undoing Gender, 1-3.

The 414 year old piece of art is still pertinent to this day; showcasing ideas surrounding power and misogyny. One of the central themes in 'Macbeth' is the use and abuse of power and how it can have a corruptive effect on the person who controls it. Although this play was written in 1606, it still holds relevance in today's society due to modern influences at a political and royal standpoint who believe their power makes them untouchable similar to Macbeth. The next theme that will be examined within this essay is the power and rights women have. Despite Macbeth having the power in her relationship, she has little to no power or rights within this society. This idea can be mirrored in a modern society due to the mistreatment of women within the music industry and how they have very little power or rights.

Macbeth and Banquo encounter the witches for the 1st time

Macbeth and Banquo, both men of the royal family, have “bathed an eyelid at the systematic abuse of young women”. Similarly to Macbeth, Prince Andrew believes his power excuses him from following general rules within society. The systematic abuse of young women, between leaders at a royal and influential level within society, has little to no power or rights within society. This idea can be mirrored in a modern society due to the mistreatment of women within the music industry and how they have very little power or rights.

The eponymous character Macbeth commits multiple power-strived actions that have severe destructive consequences, such as his demise. When Macbeth becomes King, the power that comes with such a great responsibility leads him to be corruptive. A key moment in the tragedy for Macbeth's behaviour is when he has “done the deed” (Macbeth 2.2.15) of murdering King Duncan. As he gains power, his ideas and self-moral deteriorate making him think he is capable and allowed to commit malicious actions. Macbeth believes he is unstoppable during the soliloquy of Act 3 Scene 1. He acknowledges the witches prophecies about Banquo’s descendants but he also believes that those prophecies do not warrant his decision to kill his own brother because he does not want his legacy of King to be cut short so orders for Banquo and Fleance to be killed. Macbeth will utilise his regin to achieve completely corrupt and dishonourable actions that a person of a less powerful rank would not disapprove of and disallowed to do in the first place. Macbeth's placement in the monarchy and the power he holds with his title seems to mean why the people agrees to his wishes. Interestingly, at this point within the play, Macbeth also believes his power excludes him from experiencing any consequences. The king with his experiences no guilt or remorse for what he has ordered to happen at that current time. This idea that power can make you feel untouchable is still relevant in a modern society as current influences like Prince Andrew believe power gives them to act on their own freewill and be exempt from consequences.

Because of Prince Andrew's power and status within the royal family, he has “bathed an eyelid at the systematic abuse of young women”. Similarly to Macbeth, Prince Andrew believes his power excuses him from following general rules within society. Macbeth, on the contrary, has great influence over young women, and involvement in sex trafficking. The allegations have proven that “in隐身 has been involved in a terrible and dishonourable friendship.

Currently, in today’s society, there are still examples of leaders of a royal and influential level within society abusing their power and believing that their status gives them a free way pass to act in a certain way. For example, Prince Andrew, who is 8th in line to the throne, held a “more than reasonable expectation of a high status position”, and has allegations surrounding sexual abuse and involvement in sex trafficking. The allegations have proven that “隐身 has been involved in a terrible and dishonourable friendship.

The similarly between the two royal leaders, Macbeth and Prince Andrew, can help prove the relevance of Shakespeare's Macbeth in a modern society. The comparison between Macbeth and Prince Andrew can help prove the relevance of Shakespeare's Macbeth in a modern society. Their similar behaviour, the way they are due to his “entitlement, money, women, the lifestyle he bred into”. This shows Prince Andrew to be corruptive as he is using his power for his own personal gain. At the time of Prince Andrew’s friendship with Epstein, Macbeth, Prince Andrew believes his power excuses him from following general rules within society. However, Macbeth’s trust in the three murderers is evident in the line where he says “I’ll see their wrongdoing. Macbeth, when sending for the three murderers, did not see his terrible consequences, such as his demise. Macbeth when sending for the three murderers, did not see his terrible consequences, such as his demise. 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is ultimately caused because of his incapability to see himself abusing his power. Macbeth is still relevant in a modern society as people such as Prince Andrew still use and abuse their power to be corruptive.

Secondly, the theme of women’s power and rights can help prove the relevance of ‘Macbeth’. Lady Macbeth is an exceptionally controlling and manipulating character within the Bard’s ‘Macbeth’. Her relationship with Macbeth, Lady Macbeth is the controlling influence which completely subverts the norms of a Shakespearean sonnet. By manipulating Macbeth to acting in a deceitful and villainous manner to complete “most hideous act of all murder”. After Machbeth has “done the deed”, Lady Macbeth’s controlling nature is very much present. The exclamative “Give me the daggers.” (2.2.55) displays Lady Macbeth to being the dominant figure. However, it does not mean that Lady Macbeth does not hold the power outside of their relationship in society. Macbeth is King so has a huge power position. Lady Macbeth has not just a part of the power Macbeth, her husband, sustains. She is just seen as Macbeth’s wife, despite arguing being the only holding Macbeth up. Lady Macbeth is the person primarily responsible for Macbeth’s reign as she manipulates him into believing he is capable of becoming King, but is not given any credibility with society. In addition, Lady Macbeth’s name can also show the absence of power she has within society. She is essentially just known as the King’s wife and is not given another name to be a woman of her own proper name or title. The absence of an actual name could symbolise her absence of power within society. The idea of Lady Macbeth is that she has just a part of the power within society can help prove the relevance on ‘Macbeth’ in a modern society as still women don’t have the rights and power that they rightly deserve.

One place where women are treated significantly differently to men is the music industry, like any other work environment, should be gender equal, but it isn’t, “men hold 67.8% of the jobs, and the women the volatility of positions of power”. This is an industry where misogyny still exists; current artists are being manipulated and stunted within this industry because she is a female and is controlled by her husband. Similarly, female musicians, who should have the same rights in this community as men do not hold any rights as the authoritative male figures in the business dominate them. This shows how ideas showcased in Shakespeare’s ‘Macbeth’ are still relevant in our modern society.

In conclusion, Shakespeare’s infamous tragedy ‘Macbeth’ is still very much relevant to our modern society as it cleverly comments upon actions and consequences that a current nation needs to consider. 414 years after its original performance, some of the problems her characters encountered still arise now for people now. As said by Sam Fender, “the evil is still lingering, power are still fighting for their rights just like Lady Macbeth; who was never given a proper title and any respect in society. Similar to Macbeth, current influences like Prince Andrew abuse their power by thinking their standing in society enables them to act in an immoral way for their own benefit. At some point in our lives, we will be given more power and responsibility by age or occupation. ‘Macbeth’ can be seen as a guide in how to use that power in the correct ways as the epitome of character Macbeth’s abuse of power can be seen as a warning in how to control responsibility as Macbeth’s misconduct ultimately led to his demise. Shakespeare comments upon women’s absence in modern society as it can teach everybody a lesson on how to become a better person and raise awareness of problems that are not yet gone.

Bibliography


10. M. Claire ‘How #MeToo shows that we need to acknowledge sexism in music’ https://www.marieclaire.co.uk/reports/music-industry-too/1-st-december-2020.

11. M. Claire ‘How #MeToo shows that we need to acknowledge sexism in music’ https://www.marieclaire.co.uk/reports/music-industry-too/1-st-december-2020.

12. M. Claire ‘How #MeToo shows that we need to acknowledge sexism in music’ https://www.marieclaire.co.uk/reports/music-industry-too/1-st-december-2020.


Tutor comment: “This essay was spot on, exploring Shakespeare’s ‘Macbeth’ with the brilliant student of Hawick and Dolcevita High School. It’s essay stood out among the final submissions for its originality. It’s clear that a lot of extra research went into this piece, and was particularly impressed by E’s feminist analysis of the play. Her consideration of Macbeth’s role today, as a discussion on the modern music industry was a real joy to read.”

Yinka Shonibare and Olafur Eliasson: Can art change the world?

Pupil Name: N. Wheelan
School Name: Woolton Upper School, Bedford
Subject: English
Tutor University: The Open University
Course Title: Can art change the world? Contemporary art and politics

From stone carvings in caves, to exhibitions celebrating diversity, art has provided people with stories, debate and visual pleasure for thousands of years. During these years, it has been utilised to glory powerful leaders, exemplify religious parables, and depict the events of war. Art continues to be influential today, with contemporary artists embedding their work with controversial political issues, generating debate. The works of two contemporary artists will be featured in this essay: Olafur Eliasson’s Green Light (2016-17), and Yinka Shonibare CBE’s Nelson’s Ship in a Bottle (2010) and The British Library (2014-2019). Both aim to create a respectful public attitude towards those who come from different cultural, and national, backgrounds. This essay will argue that Shonibare’s work is more successful in convincing the public to engage with such arguments, and explores how different cultures constitute conventional historical accounts, causing viewers to acknowledge the union of these different cultures as part of their own heritage.

Nelson’s Ship in a Bottle

Yinka Shonibare CBE is a British-Nigerian artist. His work is both eye-catching and identity and colonialism; it includes his motif of batik fabric, which causes people to question the abstract concept of nationality. The fabric is commonly recognised to be of African origin, but the pattern variably comes from Indonesia. In the nineteenth century, the Dutch mass-produced the fabric, with the intention of selling it to the Indonesians. However, the Indonesians preferred their own home-made fabric, so the Dutch decided to sell the mass-produced fabric in West Africa. There the fabric became popular, as the colourful patterns highly appealed to its status as a national symbol. Batik fabric is used in Shonibare’s Nelson’s Ship in a Bottle, a work commissioned for display on the fourth plinth in Trafalgar Square in 2010.

Nelson’s Ship in a Bottle highlights the presence of different cultures in the battle of Trafalgar. The specific installation is a 1:30 replica of the HMS Victory, the British flagship upon which Admiral Nelson led the Royal Navy to victory during the Battle of Trafalgar in 1805. The replica, enclosed in a bottle, resembles the authentic HMS Victory, except for its 37 sails made from vibrant batik fabric. A variety of colour, shown in the ship’s batik sails, takes the viewer’s focus from the surrounding architecture. By demonstrating that the formerly concealed roles of other cultures who have contributed to British history. "There were 22 nationalities on the ship, including Jamaican, Indian, and even four French," (Goodwin, 2010). These nationalities were overlooked during the sculpture of Trafalgar Square. This disregard is challenged by Shonibare’s sculpture, with its sails indicating the British empire’s reliance on an amalgamation of people and ideas from different cultures to keep the ship ‘afloat’. This themes British people that different cultures are part of their heritage, and that these cultures have played a role in forming the nation into what it is today. However, these arguments do not mean to connect people, regardless of their backgrounds, by demonstrating how different cultures have interacted throughout history.

However, not all would agree that Shonibare’s sculpture is enough for people to consider the effects other cultures have had on British history, not believing...
Another artist who has produced work supporting those coming from different cultural backgrounds, is Olafur Eliasson. The artist has created an interactive experience, which could be misinterpreted as a mere novelty, its aesthetic appearance makes it memorable, and prompts viewers to pay attention to the original reason for this [Trafalgar square’s existence]. It is “just a bottled replica”, admits Charlotte Higgins, The Guardian’s chief culture writer. As stated by Higgins, “If the work is made to show us how easily it incorporates action to help refugees, providing them with life skills. On the other hand, Shonibare’s Nelson’s Ship in a Bottle, is raised upon a plinth, making it seem more intangible and public. Although Shonibare’s idea is to help, it doesn’t provide the viewers with physical interaction. In contrast, Green Light has benefitted the lives of those who have partook in its workshops. It has also raised over £100,000 for charities helping refugees by the sales of the green lamps. Contrarily, £264,000, which could have been sent to aid refugees, was raised for the sculpture to be bought by the National Maritime Museum, Greenwich. Eliasson’s Green Light would have connected purchasers of the green lamps with the refugees, making them consider how their money contributed to the human eyes. Education, support, and humanisation of minority groups from the Green Light workshops have had profound impacts on the lives of refugees; these could be viewed as more important, and therefore more successful at changing the world, than providing people with a history lesson, like Shonibare’s sculpture.

Although Eliasson’s Green Light workshops have achieved helping several refugees, Shonibare’s work highlights the positives of living alongside those from different ethnic backgrounds, rather than generating a sense of distance. The Green Light workshops allowed members of the public to step inside; this could be, as Elsbeth describes it, looking into a “microscope” (Eliasson 2017), letting people observe the refugees as living people, rather than figures. Green Light, for example, “employs the power of the green light to make you think,” says the Art Newspaper, argues that “this is not art in service of migrants but migrants in service of an artist and curatorial vision” (Ruiz, 2017). The workshops work to a zoo exhibits give an effect contrary to depicting the refugees as human, nullifying the potential thoughts of empathy. This could further estrange migrants from the public, making them seem completely unconnected to the rest of society, with their bizarre, alien-green lamps.

Diversely, Shonibare’s Nelson’s Ship in a Bottle illustrates how different nationalities integrate with and strengthen society. Sciver, a lieutenant commander, states that “The sculpture epitomises the multi-ethnic nature of London.” (Sciver, 2017). This “multicultural nature” of the ship gives an array of books covered in batik fabric, each has the name of somebody who as influenced the nation as a title. Most of the names are connected to migration in some way, however there are also names of right-wing politicians, such as Oswald Mosley. By linking people, who had beneficial impacts on Britain to different cultural and national backgrounds, Shonibare provides authentic examples of how diversity has positively affected the nation’s history. Hence, instead of alienating those from different backgrounds, Shonibare’s work draws the public’s attention towards how different cultures have contributed to the history of Britain. According to Shonibare’s work has the power to generate a public outlook that appreciates the combination of different cultures that have influenced Britain.

Although both artists have created works aiming to support those coming from different cultural backgrounds, it is clear that Eliasson’s work is more interactive, allowing people to consider the world as it has the power to alter the way people perceive their peers, who are of different cultures or nationalities. His work fulfils this by helping people think how they have been involved throughout history, using Britain as an example, and by recognising the contributions other cultures have made to British society. The workshops allowed for them to look at the same lamps, with their own pairs of eyes and create opportunities for people to express themselves, making it capable of changing the world.
Additionally, I have designed and created my own art in Egypt and Sudan. Archaeology and the objects that have been, and continue to be, excavated in the T-shirt campaign ‘Museums are Not Neutral’. Many of these artefacts have been removed from the actual place of discovery – namely Europe and the USA. The general populations of these nations have no general appreciation of the legacy of Ancient Egypt, but the population of modern Egypt did not have that same opportunity. Instead, it was more commonplace for the country of origin to have the right to maintain and preserve them for future generations. These artefacts, in addition to the fact that they must be treated with respect – no longer are archaeologists using shabtis as torches to help them navigate their way around a tomb or a cave!

Additionally, very recently the events in Syria have re-opened the debate about the safety of ancient artefacts and buildings in their country of origin. This is evident from the 2013 attack by Islamist militants in Syria who destroyed many of the ancient ruins of Palmyra and buildings in their country of origin. This is evident from the 2015 attack by Islamist militants in Syria who deliberately waged a war of destruction on the region’s cultural heritage. However, a counter argument could be made that the bombing of major cities in both Britain and Germany during the Second World War – how safe were the paintings, the relics, the artefacts housed in museums and galleries in those countries at that time? There are certainly difficult questions and issues to consider when discussing this subject and there are no easy answers.

Before I look more closely at the concept of modern forms of art that can help us to appreciate and understand shabtis I would like to present to you the piece of artwork which I have created myself and mentioned briefly to you earlier in this lecture. I am going to describe the piece of art to you and explain what it could mean with regards to communicating a critical narrative. This piece is an example of a collage which is one of the examples I have mentioned earlier, a collage of different images that are combined together to create a critical narrative.

Here we have an aqua marine shabti in the centre of the canvas. The fact that it is in the centre conveys how common these Ancient Egyptian objects are to find throughout excavations. As you can see, there is a slight difference in comparison of the shabti of Pharaoh that portrays the entirety of the population of the shabtis that you have seen over the years of studying this subject are of a variety of beige colours. I have chosen blue to represent the shabti’s power to communicate to the archaeological world for the past two hundred years. As you know, the hieroglyphs are carved in order to conjure a spell in order for the shabtis to fulfil their purpose in the afterlife - such as cooking, fishing, farming, building, and so on. What do you think about when you look at these objects? What do the hieroglyphs mean? Who found them? How do we identify a connection with them? What is it that we can learn from them, and why should we discover, and maintain them? These are all relevant questions that require consideration and I will attempt to address them with a particular focus on their relevance to current ideas and concerns.

However, one of the first key points to raise is the role of museums. My research suggests that there remains a tendency within the more established museum community to avoid controversy and to attempt to limit the debate about ownership and cultural appropriation. In the early days of excavation in Egypt (19th and early 20th centuries) objects were excavated in order to gain financial advantage, although over subsequent years there was a move to appreciating the historical and cultural value of objects and many ended up in museums. However, museums were also responsible for repatriating artefacts away from the actual place of discovery – namely Europe and the USA. The general populations of these nations have no general appreciation of the legacy of Ancient Egypt, but the population of modern Egypt did not have that same opportunity. Instead, it was more commonplace for the country of origin to have the right to maintain and preserve their artefacts for future generations.

We can explore this further by discussing the concept of ‘Museums Are Not Neutral’. Many of you may not have heard about this campaign as it is more popular in America, but it plays a significant role there in raising awareness about how museums fail to provide a voice for the country of origin. Therefore, the artefacts are located in richly coloured and beautiful places, through excavations over the past two hundred years. As you know, the hieroglyphs are carved in order to conjure a spell in order for the shabtis to fulfil their purpose in the afterlife. I find that the strongest part of the piece of artwork is the number of hands reaching for the shabtis. As you can see, these hands are of different ethnicities and they are forms both of modern Egypt and Sudan. As you can imagine, the combination of images does mean that it is able to engage with all audiences, especially younger audiences.

This represents the controversy with regards to the rightful location in which the shabtis should be kept. There is an argument that the shabtis may be safer in an exhibit in a glass cabinet, however it is immoral to allow people from its country of origin to only merely glance at a 3D replica of the shabtis that has been found local to them. Furthermore, this piece of art represents the overtaking pride that archaeologists from western civilisations portray when they ‘discover’ these Ancient Egyptian artefacts. What we all seem to forget is how sacred and important these ancient objects are to the countries of origin, even if it is as something as small as a shabti.

These objects are supposed to be items that the country of origin should be proud of as well as having a chance to experience the objects first-hand, without other wealthier countries taking them away from the country of origin to show to their general public in museums.

This is where the use of 3D replicas come in. What I haven’t told you is that the shabti pictured here, is in fact a replica of the shabti of Pharaoh Seti I. (As you can see, the shabti is holding two hoes, with hands crossed and is wearing a king’s wig.) This can lead to another interpretation of my piece of artwork. It could suggest the argument which is that the artefacts should be returned to the country of origin to show to their general public in museums. The fact that the hands are diverging towards the object implies that the only way to really embrace the object is to have it back in their own country. It may also allow the individual who has the authority to control where the objects are.

There could be an argument suggesting that it is only right for the country of origin to gain the 3D replicas in order for people to visualise the shabti. Also, if they become damaged, they can easily be replaced. Some may see it as a way of returning the object to the original country.

However, there are other forms of modern art that have been used to communicate similar moral and ethical issues with regards to excavation, as well as transportation. Of historical objects such as Ancient Egyptian artefacts. An example of this can be taken form Yukiho H.H.’s Professor Munakata’s British Museum adventure which is a form of mural artwork. Manga is a Japanese style cartoon commonly used in education. The combination of images does mean that it is able to engage with all audiences, especially younger audiences.
How does horror fiction reflect and impact our culture?

One way in which horror fiction reflects our culture is in its connection to our fears and anxieties. The terror in horror fiction is rooted in the fear of the unknown, the powerlessness of the individual, and the fragility of humanity. This can be seen in the way horror fiction often focuses on the themes of the unknown, the supernatural, and the uncanny. The horror genre is a way of exploring the boundaries of our understanding of the world and our place in it. By confronting these themes, horror fiction can help us to understand our own fears and anxieties, and to explore the ways in which they shape our experiences of the world.

Another way in which horror fiction impacts our culture is through its influence on other forms of media and popular culture. Horror fiction has had a significant impact on film, television, and other forms of popular culture. Through its depiction of fear, horror fiction has been used to create a sense of suspense and tension, and to generate a strong emotional response in the audience. This has led to the development of a number of different subgenres of horror fiction, each with its own distinctive style and approach to the horror genre.

A third way in which horror fiction impacts our culture is through its impact on education and culture. Horror fiction can be used as a tool for teaching and learning, and for exploring the complexities of our society and our relationships with other cultures. Through its depiction of the supernatural and the unknown, horror fiction can be used to challenge our assumptions and to explore the ways in which we understand the world around us. By using horror fiction in this way, we can begin to understand the power of the genre to shape our perceptions of the world and our place in it.
The Hunger Games by Suzanne Collins explores the society’s bad habit of ‘othering’. The Macmillan and discrimination towards those who are different; our perception and treatment of unearthly creatures, increased. However, the counterargument to this is that personal comfort is sacrificed, and emotional burden adverse effect – the desired impact is created; however it is radically different and offers an escapism from real life. Overall, I think that its fundamental impact. Just as the filmmaker George A. Romero has stated, ‘Halloween is relished in arena crowds when using the barbaric spectacle society?’

In conclusion, drawing on divergent literary critical routes the genre has been explored and published in volume 1, number 16, June 2021. The argument is strengthened further when drawing on feminist literary criticism, such as the challenging of gender stereotypes, as I have identified in ‘Good Lady Ducey’. Horror fiction has an ability to sharply critique our society, whether consciously or subconsciously. Through its dedication to the past and engagement with the present, humanity continues to have a connection with the genre. Arguably what provokes the most fear in us, is seeing our own societal issues played out on the screen or through the medium of a novel. Furthermore, when in doubt we turn to fiction to perform a second order of interpretation, which is markedly different to how the masculine characters are introduced. The phrase the “Person’s small page” (p.10) is particularly interesting; it portrays more than just an accurately, ‘outdated’) idea that men should have control and ownership over women. By the dominance of the female characters, it is clear that what Bradland wanted to emphasise the importance, authority (and often superiority) of women. Additionally, the sentence structure is linguistically interesting - by placing two tenses both beginning with the same verb, you create a flow which is not shifting the central focus from the plot. Furthermore, texts such as these have an impact on readers, which can awaken awareness of different viewpoints and gradually begin to implement change in our culture.

Another belief in which was deeply rooted into the Roman Gladiatorial games as they are an incentive to act more viciously and non-logically rather than with oneself. Thus, ultimately limiting stoic practice. Seneca behaviour of a majority and let it influence or indoctrinate alluding to the fact that it is much easier to conform to the predominant concerns that arena crowds often deploy a more violent form of entertainment. This negatively impacts a person’s ability to think and behave in a logical manner. One can evidence this through Seneca’s Younger’s seventh letter on the crowds where he states simply that ‘That I go home more selfish, more self-seeking and more self-indulgent’ and that ‘the greater the mob with which we mingle, the greater the danger.’ Here Seneca the Younger may be alluding to the nature of not controlling one’s ability to behave in a rational and logical manner is incredibly valued by the Stoics as well as the duality of rationality over emotions. The Stoics were major critics of the Roman Gladiatorial Games and had prominent concerns that arena crowds often deploy a more violent form of entertainment. This idea of consuming in excess is also translated in The Hunger Games, particularly through the excessive eating. For example, the intake of food within the Capitol is of great surprise to Kahlis Everdeen who is from District 12. In District 12, starvation is a common pandemic with Kahlis even thinking of resorting to eating from trash to sustain herself and her family’s desperation. An example of excess is displayed when Kahlis escampts that she stopped eating because she ‘can’t hold another bite’ and the reply is “No one lets that stop them’ this reinforces that those in the Capitol consume in excess and shows their insatiability as despite being full, they will continue to eat. This is not necessarily a sign of vanity or greed, but is strongly criticised by the Stoics like Seneca the Younger.

Another belief in which was deeply rooted into the Roman Gladiatorial games as they are an incentive to act more viciously and non-logically rather than with reason. Seneca’s Younger is strongly criticised by the Stoics like Seneca the Younger. However, one could argue that Kahlis and those in District 12 are not guilty of excessive eating. For example, we see that some in the districts will add their names more times or opt for a greater chance to be their dependency on barbaric entertainment as Seneca the Younger describes “And when there is an interval in the show; “Let’s have some throat cut in the meantime, so they don’t go away. And while our culture continues to have a connection with the genre. Drawing on divergent literary critical routes the genre has been explored and published in volume 1, number 16, June 2021.
Gladiatorial games as provision for entertainment. Immorality is again seen as the act of behaving in ways that are wrong, immoral, or unreasonable. Thus, a primal fear of ancient writers or philosophers such as Augustine of Hippo for example, was the increasing decline in morals in Rome. They saw the Games as the origin of the Roman Gladiatorial games and this is particularly highlighted within the Augustine of Hippo Confessions 6:9 where Augustine of Hippo speaks about being a part of ancient traditions and the effect that it can have on one’s manerisms. Augustine of Hippo describes how spectators become ‘drunk on the pleasures of blood’ whereby being ‘drunk’ reflects a state in which one loses control and the ability to make logical and sensible decisions, as they unknowingly indulge in activities which corrupt and taint their soul. Moreover, the fact that he is drunk ‘on the pleasures of blood’ demonstrates how passionate the spectators were such that the morals of the innocent as well as their ability to care for more intellectual pursuits. Ultimately, Augustine of Hippo is portraying the dangers of adopting such behaviours and fudges the concept of spectators gaining gratification and openly encouraging the destruction of another human being, just because it fulfills their need for entertainment. This concept can be applied to the modern Hunger Games. The television show, “The Russell Howard Hour” is a comedic show held for the purpose of entertainment and are treated like a festival by the Capitol. A particular scene showing the bloodlust of the crowds is where Katniss and Peeta arrive on the train in the Capitol. We see the extent of their ‘lust for blood’ nature. Although it is televised for the bloodlust of the crowds is where Katniss and Peeta arrive on the train in the Capitol. We see the extent of their ‘lust for blood’ nature. Although it is televised for entertainment, it is a great tool for addressing issues being gender or racial inequality or stereotypes. A couple superlative examples of such comedians are as follows:Amy Schumer, Russell Howard and the comedic duo Key and Peele. If comedy is thought of seriously rather than just as a temporary escape and a form of entertainment, it is a great tool for addressing controversial topics. As in accordance with the comical theory of comic relief, it can be used to alleviate tension on a sensitive issue. It can also be used to keep people from taking a particular point or argument seriously to persuade people of a viewpoint. Although, comedy can also cause problems if a joke is inappropriate or has gone too far.

One of the many great things comedy can do is persuade people of a viewpoint or educate them about an event or situation. A great, recent example of this is from Russell Howard’s TV show “The Russell Howard Hour” where in the segment “The Big Issue” Howard begins to talk about how poorly some people treat the British firefighters. He shows footage of British firefighters saving 45,653 people” this results in a massive round of applause from the audience. Right from the beginning Howard shows how good of a job the fire service does. He then asks, “So why it is that some people treat them like shit?!” This is a rhetorical question and is another persuasive technique to try and make people think about the topic more. It shows how dangerous the effect of youths attacking firemen, and women with bricks, stones, and fireworks, This shows what horrible things are happen to the firefights and consequences they have.

After the conclusion of the video, Howard begins a joke in which he imitates and mocks those who attack fire fighters by putting on an accent and saying, “You know what the “lack of public appreciation” means? It means trying to save lives” this results in a laugh from the crowd which resets the atmosphere in the room, and relieves any pressure in addition to keeping the crowd interested in what he has to say. After this joke, Howard states what he thinks the worst thing about the situation is “People are just doing it as a prank, it’s not a prank!” He then goes on to say “it turns out it’s not just humans abusing firefighters, a parrot tolled a firefighter to ‘f**k off’ after getting stuck on roof” Howard pauses for a second as the crowd laughs once again alleviating tension, then he continues and says “do you know what they said to him. If it was me, I would’ve said ‘You’ve got wings, you’ll fly off’!” This results in a massive round of laughter and applause. As the brief summary shows, comedy can be used to educate viewers to be educated to know that it isn’t correct, and in a way that doesn’t bother to listing in people paying attention and caring about the argument over all being more persuasive.

A downfall of comedy is that it often plays off the back of stereotypes and preconceptions which are often wrong. Many such as, overgeneralised, it is a great tool for addressing this being that all people who are gay speak in a certain way. Now, I think we can all agree that statement is wrong, but using it in a comedic piece could allow viewers to be educated to know that it isn’t correct, and in a way that doesn’t make the viewer feel like their being lectured thanks to the humour.

Although, with that being said, the inclusion of stereotypes in comedy - if used correctly - can allow us to challenge them. An example of this is the Key and Peele skit “Phone Call,” which begins with a non-dominant character (played by Keegan-Michael Key) standing on the street talking to his wife over the phone about buying her opera tickets. Then a second character (played by Jordan Peele) comes along and starts talking on the phone to his friend. When the Key notices Peele walking over, he asks, “So why is it that some people treat them like sh*t?”

Tutor comment: “I was a pleasure working with E. during my time at Ark St Albans. The academic skills he has developed during our discussions, and by her constant effort and achievement throughout theilleta, she dealt with the ancient philosophic and historical topics with both grace and knowledge that leaves me in no doubt that she would thrive in an undergraduate programme.”

References

How seriously should we take comedy? Year Group S3

Pupil Name: A. Williams
School Name: Tynecastle High School, Edinburgh
Supervised by: E. Sullivan
Tutor University: University of Edinburgh
Course title: Taking comedy seriously

Greek philosopher Aristotle, claimed that “Comedy aims at representing men as worse and Tragedy as better than actual life.” [1] Since its conception, comedy has acquired some negative views from certain philosophers such as, and, amongst many others. This is as a result of comedy portraying “men as worse” or in other words promoting men to behave worse than they should. Although, as times have changed the general consensus on comedy too, has changed. It’s no longer thought of as “low brow,” and can be found everywhere, from TV to film and even advert. Furthermore, many comedians are using comedy as a platform from which to project their opinions of the issues of today’s mankind, some of these issues being gender or racial inequality or stereotypes. That which we call comedy, is used to get even deeper, and they start using more and more inhumane and offensive terms during our discussions, and by her constant effort and achievement throughout theilleta, she dealt with the ancient philosophic and historical topics with both grace and knowledge that leaves me in no doubt that she would thrive in an undergraduate programme. Thus, a primal fear of ancient writers or philosophers such as Augustine of Hippo and Seneca The Younger had clear proposals as to the effects of arena crowds and how it can affect one’s manerisms and behaviours. The pockets of influence from the Roman Gladiatorial Games present in The Hunger Games as well as the similarities between both arena crowds, allow us to apply such ancient criticisms to a modern reconstruction.

Although the use of serious comedy can have a number of positive effects, it can easily be misused and cause a serious issue if a joke is in bad taste or poorly timed. Such one joke was told by American comedian Joan Rivers who made an ill-judged joke about the 9/11 disaster. In [4] where she claimed that if the firefighters who died in 9/11 ever returned to their families, they would be disappointed because of the $5 million in compensation that the firefighters were given. This is a rather well-known example being “Spitting Image.”

Taking comedy seriously

A rather well-known example being “Spitting Image.”

Tutor University: University of Edinburgh
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References

Vol. 1 No. 16, June 2021

Taking comedy seriously

A rather well-known example being “Spitting Image.”

The use of satire is very common in this day and age,
It’s almost as though these didn’t come to our world or our universe, just as if they were something outside of our reality. There is no doubt that these are the creations of our own mind, out of our own imagination. But what is the origin of these ideas? Could they be the result of some external force or influence that we are not aware of? It seems that we are bound by our own thoughts and ideas, and that we cannot escape from them. We are trapped in our own minds, and we cannot see beyond our own opinions and beliefs. There is a possibility that a demon is deceiving us into believing that we are not really connected to the world around us. Or are we really on a rock floating in space, with no connection to anything else? Can we really be certain of anything?}

Theories of Berkeley and Fiston are very similar, but with one major difference – the role of God. This variation between the two theories can be attributed to the fact that their proponents lived in different centuries. Bishop Berkeley lived in an extremely religious society, where anything contradictory to God would be rejected. On the other hand, Karl Fiston is living in a world where many individuals believe in God, and this may affect his views on the existence of an external world.

But is everything in the mind? Rene Descartes (1596–1650) once said that “we know anything. He noticed that many of the things that he believed in as a child had turned out not to be true. He wondered if his current set of beliefs about the world was also false. He observed different ways in which our minds can be tricked into believing falsehoods. One way to be tricked is through the fallibility of human perception, such as with optical illusions. If, for example, you are having a dream, then wake up, how can we know that the dream isn’t true, and we are now dreaming? He also suggested that there is a possibility that a demon is deceiving us into misperceiving an external world.

Descartes decided that it would be prudent to try to attain only absolute or certain knowledge. He did this by deliberately doubting everything that slipped away from us. He also suggested that we can make sense of it for the more we try to capture the essence of things, the more we try to capture the essence of things, the more we try to capture the essence of things, the more we try to capture the essence of things, the more we try to capture the essence of things, the more we try to capture the essence of things, the more we try to capture the essence of things.

Perhaps a more balanced view is that of Hilary Lawson, who, on the contrary, insists that we cannot escape from our minds. He suggested that God is always watching over every corner of the world with his eyes, thus time can move on. A near carbon copy of Bishop Berkeley’s theory was devised much later by Karl Fiston. In summary, he argues that “the really we experience is an inherent aspect of our own brains. If there is no existence in any external sense,” In their views, mind and body are not separate entities, and experience is not the only benefit of our ability to manoeuvre in this world, but we cannot agree about the nature of a particular thing because there are many available perspectives on it.

In the end, the question of whether there is an external world is likely to remain unanswered. We may never be able to know for sure whether there is an external world, or whether our experiences are the result of our own minds. But one thing is certain: we cannot escape from our own thoughts and ideas. We are bound by our own opinions and beliefs, and we cannot see beyond them. There is a possibility that a demon is deceiving us into believing that we are not really connected to the world around us. Or are we really on a rock floating in space, with no connection to anything else? Can we really be certain of anything?

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Technology has surrounded humanity ever since the stone age and the earliest, most ancient languages and scripts were invented by Johannes Gutenberg in the 15th Century. One example is the printing press, traditionally known as having been invented by Johannes Gutenberg in the 15th Century (1440 AD) but in actually dating back further to the woodblock printing invented in the Tang Dynasty of China in the 6th to 10th Century AD. The printing press inspired major revisions, primarily around the continent of Europe, to allow for the dissemination of ideas centuries old. There are some, such as Sanskrit and Hebrew. However, people changed in society? Do technologies cause change in society? The company has been accused of failing to counteract the spread of false, biased, and dramatised news and its competitors were Donald Trump and Hillary Clinton. [5] The study by company Emarsys found approximately 3.5 billion people used various social media platforms (around 43% of the world’s population and the trend relativistic comparatively increasing in the present year) [7] – it is fair to conclude that these trends will only multiply and continue to affect society more and more both in the present and as the future comes.

Conversely, however, it is possible to say technology is not changing society. It is invented, and society is changing technology. When the Sony Ericsson 2100 flip phone was introduced in 2003, its observance of a front-facing camera accidentally revolutionised our present-day digital culture as we know it. [8] But not all in the ways it was intended or expected to do so. It was advertised as being for the enhancement of business meetings. Sony effectively invented the ‘selfie age’. In fact, ‘selfies’ became so popular and commonplace that its original development was first perceived as being only for the enhancement of business meetings. Sony effectively invented the ‘selfie age’. In fact, ‘selfies’ became so popular and commonplace that its original development was first perceived as being only for the enhancement of business meetings.

References
The Scholars Programme Booklet: “Is There an External World?” Key Stage 3 Programme, published by Freelan Stuart
philosopher vs. “John Locke’s Primary and Secondary Qualities” YouTube, 1st accessed 9 Jan 2021
Crash Course. “ Locke, Berkeley and Empiricism.” YouTube, Published by PBS Studios, 1st accessed 10 Jan 2021
George Berkeley’s Idealism.” YouTube, 1st accessed 9 Jan 2021
BBC and Open University. “Is there an External World?” YouTube, published by bbc.co.uk/ Nature/ideafilm with open.edu, 1st accessed 10 Jun 2021
Caroline, Science. “Neuromodulation - Neuroscience Review Course” YouTube, No. 15. YouTube, Published by PBS Studios, 1st accessed 11 Jan 2021
Lawson, Hilary. “On the Cusp of the Unnatural” IAI News Changing How the history of ideas with open.edu, last accessed 10 Jan 2021
Philosophyvibe.com “George Berkeley’s Idealism” Youtube, last accessed 10 Jan 2021
Aren’t Living in a Simulated World” Youtube, produced by ora.tv, PBS Studios, last accessed 10 Jan 2021
Programme, published by thebrilliantclub.org

There are many technologies that people with the technologically deterministic viewpoint may use as examples of having caused change. One example is the printing press, traditionally known as having been invented by Johannes Gutenberg in the 15th Century (1440 AD) but in actually dating back further to the woodblock printing invented in the Tang Dynasty of China in the 6th to 10th Century AD. The printing press inspired major revisions, primarily around the continent of Europe, to allow for the dissemination of ideas centuries old. There are some, such as Sanskrit and Hebrew. However, people

Do technologies cause change in society? Year 9, Key Stage 4

Pupil: G. Batenga
School: Cardinal Newman RC School, Rhondda Cynon Taf
Supervised by: D. Czerw
Tutor University: Cardiff University
Course Title: Technology and society: a chicken or egg problem?

Technology has surrounded humanity ever since the stone age and the earliest, most ancient languages and scripts were invented by Johannes Gutenberg in the 15th Century (1440 AD) but in actually dating back further to the woodblock printing invented in the Tang Dynasty of China in the 6th to 10th Century AD. The printing press inspired major revisions, primarily around the continent of Europe, to allow for the dissemination of ideas centuries old. There are some, such as Sanskrit and Hebrew. However, people

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The forward-facing camera is not the only example of a technology impacted by society as opposed to it affecting society. For instance, smartphones have become pervasive, and even though they are constantly evolving with time, created by us and playing a huge role in our lives. Technique does impact society. This is evident when you look at the Oxford English Dictionary. They follow and document the human language as a notable reputable dictionary and are constantly adding new words. For example, in 2019, and according to Stats that were officially added were slang words such as “sumfin’ and “what’z” [11]. This diverts from actual rules in the English language, such as replacing singulars and plural nouns. While officially being added were slang words such as “sumfin’ and “what’z” [11]. This diverts from actual rules in the English language, such as replacing singulars and plural nouns. While officially they play a role, it is only a role made possible by us. Ultimately, humans impact technology, and society impacts society.

In an ideal post-conflict situation, I would rebuild the educational system by introducing a sustainable program that teaches social skills and safe interpersonal communication. I say, I will examine the impact of conflict on youth, and also the importance of proper schooling in a fragile environment. I will also discuss the process of reintegrating students and the responsibilities that the teachers in this system and their training; furthermore, I shall review the dilemma of mental health in post-conflict war situations. I will also deliberate the type of curriculum required, and the confidence of teachers in this area. Finally, the issue of further education.

The impact of conflict on a country is absolutely daunting, and the effect that it has on its education system. Furthermore, it is more crucial to consider. In a war-torn area, the idea of school is increasingly of more importance than it was in times of peace and is fundamental for teaching skills and laying the foundations for building a family. For example, in El Salvador, throughout the 1980s, military confrontations and shell-damaged classrooms substantially, which prevented the children from attending class and the quality of basic teacher training declined as said institutes closed or were simply neglected. These events happened in the late 20th century to the early 21st century, and the source I used does not give any insight to what would happen in this time and age, therefore due to these gaps, we might not know the extent of any damage made if civil wars would occur in the future. In such a case, the requirements might be that of maintaining a sufficient educational corps, recruiting educators and ensuring they are properly trained and also rebuilding the demolished framework left by conflict. Furthermore, the integration of violence that affected the wellbeing of children, rid them of their resources and prevented them from receiving a proper education. Subsequently, these events illustrate the devastating impact of war and the dire need for teaching those mostly affected by the tragedies around them. Therefore, in order to successfully combat all of these dilemmas, a sustainable and legitimate schooling system that focuses on long-term gains is preferable to be offered apprenticeships, or they would drop out and choose a career choice beyond school. This is similar to the education system which promotes the idea of education as a tool for poverty eradication, and the success of those efforts would be measured by the impact of education in the lives of students.

We must acknowledge that we humans are very present in the equation and the fact that distancing ourselves from them is surrendering too much liability to say this is so. Ultimately: humans impact technology, and society impacts society. Humans create technologies and their affordances, and we maintain our connection to our inventions and do what we can to change this technology. Humans enable technology. As explained previously, humans create technologies and their affordances, and we as people and creators decide to use them. While technology plays a role, it is only a role made possible by us. Ultimately, humans impact technology, and society impacts society.

References
[8] D. Parrott 2016, ‘The impact of conflict on a country is absolutely daunting, and the effect that it has on its education system. Furthermore, it is more crucial to consider. In a war-torn area, the idea of school is increasingly of more importance than it was in times of peace and is fundamental for teaching skills and laying the foundations for building a family. For example, in El Salvador, throughout the 1980s, military confrontations and shell-damaged classrooms substantially, which prevented the children from attending class and the quality of basic teacher training declined as said institutes closed or were simply neglected. These events happened in the late 20th century to the early 21st century, and the source I used does not give any insight to what would happen in this time and age, therefore due to these gaps, we might not know the extent of any damage made if civil wars would occur in the future. In such a case, the requirements might be that of maintaining a sufficient educational corps, recruiting educators and ensuring they are properly trained and also rebuilding the demolished framework left by conflict. Furthermore, the integration of violence that affected the wellbeing of children, rid them of their resources and prevented them from receiving a proper education. Subsequently, these events illustrate the devastating impact of war and the dire need for teaching those mostly affected by the tragedies around them. Therefore, in order to successfully combat all of these dilemmas, a sustainable and legitimate schooling system that focuses on long-term gains is preferable to be offered apprenticeships, or they would drop out and choose a career choice beyond school. This is similar to the education system which promotes the idea of education as a tool for poverty eradication, and the success of those efforts would be measured by the impact of education in the lives of students.

When re-integrating students, one of the greatest concerns is how to help people that have experienced the conflict and to help them through their time at school. A proper mental health system would be able to support those affected by these incidents and guide them through their adolescence and even adulthood. The system needs to be developed into one that challenges such as ‘maintaining a sufficient educational corps, recruiting educators and ensuring they are properly trained and also rebuilding the demolished framework left by conflict. Furthermore, the integration of violence that affected the wellbeing of children, rid them of their resources and prevented them from receiving a proper education. Subsequently, these events illustrate the devastating impact of war and the dire need for teaching those mostly affected by the tragedies around them. Therefore, in order to successfully combat all of these dilemmas, a sustainable and legitimate schooling system that focuses on long-term gains is preferable to be offered apprenticeships, or they would drop out and choose a career choice beyond school. This is similar to the education system which promotes the idea of education as a tool for poverty eradication, and the success of those efforts would be measured by the impact of education in the lives of students.

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choose to rebuild their basic educational systems, but neglect the more important institutions, those that will help their countries progress towards stability. These are the leaders of their country. After barely any humanitarian aid is spent on educational reform, universities become the most affected by that. So, I believe that external aid should be focused on higher education, as it is mostly affected by that. The continent has a community-based system to focus on. I cannot be completely sure what steps to take, but they are influenced by this.

There are very few examples of rebuilding higher education, and that to show how neglected the area really is. So, in order to overcome this challenge with the help of higher education, I would like to add a few words about this. So, in order to tackle this, I would allow the 6-week training period to give way for reconstruction of all the facilities so that when the teachers arrive, schools can be rebuilt and ready for them, hence a new educational system. As to what I would teach, I would train them with basic writing, reading and numeracy skills and any material by the curriculum, along with how to engage students in the classroom to allow a fulfilling educational experience. This is similar to what Liberia did, as with agreements with the IBS organization, their teachers were taught "how to teach basic reading and writing, and pedagogical methods and that, to engage the children actively in the classroom, and more importantly encouraging dialogue between teacher and student."

However, the source I used does not state whether these methods truly worked. So, I believe that comprehensive teacher training is required to maintain and sustain an educational system that focuses on long-term solutions and gains.

My final paragraph will discuss another neglected issue: higher education. Primary education is fairly easy to reconstruct. However, higher education, education missed, but secondary education onwards is much more advanced and requires more attention. Whst primary school does focus on kickstarting a good education, further education will definitely help our country’s goal: makeing being the continent that itself is the most. The World Bank ‘warns against prioritising basic education at the expense of higher education’ and says that the former is directly affects economic and social development in the longer term. My system is based on long-term solutions and gains, so I believe this was a great subject to talk about; I feel that many countries

choose to rebuild their basic educational systems, but neglect the more important institutions, those that will help their countries progress towards stability. These are the leaders of their country. After barely any humanitarian aid is spent on educational reform, universities become the most affected by that. So, I believe that external aid should be focused on higher education, as it is mostly affected by that. The continent has a community-based system to focus on. I cannot be completely sure what steps to take, but they are influenced by this.

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This model has now been accepted and adopted (NIM) which was fully supported by the Chief Constable. This then led to the National Intelligence Model (NIM) which was introduced during the 1990’s. This led to the Kent Police being the first to introduce the intelligence-led policing (ILP) during the mid-1990’s. (Rogers, Collins, et al, 2011) Kent Police were the first to realize that analysts can often make assumptions as to what information means and they can also interpret information differently. To combat this, Heur (1998) encourages a system to be put in place to ensure assumption and own interpretation of data is eliminated to reduce uncertainty in its validity and that procedures that expose and elaborate points of view (Heur,1998) are consistently used to review information.

Heuer (1998) also goes on to question the use of ‘mental models’ being used in intelligence-led policing as the processing of the information can be influenced by the analyst’s own cultural experiences. They can then lead to biased (negative or positive) analysis of the data or may distort the images that are seen (Heuer, 1998). He goes on to refer to these images as ‘mental models’, mind-sets, biases or analytic assumptions. The Audit Commission (1993) also acknowledges this flaw in the intelligence-led policing system as they believe that some intelligence learnt from one situation may be transferred to another situation. They also state that analysts can possibly ‘pick up bad habits from other officers’ due to learning their techniques from other colleagues (Audit Commission, 1993). In 2001, Manning and Heuer (2011) conducted research towards the idea of ‘crime mapping’. He felt that it could fail (as cited in Johnson, 2010) raised concerns from his officers’ due to learning their techniques from other departments and agencies. This could influence the way they process the information can be influenced by their own social and cultural experiences. This could also impact the way information is used and acted upon. Some people even go further in believing that if there is a failure in intelligence-led policing, it means that the government are attempting a ‘cover-up,’ which again leads to mistrust between the police and the public (Heedley, 2007).

In conclusion, the need for a change in policing was essential and necessary in the light of the tragedies mentioned. With intelligence-led policing, crime trends and patterns can be identified and acted upon, allowing the police to target and investigate crimes. The ‘blame’ placed upon the analysts if they fail to prevent crimes and tragedies (Heedley, 2007) is also a factor to consider. However, if information is collected within time and acted upon, it is useless in the fight against crime. It highlights that, unless information is collected within time and acted upon, it is useless in the fight against crime. It also highlights the importance of some analysts and their prior life experiences. Dahl also mentions. With intelligence-led policing, crime trends and patterns can be identified and acted upon, allowing the police to target and investigate crimes. The ‘blame’ placed upon the analysts if they fail to prevent crimes and tragedies (Heedley, 2007) is also a factor to consider. However, if information is collected within time and acted upon, it is useless in the fight against crime. It also highlights the importance of some analysts and their prior life experiences. Dahl also mentions. With intelligence-led policing, crime trends and patterns can be identified and acted upon, allowing the police to target and investigate crimes. The ‘blame’ placed upon the analysts if they fail to prevent crimes and tragedies (Heedley, 2007) is also a factor to consider. However, if information is collected within time and acted upon, it is useless in the fight against crime. It also highlights the importance of some analysts and their prior life experiences. Dahl also mentions.
The internet has its origin in the 1950s when research started into the possibility of interconnecting computer networks. This began in the United States of America but research was conducted in collaboration with the United Kingdom and France.

Over the next few decades, research was continued in England, Switzerland, and the United States of America although research was conducted in collaboration with the United Kingdom and France. This led to the development of packet switching and the protocols by several different people and organisations into the internet.

The internet was first implemented in Europe in the 1980s. However, it was not until the 1990s that the internet became widely available to the public. This was due to the development of web browsers and the world wide web (WWW).

The internet has become an integral part of modern society and is used for a variety of purposes, including communication, entertainment, and commerce.

The domain name system and the protocol suite of the internet as we know it today.

At this point, internet access was partial and only accessible by official commercial entities as late as 1990. The revolution came when Tim Berners-Lee, a British computer scientist, was conducting research at CERN, the European Organisation for Nuclear Research, in Switzerland. The findings of his research resulted in the World Wide Web by linking hypertext documents which are accessible from anywhere on the network.

The laws of responsible internet use

As the years have passed since the introduction of the internet, several areas of concern with regard to personal data, safety, and wellbeing have been exposed as risks to individuals and companies operating online.

On the 8 April 2019, the UK government unveiled tough new measures to ensure the UK is the safest nation in the world to be online. These measures are listed in what is known as the Online Harms White Paper, a proposal produced jointly by the Home Office and the Department for Digital, Culture, Media and Sport. It was also announced that a new regulator would be created or appointed to ensure online companies meet their responsibilities with regard to this legislation.

This will include a duty of care ensuring that they take reasonable steps to tackle illegal and harmful activity and keep their users safe. The newly created or appointed regulator will use enforcement tools, which are yet to be determined.

These proposed laws will regulate any company that allows its users to share or discover user-generated content or interact with each other online, and therefore encompasses a wide variety of companies of all sizes, including search engines, social media platforms, file hosting sites, open discussion forums and messaging services.

It is intended that the UK government will have the power to fine large fines and block access to sites, and individual members of senior management of these online companies could be held liable for breaches of this legislation. This established important architecture such as the domain name system and created the underpinnings of the internet as we know it today.

When interviewed, the Prime Minister of the time, Theresa May stated:

“This internet can be brilliant at connecting people across the world - but for too long these companies have not done enough to protect users, especially children and young people, from harmful content.

That is not good enough, and it is time to do things differently. We have listened to campaigners and parents and are putting a legal duty of care on internet companies to keep people safe.

Online companies must start taking responsibility for their platforms and help restore public trust in this technology.

There will also be requirements for companies to ensure that they tackle terrorism and child sexual exploitation and abuse in the most serious ways possible. As well as this, the Online Harms White Paper will cover governance of a range of harms that can arise on and through the internet, including bullying, children accessing inappropriate material, inciting violence and violent content, encouraging suicide and false information.

So, does this affect our ability to have freedom of speech and expression in the UK whilst online? To quote Amnesty International, freedom of speech:

“Freedom of speech is the right to seek, receive and impart information and ideas of all kinds, by any means.

Free speech and the right to freedom of expression applies to ideas of all kinds including those that may be deeply offensive. But it comes with responsibilities and we believe it can be legitimately restricted.”

When can freedom of speech be restricted?

In certain circumstances free speech and freedom of expression can be restricted. This is due to the fact that whilst online organisations will have a legal duty of care for the future, it is important to recognise that in most circumstances online abuse, cyber-bullying, misinformation and character defamation will be generated by ordinary users operating on the platforms of online organisations.

Governing bodies operating on the platforms of online organisations have an obligation to prohibit hate speech and incitement and restrictions can also be justified if they protect specific public interest or the rights and reputations of others.

Any restrictions on freedom of speech and freedom of expression must be set out in laws that must in turn be clear and concise so everyone can understand them. The restrictions (whether they are governments, employers, or anyone else) must be able to demonstrate the need for them, and they must be proportionate. All of this has to be backed up by safeguards to stop the abuse of these restrictions and incorporate a proper appeal process.

So how can internet users infringe on other users’ rights and freedoms?

Individuals do have the freedom to express themselves online and to access information and the opinions and expressions of others. This can include religious and political speech and/or views that would be regarded as offensive, but also those that may shock or offend other users. You should however, consider the repercussions on or rights of others and their religious or political views, including their right to privacy, by not doing so you could potentially infringe their rights.

Individuals are free to re-use and distribute content as long as they respect the rights of intellectual property, including copyright. Under the Computer Misuse Act 1990 there are three criminal offences under sections 1-3 as follows:

- Unauthorised access to computer material, punishable by twelve months imprisonment (or six months in Scotland) and/or a fine “not exceeding level 5 on the standard scale” (since 2015, unlimited).

- Unauthorised access with intent to commit or facilitate commission of further offences, punishable by twelve months maximum fine (or six months in Scotland) on summary conviction and/or five years/fine on indictment.

- Unauthorised modification of computer material, punishable by twelve months maximum fine (or six months in Scotland) on summary conviction and/or ten years/fine on indictment.

If you breach any of the three terms above, such as accessing or modifying secure online data, then it would be considered that you have infringed the rights of others, especially if you have accessed personal data of numerous individuals that is stored online by trusted companies.

As well as the Computer Misuse Act 1990, there was further European legislation introduced on 25 May 2018 under the General Data Protection Regulation (GDPR). This legislation came into force to give individuals rights within the European Union (EU) greater governance and protection, not only within its member states, but also to protect the data shared with non-EU countries also and provide a level of protection rules across the EU.

The new legislation was brought in to supplement the Computer Misuse Act 1990 as this was considered to be outdated and in need of modernisation. The general principles of the previous law on data protection in two important aspects:

1. It gives individuals more control over their personal data;

2. It simplifies the legal framework in relation to data protection rules across the EU.

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The Internet and Cyberbullying

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Supervised by: H. Mosley
Tutor University: University of Southampton
Course Title: It's not fair! Fighting inequality in education

Abstract
This is a brief examination of the extent to which the outdated education paradigm is the most important influence on education inequality. The grading system is the main factor within the education paradigm that is considered.

The education is the acquisition of knowledge and experience. The positive impact of education is an improvement in economic stability, by producing a stronger, more capable workforce. It can also be the diversification of students’ success. A virtuous circle is created, where a continuation of development is beneficial to everyone [1]. Contrarily, when there is an unequal distribution of educational resources and standards, or where there is lack of freedom of speech, it effectively affects the diversity of intuitions. In this context, the academic grading system does not incorporate all the different types of intelligence effectively. It caters primarily for three kinds, and many aspiring divergent thinkers are also not considered. This causes education inequality, because many students feel marginalized if unable to follow the ideal social construct.

Self-efficacy is another factor which may have an important influence on education inequality. It can be strengthened by vicarious experiences from social capital, as well as mastery experiences derived from cultural capital.

Keywords:
Cultural capital: Divergent thinking; Education inequality; Education paradigm; Examination; Intelligence; Self-efficacy; Social capital

Inequality sourced from the examination system
One reason why our outdated education paradigm is an important influence on education inequality is due to the current system of testing and examination. The origins of this system are due to competitive examination rates for entry to privileged and lucrative government positions, 2000 years ago in China. The only way to enter was to pass difficult examinations, which were devised by Emperor Zhang of Han. Male candidates were given a series of exams mainly dealing with Confucian texts [2]. The pass rate was very low, because the purpose of these examinations was to identify candidates with a specific skillset, such as rote learning. This selectivity is an early example of educational inequality [2]. In 1990, the first public universities were introduced to the UK for young boys as a method of marking their pupils’ attainment, and to form competition between other prestigious schools [2].

Now the education system has evolved; it caters for every demographic, not only elite and wealthy males, and a broader range of subjects are tested. The grading system, on the other hand, remains unchanged and is still the same, despite the significant changes that remain outdated and unsustainable for future generations [3], because our perception of human intelligence has changed since. It is more expansive, broad, and diverse. A linear system of marking is restricting their freedom of speech, and when the amount of potential harm that this can cause to consumers and their families is considered it is essential that restrictions are imposed.

The Internet and Cyberbullying

A false or harmful manner.

Conclusion
Having considered all of the above information, I do feel that imposing these proposed laws on companies that allow its users to share or discover user generated content or interact with each other online will do to some degree limit the user’s rights to freedom of speech and expression. However, I do not personally feel that this legislation, when introduced, will have much of an adverse effect on legitimate users of online sites and forums, and in most instances, I do not think that it will affect their freedom of speech and expression in any way at all. For example, it is impossible to comply with all these conditions without violating free expression of opinion. People put in prison solely for exercising their right to free speech are considered to be prisoners of conscience, and not to have actually committed a crime.

References
Wikipedia: https://en.m.wikipedia.org/wiki/History_of_the_Internet - An overview of the internet. The internet was first introduced into the world in 1969. The first responsible Internet site was the Harwell Computing Centre in the UK. The internet is now the backbone of global communications today.

Amnesty Law: https://www.amnesty.org.uk/laws/deliberation-lib-same-sex-marriage/ - So how can internet users infringe on others’ rights and freedoms?
Frasers Legal - Attorneys & Advisors: https://www.fraserslegals.com/deliberation-lib-same-sex-marriage - So how can internet users infringe on others’ rights and freedoms?

Tutor comment: "It was an absolute joy to work with N. during the Brilliant Club tutorial. I was particularly impressed with her outside level of engagement. Her contributions were insightful and thought-provoking, as was the writing. I was struck, however, by the topics of social media and mental health, and constant generosity in sharing ideas and reflecting on tutorial discussions. I am sure that this will have an invaluable presence to any undergraduate programme at University we will do it.”
observe light motionless in space. However, light cannot be motionless, because then it is not light. To resolve this dilemma, Einstein proposed a relativity theory that motion cannot be slowed. Light always moves at a certain constant speed [9].

Einstein revolutionised our outlook on space and time using simple, everyday concepts. It was an approach that other physicists had not considered, yet with hindsight, it seems very apparent. This is applicable to any area of study where valuable diverging thinking may be for human progress.

At school, accuracy, speed, and memorisation is prized, not learning or experience. This causes education inequality because it does not act as ideal preparation for beyond the classroom, since pupils are tested on skills that are irrelevant in the workplace [5].

The effect of self-efficacy

On the other hand, the outdated education paradigm may not be the most important influence on education inequality. A pupil’s accomplishments are based on a range of factors, not exclusively the education paradigm. Self-efficacy, a theory proposed by Alfred Bandura, is the first step to succeed in a specific situation or accomplish a task to a certain level [10]. The possession of a self-efficacious mindset means that individuals view challenging problems as tasks to be mastered, rather than threats to be avoided. Pupils can develop deeper interest in activities and form a stronger sense of commitment [10]. The absence of self-efficacy is often characterised as self-doubt, which negatively impacts achievement.

Self-efficacy can cause education inequality because those who are willing to apply themselves towards education are more likely to achieve success than those who are not. A pupil’s self-efficacy may vary from skill to skill; different forms of cultural capital are valued differently in education. Even if each pupil has the same quantity of self-efficacy, it is highly unlikely to be deployed by each and every one in the same way.

Conclusion

The education inequities stem from the institution, and not from the psychological processes of the pupil. Whilst intrinsic beliefs about success contribute to self-efficacy, external factors can play crucial roles in establishing a pupil’s self-efficacy, such as parents, teachers, and school colleagues. A student’s identity is related to their respective environments [14]. As students in the UK spend around 7 to 8 hours at school daily, the institution has a major impact on students’ motivation to succeed.

Armed above, examination is biased towards those with specific types of intelligence. Despite the artificiality of being grouped as ‘academic’ or ‘non-academic’, if categorised as the latter on the basis of the inability to obtain high grades, then belief in success is lowered. The grading system attempts to classify every child into a ‘academic’ or ‘non-academic’, schools should need to cater to every child’s needs of students. Rather than categorising pupils as ‘academic’ or ‘non-academic’, schools should differentiate their teaching style. In order for personalised education to be effective, students are monitored by teachers from an early age, as pupils mature at different rates. Teachers can help students decide on an appropriate mix of subjects. While this is a concept has not been developed by scheme, like a scorecard of what they learn, the role of service providers, such as Teach To One, a math platform now used in 37 schools across the US [15]. Children first “check in” to see which station they are assigned to, and then receive a curriculum individually generated from combinations of activities, including the likes of studying with computers, using printed materials, collaborating with peers or with the teacher [15]. At the end, students take a quiz, called an ‘solved test’ or ‘eGrade’ [15]. Embedding frequent periodic reviews has been demonstrated in the Finnish education system, where there is less emphasis on tests and the final grade [16]. Rather than examination results seen as the end product of good education, they are the by-product [17].

Tending to each specific student’s needs offers equity, rather than equality. Catering for a range of intelligences and learning styles is expected benefit students, as they can improve in their areas of proficiency. This should act as suitable preparation for the future; knowledge of strength in a subject can direct pupils into possible career paths, linking into the concept of building self-efficacy.

Did you think discrimination against homosexuality was a thing of the past? Homophobia is still very prevalent in sport to this day, despite the campaigns, the charities and laws to curb the fear of variance in sexuality. Sexuality seems to be distancing oneself from biological and psychological divergence, instead of harbouring the community. Homosexual athletes still find it very hard to disclose their sexuality. Not alone gay athletes, but also many players feel alone worrying if others will too; however, homophobia is capable of changing heterosexual behaviour too, due to the negative associations attached to certain physical traits and interests. To ascertain why it is so challenging to embrace one’s diversity, we need to examine where the opposition sourced. Subsequently, in determining an approach to that source, we must ask - are attempts to eradicate homophobia being established as more and more sportspeople declare their sexuality?

Due to Britain’s industrial revolution (1760-1840) [1], in family terms, women were excluded more than the home to care for their children while men took up rising paid jobs in factories, both requiring hard work, but a woman needed more mental resilience and a man more physical strength. As a result, when considering a general understanding the woman should play the expressive role of ‘Kinder, Küche, Kirche’ [2], while a man should play the instrumental role of earning money [3]. Therefore, there is no surprise that the traditional view is that women are more suited to less aggressive sports than men, or no sport at all (since they were not originally expected to be physically strong for anything other than cooking). Similarly, men are often expected to participate in more physically demanding activities to mirror their capability of performing hard labour. Consequently, a woman playing a masculine associated sport, or a man playing a ‘feminine’ sport, is seen as absurd [4] because they are not the typical, warm and gentle people, especially if they have a muscular build. However, the chivalry theory [4] would suggest that, because women are stereotyped as weak and vulnerable as a population, female athletes are left off the hard more often, whilst male athletes are then hit by homophobia, due to the assumption that they can deal with some ‘advice’ to ‘man-up’ because they should be less emotional. This means that homophobia can exist only if someone’s sexuality being openly different but largely because of an athlete’s physique and interests.

Furthermore, since “habit-breaking is unpleasant,
We prefer the familiar” (Allport 1954), it is difficult to overcome the unfamiliar, so the revealing of various sexual orientation or gender identity. As a result, the minority, both for homosexuals and heterosexuals. To deal with the fear, perhaps jealousy, of people who can turn against traditional propriety and social values, not least due to the younger, more vulnerable average age of gay, experiencing traumatic levels of homophobic abuse. Justin Fashanu (1961-1998), the first footballer to be openly gay, was an easy target for any homophobic predators. On a selected day, fans and players wear rainbow-coloured laces to promote inclusion and acceptance for all [11]. The sheer simplicity of wearing multicoloured laces to a football game can also have an immediate effect, and the more people accessing it, the more recognisable the campaign becomes. In sport as mutual beliefs about homosexuality improve for the football family. Other campaigns have been less successful. Rainbow Laces is an appealing, colourful method of promoting LGBTQ+ rights across all sports, which is perhaps the first campaign of this sort to be taken seriously by the study of children, due to a more prominent observer effect, and the difference in results between contexts does indeed make the question questionable. However, since “antipathy based upon a faulty and inflexible generalization” [5] will frequently lead to discrimination, as a result of predetermined ideas, e.g. a sportman should be ultra-masculine and straight, being seen as superior to “oddities”. Because they are from a minority, it is easy to parallel their difference in interests to other differences such as their sexuality. Perhaps it can be argued that their minority status is the main cause for heavy discrimination due to the heteronormative “species” and cannot be fitted into society’s jigsaw. Some, particularly religious groups believe any unconventional interests are a malfunction in God’s plan, but the idea that homosexual acts are “abnormal” is one of the various sources of homophobia in sport.

To remove themselves from immediate harm, sportspersons can become ‘homo-hysteric’. Due to the original stereotypes of “normal” and “abnormal” men and women, they acknowledge that homosexuality is in existence, but with high cultural homophobia, [particularly during the 1960s-90s] [6], they change their behaviour. To absolutely separate themselves from being prejudiced gay, sportspersons often become ultra-masculine or ultra-feminine, perhaps due to personal hatred of homosexuality, or as a result of being a minority. Unfortunately, many researchers consistently found “rates of suicide attempts among gay and lesbian adolescents to be two or three times higher than their heterosexual peers.”[4]. Due to the study of children, due to a more prominent observer effect, and the difference in results between contexts does indeed make the question questionable. However, since “antipathy based upon a faulty and inflexible generalization” [5] will frequently lead to discrimination, as a result of predetermined ideas, e.g. a sportman should be ultra-masculine and straight, being seen as superior to “oddities”. Because they are from a minority, it is easy to parallel their difference in interests to other differences such as their sexuality. Perhaps it can be argued that their minority status is the main cause for heavy discrimination due to the heteronormative “species” and cannot be fitted into society’s jigsaw. Some, particularly religious groups believe any unconventional interests are a malfunction in God’s plan, but the idea that homosexual acts are “abnormal” is one of the various sources of homophobia in sport.

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Nonetheless, there are established methods for trying to compel people to grapple with its consequences. For example, distance - defined in the previous distance dimensions. Humans speculate on what is conceptually distant from today; for example, 10% of Canada’s GDP comes from its infrastructure capable of resisting the lesser impacts of rise in warming level below “5degrees centigrade. This is bad, but there is an argument that the real problem occurs at the movement – a 72 Fridays student climate strike demanding change cannot co-exist and how some groups have utilized the акция to make practical changes. Jonathan Safran Foer suggests something as personal as giving up animal products in two meals a day may be enough to make a significant change in the right direction by reducing the negative impact of animal agriculture - harmful greenhouse gases that contribute to global warming. I believe optimism is the key to engaging people to hope but it is still important to have a plan.

**Bibliography**

7. Guardian on pensioners pensions. One in three UK retirees will have to rely solely on state pension. Available at: www.theguardian.com/money/2017/oct/21/uk-pensions
8. Bottle and can deposit return scheme. Reverse vending machine. Available at irishenvironment.com/iepedia/plastic-bag-levy/
9. PID & government report. Available at: www.deb.sherecorne/government/2015/02/pid-
10. speed camera Lithuania. Available at: www.youtube.com/watch?v=xej4RJ6Q6UQ
11. National Environment Committee. plastic bag levy. Available at: www. internationalscrap.de/2010/03/26/the-
12. Reverse Vending Machines. Reverse vending machine. Available at: www.reversevending.com
13. Reverse Vending Machines. Reverse vending machine. Available at: www.reversevending.com
What are key factors to young people's wellbeing, and why are they important?

In general, factors that affect young people’s wellbeing are considered to be split into three main sections: their community (who and what they are surrounded by), family, and learning environment. For example, the person’s family, their emotional support, and emotional stability can have an impact on how a young person is perceived by others. Therefore, the community plays a significant role in affecting a young person’s wellbeing. Therefore, if the community provides a safe and supportive place, the family can hinder a young person’s wellbeing.

One particularly significant factor to young people’s wellbeing is that they are in the process of developing their social skills. Meeting new pupils can provide a sense of community, meaning that risk factors of young people’s wellbeing, school is a place where young people are supported through their place of education and feel accepted in their community. On the other hand, they can also become risk factors, for instance, if a young person were to have negative relationships with the important people in their lives, or if they felt they were victims of prejudice in their community. However, how are we able to understand the true impact that these risk factors have on young people’s wellbeing? Are there two main methods of research which are used to understand these effects? The quantitative method of research focuses on statistics such as asking yes or no questions, whereas the qualitative method aims to obtain a wider understanding of the context of the questions asked.

Further examples of the importance of supportive family relationships are when established from a young age, they enable the young person to form skills that they can use throughout their lifetime, to build resilience against stress from such factors. I thoroughly agree with this view as the role model they are missing at home. Concerning relationships, it is additionally paramount for students of a young person to feel that they are supported in facing the challenges that come with being vulnerable to bullying. This is as many young people (particularly those who do not feel comfort in their own homes), view school as their safe space, providing positive relationships with members of staff who may act as the role model they are missing at home. Concerning relationships, it is additionally paramount for students of a young person to feel that they are supported in facing the challenges that come with being vulnerable to bullying. This is as many young people (particularly those who do not feel comfort in their own homes), view school as their safe space, providing positive relationships with members of staff who may act as the role model they are missing at home.

In addition to the community and family, learning environments also significantly impact young people’s wellbeing. The term learning environments can be split into two main categories: the educational environment and the learning environment. The educational environment is the environment in school, and the learning environment is the environment which may act as a threat towards someone’s wellbeing. Additionally, other factors of young people’s wellbeing, school is a place where young people are supported through their place of education and feel accepted in their community. On the other hand, they can also become risk factors, for instance, if a young person were to have negative relationships with the important people in their lives, or if they felt they were victims of prejudice in their community. However, how are we able to understand the true impact that these risk factors have on young people’s wellbeing? Are there two main methods of research which are used to understand these effects? The quantitative method of research focuses on statistics such as asking yes or no questions, whereas the qualitative method aims to obtain a wider understanding of the context of the questions asked.

Overall, I have discussed three main factors concerning emotional wellbeing within this essay. I would say that each factor (the community, the family, and the learning environment) go hand-in-hand regarding the effect they have on a young person’s wellbeing. Although behaviour problems can still pose a threat to a young person’s life at home is a negative experience, that still poses a threat to their wellbeing. Additionally, the individual factors such as significant life events or relationships can also still pose a threat to young people’s wellbeing. For example, a young person who is struggling with emotional wellbeing and is strongly linked to family. It is important to recognise the way that each of these factors impacts a young person’s wellbeing, to improve their quality of life and help them.
Using the Propaganda Model, and Critical Discourse Analysis, explain how Saudi Arabia have justified their war in Yemen to various audiences?

Year 12, Key Stage 5

Pupil: E. Lovatt
School: Richmond School, North Yorkshire
Supervised by: T. Walsh
Tutor: University: Durham University
Course Title: Propaganda, power politics, and the Middle East

Saudi Arabia justified their involvement in the war in Yemen to both an international and local audience through the use of propaganda in both local newspapers and by the government. Throughout the use of the five filters of the Propaganda Model and Critical Discourse Analysis, this essay will evaluate multiple sources of propaganda and explain how they achieve this. The Propaganda Model has five filters (ownership, advertising, the elite, flack and the enemy) which can be used to explain the different facets of media and how they are used in the production of government-approved propaganda. Critical Discourse Analysis (CDA) has been used to deconstruct individual articles and analyses the language used, the audience and the owner to explain the intent of the particular article and how and why it is achieved. To begin, this essay will give an overview of what exactly defines propaganda, providing the Sauer, with both the war and the humanitarian crisis that has occurred as a direct result of it. It will then move on to explain the Propaganda Model and Critical Discourse Analysis. Flack is used to ensure that any story is instantly discredited and destroyed. The media will take the article and fluff the sources used, dispute facts / evidence, or present different stories to other outlets to look like speculative rebels rather than speakers of the truth.

Yemen has been suffering since the Arab Spring of 2011, when the president of 20 years Ali Abdullah Saleh was overthrown. The Gulf Cooperation Council (GCC) then installed the former vice-president Abut-Rabbu Mansour Hadi into the presidential position. From then on things only got worse for the Yemenis, and in 2015 a rebel group known as the Houthi (who had previously been involved in the Arab Spring) joined forces with Saleh and his remaining military allies and took control of the largest city in Yemen, San'a. Hadi fled to Saudi Arabia, and the Saudi-led coalition moved in to try to restore President Hadi. As these two greatest humanitarian crises of all time, the three main areas of the intervention are: to restore the government of president Hadi, contain its southern border and prevent ‘terrorism’. The Arab Spring led to the eruption of the Houthis in the area. (Al Jazeera English, 2019) However, the impact of the intervention has been the destruction of millions of civilian lives. Air strikes from the coalition and responding attacks from the Iran-backed Houthis have done irreparable damage to schools, hospitals and homes. Along with this, an ongoing famine and land, sea and air blockades, put in place by Saudi Arabia and the USA, prevent the healing of those injured or sick and have led to 24.1 million people (80% of the population) in dire need of help, and 58% of the population currently live in poverty. (United Nations, 2021)

Throughout this essay I will be using the concept of the Propaganda Model (Herman and Chomsky,1988) to explain the news. It is well-known of how Saudi Arabia closely monitors and censors both the internet and their press and as a result, all freedom is denied. They were ranked 170th out of 180 countries in the World Press Freedom Index report in 2020. Due to this, the majority of news produced by the Saudi Arabian media is likely to be propaganda. Propaganda is produced by the media in conjunction with the political elite and is used to manipulate the public and disrupt the people, and five key filters are used to ensure its success. One filter is ownership - all popular media outlets are owned by huge corporations and conglomerates. Their aim is to use this money to benefit the companies and generate money for the country, which means that their articles will always fail in line with whatever creates the most money for them, and false journalism takes the back seat. Because of this, generally all journalism produced by such companies will be heavily influenced by those in power and will therefore only ever serve the interests of the company that is paying for it. The media also generates revenue by selling their audience to an advertiser. The advertiser then gains a profit when the audience buys their product. By buying this product, the audience is also being, by extension, sold an image to conform to. Corporations and institutions, distribute the media by producing a constant flow of articles, interviews and opinions that are printed and led to the audiences. Flack is used to ensure that any story produced that doesn’t fit in line with the desired opinion is instantly discarded and destroyed. The media will then take the article and fluff the sources used, dispute facts / evidence, or present different stories to other outlets to look like speculative rebels rather than speakers of the truth.

Tutor comment:

This was a very well written and committed student. Throughout the coursework, I showed an excellent ability to critically and apply the learning to her everyday life experiences. She demonstrated good teamwork and problem solving skills and all of the work was well written and argued. Her essay is very well written with excellent structure, punctuation, grammar and spelling. Her argument has been developed significantly and explained and it is clear from her work that she has taken the final essay forward from her past. I think she has a lot to offer in the future and there is a lot more to come of her future.

Using the Propaganda Model, and Critical Discourse Analysis, explain how Saudi Arabia have justified their war in Yemen to various audiences?
mention of why they are necessary - the choices made by the Saudi Coalition have in part been the reason why, five years on from the beginning of the war, threats of death and destruction around Yemen, and this has in turn continued to prolong the suffering of the Yemeni people and their need for masses of aid. An article titled ‘Saudi Arabia is no longer friend to Yemen’ (Arab News, 2020) sings the praises of the Saudi Arabian establishment and primarily the amount of money they have donated to aid for Yemen. While it may be factually correct that they have donated more money than any other country, they fail to mention that it is in part due to the fact that land, sea and air blockades put in place by the Saudi Coalition have blocked the reception of aid from other countries. The author also drew attention to ‘the enemy’ of Iran by saying ‘Iran is providing nothing but killing, destruction, smuggled weapons, ballistic missiles and explosive devices that kill Yemenis every day.’

The stark contrast between the praise to the Saudi Government and harsh words towards Iran is jarring and certainly achieves the desired effect - no one could read this article alone and believe that Saudi Arabia would’ve ever intentionally done any kind of damage to the country or the people of Yemen.

To conclude, propaganda has been heavily used by the Saudi Arabian government to influence the understanding that the people have of the war in Yemen and justify their involvement in warfare. Iran and the Houthis rebel group have both been branded as the enemy and the media releases a constant stream of news about every poor action they make, while hiding every one of theirs. The enemy are painted as brutal monsters that threaten everyone’s lives with their ideologies that must be stopped at every cost - and the Saudi Coalition are the ‘heroes’ that are stopping them. They also use propaganda to divert attention away from the destruction they cause by focusing on their humanitarian efforts and further brand themselves as ‘the good guys’. Their influence on online and social news sources has allowed them to spread their reach towards a western audience and gain support. In essence - they have taken their power struggle with Iran to the media and won’t stop producing this flood of propaganda until they ‘win’, even if it means that Yemen gets destroyed in the process. If we consider only what the media produces, we will look on blindly as millions continue to suffer.

### Bibliography


Al Jazeera English. "Why is Yemen of war?" Youtube, 2019, https://www.youtube.com/watch?v=LfXoQs5cGJ4


Harvard Health Publishing. "The influenza virus: design a strategy to help prevent the outbreak Year 7, Key stage 3". Pupil: A. Taylor

School: Humphrey Perkins School, Leicestershire

Supervised by: N. Lamb

Tutor University: University of Sheffield

Course Title: Disease Detectives

Introduction - what is the flu?

Influenza (the flu) is caused by the influenza virus and is an infectious disease that can be very mild. For example, the symptoms are (WikiPedia, 2020):

- Fever
- Chills
- Headaches
- Aching muscles
- Cough
- Sore throat
- Difficulty sleeping
- Loss of appetite
- Diarrhoea
- Unusual tiredness
- Feeling sick/being sick
- Feeling tired
- Hot, flushed skin

The virus can be spread by coughing and sneezing (NHS, 2020).

For most healthy people, the flu is an uncomfortable but short-term illness that resolves itself as the immune system fights it off. Symptoms usually appear from one to four days after exposure to the virus, and last up to seven days (Harvard Health Publishing, 2016). If you have any of the symptoms above, you could have the flu (NHS, 2020). People who work in open offices, use public transport or are young and the age of 65 are more susceptible to getting the flu.

To treat the flu, you can use (BBC, 2020):

- stay in bed and get some rest, or you can take paracetamol or ibuprofen as both will relieve your symptoms. In most cases, a strain of influenza spreads across the globe, resulting in about 250,000 to 500,000 deaths worldwide (BBC Bitezise, 2020). This means that flu can be difficult to stop and cause secondary infections. The influenza virus (flu) can be spread quickly for example, if you caught the virus on Saturday morning, you could be spreading it by Sunday evening (Healthline, 2020).

Prevention

There are a few methods that could be used to help stop the spread of the influenza virus. Below I will discuss three methods that could be used and will also discuss the advantages and disadvantages of each.

Method 1: Quarantine/Isolation

**Overview**

Quarantine is where you deliberately keep yourself away from other people. The exact definition of quarantine is a state, period, or place of isolation in which people or animals that have arrived from elsewhere or been exposed to infectious or contagious disease are placed (Oxford Dictionary, 2020). In terms of the flu this could mean that if you come from an infectious place you would be put straight into quarantine in hospital being cared for by nurses. Isolation means: without relation to other people or things (Oxford Dictionary, 2020). For anybody with the flu this would mean that you would need to stay at home and not let visitors in. In terms of treatment, you would have to treat yourself at home.

Quarantine is an effective prevention for the spread of the flu as it cannot spread to a new host. Quarantine can stop the spread of airborne diseases such as the flu and cold to others. Quarantine you need to separate yourself from other people even if you are not showing the symptoms but have been in contact with someone who has the infection. Isolation is a good method to stop the spread of the flu. This means that it keeps the virus away from other people so it cannot spread.

Advantages

The advantages of quarantine are that people would get professional treatment and it is effective for a shorter period of time. The disadvantages of quarantine are that people would spread the virus which could then spread it further and affect more people who would be contagious. Also, it could be a problem as people could run out of food and not know anybody who can help them get it.

Method 2: Vaccination

A vaccine can either be given via an injection or by a nasal spray. The injection contains the non-active influenza virus whereas the nasal spray contains a weakened form of the live virus (WikiPedia, 2020). In the UK only the following people are given the vaccine (NHS, 2020):

- school children (age 4-11 years old)
- people over the age of 65 years old
- people with certain health conditions
- pregnant women
- children aged 2 & 3 years-old
- nurses and doctors

Children get vaccinated at school and adults/adolescents at GPs surgeries and pharmacies.

Advantages

The advantages of vaccines are that they: stop people becoming ill and if enough people are immunised it can stop the flu virus from becoming ill (this is called herd immunity) (BBC Bitezise, 2020). It is cheaper over time to prevent a disease (vaccine) than it is to treat all the at-risk people or people who have it.

Disadvantages

As a flu is a viral disease, this means that it can mutate. Therefore, a flu vaccine is only effective for a few years until the flu virus changes (at the most BBC Bitezise, 2020). Because of this, the vaccine has to be re-given every year or two. Some people refuse to take the vaccine because they believe that it is dangerous, however, that is not true. It is recommended that people should take the vaccine (BBC Bitezise, 2020).

Methods that could be used and will also discuss the advantages and disadvantages of each.

Method 3: Hygiene

Good hygiene helps to stop the spread of the virus. You should wash your hands for 20 seconds (happy birthday song twice) with soap and water (World Health Inform 2020). Also, to stop the spread, when you sneeze, you can sneeze/cough into a tissue and then bin it. Also, to prevent the spread of flu you can regularly clean surfaces, especially your computer keyboard (NHS Inform 2020). To avoid getting flu in you can avoid large crowds; however, it may be difficult to avoid large crowds.
Advantages
The advantages of hygiene are that anybody and everybody can use good hand hygiene. Hand hygiene does not cost a lot of money.

Disadvantages
The disadvantages are that you cannot control hand hygiene and not everyone will comply. People may not always use soap and warm water, and this will not destroy/get rid of as many viruses. Also, they may not wash their hands for 20 seconds.

Conclusion
Fleming City has a population of 1.1 million people and is located in the centre of England. It has a lot of parks, is sparsely populated (per km²) and most of the population use public transport. Most of the public transport systems are tram lines. Fleming City has four hospitals. Each year there is a flu outbreak in the city.

As an intervention, I would get teachers to teach children in schools how to wash their hands properly. I would start this right at the beginning of schools (including nurseries) so it becomes a habit. Also, I would get the vaccine to be given to:

- school age children (age 4-11 years old)
- people over the age of 65 years old
- people with certain health conditions
- pregnant women

- Nurses and Doctors

The benefits of giving it to these people are that there would not be as many cases of the flu which means fewer visits to GPs and hospitals. Also, by vaccinating doctors/nurses they can carry on working as usual because they will have a reduced risk of becoming ill with influenza. I would start giving the vaccine at the beginning of winter (October and November). I would use quarantine/isolation if the virus started to quickly spread through the city.

What are keloid scars and the patients symptoms experience?

**Year 9, Key Stage 4**

**Pupil:** J. Anderson

**School:** The Stockwood Park Academy, Luton

**Supervised by:** R. Ross

**Tutor University:** Queen Mary, University of London

**Course Title:** Can time really heal all scars? The science behind skin and scarring

**Introduction**
The skin is the largest organ of the human body. The average adult has around twenty-seven square feet of skin containing eleven million miles of blood vessels [1]. The skin is a continuous organ, and any damage can change its appearance.

**Skin structure**

<table>
<thead>
<tr>
<th>Human Skin Diagram</th>
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<tbody>
<tr>
<td>Subcutaneous Tissue</td>
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<tr>
<td>Adipocytes</td>
</tr>
<tr>
<td>Fibroblasts</td>
</tr>
<tr>
<td>Keratinocytes</td>
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<tr>
<td>Melanocytes</td>
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### Keratinocytes
- These are the main cells that make up the epidermis.
- They contain keratin, a protein that provides structure and protection to the skin.
- Keratinocytes are responsible for producing stratum corneum, which is the outer layer of the skin.

### Melanocytes
- These cells produce melanin, a pigment that gives skin its color.
- Melanocytes are found in the basal layer of the skin and are involved in the regulation of skin pigmentation.

### Adipocytes
- These cells are responsible for storing energy in the form of fat.
- Adipocytes are found beneath the skin and play a role in energy regulation.

### Fibroblasts
- These are the primary cell type found in the dermis, the middle layer of the skin.
- Fibroblasts are responsible for producing collagen, the main protein that gives skin its strength.

### Tutor comment:

"This is a really great piece of work, high quality and really well written. The science behind skin and scarring is a really interesting topic, and you have chosen a really good angle to explore it from.

The skin has three main functions: protection, regulation, and sensitivity. In terms of protection its primary function is to act as a barrier against dangers such as mechanical impacts, fluids, and radiation. When the skin is damaged it will undergo a process of healing [6].

- **Wound healing**
- **Bleeding**
- **Inflammatory**
- **Proliferative**
- **Remodelling**

Figure 3: Stages of wound healing [7] A wound goes through four main stages. From the initial bleeding stage, the wound forms a scab before fibroblasts proliferate the underlying layers before eventually healing the skin.

The first is the process of the wound being closed by blood clotting. Blood clotting occurs when platelets immediately stick to the edges of the wound and then chemicals are released to attract more platelets. A platelet plug is formed, and the bleeding then stops. Then small molecules called clotting factors cause blood borne materials called fibrin to seal the wound. Once the blood vessel is healed the blood clot then dissolves over a period of a few days. [8]. This is referred to as haemostasis.

The inflammation phase comes next and begins straight after the injury when the injury leaks transudate (which is made of salt, water, and protein) causing localised swelling. This process controls bleeding and prevents infection [9]. The process of revascularisation results in increased capillary permeability which in turn enables phagocytic white blood cells such as neutrophils, monocytes, and eosinophils, along with other leukocytes, to enter the tissue around the injury. The inflammation phase also allows phagocytes to enter the tissue and go to the site of the infection. Neutrophils appear first and are later replaced by macrophages [10].

The proliferation phase is where the wound is reborn with new tissue which is made up of collagen and extra cellular matrix [5]. Fibroblasts are important as they lay the foundation for the new extra cellular matrix for collagen and granulation tissue. During the proliferation phase, the body goes through growing new tissue, angiogenesis, collagen deposition, granular tissue formation, wound contracture, and epithelial cell migration [11]. To generate more cells to cover the wound, keratinocytes at the basal layer of the wound edge and epithelial stem cells from nearby hair follicles or sweat glands start multiplying and proliferating 2-3 days after the injury [12].

Finally, the remodelling phase is when collagen is remodelled from type 3 to type 1 and the wound fully closes. The cells used to repair the wound are no longer needed are removed by programmed cell death. When collagen is laid down in this phase it is organised and the wound is thick. During the maturation phase, collagen is aligned along tension lines and water is reabsorbed so the collagen fibres can lay closer together and cross-link. Remodelling starts 21 days after an injury and can continue for up to a year. Even
taking into account the cross linking, heated wound areas continue to be weaker than unwounded skin as they have 80% of the tensile strength of unwounded skin [5].

Scarring
A scar is a mark left on the skin after a wound has healed but how it looks and is treated depends on a number of factors such as the depth of the wound, the location and the age, ethnicity and gender of the patient [13].

There are different types of scars. For example, a hypertrophic scar is a raised red scar that does not go beyond the boundary of the injury. Keloid scars are similar to hypertrophic scars but they extend beyond the original injury [13].

Keloid scars have a number of distinguishing features such as a localised area that is flesh coloured, pink or red. A keloid scar is characterised by the fact that it’s usually raised. A keloid scar is an area that continues to grow larger with scar tissue over time and can also be an itchy patch of skin [3].

Keloid Formation
Keloid scars occur due to the derangement of the wound healing process in susceptible individuals. There has been an increasing amount of evidence pointing towards TGF-β (Transforming Growth Factor Beta) as being a key factor in keloid development. TGF-β has also been associated with other dermatological diseases affecting the kidneys, lungs, and the skin [14].

A study by Nangayo and Agak hypothesises that keloids are formed due to an abnormal response to tissue injury. This results in an exaggerated inflammatory state with inflammatory cells entering the wound such as macrophages, lymphocytes, and mast cells. These in turn release cytokines, including Transforming Growth Factor β that stimulates fibroblasts to synthesise excess collagen [14].

Prevention is preferable to treatment therefore people with risk factors are best to avoid skin trauma such as tattooing and body piercing. [19]

The British Association of Dermatologists also identify that keloids, most commonly arise between puberty and the age of 30, and that they may appear or enlarge during pregnancy. They quote that among the European population around 5% - 10% who have keloids have a family history of keloids [19]. This is supported by research which states that 50% of the total African Caribbean patients with keloid scars had a family history of them [16] so it provides further evidence that keloids occur more frequently in patients with darker skin.

Recurrent Rates
Dr K Sruthi et al [23] undertook a study of thirty patients to evaluate recurrence after radiotherapy. Keloids are prone to recurrence in 50% - 80% of cases with a singular form of treatment. In this study 73.4% of patients remained recurrence free at 5 years [23].

Excision alone has been associated with recurrence rates as high as 100% but there have been other treatments alongside such as injections of steroids, radiotherapy and silicone sheets which increase the chances of success. Some studies have shown that post surgery TA (triamcinolone acetonide) injection improves the likelihood of staying recurrence free with the majority of studies reporting less than 50% recurrence [24].

Conclusion
The treatment that is the “best” will depend on the size and location of the scar. For example, cryotherapy works best on scars with a narrow base while steroid tape is more suited to scars of a small to medium size. Many of the treatments have the identity that having a combination of treatments reduces the risk of the keloid recurring. Dr Ioannis Goutos believes that surgery and postoperative radiotherapy is the best way to treat keloids, and this theory is backed up by Dr K Sruthi who studied the effects of radiotherapy alongside other treatments.

Although there are many options already available, further research is still required to develop new and more effective treatments.

Bibliography
[11] https://www.ncbi.nlm.nih.gov/pubmed/17600136. Article: "Surgery and postoperative radiotherapy is well suited to scars of a small to medium size. Finally, lasers are growing in popularity but there is not enough evidence on the success of this treatment and there may be a risk of making the keloid worse [20].
[12] Botulinum toxin is a new treatment. It is a wrinkle reducing injectable that has shown to be effective in reducing pain and itching. It has also been found to reduce the keloid bulk [20].

Alternative Treatments
There are other treatment options but evidence for these is limited at present. Pressure garments have been used on some patients, but the benefits can be short lived, and the keloid can grow back. Steroid ointments exist, but clinical studies show not the use of these as a single treatment for keloids [20].

Cryosurgery, where keloids are frozen with a metallic probe, can cause such scarring that the scar becomes narrow and flat. Finally, lasers are growing in popularity but there is not enough evidence on the success of this treatment and there may be a risk of making the keloid worse [20].

Keloid Risk Factors
Scientists have been able to identify that certain individuals have a higher risk of having a keloid scar. Some of these are shown by this diagram:

Figure 3: Risk factors of keloids. The genetic disposition of the patient is the most important factor, while other key factors include; female gender, black skin, medinoid, the anatomical site, the type of skin injury, the age of onset and the gender [16].

Firstly, the genetic susceptibility of the patient. It has been found that there is a higher occurrence in patients with darker skin. One study found that 50% of the total of African Caribbean patients with keloid scars had a family history of them [16]. It has also been found that there is higher occurrence of keloid scars in identical twins [16]. Both of these facts would indicate that keloid scars can run in families.

Environmental factors such as infection, delayed healing and foreign bodies can trigger keloid scars in genetically prone individuals. Several genes have been identified to possibly cause keloid scars, but no single gene mutation has yet been found to be responsible. [17]

Keloids mainly occur on highly mobile sites with high tension such as the shoulders and neck. The chest, shoulder, arms and upper arms have a higher bias for keloid scarring while areas such as the eyelids, palms and mucous membranes are less affected. Shaheen found that the upper limb (20%) followed by the sternum (19%) were the most common sites on Syrian patients while Abas Mouhaur Toure saw the sternum (29%), head (17%) and upper limb (16%) were the most common sites in darker skinned patients. [18]

In addition, people with blood group A have a higher probability to develop keloids. A study by Shaheen revealed associations between spontaneous keloids and blood group A. [16]

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Sickle Cell Disease
Sickle Cell Disease (SCD) is not pleasant and is most definitely more serious than some of us might think. It is one of the most commonly inherited blood diseases, though mostly common with African/Caribbean ethnicities. SCD occurs about 1 out of every 365 African/Caribbean births.

The disease consists of red blood cells being mutated to change shape into an almost "half-moon" shape, resulting from mutated haemoglobin "haemoglobin S".

Genetics
Sickle Cell Anaemia is caused by a mutation in the haemoglobin gene and carrier parents are able to pass the disease to their children. It is very common for people with African/Caribbean heritage to be carriers of the Sickle Cell Trait therefore meaning that if two people who are carriers of the disease decide to have children there will be a 25% chance that their children may have the disease.

So, it can be recommended to people who are thinking of getting married or start a family to go through with genetic counselling, in order to avoid having babies with the SCD. If children are to have the disease some of the symptoms that may occur could be: anaemia which is the lack of red blood cells favourite episodes of pain that may last a long time swelling of hands and feet frequent infections delayed puberty or growth or possibly vision problems.

Further complications that can occur with SCD, include: organ damage strokes or possibly even gallstones and these are very serious conditions. It is a sad thing to be told that one has this disease and especially as a child, which is why the next few sections are so important as they discuss about how victims of this disease can be treated and supported through the process.

The fact that the disease is mostly inherited means that doctors have been able to come up with ways of detecting whether people are carriers of the disease as well as also detecting if an embryo has the disease by testing some of the embryonic fluid. If embryos are positive for this disease this allows the parents to prepare themselves and as to whether or not that they still want to go through with the pregnancy as it would be a lot more responsibly looking after a child who is permanently ill.

Yet some people would disagree with that action as they do not agree with getting rid of a child due to a sickness, but it is solely up to the parents of the child as to what they decide to do.

Victoria City
Sadly, it has come to the point, for the sub-Saharan city Victoria City, that many people have been diagnosed with the awful disease of SCD and there seems to be no helpline for them. Victoria City is a beautiful quaint city located in the country of Kenya, which is in the continent Africa, and a population of 120,000 mostly of African and Caribbean ethnicity. This disease has caused the city to now have an unwanted stigma towards them which is definitely not what this "hidden gem" of a city deserves.

Throughout this city, after 2018 there had been 2% of the population that had to deal with SCD yet in 2019 it had been recorded as an astonishing 48% of the population with at least one case of Sickle Cell Disease within their immediate family. Due to the location of this city many organisations have not been notified about this major epidemic within the city therefore leaving most of the people to try and survive all on their own, with minimal access to healthcare and knowledge about the disease itself. Below we can see two diagrams which are able to present this information much more clearly. This shocking increase in the amount of cases recorded tells many different organisations that people should be more educated about diseases that may run in their families, or possibly could affect them in their lifetime and how they are to treat them in an efficient way which will help them. As this rise in the incidence of the disease could be due to lack of medical information or even general lack of education about what diseases may be passed to children.

There are multiple different ways that people can treat sickle cell anaemia, and prevent catching other diseases too as having sickle cell anaemia weakens your immune system. An example of this prevention would be taking penicillin as this is a very effective antibiotic which can help people fight off other diseases such as bacterial infections. This method however is mostly recommended for children who are victims of this disease as they are advised to take penicillin from the age of 2 months to 5 years old.

In low-grade sickle cell disease, one recommendation will be to drink a lot of fluid and take painkillers if necessary, especially if the patient wants to stay at home. Also, SCD patient will benefit from a good knowledge of the disease to know when they would need to seek medical care. In more severe scenarios of sickle cell disease, some patients may need to go through blood transfusion, in order to make their red blood count rise again to the efficient amount. In addition, an alternative method some may have to take could be being prescribed certain drugs such as, hydroxyurea as this is very efficient for reducing painful crisis and reduce the need for blood transfusion.

A further step some people may have to take in some of the most painful cases or for young children would be a stem cell transplant. This is because of the extensive amount of recovery time it takes after the procedure and that it is very important to try and find a perfect donor who is preferably a family member without the disease. For some people, they may not want to go through with a stem cell transplant, as there are many complications that could occur and would therefore cause many long-term problems. This is because, stem cell transplant is a delicate procedure.

Patient Support
There is a limited amount of support that is available...
for people who are suffering from Sickle Cell Disease, which is not what these people deserve as this is a disease that can in some cases take control of your whole life. The main way that people with this disease can be supported would be by talking to people, e.g. a support group where patients can talk about their experiences with the disease and how they cope with it. They could also be encouraged to find out more about the disease, so that decisions that are made are very informed to have the greatest outcome possible. In addition to that, it may also be best to ask doctors about what they recommend doing as they will also have a lot of information about the specific case as well as the disease in general. SCD affects less than 1% of the entire world population (100 million people) and the majority of these cases are in Africa. Victoria City will have to bear the brunt of this disease as it is located off the Asian/ African coast. The country has a population off 5.7 million people (as of 2021). This suggests that there will be a high number of people suffering from SCD in Victoria City and that there may be a lot of cases that are going undiagnosed or untreated. It is very important that doctors are well informed about the disease so that they can provide the best care possible to their patients. This will help to reduce the amount of cases of Sickle Cell Disease in Victoria City and narrow down the amount of cases that we see in the future. The methods that can be taken are available procedures and resources that may be useful to themselves or others who may have been diagnosed with this disease, and that could help save lives.

Conclusion
It is very useful for people to become more educated about certain diseases that can affect them, just like the Sickle Cell Disease and for all the people in Victoria City. I believe that it would drastically help to begin to raise money for help with research about the disease. Or alternatively, be able to give certain people a chance at living a life that would be much easier to deal with the disease by possibly funding certain procedures e.g. certain drugs that can be taken to reduce pain or prevent further infections. As for most people with the disease, it is very likely that they could come down with other complications such as pneumonia which has the ability to kill people if they are already vulnerable to many diseases. This is a disease just like any other, and any help that can be given in preventing this disease would be the key to helping the population of Victoria City reduce the amount of cases of Sickle Cell Disease in the city and allow everyone to resume back to their normal lives. The methods that can be taken are highlighted previously in many different areas, and the most successful method that is recommended would be a ‘stem cell transplant’ and that is sometimes seen as the only ‘cure’ for this disease.

How would you go about in ensuring that prosthetics you design, fabricate and manufacture in this region are effective to its users? For example, prosthetics could be created using local materials which reduces the costs required for prosthetics. With the aid of physicians, volunteers and researchers in and outside of Sierra Leone can develop a research hub that can take people into prosthetics, and make a society there as well. Research in the field of prosthetics is developing fast and narrowed into specialist work on Leukaemia and sickle cell disease. They were raised to work closely with people in need of Sickle cell disease, with a focus on how to reduce the incidence in Victoria City (a city in Africa). In addition to being part of an excellent cohort of students from a very well organized school, N. has been able to demonstrate a very good understanding of the topic and the ability to present thoughts in an organized form. He has presented a solid thesis, and an presentation that the lead teacher and all of St. Jules Catholic High School.

References

Tutor comment: ‘Sickle cell disease is a very much prevalent in some parts of Africa and this may be said to occur largely due to non-homogeneity of genotype causing the students to develop a sense for design and narrowed into specialist work on Leukaemia and sickle cell disease. They were raised to work closely with people in need of Sickle cell disease, with a focus on how to reduce the incidence in Victoria City (a city in Africa). In addition to being part of an excellent cohort of students from a very well organized school, N. has been able to demonstrate a very good understanding of the topic and the ability to present thoughts in an organized form. He has presented a solid thesis, and an presentation that the lead teacher and all of St. Jules Catholic High School.

Figure 6: this shows a patient discussing support with their doctors about which areas of their life are affected by Sickle Cell Disease. The patient is shown sitting in a chair while their doctor is talking to them. The doctor is holding a clipboard and pointing to a chart. The patient is looking at the doctor and appears to be listening to them. The background is a hospital room with medical equipment visible. The patient is wearing a hospital gown and the doctor is wearing a lab coat. This image highlights the importance of communication between doctors and patients when discussing the management of Sickle Cell Disease. It emphasizes the need for doctors to actively listen to their patients and provide clear, empowering communication about the disease and its impact on their daily lives.

Sierra Leone
Sierra Leone is a country in West Africa, which is located off the Atlantic Ocean. The country has a population off about 7.6mln (as of 2017) [1]. In 1991, a civil war started due to an ex-army corporal Foday Sankoh and RUF (Revolutionary United Front) during an attempted overthrowing of the Joseph Momoh government. The rebellion/civil war lasted for approximately 11 years (1991-2002) and was funded by diamonds mined in Sierra Leone. [2] During the 11-year period, many people/soldiers lost numerous limbs due to many factors such as bombings and shootings. This led to several of the soldiers and civilians requiring prosthetics for their daily lives after the war. During this period, Sierra Leoneans were having to rebuild their lives and were facing numerous obstacles. The war caused great suffering and left a lasting impact on the country.

Engineering Design Process
A) The ideation process
The unique problem - is the loss of multiple limbs, context of the country, anthropometry (such as the sizes of their hands, arms, legs, feet) would be different from the 50th percentile which we usually use for measurements/data about sizes of limbs etc, in the UK.

B) The ideation process
Some of the ideas that could be applied would be:
- Finding or creating a database for anthropometric data of the population in Sierra Leone. This will aid in determining the percentile data (for measurements at the hands, arms, elbows, legs, feet, knees, neck, face) taking into account people aged between 30-35, 40-45, 50+, gender, would give us a selection of measurements as well as database to start designing from.

- With the aid of physicians, volunteers and researchers in and outside of Sierra Leone can develop a research hub that can take people into prosthetics, and make a society there as well. Research in the field of prosthetics is developing fast and narrowed into specialist work on Leukaemia and sickle cell disease. They were raised to work closely with people in need of Sickle cell disease, with a focus on how to reduce the incidence in Victoria City (a city in Africa). In addition to being part of an excellent cohort of students from a very well organized school, N. has been able to demonstrate a very good understanding of the topic and the ability to present thoughts in an organized form. He has presented a solid thesis, and an presentation that the lead teacher and all of St. Jules Catholic High School.

- With loads of ideas, there also has to be a consideration from people therefore the use of a prosthetic will help to have a more comfortable lifestyle.
- Some of the ideas that could be applied would be:
  - prosthetics with a focus of local materials to reduce the costs required for prosthetics.
  - how prosthetics would eventually improve their lifestyle.
  - the plans C) The plans
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Data collection from soldiers and possibly civilians. This can be achieved through advertising via word of mouth, newsletter, social media, and any advertising media with possible rewards for participation. The rewards could encourage more participation. This will help researchers collecting data on anthropometric data of Sierra Leoneans. (Anthropometric data refers to the measurement of the human individual. Anthropometric measurements are used to assess the size, shape, and composition of the human body. Today and tomorrow this plays an important role in industrial design, clothing design, ergonomics, and architecture where statistical data about the distribution of body dimensions in the population are used to optimize products.)

- Finding out from civilians, about their everyday routines to understand fully the lifestyle to be able to design a prosthetic that will be efficient for use. Another way to gain all this information would be going door to door, visiting different neighborhoods in Sierra Leone and asking them directly if they are willing to help for a good cause as it would help the veterans of the country. This would take longer than the advertising and reward system but could be the more efficient way.

- Also, with working with sociologist on a project like this would be sure that they would be able to collect and distribute data correctly, so it is easier to actually design and manufacture the prosthetic from informed data.

Basic prosthetic
When producing a prosthetic, you have to take in consideration such serious aspects like, mass, size, height, length, aesthetic, and even the patient’s feedback to improve the prosthetic to make it to their desire and likeness.

A prosthetic is a type of artificial device which allows different body parts to be replaced. A prosthetic is more than a life saver to people that have lost limbs during their lifetime, or even born without any.

When making a prosthetic you should always take in account: weight, size, fit, suspension, rotation, energy used, alloys, material used and most important patient feedback. These are important because as they will aid in designing a better prosthetic that benefits fully to its user.

There are about 3 different types of artificial limbs: 1) Prosthetics 2) Implants 3) Orthotics. For example, a prosthetic would be like a replaced limb, a leg, an arm, etc. An implant would be something as such as valves to make sure the body is not cold. An orthotic would be braces for teeth.

These elements are essential as its crucial in aiding and improving the everyday quality of its users as well as the aesthetics of the prosthetics. Some people could live their life without a prosthetic. However, some prosthetic users cannot start to feel insecure due to wearing, stares from people therefore the use of a prosthetic will help these users with to regain their confidence.

Effective prosthetic design for Sierra Leone users
The design and fabrication procedure consist of numerous steps. It begins with a precise measurement procedure where a prosthetist takes measurements before the fabrication process so that the fabrication process can get started and be ready for amputation. The measurements are based on the anthropometry of the patient.

For example, detailed measurements of the patient’s body are taken to help correctly size the prosthetic limb, which is when the patient’s own personalised prosthetic
How are bacterial diseases diagnosed now and how could advancements in science change this?

Introduction:
Inducing approximately 35,000 US deaths each year, (1) bacteria are unicellular, prokaryotic microorganisms containing plasmid DNA. (2) Enclosed by a plasma membrane, bacteria are capable of conformational changes in characteristic shapes – such as spherical and rods – which assist in the diagnosis of bacterial diseases. (3) Despite the negative stigma suggesting that all bacteria are harmful, not all are considered to be pathogens, equating in only a small selection of them causing bacterial diseases. (4) As bacteria invades and multiplies within a patient’s body, (5) it is likely that their infection will be a urinary tract infection – such as cystitis – or a sexually transmitted infection (STI) – such as chlamydia – due to them being the most common within the UK. These infections can be detected via cloudy urine, pain during sexual intercourse or pain whilst urinating.

Salmonella enteritidis gastroenteritis:
Caution of gastroenteritis:
Usually lasting between 4-7 days, Salmonella enteritidis – also referred to as S. enteritidis – is a pathogenic bacterium which induces abdominal cramps, severe diarrhea and a harsh fever. (7) As a result of S. enteritidis, infections such as gastroenteritis can occur, which do not demand immediate medical treatment. (8) Gastroenteritis is an infection which can be contracted bacterially via S. enteritidis, not only alluding to digestive trouble, but also resulting in intestinal inflammation, evoking the digestive and abdominal trouble through the infection, gastroenteritis. Once these bacterial particles, emerged from S. enteritidis, have been consumed, they progress through a pathway regarding two systems and invade both the small and large intestine. S. enteritidis then further colonizes the lymphoid tissue (10) – an embedded structure which results in an immune response (11) – of the gastrointestinal tract, immersing bacteria to spread throughout the patient’s bloodstream. (10)

Treatment:
With there being no distinctive treatment for common gastroenteritis, (12) it is evident that in 2007-2016, the British public gradually became more aware of the severity of S. enteritidis. This analysis was depicted through a decrease of 4,133 reported cases within the space of 10 years. This immense drop in values ensures that the British public are becoming more socially aware of S. enteritidis, and that they are therefore enforcing measures to decrease their risk of contraction. (13) Children below the age of five, adults over 65 and patients consuming certain medication are more at risk of S. enteritidis due to their weakened immune systems. (7) Because of this, (8) such as S. enteritidis – cannot be fought off as easily opposed to a healthy adult with a fully functioning immune system. Henceforth, it situates patients under 5-years-old and adults with severely immunosuppressed and vulnerable category. (14) As the number of laboratory reports for S. enteritidis have distinctly decreased over a 10-year period, it therefore entails to less patients being diagnosed with gastroenteritis through S. enteritidis, all due to the bacteria becoming less prominent. (13)

Conclusion:
In different parts of the world means different needs are needed for the prosthetic design. For example, in Sierra Leone different key points needs to be addressed. Prosthetics are very interesting and the way they can vary specifically from one person to the other is amazing. When designing one has to take into account different requirements, as it does not demand such a medical safe. It can seem daunting and stressful but at the end of the day you are helping a person in need, or just a person trying to live their life at the best. When producing a prosthetic, you have to take in consideration such serious aspects like, mass, size, height, length, aesthetic, and even the patient’s feedback to improve the prosthetic to make it to their desire and likeness.

References:
(1) https://en.wikipedia.org/wiki/Salmonella enteritidis
(2) https://en.wikipedia.org/wiki/Pathogenic_bacteria
(3) https://en.wikipedia.org/wiki/Clinical_diagnosis
(7) Bacterium which induces abdominal cramps, this is important because it will help the prosthetic fit and be comfortable for the patient. The health of the user and condition of the human to be able to move around and be able to do the same mass as the other present limbs, this is because for the patient to change very, which is what makes Sierra Leone a set place for prosthetic assistance.

Another key focus should be the mass of the prosthetic. This means that the prosthetic has to have the same mass as the other present limbs, this is because for a human to be able to move around and to be able to do human activities the body has to be able to ambulate. With this the body needs to be balanced and identical in mass to the anatomic limb, meaning any extra added weight to the prosthetic to make the whole body be unstable and not perform well.

The use of maths is also essential, in the manufacture of the prosthetic namely measurements such as the diameter and the radius of the limb, how dense it is, and even the patient’s feedback to improve the prosthetic to make it to their desire and likeness. Careful attention is also paid to the structure of the prosthetic limb, including the bony set in the any muscles, tendons and bones, this is important because it will help the prosthetic fit and be comfortable for the patient. The health of the user and condition of the human to be able to move around and be able to do the same mass as the other present limbs, this is because for the patient to change very, which is what makes Sierra Leone a set place for prosthetic assistance.

Pathogenicity:
Numerous attributes – such as lipopolysaccharide structures – have been explored when it comes to its correlation with pathogenicity in S. enteritidis. (21) Bacterial lipopolysaccharides are also referred to as endotoxins and are said to be affiliated with chronic gut inflammation. (22) With pathogenicity being an organism that results in a disease, (19) the placement of lipopolysaccharides in poultry, chicken and turkey, this is due to the aura of virulence through the bacterial disease due to the combination being pathogenic. (21) Causing over two million yearly deaths for children under the age of 5, diarrhoea – induced through gastroenteritis – poses as a serious threat in underdeveloped countries. (23) Despite the harshness of gastroenteritis, rehydration within children is the most effective way of dealing with the infection – especially in third world countries – due to effective diagnosis tests being unavailable.

Table 1: Presenting a drop in English and Welsh S. enteritidis cases over a ten-year period. The cases have dropped from 6489 laboratory reports to 2356 in 10 years, representing a steady decline.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of cases</th>
<th>% of decline</th>
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<tbody>
<tr>
<td>2010</td>
<td>2505</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>2356</td>
<td>6%</td>
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Microbiological diagnosis of S. enteritidis:
Sampling:
Regarding the diagnosis of S. enteritidis, a sample from a patient is required to be sent to the lab and await further investigation and development. Bacteria from S. enteritidis can be found present in excrement or bodily fluids, however, this sample therefore having to come from either the patients’ bloodstream or faecal matter – a stool sample. (25) Once a sample has been produced and contained – which is a process that takes approximately 1 hour – the samples are then placed in a cooler or refrigerated to transport the sample from the GP medical centre to the hospital laboratory for identification. (19) S. enteritidis is a Gram-negative, anaerobic bacilli, signifying that it consists of rod-shaped bacteria where oxygen is not present. (18, 26) If a gram stain test were to be taken, this would then consecutively entail to the bacteria being stained pink due to its thin peptidoglycan cell wall. This

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thin peptidoglycan cell wall enables the purple stain from
agar plate tests, however, with it being published
in a 2013 study which identifies the
agar volume, proven in a 2013 study which identifies the
These new advancements in science consist of altering
discovery not as applicable to modern day microbiology.
(32) a study on the significance of the early diagnosis of
(bacterial diagnosis. Microbiologists distribute an array of
thin peptidoglycan cell wall enables the purple stain from
S. enteritidis, Salmonella enteritidis,
Salmonella (non-typhoidal) 

facultative-anaerobe | microorganism 
[Internet]. Encyclopedia Britannica. 2020 [cited 6 January 2021]. Available from: https://www.mayoclinic.org/diseases-
technology | microorganism [Internet]. University of Texas Medical Branch at Galveston; 1996. [cited 6 January 2021]. Available from: https://www.cdc.gov/salmonella/enteritidis-07-12/signs-symptoms.html

influenza and SARS-CoV-2. This usually peaks around the
of macrophages. Considering the current
Course Title: Let’s start a biomedical 3D printing business

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We have assembled a 64 D-Hex capsule with a bespoke geometry, synthesised to reside and be released in the duodenum for up to 3 months. The proposed design of the capsule will reduce the daily tablet intake, therefore decreasing intake emissions, and inconsistent release of the vitamin in the body which may lead to vitamin D toxicity [7]. The physical geometry of D-Hex is made from the careful synthesis of a hydroxypropyl-methylcellulose (HPMC) and 10μg active ingredient 1,25-dihydrovitamin D, commonly known as Calcitriol, to form a filament. A hexagonal matrix is extruded via a fused-filament fabrication (FFF) 3D printing method [8]. To control capsule dissolution, the matrix is embedded in an hydroxypropyl-methylcellulose acetate succinate O-capsule formed through a modification of the conventional fused-deposition modelling (FDM) process [9]. It is estimated that by lodging the D-Hex matrix in the duodenal bulb (i.e., high absorption surface area) absorption can be ca. 77%, hence increasing the levels of serum 25-hydroxyvitamin D synthesized in the kidneys and reinforcing a healthy immune system [10,11].

The complexity of producing an extended-release capsule to last the duration of the winter months requires a unique method and material process to be embedded into the design. This proposal, the design strategy was adapted from an intricate multi-layer blueprint previously used in the formation of a one-month oral contraceptive [12].

The D-Hex matrix is held in a 0-capsule printed via a tailored fused-filament fabrication (FFF) 3D printing method with a 0.1 mm nozzle. The new technique incorporates hydroxypropyl- methylcellulose acetate succinate (HPMCAS) with a lactose filter to produce a unique gastro-resistant filament for capsule extision. Targeted dosage release is achieved through the 3D printing of HPMCAS allowing dissolution to occur between the pH range of the duodenal bulb (pH 5.5-6). [13,14]

The D-Hex matrix was formulated by the preparation of a 1,25-dihydrovitamin D saturated hydroxypropyl- methylcellulose (HPMC) filament suitable for fused-filament fabrication (FFF) [8]. As one of the cheapest and reliable pharmaceutical 3D-printing methods, FFF served as the ideal method to use in maximising the overall cost due to investment in more machinery. Further distribution will be to patients suffering from chronic conditions including diabetes, Alzheimer disease, depression, and chronic cardiovascular diseases [27].

Unique selling point
The unique properties embedded within the design of D-Hex provide transformative mechanisms that benefit customers. 1,25-dihydrovitamin D with personalized dosage filaments and the long-release profile of the matrix allows D-Hex to stand out from a crowded vitamin D market.

Auxilien’s development of a 3-month extended-release mechanism is a first in the VMS industry. It is known that current single circadian use capsules are the common cause of inconsistent vitamin intake and missed doses as patients are more likely to conform to monthly over weekly/ daily supplements [28]. To counter this D-Hex was formulated, at patient adherence to a consistent vitamin intake can be increased by reducing dosage frequency [29].

The use of a FFF filament enhances the ability for personalised matrices to be formulated, catering to the higher vitamin D dosages needed for more pigmented skin hence reducing the risk of over/underdoses. The precision of FFF 3D P can be tailored to the pharmacogenetics and pharmacokinetic profiles of each patient, taking into consideration: age, weight, metabolism patterns etc. [30,31].

Swell analysis
The Covid-19 pandemic caused a world economic downturn. However, for sectors including food supplements there has been an upsurge in demand with UK projections indicating an 13% growth rate in the next 5 years reaching over £550 million. [19]. Heightened popularity of vitamin D amongst UK consumers led to an 8% increase in sales over the last 12 months deeming it to be the highest supplement in demand [20].

As the UK’s geographical location renders it sunlight deficient for most of the year, the National Diet and Nutritional Survey found over 50% of the population to be vitamin D deficient with Black, Asian, and Minority Ethnic (BAME) groups to be at higher risk as the higher percent of melanin pigmentation in the epidermal layer decreased the cutaneous synthesis vitamin D [21,22].

In the UK there are approximately 2.2 million clinically vulnerable people and in light of the Covid-19 pandemic, they are at a higher risk of developing SARS-CoV-2 [23]. The correlation between vitamin D deficiency and Covid-19 has been shown to increase the likelihood of catching the virus, exacerbating patients’ symptoms, knowing that 89% of deaths from covid-19 are those aged over 65 years [24]. Due to the rapid increase of cases over the past few months, the death proportions may have altered slightly.

The initial distribution of D-Hex will focus on a national level, distributing 7 million capsules to around 1000 hospital pharmacies in the UK where the supplement will be given on a prescription basis. The primary consumers will include patients suffering from osteomalacia, a bone softening condition affecting 1 in 1000 people. The condition is often caused by a lack of vitamin D and leads to muscle weakness and the fracture of bones in elderly people [25,26]. Further distribution will be to patients suffering from depression and the fracture of bones in elderly people [25,26]. Further distribution will be to patients suffering from depression, and chronic cardiovascular diseases [27].

Holistic Therapy: As part of holistic therapy, capsules prescriptions would extend to patients suffering from chronic diseases including diabetes, Alzheimer disease, depression, and chronic cardiovascular diseases. [27]
A research proposal attempting to secure a grant to fund the search for a new antibiotic from a leafcutter ant colony

Year 10, Key Stage 5

Pupil: A. Fallows
School: University Technical College Norfolk, Norfolk
Supervised by: J. Hamilton
Tutor: University of East Anglia

Course Title: Biochemical warfare in the environment – How ants help disease

Grant proposal

Leaf cutter ants: the forefront of antibiotic discovery.

Antibiotic resistance is one of the “biggest threats to global health, food security and development”.

Preventative measures are effective to a certain point – streamlining the approach of discovery is essential in managing resistance. Could the Streptomyces hosted by leafcutter ants provide us with the treatments we need?

1. Antibiotic resistance

Antibiotics are composed of substances designed to prevent the growth of bacteria or destroy it. However, when put under pressure, bacteria adapt to survive despite the use of an antibiotic that normally kills it. This is known as antibiotic resistance.

1.1 Causes of antibiotic resistance

Mutation of bacterial DNA accidentally occurs characteristics that provide resistance. This resistance spreads through horizontal gene transfer, which is where genes are obtained from another organism. Examples of development of resistance include Streptomyces coelicoflavus, which removes internal antibiotics before they take effect.

Mutations will happen regardless of human activity; improper use of antibiotics speeds up the rate.

To limit this, there is mutualism between the ants and defensive bacteria, Streptomyces. Mature ants enable the growth of Streptomyces on their chest plates, feeding them through glands. The chemicals provided by the ants are unconfirmed, however it is speculated to be sugar compounds, as bacteria use glucose in anaerobic respiration. In return, the bacteria produce antibiotics to prevent the ants from becoming ill and antibacterial to inhibit the growth of Escovopsis. These secondary metabolites require a large amount of DNA code, so the growth of the Streptomyces is far slower than that of the fungi. Streptomyces is transferred horizontally; ants rub larvae on their chest plates to ensure all members of the colony have a form of streptomycetes. They also disperse a dried cut material in the waste piles, so the pathogens so they cannot enter the nest again. Resistance spread is low in the colony, due to the variety of Streptomyces used. However, Escovopsis have co-evolved with the ants and can produce the most metabolites to produce melanin D + and Streptomyces D – both of which kill bacteria. Streptozine D also affects the behaviour of the ants, using neurotransmitters to induce abnormal actions, such as preventing the removal of the Escovopsis.

1.2 Limiting the spread of resistance

Schemes like WHO’s “World Antibiotic Awareness Week” aim to reduce improper use by informing the public about the consequences. They also utilise engaging activities for children, implementing knowledge from younger ages so misuse decreases in the next generation. Despite these efforts, resistance remains a growing problem.

Selective breeding programs can be utilised to ensure all livestock are of suitable size and strength for farming, removing the need for prophylactic antibiotics. Pairing this with regulations and fines ensures that animals are only treated when ill, therefore limiting water and produce contamination.

These tactics can only reduce resistance spread, not stop it. Therefore, funding research of new antibiotic is crucial, as the existing ones will become ineffective.

2. A source of new antibiotics

Antibiotics can be produced as a secondary metabolite, an antibiotic that does not develop from the development or cell function of the organism. They are synthesised by groups of genes known as biosynthetic gene clusters. 80% of modern antibiotics are produced by Streptomyces, a fungus of which are found in soil. However, Streptomyces can thrive in other environments such as sea sponges, plant roots and leaf cutter ant colonies. Streptomyces hosted by the ants will be the focus of this research.

Leaf cutter ants have been farming Leucoagaricus gorlenkoi fungi for approximately 50 years in specialised chambers for optimal conditions. Chopped leaves are provided for nutrients. The fungus uses enzymes to break down polymeric leaves in that ants cannot, producing structures called gongylidia, containing lipopolysaccharides and sugars – these are the active source of the agent. When insects, they transmit fungal decomposition enzymes through ant faecal matter that is transferred to the leaves, killing unwanted fungal spores. These fungal gardens are rigorously cleaned, ants use mandibles to cut out pest-infested areas, discarding the 'waste' anywhere from half a foot to far from the nest. The ants secrete chillines and glucoselactones to act as pest-repellents, alongside phenylacetic acid that acts as an anti-microbial. However, these defences are inadequate on their own. A pathogenic fungus called Escovopsis targets the fungal cultivar, aiming to take it over by using ant faecal matter to prevent the ants from becoming ill and antibacterial to inhibit the growth of Escovopsis. These secondary metabolites require a large amount of DNA code, so the growth of the Streptomyces is far slower than that of the fungi. Streptomyces is transferred horizontally; ants rub larvae on their chest plates to ensure all members of the colony have a form of streptomycetes. They also disperse a dried cut material in the waste piles, so the pathogens so they cannot enter the nest again. Resistance spread is low in the colony, due to the variety of Streptomyces used. However, Escovopsis have co-evolved with the ants and can produce the most metabolites to produce melanin D + and Streptomyces D – both of which kill bacteria. Streptozine D also affects the behaviour of the ants, using neurotransmitters to induce abnormal actions, such as preventing the removal of the Escovopsis.

The final thoughts of this research are to create a more effective method of discovering new antibiotics and to make use of the resources already present in these leaf cutter ant colonies.
3. Approaches of antibiotic discovery

In secondary metabolite producing bacteria, the genes coding for antibiotics and the plasmid have been isolated. This means that some gene clusters are switched off under laboratory conditions but can be induced in the wild. Several approaches to unlock these clusters have been developed.

3.1 Pleiotropic approach

As shown in figure one, there are several pleiotropic approaches to identify antibiotic producing clusters. These include antibiotic induced antibiotic producing clusters, known as CRISPR/Cas9 to protect itself from future attacks.

4. The bacterial defence system

Viruses attack bacteria to use them as hosts for DNA replication, so a bacterium must be able to withstand infections. This is done by having a pleiotropic approach, known as CRISPR/Cas9 to protect itself from future attacks.

4.1 CRISPR/Cas9

Clustering irregularly interspaced short palindromic repeats (CRISPR) is an array of bacterial DNA that foreign genetic material is placed in, and CRISPR associated protein 9 (Cas9) is a protein which cleaves complimentary DNA stored in the CRISPR array, disabling invasive DNA.

The bacterium requires three components to recognize a cleavage target: CRISPR RNA (crRNA), trans-activating crRNA (tracrRNA) and the Cas9 nuclease. These components form a complex, which travels down the bacterial DNA, checking what is present. When a sequence on the crRNA complements the viral DNA stored in the array, the tracrRNA and crRNA bind to the site. If the protospacer adjacent motif (PAM) sequence, which follows the crRNA: any base, guanine, guanine (NGG), is registered before the section, Cas9 cleaves it into a double strand break (DSB). The PAM sequence ensures no viral DNA is cleaved.

4.2 Strand repair

Following the cleavage of the bacterial DNA carried out by Cas9, DNA is repaired through two methods: non-homologous end joining (NHEJ) and RecBCD dependent homologous recombination.

NHEJ

NHEJ is predominantly used to repair DSBs, limited DNA synthesis and the absence of repair templates, such as sister chromatids, enable this method to be performed faster compared to RecBCD dependent homologous recombination. However, the lack of precision causes NHEJ to occasionally create null alleles or place a stop codon unintentionally, which can be fatal. There are two classifications of NHEJ. Alternative NHEJ (o-NHEJ) depends on micro-homologies, which are identical short base sequences in DNA, that are exposed through end resection before ligation. Alternatively, classical NHEJ (c-NHEJ) minimises the use of end resection, so it is energy efficient, as it eliminates the need for a magnetic field. However, deletions are less common, as the mass of the organism can be determined by the shape of the arc produced.

Classically high-performance liquid chromatography (HPLC) can be used to detect antibiotic production through a column of pressures of up to one hundred atmospheres.

The substance analysed is put inside the column with a HPLC can be used, where a solvent is forced through a can be determined by the shape of the arc produced. Heavier ions are deflected less, so the mass of the component can be determined by the shape of the arc produced.

3.2 Drawbacks

Pleiotropic methods are non-specific to a gene cluster, hence the development of an antibiotic is not guaranteed to produce an antibiotic. Additionally, redoxify of known antibiotics is common. This means that discovery processes are time-consuming. A streamlined process could be derived from the bacterial defence system.

5. CRISPR/Cas9

CRISPR/Cas9 will be used to cleave known antibiotic producing genes, allowing cryptic gene clusters to be expressed. As this approach targets specific biosynthetic gene clusters, antibiotic rediscovery is less common, as it offers many other benefits. CRISPR/Cas9 can produce more diverse compounds than what has been discovered so far. Further, as CRISPR/Cas9 can target material rapidly, the only requirement is the presence of an adjacent NGG sequence.

The plasmid reaches the targeted site following the procedure for plasmid construction in section 3.1. The plasmid is able to be used, as it provides optimal conditions for Streptomyces growth. Following complete incubation, a ring of clearance around the Streptomyces indicates the presence of antibiotic. Alternatively, the plasmid will be used to identify the compound for stability testing.

6. Conclusion

Cryptic biosynthetic gene clusters within Streptomyces dwelling in leaf cutter ant colonies may synthesise an antibiotic. Multiple antibiotic producing Streptomyces spores will be cultivated similarly to the Streptomyces spores used in the experiment. As this approach targets specific biosynthetic gene clusters, antibiotic rediscovery is less common, as it offers many other benefits. CRISPR/Cas9 can produce more diverse compounds than what has been discovered so far. Further, as CRISPR/Cas9 can target material rapidly, the only requirement is the presence of an adjacent NGG sequence.

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Endnotes:


2 Dr Marian Bos (VMD), Dr Berit Muller-Pebody (PHE), Dr Ana Vidal (VMD) and Laura Christine McCaughey, ‘How Does Bacteria Become Resistant To Antibiotics?’, The Conversation, 10th June 2016. https://sciencebeta.com/antibiotic-resistance


5 Using CRISPR/Cas9 to discover new antibiotics CRISPR/Cas9 will be used to cleave known antibiotic producing genes, allowing cryptic gene clusters to be expressed. As this approach targets specific biosynthetic gene clusters, antibiotic rediscovery is less common, as it offers many other benefits. CRISPR/Cas9 can produce more diverse compounds than what has been discovered so far. Further, as CRISPR/Cas9 can target material rapidly, the only requirement is the presence of an adjacent NGG sequence.
How a new immunotherapy could be beneficial as a treatment option after existing treatment?

A. was an absolute pleasure to work with, she was always engaged with the programme and asked interesting, challenging questions. The grant submission was easy to write, with good language and written with excellent English skills. Throughout, A. was able to grasp complex scientific topics with ease, going above and beyond the requirements of the course. She was always polite and concise with task – working at a level worthy of an undergraduate.

Tutor comment:

The pathophysiology differs slightly between all four types of leukaemia. Both acute lymphoblastic and acute myeloid leukaemia originate due to a series of acquired genetic aberrations. Malignant transformation usually occurs at the pluripotent stem cell level - these are self-renewing cells that do so by indefinitely dividing. Abnormal proliferation, clonal expansion, aberrant differentiation, and diminished apoptosis lead to the replacement of normal blood elements with malignant cells (Emadi & Law, 2020). During chronic lymphocytic leukaemia, CD5+ B cells undergo malignant transformation. These cells are continually activated by the acquisition of mutations that lead to monoclonal B-cell lymphocytosis (MCL). Further accumulation of genetic abnormalities and subsequent oncogenic transformation of monoclonal B cells leads to CLL (Emadi & Law, 2020). Finally, chronic myeloid leukaemia ensues when an abnormal pluripotent hematopoietic progenitor cell initiates excessive production of all myeloid lineage cells, primarily in the bone marrow but also in the peripheral blood.

After diagnosis, the type of treatment available depends on the type of leukaemia present: acute lymphoblastic leukaemia is treated after a few days of its diagnosis due to platelet (platelet count) and white blood cell (WBC) count (NHS, 2020). Treatment for chronic myeloid leukaemia does not depend on the type of cancer, but it is often very long and can include: genetic testing, scans, a lumbar puncture, cytogenetic testing and immunophenotyping (NHS, n.d.).

When initially diagnosing leukaemia, a complete blood count (CBC) will be conducted by a doctor to determine its presence. An indication of it could also be abnormally low levels of white blood cells, red blood cells or platelets. A biopsy is then conducted on the bone marrow to determine the type of leukaemia present. The patient is checked for symptoms of the condition and arranged to have a blood test. If an abnormally high number of white blood cells is present or if the patient has a low blood count, they are referred to a haematologist. Other tests are conducted to determine which of the four types of leukaemia present, some types of cancer screening can include: genetic testing, scans, a lumbar puncture, cytogenetic testing and immunophenotyping (NHS, n.d.).

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as monoclonal antibodies. Leukaemia is commonly treated with targeted therapy, but the most frequently used treatment is chemotherapy. It is commonly used for people with acute leukaemia as it targets rapidly dividing cells. Chemotherapy uses cytotoxic drugs to treat cancer; a single drug or a combination of different drugs are administered into the patient. A combination of chemotherapy drugs is favourable as it can decrease the resistance of the leukaemia. In addition, early administration of two or more drugs at a given time allows for the cancer patient to experience effective treatment as soon as possible. At a molecular level, multiple drugs can simultaneously target several processes in the growth stages of leukaemia; this can increase the likelihood of its elimination. Therefore, patients with acute myeloid leukaemia experience a mutation in the FLT3 gene which is responsible for helping cells grow. Midostaurin (Rydapt) and Gilteritinib (Xospata) are drugs which block FLT3 in T-cell cancer cells. These drugs are identified through continual monitoring when they aid in growth. However, chemotherapy can cause side effects to accumulate if several drugs are used. Drug interaction can also occur and cause further side effects, consequently, difficulty arises in trying to identify which of the medications is responsible for such. However, the severity of the medication may lead to its discontinuation (Edwards, 2019). After undergoing chemotherapy, approximately 40-45% of adults younger than 60 years survive longer than 5 years, however, in older patients, fewer than 10% survive (Seliter, n.d.).

CAR T-cell therapy is a novel and complex treatment. In contrast, this is a medical procedure in which blood is withdrawn, separated into individual components before the appropriate one is removed. The remaining blood is returned to the body. These cells are then reconditioned in a laboratory or a drug manufacturing facility during which they are modified to express chimeric antigen receptors (CARs) on their surface. This is done by the introduction of DNA into the cell, which provides the receptors which are necessary for the CAR cell to function. CAR T-cells are then multiplied in numbers, frozen and transported for usage. Prior to receiving the CAR T-cells, lymphodepletion is performed, normally by chemotherapy, in which the lymphocytes in the patient’s blood is reduced. The CAR T-cells that return proliferate, identify and destroy cells that present the targeted antigen. For example, the CD19 antigen is the most common biomarker used in CAR T-cell therapy as it is expressed frequently on the surface of malignant B cells, on all B cells (excluding plasma cells) and follicular dendritic cells (Leukaemia & Lymphoma Society, n.d.).

CAR T-cell therapy is emerging as a promising and beneficial therapy. Moreover, with CD19-targeting CAR T-cells, 30-60% of patients achieve a complete remission. In fact, unlike other cancer treatments, it has a relative short treatment time – its completion involves an administered infusion that requires (at most) two weeks of inpatient care. CAR T-cells also have prolonged persistence and long-term benefits. As these modified cells can remain in the body for an extended period, they continue identifying and destroying leukaemia cells, if a relapse occurs. For example, two-thirds of childhood acute lymphoblastic leukaemia patients who received CD19-directed CAR T-cells remain cancer-free 2 years after CAR T-cell therapy (Park, et al., 2016). These patients whose cancers were deemed very aggressive and for whom other standards of care had failed (The University of Texas MD Anderson Cancer Center, 2018).

Instead of the “1-dose-for-all” approach, scientists are now looking for safe doses of CAR T-cells with optimal immunologic activity and effectiveness to treat patients. Concerns have been raised concerning adverse effects of CAR T-cell therapy; these are the side effects, namely, cytokine release syndrome (CRS) and neurotoxicity. It is important to consider the mechanisms of the immune system. Unlike other cancers, T-cells can no longer unleash an attack on these cancerous cells whom of which have mutated and changed greatly different antigen therefrom, thus hind understanding of the pathophysiology of CRS and neurotoxicity can dramatically increase the quality of CAR T-cell therapy (Budroni & Kochenderfer, 2019, p. 43). From reviews of CD19-specific T-cells it is clear that a uniform and standardised definition of CRS and neurological side effects specific and relevant to CAR T-cell therapy needs to be created so that the toxicities of different treatments can be compared with each other (Park, et al., 2016).

CAR T-cell therapy is coveted for its complexity and potential risks but still showcases itself as the new potential treatment for leukaemia and other haematological malignancies. Moreover, with the success of CD19, the last decade has seen the discovery of new and informative biomarkers on a range of other human malignancies. These surface targets have made it possible to provide directed, specific therapy that reduces healthy tissue damage and increases the overall effectiveness of therapy during treatment, reducing the severity of side effects (Townsend, et al., 2018). The higher precision of CAR T-cells mean they can target cancer cells that express the targeted antigen, however, problem arises when these cells mutate. This means the re-engineered T-cells can no longer unleash an attack on these cancerous cells whom of which have mutated and changed greatly different antigen therefrom, thus hind understanding of the mechanisms of the immune system. Unlike other cancer treatments, CAR T-cells initiate immune memory and can treat stagnant and metastatic lesions; these effects can only be observed if the CAR T-cells remain long-term in the body. Therefore, they directly suppress the population of cancer cells without affecting normal somatic cells, especially in the occurrence of a relapse.

CAR T-cell therapy also has a relatively short treatment time when compared to other cancer treatments. This means CAR T-cells can often be transplanted and easier through this procedure. In numerous clinical trials it has been shown that 70-90% complete remission can be achieved in paediatric and adult patients treated with CAR T-cells. However, 10-20% of patients relapse after CAR treatment, and among those, 10-20% are CD19-negative relapse (Xu, et al., 2019). CAR T-cell therapy can also produce serious, life-threatening side effects. In the case of CRS and neurotoxicity. The symptoms of CRS include mild flu-like symptoms to more serious ones such as hemophagocytic lymphohistiocytosis and tend
The first species of the group appeared to look like large animals with wide, large heads and short legs. They had an aquatic (or semi-aquatic) lifestyle and moved around using mainly their muscular tail with rays similar to that of fish. Having evolved from lobe-finned fish named sarcopterygians, amphibians were the first tetrapods to traverse the land, leading the way for later vertebrates to follow, but the first recorded amphibians were labyrinthodonts, which meant that their teeth had had layers of dentin and enamel in a structure similar to a maze. Early amphibians were small and modern amphibians have evolved more complicated species in body functions rather than as appearance as these ancestors presented a lateral line, which was a sensory organ that enabled fish to detect vibrations and movements underwater as well as being able to breathe through their skin (however, modern species lost their ancestral cosmoid scales). Early amphibians also laid eggs in water, of which tadpoles emerged, before undergoing a metamorphosis process into adulthood [4].

These ancestors began to resemble modern species appearance-wise 350 million years ago after their evolution from fish as they have not changed much in morphology since, having four limbs and sharing a similar gait to modern salamanders as they move by bending their bodies side to side (lateral undulation) [5]. However, they especially gave rise to the three main modern species we know of today after a global mass extinction at the end of the Permian period, which my research has found could be due to a series of volcanic eruptions and its debris which blocked out the sun, or, as scientists have debated, it was the result of global climate change [6][7]. Amphibians managed to survive, however, due to living in freshwater ecosystems which shielded them and the accumulation of run-off nutrients from the land proved to be advantageous [8]. Another mass extinction occurred 65 million years ago, where only five amphibian species survived, leading to the majority of frog and salamander species alive today [9], with more than 7650 amphibian species estimated to exist today [10], and this was due to a massive asteroid colliding with the Earth, devastating the global environment, but also giving rise to a collection of new ecological niches such as new vegetation which, in turn, as my research has discovered, allowed more amphibians to survive as new species began to form at the end of the Mesozoic during the Cretaceous period [11].

Modern amphibians (lassamphibians) share several traits unique from any other species: they typically have moist skin, rely mostly on skin-surface respiration, possess a double-channeled hearing system, green rods in their retinas to differentiate hues, and, finally, have two-part jaws lined with teeth. However, the three existing groups differ in their appearances, as frogs are tailsless and slightly squat with hind limbs built for jumping whereas caecilians are limbless and adapted for burrowing. Salamanders and newts also have tails and four legs of similar size but are less specialised in body form than the others. Amphibians also occur widely throughout the world, absent in only Antarctica, the most remote of oceanic islands, and its diversity is extremely diverse [12]. This biodiversity in appearance may allow for a larger proportion of amphibian species to survive current biodiversity crises due to past evolutions of species requiring amphibians to adapt to the changing environments, and so this could prove essential to the future of these species. Some studies have shown that amphibians were able to survive as a result of new habitats and ecological niches being introduced at the end of biodiversity crises of which amphibians could expand into alongside planting flowers and huge changes in vegetation [11]. However, this may not mean current amphibian species will be able to survive current biodiversity crises the same way.

Figure 2 shows that amphibian diversity has been, overall, increasing over hundreds of millions of years, but there have been dips, or troughs, and peaks in the data coinciding with potentially huge losses and gains of amphibian populations, or these are the areas in which sampling biases have had most devastating an effect on the fossil record, influencing this trend. This is a key area of the investigation in which I shall explore further next in the report.

There are a plethora of sampling biases that may affect the data and the following discussed are the main ones affecting the diversity curve of lissamphibia (Figure 2). According to the fossil data present in the Palaeobiology Database, which can be found in Figure 3 below [13], amphibian fossils are primarily found in Europe and North America, although large collections can be found in Asia and South America. China has been known recently to have uncovered thousands of fossils from the Cambrian Explosion, which is exciting but would not contain amphibians. The data being shaped here are primarily found in areas is perhaps the result of the rock types amphibian fossils are found in, for example, they cannot be found in Devonian or Mississippian rocks in Ohio but can be found in Pennsylvania and Permian rocks [15]. These geographical biases would affect the fossil record, and thus our interpretations, as more fossils would appear in these specific areas rather than anywhere else in the world which could cause the data as some may have simply not been discovered yet or places where amphibian fossils could be found cannot be due to building regulations over these areas.

Amphibians are not always particularly popular or famous, but they are well-studied as amphibians have been used as a way to collect information about all animals due to their use in a plethora of different studies, for example, taxonomic diversity which is suited for comparative studies as well as in physiological studies aimed at providing new insights into evolutionary biology [16]. Thus, amphibian fossils may also be of key preference to researchers. Examples of such studies recently include the comparison of two methods used to detect amphibians in terrestrial environments [17] and the exploration of Iberian amphibian species’ response to recent climate change through amphibian distribution [18]. These preferences could affect the fossil record by perhaps finding more inconsistencies in the data as more researchers interpret their findings differently, however, peer reviews would reduce this chance of skewing the data.

It seems that the diversity of amphibians has increased towards the present, reinforced by the increase in fossil abundance towards the modern-day, despite being quite a late accumulation of extant lineage diversity [19]. However, this could be due to fossil scarcity as their current diversity cannot be tracked through the GSSP fossil record contains of amphibians, and this could potentially affect the data underlying the diversity curve (Figure 2).

These sampling biases affect our interpretations of amphibian fossils as they affect the fossil record, thus it may not be ideal to use the fossil record. However, the fossil record is still useful and important as it can allow researchers to view what occurred in the past and the information discovered is still significant to this past biodiversity as it can provide evidence for, or disprove, future and current theories.

The fossil record can also be useful by understanding how fossils can help researchers to investigate how ancestors of species managed to survive past extinction events as well as exactly what species didn’t survive in order to recognise the traits or environments current species need to have to survive future extinction events. For example, amphibians survived the End-Cretaceous mass extinction whereas dinosaurs did not, and research suggests this could have resulted from slow egg incubation periods dinosaurs’ experiences, perhaps putting them at that risk of extinction [20].

The current climate change crisis has meant that not only amphibian species, but other living organisms are being affected as biomes are changing rapidly. It has been determined that the biggest emerging threats to biodiversity include, but are not limited to: ocean fish farming, which has been found to pollute the environment with nutrients and other chemicals but adverse impacts can be reduced through recirculating aquaculture systems; habitat loss and degradation, which force animals to relocate and results in biodiversity reduction; and, epidemic and infectious diseases which can affect wildlife [21][22]. There are approximately 8100 (an uploaded of 8104 species in an amphibian database) species of amphibians currently existing in the world [23][24] and amphibians can be found on almost every continent but the largest total of species of amphibians reside in Brazil, where approximately 1022 species can be found, with 771 amphibian species [the second-largest amount] being found in Colombia [25]. However, amphibian species have been increasingly declining, particularly in the last few decades, so the conservation status of various amphibian species is bad. Nearly 168 species are believed to have gone extinct and at least...
2469 amphibian species contain populations that are starting to decline [26]. In 2016 the UK alone, there had been a decline of 45% of amphibian populations over the previous 30 years, approximating a decline of 2.26% per year [27]. The threats to their biodiversity that have encouraged these declines include, but are not limited to, climate change, land-use change, domestic and international trade, and a fungal disease called chytridiomycosis which dries out skin and affects an amphibian's ability to regulate moisture. [28][29].

There is evidence of a sixth mass extinction underway in the world, as scientists have found that extinctions are occurring hundreds of times faster than they would generally be estimated to occur, reaching up to a million species of animals and plants [2]. This is why it is of the utmost importance for species to be conserved, and my research has shown that what would be needed to conserve amphibians as an example: to ensure amphibian species do not go extinct, intensive breeding programmes need to be created in order to create a chance of survival for species nearing extinction, and as amphibians are less well-known and less threatened than a lot of other threatened species, work appears to them to be given immediate attention through identifying and assisting species already in or approaching decline alongside legislative funding mechanisms to aid the eradication of conserving more endangered species. Furthermore, as the number of emerging diseases grows, amphibian species need to be monitored more regularly as well as having management programmes implemented to mitigate these disease threats [32].

In conclusion, the report has found that frogs can be used to prepare for future biodiversity extinctions that might be parent independent. In the future, their ability to reproduce is the most likely way to avoid this impending threat of extinction. This is because of the physical characteristics, such as geographical biases potentially construing the data and affecting our interpretations of the frog record. This is because frogs can be used to look at past biodiversity and compare against current biodiversity, in terms of size, appearance, and their environment. These past events are significant in suggesting how species were able to survive their biodiversity crises which can be used to better prepare our own conservation efforts in order to ensure future extinction of species does not occur or is at the least reduced. Therefore, we can use the fossil record as it is still useful in providing information and evidence to help us see the scope of the problem, what are the causes, and what can be done? An example of this is amphibians [University of California, Berkeley, CA, USA].


Butler, R., 2019. ‘Total number of amphibian species, by country’. https://amphibiaweb.org/amphibian

References

Explaining the routes by which avoidance behaviour is replaced by parenting behaviour in rodents

When an adult rodent is exposed to a pup, various sensory cues are detected. The diagram shows the route from detection of a pup-related olfactory stimulus, as seen in circumstances in which rodents will display parenting behaviour instead. Explain the routes by which avoidance having been replaced by parenting behaviour in rodents including a critical examination of the evidence supporting the existence of these routes. Within your discussion please focus on the evolutionary reasons for the different routes of activation as well as the wider implications for having more than one route to produce parenting behaviour.”

Darwin’s theory of natural selection explains how inherited traits which provide a competitive advantage proliferate. Both physical and behavioural characteristics are subject to this process and its consequence, as a result the traits which are passed down through a species' likelihood of survival and reproduction within their given environment are more likely to be passed on to the subsequent generation. Parenting in rodents can be considered an adaptive trait that serves to meet the demands of their vulnerable offspring - hence increasing such offspring's chances of survival and reproduction. This essay will examine different routes to parenting behaviour, considering how the innate avoidant or aggressive response to pup stimuli is overcome via different routes. The focus throughout will be outlining the different proximate causes of avoiding and engaging in parenting behaviour. The neurological basis of avoidance and parenting behaviour

Extensive investigation of rodent behaviour in laboratory experiments has enabled the identification of key regions of the brain which are involved in coordinating avoidance and parental behaviour. Central to understanding the shift between avoidant and caring behaviour in terms of neural circuitry, which has in certain cases enabled the avoidance of an evolutionary independent of parental care. Exploring the evolutionary reasons for these routes will be postulated based on consideration of their adaptive benefits.

Tutor comment: 1. ‘S. has the brightest future ahead of them. Their exceptional work throughout the course has been completed with such dedication and enthusiasm, and I very much valued their insightful input during tutorials.’ 2. ‘S. expertly composed final assignment was truly the cherry on top of a wonderful experience at a fabulous school with an extraordinary group of students. S. has the brightest future ahead of them. Their exceptional work throughout the course has been completed with such dedication and enthusiasm, and I very much valued their insightful input during tutorials.’

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Lee et al. [2] used electrical brain lesioning to specifically deactivate the MPOA only. Multiparous rats were given lesions or sham lesions, then observed for the behaviours shown in figure 2 (before lesioning) and figure 3 (after lesioning). This technique enables a specific region to be targeted so that any behavioural changes observed can be deemed to have been caused by the inactivation of the region of interest.

As part of the procedures these rats were tested prior to treatment to establish the natural level of maternal responsiveness for both groups. Use of a control group, which underwent sham procedure, strengthens the results as this demonstrates the reduction is not due to confounding variables arising from the procedures of treatment. Thus, the experiment can be considered to demonstrate a causal relationship between inactivation of the MPOA and a reduction in parenting behaviours; especially motivated or costly behaviour such as pup retrieval and carrying, demonstrating the crucial role of the MPOA in coordinating these behaviours.

While inactivation of this brain region reduces parental behaviours, eliminating activity in the medial amygdala will enable parenting to occur in otherwise avoidant animals. This was demonstrated by Numan & Numan [7] by injecting excitotoxic acid directly into the medial amygdala, which was observed to facilitate maternal behaviour in virgin female rats. Direct injection allowed specific targeting of the region of interest to demonstrate its role in the circuit. When the avoidance circuit is active, the parenting circuit is not, and vice versa. Subsequently, in order for parenting behaviour to occur, the pup stimulus must be able to gain access to the parenting circuit. The inhibitory action of the avoidance circuit must therefore be overcome. One such route is by increasing the activity of the MPOA such that it can overwhelm the avoidance circuit; as once the MPOA is activated it is able to suppress avoidant behaviour, this can be achieved by increases in the levels of key hormones.

Hormonal activation of parenting: endocrine events of pregnancy and parturition

The most reliable and motivated demonstration of parental behaviour across all rodents is maternal behaviour due to the hormonal events of pregnancy [8]. During the course of pregnancy, the mother undergoes a series of hormonal events which lead to her carrying out maternal care. Such changes include increases in estrogen, prolactin [3] and oxytocin [4], and a sharp drop in progesterone [3]. As demonstrated in figure 4 [5], the most drastic hormonal changes occur just preceding parturition (birth), corresponding with a dramatic increase in maternal behaviour.

Aside from initiating the physical events including uterine contraction and milk production involved in parturition and nursing [6] these hormones have been demonstrated to act to stimulate key areas of the brain, priming the mother to carry out maternal behaviour.

In terms of the avoidance/parenting responses, in the case of pregnant or newly mothering mice, the inhibition of the caring response is overcome by stimulation of the MPOA, enabling it to overcome the inhibitory effect of the medial amygdala. The MPOA is then able to inhibit regions normally activated by pup cues further down the line in the avoidance circuit, known as the anterior hypothalamus and periaqueductal grey, which are involved in initiating an avoidant pup response - as shown in figure 5 below [15].

As well as inhibiting activity in these areas, the MPOA now excites neurons in the ventral tegmental area, enabling the rest of the circuit which produces parenting behaviour to be completed. The action of pregnancy hormones has been reliably demonstrated to instigate this, as in the two following studies. Bridges [8] investigated the effect of estradiol and progesterone on maternal responsiveness, finding that treating the rats with a hormone combination mimicking that of pregnancy significantly reduced their latency to become fully maternally responsive (see figure 6). Rosenthal and Poole conducted a similar experiment on castrated male rats, also finding that those treated with progesterone and estradiol were significantly quicker to display parental behaviour, as shown in figure 7.

The relation between hormone levels and subsequent behavioral output is due to the ability of a given hormone to alter neuronal activity. For a designated brain region to be affected by hormones it must contain receptors for those hormones. The receptors enable the hormone to enter the neuron and alter the proteins it expresses, making this neuron more, or less, easy to activate. The medial preoptic area (MPOA) contains a high density of receptors for various hormones which increase due to pregnancy, including prolactin, oestrogen [10] and oxytocin [11] or decrease, including progesterone [10]. This abundance of receptors for pregnancy hormones in the MPOA is what makes it so heavily influenced by such hormones, as demonstrated in Riberro et al.’s [12] experiment shown below, fig. 8. When estradiol receptors in the medial preoptic area were removed, mothers were licked and nursed pups less frequently, took longer to retrieve pups, and were less aggressive towards intruders. This illustrates the crucial role of estradiol in activating the MPOA and subsequently instigating maternal behaviours.

Riberro et al. [12] used viral vector RNA to remove estradiol receptors in medial preoptic area region of the estrogen receptors caused a considerable reduction in pup care, lengthened the latency for pup retrieval, and made mothers less aggressive towards intruders (i.e. less protective of pups). Effectively, the hormonal events of pregnancy, through facilitating increased MPOA activity and the switch to caring, enable the mother to respond to her pups’ needs. Evolutionarily, this can be explained in terms
of the reproductive benefits for parenting behaviour - providing care to offspring enhances the survival of offspring, promoting the propagation of that organism’s genes. Though maternal care is a costly investment, pups are vulnerable at birth and do not reach self-sufficiency for some time. Thus, rodent’s parenting behaviour; including feeding, grooming and protection of infants, greatly enhances the likelihood that offspring are going to survive and ultimately reproduce themselves. Hence, the behaviour is adaptive - because in rodents, it has proved a successful measure to meet the challenge of offspring’s vulnerability.

Undermining the avoidance circuit: paternal care and sensitisation

An alternative to increasing the activation of brain regions within the parenting circuit is reducing activity in the avoidance circuit through the desensitisation of the VNO response to pup cues. In mice, Dulac et al [13] found that the experience of inseminating and then cohabiting with a female mouse for the duration of pregnancy brings about a shift from avoidant or infantilical behaviour to parenting. The critical point at which this shift occurs corresponds to the birth of the father’s pups (see fig. 9), which, after inseminating and living with the mother throughout gestation, are almost certainly his. There is a clear evolutionary reason for this suppression of infantilisation: if males remained infantilical, they would risk killing their own pups, reducing their own reproductive success.

Tachikawa et al [14] conducted an experiment with four different groups: sexually naive male mice with their VNO lesioned or intact, and fathers with and without VNO lesions. In figure 10, chart 1 shows the expression of c-fos, a protein which can be used to measure the activity of neurons, in sexually naive and fathers with or without pup exposure. In figure 11, N demonstrates that inactivation of the VNO increases paternal behaviour. O shows that for the fathers, the lesioning made no difference to parental responsiveness, showing firstly that the VNO is deactivated in fathers, and also that it facilitates paternal behaviour. This study involved control procedures, with the control mice undergoing sham lesions. Further, the difference between groups is measured by both neuronal activation and behavioural observation. The study therefore is effective evidence for the role of the VNO in the suppression of paternal behaviour.

Fathers in monogamous rodent species often invest significantly in their young. For instance, the California mouse has a biparental system, and for these mice paternal care contributes significantly to reproductive success; a study by Cantoni & Brown [16] found, when parents must forage for food, the presence of a male enabled four times as many pups to be reared over a 74 day period versus a female on her own. Analogously, the absence of paternal care has a notable effect on the social activity of California mice, with one study finding paternally deprived female mice to be abnormally aggressive [17]. It has, however, been pointed out (Bales & Solomon [18]) that it is unclear to what extent the results of studies such as this one stem from paternal deprivation specifically. This is because in many biparental species, when the father is absent, the mother does not compensate for the care she would have provided, so any observations may result from pups simply receiving less care.

The induction of parental behaviour through repeated exposure to pup cues, known as sensitisation, similarly involves an animal becoming parental as the inhibition of the parenting circuit is overcome by the depression of the neural responses involved in avoidance. Though an olfactory cue may at first stimulate the medial amygdala (figure 11) and subsequently enact a negative response, neurons will eventually become fatigued, leading to an exhaustion of response such that the avoidance circuit is eventually less easy to activate [27]. Relating this back to the mutual inhibition of the behavioural circuits, this acclimatisation to the pup cue makes it possible for regions involved in a care response to overcome their suppression by the medial amygdala (see figure 5). Martin-Sanchez et al found that when virgin females were exposed to pups, they carried out more maternal behaviour and were quicker to retrieve pups. Both godmothers and pup-sensitised virgin females were considerably maternal, having a fairly similar (or even higher for some behaviours) level of maternal responsiveness to mothers (figures 12, 13) despite not having undergone the hormonal changes of pregnancy. However, the mothers were the only group to exhibit maternal aggression - mice in the other groups seldom attacked intruders (figure 14), only carrying out less motivated forms of pup care. This demonstrates that exposure to pups leads to a shift in response. The role of neurotransmitters in this process includes oxytocin activity in the MPOA. Okabe et al found that oxytocin in the MPOA promoted sensitisation induced parental behaviour, finding higher c-fos in OXTR expressing neurons in MPOA of mice exposed to pups repeatedly vs exposed once [24].

This experiment by Martin-Sanchez et al [25] involved 3 groups - dams (mothers) who were housed with a ‘godmother’ (the dam’s sister), godmothers housed with dams and pup-sensitised virgin females housed with another virgin female. The dams from the first group, the godmothers from the second, and the virgin pup-sensitised females which were exposed to pups during 2-hour sessions following the first test session, were tested on various measures of maternal responsiveness. The data demonstrate that for female mice, exposure to pups can instigate maternal behaviour. For the pup-sensitised group particularly, maternal responsiveness increased with experience as seen in the increasing frequency of crouching and grooming (figure 12) and decreasing latency of retrieval across the three test days (figure 13). However, a potential weakness of the experiment is that the three groups underwent quite different procedures, for instance, the dams were the only mice to have cohabited with males prior to the testing period. Additionally, as the study required experimental animals to be housed with a companion, it is possible that due to them being used to ‘sharing’ care duties maternal behaviour was reduced from the level that would occur otherwise.

Examples of spontaneous parenting behaviour

In contrast to the two previous sections, it is possible for rodents to display parental behaviour ‘spontaneously’ i.e. without having been through pregnancy or even previous exposure to pups. This has been observed in female mice - Alino-Llanes et al’s study [19] below (figure 15) found 50% of adult female mice showed some degree of maternal behaviour upon first exposure to pups, which increased to 100% by the fifth exposure.
During this study adult female mice were exposed to mice pups for 60 minute sessions. Their percentage carrying out maternal behaviour towards them, in certain rodent species both males and females are generally parental towards young, and as such exhibit what is known as alloparenting. Alloparents display care behaviours independently of hormones and experience [20]. This represents a shift from aggression by default towards pups. For instance, most naïve male mandarin voles show parent-offspring behaviour, Song et al [21] found this socially monogamous, biparental species presents a high level of oxytocin receptors in the nucleus accumbens. Wider implications of this include community parenting, in which the evolutionary benefits of care are no longer restricted to parents and offspring, but provide what is known as inclusive fitness. Comparative studies have examined the underlying neural differences that allow this - Insel & Shapiro observed differences in oxytocin receptor distribution reflected the social organisation of voles, with the monogamous and more social prairie vole displaying a higher oxytocin receptor density in areas linked with parent care such as the nucleus accumbens than the less sociable and less parental montane vole [23]. This more cooperative organisation can come with benefits such as the division of labour within social groups, an extreme example of which being the naked mole rat where a single female, the “queen”, bears offspring, while other colony members forego reproduction to gather food [22].

Concluding remarks

Among rodents, there exist a variety of mechanisms to initiate parenting behaviour. Such behaviour varies interspecifically between rodents but in all instances, it is underwritten by neuronal activity in key areas of the brain which form the ‘care circuit’, in rats and mice, by default, pups cues trigger the response of brain regions which culminate in ignoring or attacking the pups. Hence, behaviour towards pups is generally hostile, but this can be reversed through experiences including recurrent exposure to pups. Paternal behaviour is induced in male mice ensuing cohabitation with the insensitized female. While these mechanisms all induce a shift from hostility to nurture, the most reliable and powerful basis for this substitution of response is the cumulative effects of hormonal changes during pregnancy, which prime rodent mothers to meet their offspring’s needs. The nature of parental behaviour is observed to differ correspondingly to a rodent’s social structure, for example prairie voles are more inately caring towards young, and are on accordingly sociable species. Environmental pressures that favour social breeding appear to extend the scope for cooperative behaviour and social interaction between conspecifics, as the extent of intraspecific aggressive or avoidant responses is lessened. These more social species exhibit differences within their neural circuitry meaning pup cues preferentially gain access to a care response rather than inducing aggression. Implications of this increasingly caring disposition can be seen in other social mammals, such as the community parenting approach of elephants, or humans; regardless of experience we tend to respond positively to infant cues, to such an extent that this is hypothesised to underlie our affection toward pets [26].

References


Tutor comment: This a brilliant pitch to teach the course at Caerg Dol Gar the staff were welcoming, and the pupils were thoroughly engaged. However, I stood out for me amongst this great group as someone with a natural flare and imagination for the subject matter. This course on neurobiology is challenging to say the least, since pupils enter it without existing foundational knowledge yet I took this in stride and worked the most accurate and complete response for the final assignment I have read. This scored the Pak out of 100, a mark I would not award my assignment were not remarkable. Hence no doubt she would have undertaken a university degree.