EBOLA: THE NEXT INTERNATIONAL PANDEMIC?

18 NEW ACADEMIC ESSAYS FROM THE YOUNG SCHOLARS AT THE BRILLIANT CLUB
Before writing this, I was reflecting on how often we can neglect the importance of things that arrive second. After all, if I asked you who won the men's 100m sprint at the 2012 Olympics, you would probably have no trouble remembering Usain Bolt's emphatic victory. But what if I asked you who won the silver? You rarely hear people rave about the second folio of Shakespeare, or having held the second edition of *Pride and Prejudice*. And while a lot of people can probably tell you that Buzz Aldrin was the second man on the moon, can anyone remember the crew of the second Apollo mission to reach the lunar surface? Second placers are, it seems, destined for less fame, to be seen as less momentous and important than the event, or person, or idea that came just before them.

Which is all to say that you could be forgiven for thinking that, with the first edition of *The Scholar* published a few months ago to great acclaim, the second edition wouldn't stand a chance of making us as excited. Not the case! Because while it was fantastic to think we were getting the incredible work produced by our young scholars out to a wider audience, the idea that we could keep on doing that again, and again, and again is even more thrilling. To us, the release of this second edition signifies that publication and celebration of our scholars' incredible work has become an integral part of what we do, and something that will continue to develop and grow. So, sorry first place, this time second's got it in the bag.

In this issue, you'll find a range of articles from our scholars from Year 5 to Year 12, who between them represent schools from across the UK. For the younger year groups, our PhD tutor work with their tutees on a range of courses designed by The Brilliant Club alongside primary teaching specialists, so you will notice there are multiple articles answering the same question. This doubling up is deliberate - partly to allow us to publish as many outstanding pieces of work as possible, but also in the hope that, by setting them side by side, our readers can appreciate the breadth of different approaches taken and the depth of creativity that this requires. The articles in this edition range from the history of Pythagoras' Theorem, through questions about whether Ebola represents the next international pandemic, to literary criticism of modernist poetry, the Placebo Effect and the definition of terrorism. We hope that you will enjoy reading them as much as we did.

Before you dive in, though, there is one small request I'd like to make. The work in these pages is, bar a bit of typographical correction, the original work of school pupils as young as 10 years old - we think it is an impressive testament to their academic achievements, and to the hard work of the teachers and PhD tutors who have supported them. If you agree, then we'd like you to do something about it: tweet about it, mention it on your blog, print it off and leave a copy in the staff room, write a haiku, anything at all to get the word out there and get these young scholars the readership they clearly deserve.

Here's to second place - happy reading.

Dr Tom Wilks
Editor

Martha McPherson
Editor
Introduction

WHAT IS THE BRILLIANT CLUB?

The Brilliant Club is an award winning charity that exists to widen access to top universities for pupils from non-selective state schools. We aim to do this by recruiting, training and placing doctoral and postdoctoral researchers in non-selective state schools and sixth form colleges to deliver programmes of university-style tutorials to small groups of pupils. Through our programmes, pupils develop the knowledge, skills and ambition that help them to secure places at top universities.

The Brilliant Club is building a national movement to mobilise doctoral and postdoctoral researchers to engage with schools serving low HE participation communities. We are currently working with over 200 schools and colleges across the country, placing over 250 PhD tutors to work with more than 5,000 pupils. Our PhD tutors are placed in schools to deliver the Scholars Programme to pupils from Year 5 through to Year 12. As the diagram below shows, the programme consists of a series of tutorials, trips and assignments.

The programme represents an authentic university-style challenge for the young people that we work with. By the time pupils reach Key Stage 5, they are asked to complete a 2,500-word assignment, which is at the same level as a piece of university coursework. Pupils receive marks at the key stage above their current level, and are marked in the style of university grades, gaining a 1st, 2:1, 2:2 or 3rd.

We are delighted to be able to showcase our pupils’ work and celebrate their achievements in an academic manner and we feel that a journal of academic articles by young scholars is not only the ideal format, but also a natural fit given the charity’s work. Publishing original work is an important part of academia and it is enthusing for us to introduce our pupils not only to the world of research but also to the next stages of circulation and response from the academic community.

In creating The Scholar, we have brought together what we feel are the most exciting and compelling of the hundreds of assignments submitted as part of the 2014 Scholars Programme. We hope that all pupils who completed the programme are proud of their achievements but, given the number and quality of assignments submitted, we think that the pupils whose work is included here can be especially pleased. As well as highlighting the achievements of pupils, we would also like say thank you to the PhD tutors, teachers and parents who supported them throughout the programme.

Every year The Brilliant Club has its largest-ever year in terms of provision of the Scholars Programme to schools. This term was no exception and the national team lead 35 launch trips in ten days, from Durham to Brighton. We launched over 2,000 pupils on to the Spring 2015 Scholars Programme, and are hearing exciting news from the classroom about what they have been working on with their PhD tutors.

The Brilliant Club Summer Conference Hold the date!

We will be hosting The Brilliant Club annual conference, Wednesday 8th July 2015. It’s our second-ever summer conference, and builds on the great success of the inaugural conference. This year, we are once again kindly hosted by King’s College, London on their Strand Campus. The theme for the conference is ‘Where can we find solutions to break the link between household income and admission to the UK’s highly selective universities?’ We’ll be looking at: the UK education sector; university and school practice internationally; as well as at industries beyond education to see if there are any lessons we could learn from them.

As part of our mission to widen access to highly selective universities for pupils from non-selective state schools, we have been developing a programme which is aimed specifically at engaging parents and carers. Engaging parents in the Scholars Programme is something that several schools have shown an interest in, and we are excited to be able to explore this new area. We have been working on a programme called ThinkUni, which is made up of activities involving parents and is designed to sit alongside the Scholars Programme. ThinkUni is currently piloting in a small group of Midlands schools - watch this space for more news.
Stuart McKie, PhD Tutor, Oasis Academy, South Bank

One student inspects the lamb's organs for signs from the gods – if the omens are bad they have to do it again until the gods are pleased – and then we 'cook' the meat on the altar and have a feast. All in all it only takes 10 minutes or so, but the experience sticks in the mind. The students get a real sense of what it would be like, not only to participate in the ritual, but also to be a spectator. Having the students take on the roles of high priest, haruspex, and slave attendants also gets across the class divisions in the ritual. Roman society was fundamentally divided between upper and lower classes, and nowhere is that starker than in sacrifices, where the rich and powerful got the glory for paying for and presiding over the ritual, but the slaves did the dirty work of actually killing and butchering the animal.

We cover other Roman rituals and festivals in the course, including a festival of the dead, healing votives, curse tablets and the cult of Isis. There isn't time to act out all of these unfortunately, but recreating the sacrifice in the first in-school tutorial plunges the students into the Roman world from the start, and provides a reference point for later. There is a performative element to all of these rituals and festivals, and having actually acted out something makes that easier to understand. In my opinion you can't just read history, especially social history, which isn't bothered about dates, battles or the actions of "dead white men."

Through my course I try to teach the students about the whole of Roman society – the women, the poor, the slaves, and the immigrants as well as the aristocratic men who wrote all our literary sources. To do this we use a wide range of evidence, from texts to coins, sculptures, inscriptions and small archaeological finds, all centred around the different reasons why the Romans communicated with their gods, and the different ways they did so. Sometimes these were strange, even to other Romans, like the shaven-headed priests of the Egyptian goddess Isis, who would have been conspicuous on the streets of Rome. That's a great selling point for the course, not only for the students who are learning something totally new, but also for the people on the Bakerloo line sitting near a PhD Tutor with a full toga!
Theorem as the theorem is only proved it for 3, 4, 5 triangles.

extent, by using a square that was turned slightly with one

areas but it was also quite barren

seasonal rains. South Mesopotamia had a wide range of marshy

Many different regions. Here are two: North Mesopotamia,

in science and mathematics

Mesopotamia could be found between the two rivers of Tigris

I think the Mesopotamians first proved ‘Pythagoras’ Theorem’

Pythagoras spent a lot of his life studying

Pythagoras to calculate the lengths of a hypotenuse over a

It is used to find out the hypotenuse or missing leg length. To

Pythagoras' Theorem is a theorem about right angled triangles.

WHO FIRST PROVED PYTHAGORAS’ THEOREM?

Both these skills are needed for any

WHO FIRST PROVED PYTHAGORAS’ THEOREM?

Pythagoras was born on a Greek Island called Samos. He

travelled a lot, eventually settling in a city called Croton in

Pythagoras and his followers, who were called the Pythagoreans,

believed in a system of esoteric and metaphysical beliefs. The

Pythagoreans were considerably influenced by mathematics, music and astronomy. His followers undertook religious rites

and learnt philosophical ideas developed by Pythagoras.

Pythagoras had to leave Croton after his followers became political which led to their downfall and resulted in Pythagorean

buildings being demolished.

Ancient Mesopotamians were using the same theory as

Pythagoras to calculate the lengths of a hypotenuse over a
thousand years before Pythagoras developed his theorem. The

Mesopotamians were considered to be very sophisticated

Mathematicians of their time. They used a mathematical

theory by carving into a clay tablet which today is known as

the Plimpton Tablet (figure 1).

The Greeks wrote down the rules of geometry that verified

observations of ancient mathematicians which also included

Pythagoras’ theorem. I

think the Mesopotamians first proved ‘Pythagoras’ Theorem’
as they had a clay tablet, (called Plimpton), that had been
carved writing in before it was baked. Over all there was four columns. My argument for this is that the Mesopotamians

were alive from 625 BC and they had used Pythagoras’ Theorem over 1000 years before Pythagoras had found out about it.

The ancient Indians had a different way of showing a proof of

Pythagoras’ theorem. Their way of showing Pythagoras’ theorem used diagrams of triangles. However, the Indians’ proof

of Pythagoras’ Theorem is not a proper proof of it as they had only proved it for isosceles triangles.

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Pythagoras’ theorem. I think the Mesopotamians first proved ‘Pythagoras’ Theorem’ as they had a clay tablet, (called Plimpton), that had been carved writing in before it was baked. Over all there was four columns. My argument for this is that the Mesopotamians were alive from 625 BC and they had used Pythagoras’ Theorem over 1000 years before Pythagoras had found out about it.

Due to Pythagoras’ and his followers’ secrecy, no written evidence of his theories survived, which were only recorded by later Pythagoreans. We are not sure when Pythagoras made his proof; or whether it was even Pythagoras himself I

Proofs exist that earlier civilisations already had knowledge of the same theory, so although the theory is named after Pythagoras, was he the first to discover it?

BABYLONIAN PROOF

Back in 1800 BC around the Tigris and Euphrates rivers, which are in modern Iraq, lived the ancient civilisation of

Babylonia. The Babylonians had a wide range of knowledge in mathematics, which they used for solving problems like time.

They divided the day into 24 hours, each hour into 60 minutes,

and each minute into 60 seconds. The Babylonians’ main

examples of Pythagorean Theorem are four clay tablets dating

back to around 1800 BC. Two of the most important tablets

were the Plimpton 322, which lists Pythagorean triples (Figure

2), and the Yale tablet, which shows a square with dissecting
diagonals and a calculation for the square root of two $(\sqrt{2}=1.414)$ which is used in Pythagoras’ Theorem for finding the length of the hypotenuse of a isosceles triangle (Figure 3 and Figure 4).

This means they definitely had the same understanding for right angled triangles.
Their conversation relates to right angled triangles, and if the two smaller sides of a right angled triangle are 3 and 4 then the hypotenuse would be 5, and as a result is a Pythagorean triple.

The book ‘Bhashyam samudra’, or the nine chapters of mathematical art, which was commented by on Liu Hui in 263 AD, is believed to have information dating back to 1000 BC. The book lists 24 problems all based on right angled triangles, half of those are solved by using Pythagorean Theorem which the Chinese call GouGu rule (the names Gou and Gu refer to the two shorter sides of a triangle), suggesting Chinese knowledge of Pythagorean Theorem.1

INDIAN PROOF
Around 1500 BC the Verdic people from modern day Iran migrated into India. Their name derives from their religious writings known as the Vedas in which religious ceremonies and sacrifices were explained.

The subasuras were additions to the Vedas and give instructions for creating altars. Two of the most important are the Baudhayana (written c.800BC) and the Katyayana (written c.200BC). These relate to Pythagoras’ Theorem, the Baudhayana saying “the rope which is stretched across the diagonal of a square produces an area double the size of the original square”. However the Katyayana gives more detail by saying “The rope which is stretched along the length of the diagonal of a rectangle produces an area which the vertical and horizontal sides make together”.

This sounds a lot like Pythagoras’ Theorem.

I believe I can rule out India, because the Verdic people migrated from Mesopotamia, so possibly knew about the Babylonian proof. China and Babylon were both independent at coming up with the theory, but Babylonian proofs predate any known Chinese proof, therefore I believe the Babylonians first proved Pythagoras’ Theorem!

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About the authors
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PHD Tutor’s note
Emily taught a course on blood vessels to reflect looking into the history of mathematics, and whether Pythagoras was really the source of the famous theorem named after him. The course involved teaching Emily's friends, about 'Pythagoras' Theorem itself, which is not normally covered until secondary school. Original sources from ancient civilisations other than the Greeks were used to evaluate whether earlier civilisations could claim to have a mathematical proof of the theorem. The final assignment included an essay on what the people were expected to achieve a civilisation they believed were the first to prove the theorem, and support their conclusion with historical and mathematical evidence. This article was selected for publication in The Scholar because it was an exceptional essay for a pupil at her key stage. A clear argument based on logical evidence was presented and communicated in a very concise and well-structured way, which included analysis of a wide variety of sources for four ancient civilisations.

CONCLUSION
Although Pythagoras was arguably the first to prove the theorem, I believe that India, China and the Babylonians all seemed to know of the relationship between right angled triangles and the length of their sides. With both China and Babylon having knowledge of Pythagorean triples, which are right angled triangles where the lengths of their sides are all integers (Figure 6).2

The Ebola virus is a lethal disease that first came to light between 1st September and 24th October, 1976 when 318 reported cases occurred in the alkaline zone of the Ivory Coast. In 2014 the virus spread to West Africa, according to the World Health Organization’s first release about the disease.2 However the virus was only discovered in 1976 due to a recent outbreak on March 2014 when several cases dispersed across West Africa, according to the reliable, top-level domain source: World Health Organization’s first release about the disease.2

The Ebola virus is capable of causing internal bleeding and any other related symptoms after about two weeks. It is capable of slowing down the immune system against us, causing liver failure and other internal dilemmas.8 and other feared reasons; the question is. “Ebola is it the next international pandemic?”

HOW EBOV WORKS
EVD is and works in a similar way like many other viruses, the Ebola virus has its RNA (Ribonucleic acid which converts the genetic information stored in DNA into proteins)10, proteins and a hollow Ebola immediately attacks the dendritic cells; it does so by binding onto receptors for cell transport, once inside it dissolves the lipid membrane and releases its genetic material, nucleoproteins and enzymes. It commands the cell to reproduce the virus, Ebola, and then afterward dissolves the cell membrane and millions of viruses are released leaving the empty cell to die. Ebola also infects macrophages and monocytes and then manipulates them to signal to the blood vessels to release fluids, which consequently causes internal bleeding and any other related symptoms after the incubation period of 2-21 days. Ebola also domonitates the liver cells quickly, resulting in liver and other organ failures.

Consequently, due to the desperation of the situation, the immune system launches the cytokine storm which causes the immune system to release all its weapons which does attack the virus, however, it also attacks the immune system, where blood vessels are damaged even more and serious hydration signal to the blood vessels to release fluids, which consequently causes internal bleeding and any other related symptoms after the incubation period of 2-21 days. Ebola also dominates the liver cells quickly, resulting in liver and other organ failures.

Afterwards dissolves the cell membrane and millions of viruses are released leaving the empty cell to die. Ebola also infects macrophages and monocytes and then manipulates them to signal to the blood vessels to release fluids, which consequently causes internal bleeding and any other related symptoms after the incubation period of 2-21 days. Ebola also dominates the liver cells quickly, resulting in liver and other organ failures.

Contact with public was heavily discussed several times where the public was never really educated enough about the symptoms or how it happens. The Ebola virus can spread from person to person by touching or direct contact with the blood, secretions or body fluids of an infected person, such as tears, saliva, sweat, semen or vaginal fluids. It is needed that the infected person is isolated in a hospital but many times the infected person is not isolated properly due to the high death rate or other related symptoms.

If it’s not contained as a result many people who carry the virus can flee if there isn’t required security enforced. An example of this happened recently in Sierra Leone, while all the aid was going towards major cities and a rural areas, Kono a remote district bordering Guinea, was infected. World Health Organization workers heard rumours of deaths and travelled there to find scenes out of a horror movie. At least 87 people had died and been hastily buried, often without the precautions needed to stop the corpses from infecting the living.4 The problem here again is that the country is less developed, if educated on such topics this could have been avoided in Kono, if there was enough money funded to build a hospital near the area. “In this case, because people were so remote, by the time they got to the hospital it was five days out. They were dehydrated. It was too late.”5

The source used here is NBC news, which is an American news agency and this specific article was written by Maggie Fox, who has her own website and blog. Also, NBC being a news agency means that the published pieces were written and accepted, meaning not any random piece can go on display and that the public can’t publish/edit without permission.

HOLDING THE SATURATION
A disease like Ebola, which one can get by contact with bodily fluids of infected people and which cannot replicate with a host cell, presumably is easy to prevent. During the start of the panic many weren’t prepared for it, both people and hospitals. As a result, the disease got spread carelessly due to lack of awareness and hospital staff either got infected or sick because of overworking, as the hospitals were packed, and in unhygienic conditions (many hospitals are not funded) and co-ordination was missing. Or due to most of the countries being LIDCs most of the staff wouldn’t have been educated fully and therefore wouldn’t be prepared for controlling highly infectious diseases or a likely situation where they haven’t even heard of it.19 On the other hand, in places like the U.K or U.S.A the people have immediate access to a local hospital, with professionally-educated staff who control the problem because they have the necessary medical equipment, medication and knowledge to at least keep it contained. The source was accessed on Saturday 18.24 and information for this paragraph is from the Ebola booklet given by The Brilliant Club to supervise me throughout the course of the programme, which is made solely for educational purposes so incorrect information in the book is highly unlikely.

Figure 1: The Babylonian forms of Pythagoras’ Theorem. Image reproduced directly from source with permission.

Figure 2: The smallest Pythagorean triple, 3 4 5. Image reproduced directly from source with permission.
This is a serious matter and was a late hit to everyone, and so their reaction was slow as well, if immediate action was executed at the start currently the case would be less threatening. If the serum and healthcare workers were helping during the start, the disease would be more controlled. As Ebola is similar to other viruses, if the case occurred in a developed region with access to hospitals with space, fully educated staff etc. people wouldn't have to fear it. One of the benefits of Ebola attacking a less developed region and why I disagree with the fact that Ebola is the next international pandemic is because the fear and tension surrounding Ebola is the media build-up. Therefore this means, if international, has no side to side on/against, therefore only states pure global health matters, shaping the health research agenda, is written, whether it’s true or not, it is checked before it’s reason to lie about the subject, if a non-factual/biased piece such as BBC Bitesize and CDC are government funded and many, such as the NBC news and BBC, are news agencies, government funded website.

The most reliable is as BBC- Ebola serum supply reaches Liberia- http://www.bbc.co.uk/news/world/africa/28642141 -[15 December 2014]


This essay was clearly above the expected skills of her current year. A.'s essay was particularly well written and showed some deep understanding of the complicated biology of the Ebola virus. Furthermore, given the ability we have today to travel freely and easily among countries and keeping in mind that incubation period is up to 21 days, it is no wonder why the WHO has listened and watched closely and with concern the unfolding events around Ebola. At first there was also a lot of misinformation that contributed the belief that this was the next pandemic. And as suggested by the WHO, the outbreak by the now defunct WHO (WHO), which again is a website where the public can edit information, the WHO website, provides leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends. If international, has no side to side on/against, therefore only states pure global health matters, shaping the health research agenda, is written, whether it’s true or not, it is checked before it’s reason to lie about the subject, if a non-factual/biased piece such as BBC Bitesize and CDC are government funded and many, such as the NBC news and BBC, are news agencies, government funded website.

The first cases of Ebola took place in 1976 in northern Zaire and ever, since for the last 40 years, we have witnessed several more epidemics. The most recent one was traced in March this year by the WHO (World Health Organisation) and has so far spread mainly in the West of Africa (Guinea, Sierra Leone and Liberia) and ever since the epidemic has been the focus of the media on a daily basis. Why? Because this has been the worst epidemic ever seen, because this time around it has re-emerged in a very aggressive way, infecting and killing thousands of people in a very short period of time (more than any other past outbreak) and because fear and panic of contagion have quickly dominated the minds of the worldwide population. So is Ebola the Next International Pandemic? To answer the question we should first look at some of the facts in regards to the area affected by the epidemic and the response by the international community such as the WHO. Reliable sources like The Guardian and National Geographic have begun to analyse and have a deeper understanding of why, at least at first, the virus epidemic has been seen as a real and clear threat for the whole world, the next pandemic.

• To begin with, we need to understand that the alarmingly wide spread is firstly and partly down to geography. This outbreak has affected some of the poorest countries in the world where the population could not be more vulnerable. They have endured many years of civil war and violence and they are attempting to rebuild their economies with very little money to spend on an already weak and inadequate public health infrastructure, which often will lack in basic training and knowledge of infection control measures and equipment like gloves and masks. Cultural beliefs in these areas have also not helped containing the contagion as, traditionally, in these parts of the world, a dead person is kept at home for several days and frequently touched before burial.

• There are many other countries affected by shock and corruption levels and, especially in Sierra Leone, the disease has revealed quickly the alarming mistrust between citizens and the government, so much so that much of the population in this area strongly believed at first that Ebola was a government conspiracy to cut the population.

• Finally, the response to the epidemic by the WHO has not been great and in fact this organisation has been under fire for the last few months as suggested by BBC news for example. The WHO never expected a virus like this to spread in West Africa and therefore it was not quick to react efficiently when the outbreak began because did not have anything ready in place. Many have suggested that the lack of response was due to some financial cutbacks that the organisation was facing. The bottom line is that it was only the end of August, and therefore many months later, that the WHO declared Ebola a health emergency but by then the epidemic was already in full swing.

When we look at the facts explained above it is no wonder that the world feared a pandemic.

Furthermore, given the ability we have today to travel freely and easily among countries and keeping in mind that incubation period is up to 21 days, it is no wonder why the WHO has listened and watched closely and with concern the unfolding events around Ebola. At first there was also a lot of misinformation that contributed the belief that this was the next pandemic. And as suggested by the WHO, the outbreak by the now defunct WHO (WHO), which again is a website where the public can edit information, the WHO website, provides leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends. If international, has no side to side on/against, therefore only states pure global health matters, shaping the health research agenda, is written, whether it’s true or not, it is checked before it’s reason to lie about the subject, if a non-factual/biased piece such as BBC Bitesize and CDC are government funded and many, such as the NBC news and BBC, are news agencies, government funded website.
Since there is yet no vaccine, Obama has also talked about some experimental drug, especially after news reports that some health care workers had returned to their country and became infected after caring for a person who had Ebola. But as explained in the international weekly journal of science, Nature, there is a lot of controversy and debate around the use of a drug that has not been tested yet. The WHO thinks that the use of the drug is somehow ethical because of the number of people dying. Their Assistant Director General Maria-Pau Kieny, said that it is not the number of people affected that led the group to take this unusual position, but the fact that usual prevention and infection control measures are not working to contain the outbreak. Other experts, like physician Armando stretcher of Medicins Sans Frontieres, argue whether patients with a fatal disease can make a well-informed decision about using unapproved treatments. Others are convinced that using experimental treatments during an outbreak might be the best way to determine whether they actually work. I personally think that the drugs should be used because if I, or any of my family, was the one affected I would try anything to survive a virus that is known to be so deadly.

Since a few cases have been reported around the world, every developed country in the world has taken measures to control another epidemic, for example by introducing screening in the airports. Many countries have invested huge amounts of money in training and preparing health workers for any eventuality. Many hospitals are practising quarantine drills to be able to efficiently manage routine healthcare needs, as well as outbreaks like this. We developed penicillin and other antibiotics to treat bacteria like the ones though to be responsible for the Black Death. However, the recent Ebola epidemic has reminded us that, although we are able to fight and treat diseases better than ever before, our cities are also bigger and populated more than ever before and that, with international travel becoming easier and easier, the risk involved in an outbreak grows really high. In less developed countries the spread of a virus like Ebola maybe cannot be totally prevented but certainly could be managed and controlled better with a prompt action by the international community. So although Ebola is certainly unlikely to become a pandemic, that does not mean that something else won’t, and the risk of pandemic will always be with us.

Overall when we look back throughout history, humanity has been afflicted by diseases like this and we have fought them back. We developed penicillin and other antibiotics to treat bacteria like the ones though to be responsible for the Black Death. However, the recent Ebola epidemic has reminded us that, although we are able to fight and treat diseases better than ever before, our cities are also bigger and populated more than ever before and that, with international travel becoming easier and easier, the risk involved in an outbreak grows really high. In less developed countries the spread of a virus like Ebola maybe cannot be totally prevented but certainly could be managed and controlled better with a prompt action by the international community. So although Ebola is certainly unlikely to become a pandemic, that does not mean that something else won’t, and the risk of pandemic will always be with us.

Bibliography
MAKING A DIFFERENCE USING COMPUTATIONAL MATHEMATICS

R. Shany, supervised by D. Portelli

CONTEXT OF THE PROBLEM
The ability to model real life scenarios is of interest in many engineering, safety and medical fields. This is in part due to industrial demand, but also advances in computer technology and research into numerical methods. The consequence of this is that more complex and wide ranging problems can be modelled.

An example of this is the modelling of fuel sloshing in a tank. Sloshing is basically the movement of a fluid inside a container. This is something you see every time you mix your morning coffee, but such a basic everyday thing that we see in real life can cause accidents such as rocket crashes and capsizing of ships.

To avoid this, tests are done to mitigate the risk. However it would be extremely time-consuming and expensive to keep building rockets and ships with different sizes, materials and so on to test under different conditions. Therefore, the best and most efficient way is to model these scenarios on a computer in order to test which design work and under which conditions the accidents may occur due to the fuel sloshing. In order to do this, it is vital that we give the computer the correct information and the computer code we write to calculate variables such as displacement, pressure and velocity is correct in order to give us the correct results.

The work presented is a computer code that uses a novel mathematical method called the smoothed particle hydrodynamic method to calculate pressure from density. This is only a small part of larger code architecture, but nevertheless is vital as not calculating the correct pressure will lead to erroneous results for all the other variables and give the wrong result. Like links in a chain, if one is broken, the chains fall apart. In essence the work computer coders do saves lives and this code is a key link in the chain.

Call subroutine calculating pressure (x(i),P(i)) Real :: ρ, ρ, r, r0, P ! these variables can take on any value and do not have to be whole numbers. Is the bulk modulus which is a measure of the incompressibility of a substance and is a parameter related to and these variables have different values depending on the fluid. P is the pressure of the particle, r is the density of the particle and r0 is the density at the previous timestep. P(r)= ρ(r)-ρ(r0)/r0 ! This is the Murnaghan equation of state used to calculate pressure for a semi-incompressible fluid. This is given by P(r)=(r0/r)^γ-1 γ=1 ! This ensures that the value of the old density is stored for use in the next timestep, where we will have an updated r and hence an updated pressure calculated for each particle. The updated density will then become the old density in the next timestep and so on

End subroutine

Call neighbour properties (m(j)) ! mj is the mass of the neighbour particle . We call the mass of the neighbouring particles as they are needed to calculate the density of each particle.

ρ(r)=r0 +w*m(j) ! This is the density equation ρ_i=ρ(r0)+w*m(j) written in code form. This will add the neighbour mass and kernel for all neighbours of a given particle i.

End do

Call subroutine to calculate the kernel so that we can use it to calculate density.

r(i)=r(i)+w*m(j) ! This is the density equation ρ_i=ρ(r0)+w*m(j) written in code form. This will add the neighbour mass and kernel for all neighbours of a given particle i.

End do

About the authors

R. Shany is Year 13 pupil at St James Catholic High School in North London. Daniel Portelli is completing his PhD in mathematical modelling at Cranfield University.

PhD Tutor’s note

I submitted R’s article for publication and exceeded my highest expectations for the homework assignment. Tutorials in this programme were divided into 3 components. These were to understand how to take any real life physical problem and come up with the question a mathematical modeller would need to ask themselves before computer simulations, to learn and apply a numerical method called the smoothed particle hydrodynamic method and to learn how to computer code this method. The achievement of any student even passing this course cannot be understated. The SPH computer coding aspect is normally a week long course for adults. Not a final assignment that tested only some aspects of the course, instead everything that was learnt formed parts of the final essay so to achieve will you needed to understand everything R. achieved 90% in this assignment. This is an amazing achievement and deserves to be recognised beyond getting a good grade.

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INTRODUCTION

The New Poor Law was seen to be a horrible law by the people it affected; it lasted for approximately 114 years and was introduced by the government of Lord Melbourne. The poor law was a set of rules that the poor had to follow. They were made to encourage people to find work and earn money from employers instead of just the government. The poor law had many long term effects. Some of these effects were a huge decrease in spending on the poor by the Government. Some historians thought that the shame of working in the extremely harsh workhouses was so off-putting that people would rather live in poverty than seek help. Conditions in most workhouses were terrible. There was very little focus on people labelled the deserving poor: the elderly, sick, orphans, disabled and children. “The deserving poor” who needed help were often supported by charities.

PROVISIONS FOR THE POOR IN 1834

In 1834 the conditions for the poor were horrible. This was because there were no health care provisions available for anyone living in poverty, the housing conditions were poor and most people lived in run down housing areas where they often caught diseases. All they had was the New Poor Law which provided work opportunities in “workhouses”. The workhouses were treacherous! They offered cramped working conditions, low wages, long hours and blacked out windows. Meanwhile, the rich had loads, such as medical insurance, excellent living conditions in grand houses; they had money and a good education.

Many of the poor living in these conditions thought that this was unfair so they came up with a group called the anti-poor law committee. The people in charge of this campaign were groups of people who disagreed with the Poor Law, such as Edwin Chadwick and Joseph Rayner Stephens and John Fielden. The committees were made to encourage people to find work and earn money from employers instead of just the government. The people in charge of this campaign were groups of people who disagreed with the Poor Law, such as Edwin Chadwick and Joseph Rayner Stephens and John Fielden. They offered a group called the anti-poor law committee. The people in charge of this campaign were groups of people who disagreed with the Poor Law, such as Edwin Chadwick and Joseph Rayner Stephens and John Fielden. They offered the New Poor Law which provided work opportunities in “workhouses”. The workhouses were treacherous! They offered cramped working conditions, low wages, long hours and blacked out windows. Meanwhile, the rich had loads, such as medical insurance, excellent living conditions in grand houses; they had money and a good education.

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ATTITUDES 1834

Most middle and upper class people such as Edwin Chadwick agreed with the Poor Law. Edwin Chadwick helped to create some rules in the New Poor Law. He thought that the poor were lazy and that if the Government gave those in need food and shelter birth rates would just get higher and higher until there would not be enough food to go around.

In 1899 Seebohm Rowntree went to most of the working-class homes in the city of York to understand how the poor really lived and what the real causes of poverty were. I think he would have asked them:

1. How many people are there living here in your house?
2. How many people are working and earning a wage?
3. How many people do you eat a meal?
4. How do you manage to feed everyone on the low wages?
5. How many rooms are in your house?
6. Where does everyone sleep?
7. Why don’t you work and why can’t you work?

He discovered that laziness was not always the cause; the main causes were more often illness, old age, disabilities and bad living conditions. Unfortunately, some people disagreed with Mr Seebohm Rowntree’s findings, they still thought the poor where just lazy and carried on believing the Poor Law was fair.

PROVISIONS FOR THE POOR 1948

Over the next 100 years things changed a lot! Now in the 1940s the poor had many more privileges. The NHS was introduced, housing conditions got far better and working conditions became better and safer. The NHS stands for National Health Service. It provides doctors, dentists, hospitals, nurses, ambulances and free medicine and ANYONE can use it - man, woman, child, rich or poor, this helped because the poor finally had somewhere to go if they ever became ill. Thankfully, it was free and paid for by tax.

The thought of having better privileges would have made me extremely grateful if I was poor in these times.

ATTITUDES 1948

After World War II attitudes towards the poor changed due to the fact that the poor and the rich had to work together during the war which showed them that they could work better together. Now most people actually understood the many reasons why people were poor and couldn’t always work. The poor received better houses and working conditions as the workhouses no longer existed after 1948.

The poor were treated much fairer but there were still some people who were very harsh on the poor and gave them very little support.

TIMELINE

Here is a simple timeline from 1830 -1948:

1830: Workhouses were introduced
1870: Everyone aged between 5-10 had to go to school
1899: Rowntree carried out his research on the causes of poverty
1908: Pensions start
1911: The government gave unemployed benefits
1914: WWI started
1921: All children had to go to school until age 15
1939: WWII started

1946: People with children received more support (money) from the Government.
1948: The National Health Service began

SUMMARY

A summarisation of the New Poor Law is that between 1830s-1940s everyone who was poor and lived in poverty was treated unfairly and provided with little help. They were given poor living and working conditions and would become very ill from sickness and disease because of the poor living conditions.

Rowntree disagreed with the attitude toward the poor and how they were unfairly treated so he carried out an investigation into the causes of poverty. Rowntree discovered laziness was rarely the cause of poverty, his findings changed some people’s attitudes toward the poor but not everyone’s, some people still believed laziness was the most common cause. During World War II the people of the UK, rich and poor, were forced to work closer together, this helped people realise by working closer together, they achieved better results! This helped everyone see that the poor deserved better working and living conditions and so the government introduced the NHS, workhouses were closed down and people were given better working and living conditions.

CONCLUSION

Although the poor law is over, there is still poverty in every part of the country today and the deserving poor are still sometimes believed to be lazy. Over 65 years after WWII, some of the poor are still struggling to feed their families and some live in very poor conditions.

Bibliography


About the authors

E. Varian is a Year 5 pupil at Harris Primary Academy Chafford Hundred. Dr Joanna Griffin completed her PhD at Plymouth University in 2014. Her research is about the visual and experiential encounter with space technology, focusing on the Indian space programme and the Chandrayaan-1 spacecraft.

PhD Tutor’s note

E. worked exceptionally hard during the Scholar’s Programme, taking her studies seriously and discussing the often complex and contradictory events of history with confidence and enthusiasm. Her essay, I think, conveys a commitment to intellectual curiosity and clarity of expression – an inspiring combination! It was a really collaborative piece to work with pupil and staff at Harris Primary Academy Chafford Hundred as a Brilliant Club Tutor – everyone helped each other. It is wonderful to be able to share something of the sparkles of those six participative, challenging and enjoyable tutorials through E’s carefully constructed and enlightening essay.
The period between 1834 and 1948 was a time of great change in Britain. In Victorian times, there was a huge divide between rich and poor. Nowadays we are lucky because we have free education, free medical care and old age pensions. In the 1830s life for the working class was hard. There was not much sympathy for the poor and provision was lacking. This soon changed. At the turn of the century, Seebohm Rowntree changed many previously held views about poverty and its causes. While this changed the minds of people in the government and led to new policies, I will argue that not everybody's attitude towards the poor changed.

In the 1830s laziness was thought to be the main cause of poverty. In people’s minds the poor were split into two groups: the deserving poor and the undeserving poor. The deserving poor were those who were either too old or too ill to work and so deserved help. But attitudes at this time were very negative towards the poor and it was believed that the majority of poor people were undeserving. The undeserving poor were those who were physically able to work but did not and so were thought of as lazy. These views about the poor were also held by some important people at the time. Thomas Malthus studied the population. He thought that giving money to the poor would give people no reason to stop having babies. He argued that the population would continue to grow until there was not enough food to go around. This view was supported by Edwin Chadwick who also believed that if the poor were given money they would become lazy and choose not to work. So you can see, people did not think much of the poor at this time.

The arguments of Thomas Malthus and Edwin Chadwick were very popular and so the government decided to make some changes. They needed to stop the poor people having babies they could not afford to look after. So in 1834 they introduced The New Poor Law. It was thought that poverty was caused by laziness. The arguments of Chadwick were taken into the workhouses, and there made to work. The government thought that this policy would reduce poverty.

If working class people got ill, they could not afford treatment and therefore were not able to work. He found that poor health was a major cause of poverty. Many important people began to think about how the state could help to tackle the causes of poverty. In a speech made to Parliament, MP H. W. Forster said: “It is remarkable that in the last few years there seems to have been a general consensus of opinion that the health of the individual is no longer and can no longer be treated as a matter of purely individual concern” (Forster, 1911).

The state began to take more responsibility for looking after people who needed help. For example, in 1908 old age pensions were introduced and in 1911 unemployment benefit was given to those who did not have a job. The idea of help to the poor was changing, but it was hard to change everybody’s mind about the poor.

In 1939 Britain declared war on Germany. World War 2 brought together people from all classes and started to make people think about what was fair. For example, during the war the government started a policy called rationing. Food was scarce so this policy made sure that the food was shared out so that everybody got the same amount. This amount was not very big but it was enough to keep a family fed. Rich people got an understanding of what it was like to live a poor life. Another example is people working together. People from all classes worked in factories or fought on the front line. So I would say that during this time a lot of attitudes did change towards the poor.

Having gone through the war together as a nation, you would think that the new National Health Service would be popular. However, there was a lot of controversy and opposition. The country was used to the state control after the war, but this was a huge reform. The NHS was introduced on 5th July 1948 and offered free health care to everybody regardless of wealth. It was needed because of the poor health of the working class.

Many children lucky enough to survive to their twelfth birthday were likely to have rotten teeth, brittle bones, lung problems and a weak heart. (BBC)

Surprisingly doctors were the NHS’s biggest opposition. They were very worried that it would lower their status to treat the poor for free. They looked down on the working class. This shows that the negative attitudes to the poor by the rich didn’t really change.

I conclude that life for the poor between 1834 and 1948 definitely improved because of the state provision, but I have argued that some people’s attitudes changed but many attitudes did not change. There are still negative attitudes today on TV and in newspapers. There are programmes about people on benefits. There is still work to be done on changing people’s minds about the poor.

Bibliography

About the authors
L. Beddo is a Year 6 pupil at RJ Primary Mitchell School. Dr Joanna Griffin completed her PhD at Plymouth University in 2014. Her research is about the visual and experiential encounter with space technology, focusing on the Indian space programme and the Chandrayaan-1 spacecraft.

PhD Tutor’s note
I put forward L.’s excellent essay for publication, for one, because it is a great read! But I also think that L. has written in a way that respects the realities that people in the past lived through. These were not just characters in a play, but real people and he has clearly thought about this. Good history writing does not try to iron out the contradictions in historical events, or even the contradictions in the thoughts and actions of individuals and this essay gives a sense that a variety of attitudes led to the changes in state provision, none of which took place without immense social struggles.

This essay make particularly good use of quotes, which L. uses both to provide evidence for the points he makes and to push forward the narrative of his argument. He shows how state provision emerged from attitudes and did particularly well to independently research the difficult campaign to introduce the NHS and this informs the final part of his argument.

Tutorials at RJ Mitchell Primary School were extremely enjoyable and participative. Pupils generously help each other with their learning. A big “thank you” must go to all the staff who gave great support and encouragement to the pupils through a distinctly challenging project.
WHAT IS FAIRNESS?

N. Thanni, supervised by K. Nash

Fairness is a concept that is difficult to interpret as it has many meanings to it. It is initiated by people perceiving the world as a perfect place, which is impossible. Through this essay I will try to explain several concepts of fairness.

First of all fairness is treating other people like you would want to be treated - sharing, taking turns and giving everyone an equal chance. An example of this is when you and your friends are playing a board game and one person rolls the die twice. That is not fair as it gives them an advantage. If someone cheats that is also not fair as they are not playing the game correctly or following the rules. If a cheater wins it is not a fair win. So consequently fairness is giving people an equal chance.

Fairness is also sameness. For example everyone should pay the same price, for everything, not one person should pay more than another. Glasses should be free for adults too, not just for children as that is not fair, because glasses are needed for some one’s health. Either they should be free or everybody should pay the same price. Another good example is according to Psychology Today, “an infant and an adolescent will receive the same amount of food. It doesn’t matter that one needs more than the other. Fairness is finding the average and applying it across the board. This is fairness as equality of outcome.”

My second point is inequality in fairness. In inequality there are two sides to it which is good and the other not so good. I will now explain the good side of inequality. Sometimes fairness may mean treating people differently. For example if children in an education setting have different abilities the teacher has to adapt the work according to their abilities. Another example of this is if a person from a different country comes to England and they can’t speak English the teacher has to adapt the work so the student could at least complete the work. Inequality means treating certain people differently could be fair. It would be unfair if it was for no valid reason. So overall fairness is treating people differently in different cases.

The dreadful side to it is that 85 people now own as much wealth as the half the world’s population, while nearly a billion people can barely afford to feed their families. Extreme inequality is one of the biggest barriers to ending poverty; it takes life chances away from people and creates war and conflict in different countries. Many children have to walk to school which takes them several hours or even to collect water.

My third key point is equity. Equity means being impartial and fair. When people think of fairness they often think of sharing and giving equal parts but sometimes it means giving people things to make their lives fair. For example some people need wheelchairs to help them move around. Some people need guide dogs so they can get around easily and have better lives. Other people live in poverty in bad overcrowded accommodation with poor hygiene, and this leads to health issues. Giving them a renewed house will improve their chances of surviving and reduce the risk of illness.

Fourthly I would like to consider Fairtrade. Fairtrade is a label given to empower workers with rises in their wage. Fairtrade is becoming worldwide and is improving in some countries but is still a problem. Farmers are not paid the correct wage for all their hard work each year and all the effort they make to grow fruit and vegetables or other products, such as tea, coffee, chocolate, and cotton. Some farmers work in tough conditions with pesticides, a low wage, long hours and a boss who doesn’t let them have their say. Even though they work for so many hours they do not have enough money to survive or buy food for themselves or their families.

According to the research I have done, more than 1.4 million farmers and workers are in Fairtrade. UK sales of Fairtrade in 2013 were increased by 14 percent from the previous year. In the UK sales of Fairtrade products in 2012 reached £3.5 billion and an 18 percent increase from the previous year. Forty-four percent of bagged sugar sold in the UK is Fairtrade certified. Just over 25 percent of all roast and ground retail coffee in the UK is Fairtrade certified. Fairtrade products are now sold in more than 125 countries. The Fairtrade mark is the most widely-recognised ethical label globally.

On a global level, fairness means to be equal between countries including: funding, facilities, rights and wages depending on jobs. For example thinking about some areas of Africa where there is less funding and some parts that aren’t even developed yet compared to a country like America which is fully developed. You can see the big difference in the two as one country, America, has more funding which is not fair. Another big issue is the difference between countries’ yearly gross income. In Luxembourg, for instance, the average gross income is $66,821, compared to Tanzania which only has an income of $720. That is really not fair because then the difference between the class and money leaves a big gap.

Another key point is women’s rights. Over a million women in 17 countries worldwide have been helped by Oxfam so their voices can be heard. Women’s rights are very important and women deserve to be treated as fairly as men. When it comes to making important decisions their voices should be heard as much as others. The majority of people who live in poverty are women as they have had no education, been discriminated or have been abused.

It’s important to learn and know about fairness as it comes up a lot in everyone’s day-to-day life.

Bibliography


7. Uncertain origin

About the authors

N. Thanni is a Year 6 student at North Beckham Primary School. Kathryn Nash is a PhD candidate at the School of Oriental and African Studies in the Politics and International Studies Department. Her research focuses on the evolution of conflict resolution norms at the regional level in Africa.

PhD Tutor’s note

I have been a tutor with The Brilliant Club since summer 2014. This tutor examined what is fairness and included women on Fairtrade, equitable access to healthcare, and global inequalities. I chose to submit N.’s essay because she explored all aspects of fairness from the individual to the global level, and she also presented very sophisticated arguments about how something like inequality can be both fair and unfair. When describing N., her teacher says, “she is extremely hard working and always gives 100% to her work. She is a beautiful writer and always listens to any advice given to her.”
What is fairness? This is a difficult question as fairness can mean one thing to one person and the total opposite to another. Fairness is when everyone is treated equally, weighing up the advantages and disadvantages to each individual person. We would have no more moaning saying, “It’s not fair!” as everyone would be treated the same. Being fair also means giving people equal rights and equal opportunities. No matter how they look or act, everyone should be treated the same. Playing by the rules, sharing and giving everyone a fair or equal chance would change our world.

There are many stories which are examples of what is fair and what is not. One of these stories is called ‘The Drowning Child’. This is the basic outline of this story: You are walking past a pond, on your way to school, when you see a child drowning. If you save the child you will get your clothes muddy and will be late for class. If you don’t save the child you will be on time for class, but will have to live with the fear that the child might drown. What would you do? In my opinion, I would save the child, if I were a good swimmer, as you can always catch up on missed schoolwork. However, I do understand that in other people’s views they would just leave the child, especially if they have high hopes for the future and are very selfish. If you don’t save the child, he will be drowned. It is unfair to not do anything about this unacceptable behaviour. Everyone has the rights to feel happy and safe. Everyone deserves to be treated the same.

Bullying is one of the most common occurrences in schools today and is a prime example of unfairness. Getting pinched and called names is not right and should not happen to anybody. Teachers can make it worse when they refuse to do anything about this unacceptable behaviour. Everyone has the rights to feel happy and safe. Everyone deserves to be treated the same.

An example of fairness would be when a teacher makes sure that every child in the class gets a turn to do different jobs. You could ensure this is happening by writing every child’s name on a lolly stick and every day pick one out at random. Once everyone has had a turn the process starts again. This is a fair way to do it because everyone gets a turn and no one gets left out, even when they are absent.

In conclusion, fairness means getting what you rightly deserve and or need. Every person has the right to be treated fairly. However, looking into everyone’s individual needs and acting according to this can be quite difficult. It isn’t fair if people are treated differently according to their sex, race or religion, but you have to take a moral judgement to try to be fair to everyone you meet. In this essay, I am also trying to convey that life isn’t fair, no matter how hard you try, because individuals have different views on what fairness is and it would be impossible to take everyone’s views into account. However being fair makes life just easier for oneself, there are less arguments and people feel generally happier and safer in a fair world. Everyone trying their best to be fair would make our world a better place.

Playing a game can be great fun but somehow the mood darkens as soon as someone cheats. Have you played a game where someone cheated? How did this make you feel? It has made me feel quite upset knowing that I can’t trust my opponent. I couldn’t give them the responsible role in the game, such as referee. You might feel unsure about what they might do next. However, some people may not be bothered by this, perhaps if they have grown up with older siblings and have got used to admitting defeat. This is one of the experiences many children have shared, but it is still not fair to cheat. It gives the person who has cheated a higher advantage to winning. If this person does win then it is not a fair win, as they do not deserve it because they did not follow the rules. Another situation of being unfair is by giving one person loads of sweets and the next person one. This is unfair because no matter how much you like that first person, you have to make it fair by giving the same amount. If you don’t, it can lead to all types of arguments and even best friends can be separated by this. It just makes sense to do it the fair way and then it will prevent all of these disputes.

There is also another story which could be used to explore the topic of fairness. It is a very famous fable, so you may have heard it before, ‘The Ant and the Grasshopper’. In brief, this is how the story goes. It is summer time and a grasshopper was lazing around in the sun. Meanwhile, the ants were collecting and storing food for winter. As winter eventually came, the grasshopper had no food at all in store. He was getting very hungry, but he wasn’t prepared, so he had no other option but to knock on the door. If you were in the ants’ shoes would you give the grasshopper some food? Was it fair that the grasshopper didn’t work all year round, while the ants slaved away? I don’t think it would be fair to just give the grasshopper food straight away because he has done no work at all and has just been lazy, whereas the ants worked all year round. If it were me, I would not give the grasshopper food straight away. I would make him do some jobs in return for some food. I would hope he would have learned his lesson this way.
CAN TERRORISM EVER BE JUSTIFIED?
R. Althaus, supervised by V. Walden

Terrorism instils fear and usually causes the violent death of innocent people. Nonetheless, these aberrant actions can, in some cases, be justified. This paper works through definitions of terrorism. It will then consider different academic theorists and their views of terrorism; addressing the consequentialists and deontologists: Virginia Held, Leon Trotsky, Rudiger Bittner and Ted Honderich. It will conclude by demonstrating that terrorism can, in some cases, be justified. Numerous cases have proven that terrorism is sometimes the only way of achieving certain ends.

One definition of terrorism, cited from the United Nations, is: ‘We (the world leaders) affirm that the targeting and deliberate killing of civilians and non-combatants cannot be justified or legitimised by any cause or grievance, and we declare that any action intended to cause death or serious bodily harm to civilians or non-combatants, when the purpose of such an act, by its nature or context, is to intimidate a population or to compel a government or an international organisation to carry out or to abstain from any act, cannot be justified on any grounds, and constitutes an act of terrorism.’

(Deen 2005)

The definition given by the U.N is inadequate, because it refutes the possibility that any act of ‘terrorism’ might be justified.

Igor Primoratz (2013) gives a broader view, claiming that “we should rather understand terrorism in terms of just what is done and what the proximate aims of doing it are.” He also states (2011) that some of the people committing acts of terrorism believe that, “if the ultimate aim is liberation or revolution, the violence used in order to attain it is not terrorism, whereas the violence aiming at maintaining oppression or injustice, or some of the ‘structural violence’ embodying it, is.”

The definition given by the U.N is widely accepted; however it does not distinguish acts of ‘terrorism’ that could be justified. Igor Primoratz considers the potential that certain acts of ‘terrorism’ could be justified.

This paper adopts a definition that is similar to Igor Primoratz’s definition: terrorism is any act of violence against people outside the army that is carried out for unjust reasons. However, some acts that may be viewed as ‘terrorism’ can be justified. It adopts this particular definition because it considers the potential that some acts of ‘terrorism’ could be justified, but states that most acts of ‘terrorism’ are not.

There has been much debate regarding whether terrorism can be justified or not. While Bittner and Held have a deontologist view, Trotsky and Honderich are consequentialists. Philosophical thought about ethics is distinguished by two schools: consequentialism and deontology. Consequentialism is when you consider whether the action is justified by the consequence. In the case of terrorism: does the reason for the act of terrorism justify the end result? Deontology is when you believe an action is morally wrong or right. On the subject of terrorism: is violence towards innocent people wrong or right?

Bittner, a deontologist, explains, “There is nothing worth asking here. It is wrong, and obviously wrong, to kill innocent peoples for political aims without political authority. Terrorism… is a matter as clear as can be.” Bittner (2005).

This is a very narrow view, leaving no space for acts of ‘terrorism’ that are for just reasons. An example of this is the military wing of the African National Congress: Umkhonto we Sizwe. They, led by Nelson Mandela, carried out a series of attacks against infrastructure in the 1960s. They were legitimate terrorists as they were fighting for a just cause: black rights for people in South Africa. This is not terrorism, but freedom fighting. Bittner states that killing innocent people for political aims is never justifiable. This is wrong, as the example of the A.N.C proves.

Honderich, a consequentialist, discusses the 9/11 attacks:

What was done was wrong because there could be no certainty or probability, no reasonable hope, that it would work to secure a justifying end, but only a certainty that it would destroy lives… The killers… could not know that the killing of several thousand people would, in due course serve the end of the principle of humanity, saving people from bad lives. They could have no such rational confidence.

(Honderich 2000)

The 9/11 attacks were committed by the terrorist group al-Qaeda. Al-Qaeda claims that their aims are to reshape the Muslim world and drive Americans out of South Asia. (BBC). al-Qaeda is generally described as a terrorist organisation because they killed many innocent people by bombing the Twin Towers and other political buildings. Their main attack was on the 11th September 2001 (9/11). In Honderich’s view, if the 9/11 bombers had materially improved people’s life in Saudi Arabia then it would have been justified.

Primoratz quotes consequentialist Trotsky’s beliefs on terrorism. He believed that:

The liberation of humanity is possible only through revolution; therefore the revolutionary cause is the supreme moral law. In pursuit of the cause, all means are right, if they are efficient. Although aiming to take us beyond class society, revolution is still a product of that society and exhibits its traits and limitations. There it cannot dispense with violence. The type and degree of violence is a question not of principle, but of expediency.

(Primoratz 2013)

According to this view, al-Qaeda and the A.N.C were justified, as they were fighting for revolutionary change.

Primoratz also cites Held, a deontologist, who states:

[Terrorism] would still be justified if an additional condition were met: that of distributive justice. If in a society, (a) basic human rights of one part of the population are effectively respected while basic human rights of another part of the population are violated; (b) if the only way of overcoming this state of affairs and ensuring the effective respect of basic human rights of all is a limited use of terrorism – that is, the violation of basic human rights of those who end up as its direct victims; (c) if terrorism is directed against members of the first group, that terrorism will be morally justified.

(Held summaries in Primoratz 2013)

In this perspective, the African National Congress was justified, because the black people of their country were being violated whilst the white people were not. According to that view, if the human rights of the people of Saudi Arabia were being violated by the American people and the attacks were the only way of overturning it, then al-Qaeda’s acts of terrorism were justified.

Acts that are considered ‘terrorism’ are, in some cases, justified. The African National Congress was justified, because they fought for black rights in South Africa. Without their actions, the black people in South Africa may still be discriminated against as badly as they used to be and the apartheid regime, which was a government that supported racism, might still be intact. For this reason, the violent acts carried out by Umkhonto we Sizwe were justified. After Nelson Mandela was imprisoned for 27 years, black people in South Africa were given the same rights as white people in legal terms; the end result justified the acts of terrorism. This example thoroughly proves that terrorist acts can, in some cases, be justified. The vast majority of terrorist acts however, are not justified, for example, al-Qaeda. Their acts of terrorism should not be considered justified, because there have been no positive outcomes from their acts. However, the wars in Iraq and Afghanistan might be considered a cause of al-Qaeda’s terrorist acts. These reasons prove al-Qaeda was not justified. Also, they killed many innocent people and have not made life any better for people in Saudi Arabia. Overall, ‘terrorism’ is generally not justified. However, there are some cases when certain acts of ‘terrorism’ can be justified.

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About the authors

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Phd Tutor’s note

The course ‘Can terrorism ever be justified?’ encouraged students to engage with the philosophy of ethics and a wide range of case studies of different ‘terrorist acts’ in order to assess what they would define as terrorism and whether it could ever be justified. Students were incredibly engaged in debate about a range of examples from Nelson Mandela to Greenspeace, and the Dresden bombings to al-Qaeda. I nominated R.’s essay because of its sophisticated and balanced integration of theory and analysis. It evidences a strong understanding of in-depth theoretical ideas and is able to provide a convincing and intellectual response backed up with a range of sources. It is certainly well above the quality one might expect from Year 7 work.
The morality of terrorism is indeed a notion that has been contested for decades and still continues to frequent the political sphere. It is an emotionally liable topic that seems to meander through an array of normative ethics, political groups, and double standards. The following essay will aim firstly to outline normative applications of terrorism and secondly to demonstrate how its character has changed. As a result, a definitions section will follow, listing how a changing character creates changing definitions. We will then adopt a political position that will shape the interior of the analysis, in which a number of pressing theories will be analysed. It will be through a series of essentially critical sound judgement and reasoning that the question of morality will be reached as a temporary answer, in that empirical veracity will reach the conclusion that permanent moral justification cannot be reached.

DEFINITIONS
Defining the term ‘terrorism’ has provided problems for many. In order to decide whether this definition will take on, it is not just the definitions, but their nature that has to be taken into consideration. Bruce Hoffman states ‘words with intrinsic moral connotation are generally applied to one’s enemies or opponents or to those with whom one disagrees and would otherwise prefer to ignore’ (Bruce Hoffman, 1998). Another suitable definition is ‘it is the unjustified act of violence against an innocent life’. Immediately, we are able to ascertain what problem is at the core of defining terrorism. Hoffman’s definition seems to take on a historian’s perspective, that of acknowledging that many definitions have sought to substantiate their own political agenda, and relating this to causation. Contrariwise, the latter definition takes on a philosophical perspective, that of attributing the ethical justice of an action against a human being. Therefore, the fundamental character of the former delineation may be abstractly width, or that it determines that terrorism can be against anyone, the latter delineation applies that terrorism is solely against the innocent, and so is narrow. It goes without saying that we must take on a philosophical perspective as normative ethics does. And so the question now is of a philosophical wide or narrow definition? Are we to take the wide definition and focus on the history of terrorism, with highly targeted Russian Revolutionary propaganda of the deed and Sicarii actions in mind, or the narrow definition, focusing on terrorist acts that have deliberately transported mass or political targets? The narrow definition seems wholly more credible due to two reasons. Firstly, a civilian’s vulnerability to terrorism certainly stirs up a sense of compulsion in one’s reasoning. This is a marked departure from collective action that broadens rationality, and so a narrow definition relates to this philosophical branch at a greater scale than that of which a wide definition would do. Secondly, perhaps more weightily, is the fact that, not all, but the majority of innocent deaths due to terrorist action have been caused by non-state actors (NSAs), take for example the French Revolution and Mandela’s African National Congress (ANC). As they are NSAs, their actions are en prise not to the legal framework of jus ad bellum, but rather to jus in bello, the morality of warfare conduct, and so it is left to other ethical theories to vindicate their actions. In brief, a narrow definition would appropriately allow greater room for moral discourse.

ANALYSIS
Given the current high profile debate with regard to the morality of terrorism, it is quite predictable that there lie a considerable number of systematic views. Each of these theoretical positions makes an important contribution to our understanding of terrorist thought and mind-set. There stand two to our thought, those we may call deontological and consequential. On the one hand, the consequentialist and the deontological, both of which are categorised in jus ad bellum and in jus in bello. Consequentialists hold the belief that the morality, or justification of one’s actions depend on the consequences. Therefore, a morally right act is one that would produce a ‘good’ outcome. Deontologists, on the other hand, base the morality of actions according to their adherence to pandemic rules or moral obligations. We shall make a rather stochastic start with the deontological approach of ‘complexity of victims’, as forwarded by anarchist Emile Henry and Wilhelm von Humboldt. Jus ad bellum, at least for his part, elucidates ‘the American people should remember that they pay taxes to their government … Their government makes weapons and provides them to Israel, which they use to kill Palestinian Muslims’. This quote became the starting point that civilised victims were violated by terrorists, by following through with their societies’ orientations, are indeed rightful victims of this violence. This proposition however should not sustain without doubt. Both anarchists, communist and militant Islamic terrorist acts have, in the midst of their violence, extinguished children’s lives. It has to be asked, are children, who are destinate of the ability to act without a major’s interference, also Gunpowder Trusting, distributing their societal obligations in order to escape the reproaching nature of ‘complicity of victims’ rebellion is pivotal. This poses two problems, in terms of both improbable and uncertainty. The dynamics and enigmatic, is the definition of terrorism is of paramount importance in explaining the improbability of insurrection. Manipulation, mass media and propaganda from governments, all of which shape a civilian’s insight and perception of their administration’s actions and beliefs, and, at times, support a somewhat distorted shaping. A significant example would be Hitler’s Third Reich. His cult of personality and fascism in a state recovering from great disaster were the very things that had led to German mass adhesion to every aspect of his ideology and actions. Through this example, one is able to question whether civilisation has a responsibility against victim’s rather than the perception of deception. If, hypothetically, a civilian were to inaugurate an insurrection, death would occur on an unimaginable scale, perhaps a scale not worth risking, and so, in Camus’ words, he would thereby try to do what he says, no but whose moral is to imply a renunciation ‘(Albert Camus, The Rebel). Evidently, the theory of ‘complicity of victims’, though coherent, raises questions that overshadow its calibre. Whilst the theory of complicity of victims in the preceding paragraph focused on a very much liberal deontological principle, permitting deaths to an extent, the following will consider a rather strict consequential approach. Having said this, to decide a normative issue by definitional consideration, then, ends the discussion before it begins’ (Andrew Valls, 1992:67).

Evidently, this quote highlights the underlying crux of Bittner’s sense of reasoning. Terrorism is in contradiction to human rights. It is both a natural human need and human want for there to be an opposition and absence of violence towards others. Having said this, this want and need does not shape the circumstance. Certain times have called for desperate, violent measures, including terrorist attacks. Due to this, Bittner’s insight begins, and ends, on paper.

An equally significant aspect of the normative ethics of terrorism lies in consequentialist theory. Nicholas Fotios, in particular, has focused on consequentialist conditions against terrorism. As a result, the means in reaching a favourable end are not justified due to the absence of fidelity to his three conditions justifying terrorism. They include:
1. The mean is good enough to justify the ends
2. That the end will be achieved by means of terrorism
3. That the end cannot be achieved in any other way that is morally and otherwise less costly

(Fotios, 1981:464). In his view, terrorists fail in doing the above. In addition, resulting from the notion that terrorist ideology does not typify civilian ideology, meeting the criteria is infallible, as people are seen as ‘objects’ that bring about the end. Still and although elaborate, Fotios is consistent. He explicitly states that there are always other means of reaching a desirable change, and calling on society, to develop this specific argument. Have there not been groups that have tried but were incapable of finding other means, such as the ANC? If not, do the other means connote other pacifist contrivances or the repetition of pacifist controversial, which would certainly cause frustration? Moreover, Fotios states that people are seen as a means to an end rather as people with human rights. In retrospect, the majority, if not all of terrorist attacks have aimed to create or destabilise a social order for the benefit of the people. As they have been carried out for the betterment of a population, are civilians, prima facie and during terrorism, not seen as human beings at all, but means of reaching a goal. In this manner, I strongly disagree with Fotios’s statement that civilians are seen as objects, as at times terrorist attacks are for their welfare, and so they are seen as people. Virginia Held’s deontological principle of morality, focusing on human rights, but goes about it in a different way. She asserts that if a group is violated, its human rights taken, and terrorism is the last resort, then terrorism is justified. Though sound, Held’s theory to me seems
indeterminate, in that it is very much collectivist. Fotoin condemns the fact that terrorist groups represent ideology rather than people's specific interests, a statement of his that I completely and solely agree with. Why represent despotic ideology? In this manner, we can see that, observing her first point, the group she observes is precisely the terrorist group Fotoin speaks of, one that represents ideology. Consequently, Virginia Held here also acts as a means to an end. Kant asserted that it is a requisite that we do not use others as a means, and so this particular condition is adhering to his theory. Secondly, the violence is not, rebuffing consequentialist criticism, to save oneself, but to protect one's dignity and status as a rational agent. Lastly, she refutes the fact that violence would remove the aggressor's rational will by stating that there are degrees of proportionality of violence, and so the degree of violence is not fundamentally, but rather than people's social needs and aspirations. It is suited better to particular state policies rather than the ethical justice we seek.

Perhaps the most prominent of moral justification of terrorism within normative ethics is that of the 'best available means to an end'. Kai Nielsen, a notable proponent, states: "(terrorism acts must be justified) 1) when they are politically effective weapons in the revolutionary struggle and 2) when there are sound reasons that by the use of that violence rather than no violence at all there will be loss incurred.

[...] than otherwise would have been the case" (Nielsen,1981:446). Kai Neilson views terrorism as rightful when it is the most effective action in bringing about a desirable social order. What is more, the consequentialist standpoint defends the killing of civilians through the 'doctrine of the double effect'. The doctrine of the double effect asserts that the morality of terrorism. It began with a brief history of terrorism and its evolution, paying close attention to different terrorists’ conceptual reasons for and principles of terrorism. It then proceeded onto the task of adopting a specific definition of terrorism. Albeit, a rather Herculean goal, largely due to the fact that, as made explicit in the literary analysis of terrorism, the definition of terrorism rapidly changes, adapting to novel systems of governance. The analysis section then came into play, and through a system that could perhaps be called nothing less than resolute elimination of significant theories, a conclusion was eventually reached. That is to say, the justification of terrorism lies under the conditions of Barbara Herman's interpretation of Kant's categorical imperative. It is the inborn moral rationalism of morality a rational agent uses to guard dignity. Kant expresses this idea with a number of notable theories. These three things were all utilised in order to reach Kant's categorical imperative. However, definitions, examples and theories of terrorism will all certainly adapt. For there to be a permanent answer, there must be permanent means to reach it. Due to this, Kant's theory is only temporary, its means are all dynamic. On this note, one ends affirming that 'absolute justice is achieved by the suppression of all contradiction; therefore it destroys freedom' (Camus, 1951:5). Perhaps it is this destruction of freedom that prevents the formulation of an eternal moral justification for violence, for, at times, freedom is the very thing this violence craves.

CONCLUSION

This essay has explored, having assumed a narrow definition of terrorism. It began with a brief history of terrorism and its evolution, paying close attention to different terrorists’ conceptual reasons for and principles of terrorism. We then proceeded onto the task of adopting a specific definition of terrorism. Albeit, a rather Herculean goal, largely due to the fact that, as made explicit in the literary analysis of terrorism, the definition of terrorism rapidly changes, adapting to novel systems of governance. The analysis section then came into play, and through a system that could perhaps be called nothing less than resolute elimination of significant theories, a conclusion was eventually reached. That is to say, the justification of terrorism lies under the conditions of Barbara Herman's interpretation of Kant's categorical imperative. It is the inborn moral rationalism of morality a rational agent uses to guard dignity. Kant expresses this idea with a number of notable theories. These three things were all utilised in order to reach Kant's categorical imperative. However, definitions, examples and theories of terrorism will all certainly adapt. For there to be a permanent answer, there must be permanent means to reach it. Due to this, Kant's theory is only temporary, its means are all dynamic. On this note, one ends affirming that 'absolute justice is achieved by the suppression of all contradiction; therefore it destroys freedom' (Camus, 1951:5). Perhaps it is this destruction of freedom that prevents the formulation of an eternal moral justification for violence, for, at times, freedom is the very thing this violence craves.

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HOW USEFUL IS JOSEPH CAMPBELL’S HERO WITH A THOUSAND FACES AS A TOOL FOR LITERARY CRITICISM?

J. Kolgjini, supervised by E. Whipday

Personally, I think that Joseph Campbell’s Hero with a Thousand Faces is arguably a reasonably good tool for literary criticism. Because of Joseph Campbell’s theory, we are now able to learn new things about stories to do with character, plot and genre, and also compare them against the structure of films’ TV shows: fiction and non-fiction books. Hero with a Thousand Faces also boasts us with Campbell’s explanation of the Monomyth, from which we can fairly judge a book according to originality and imagination. It shows us whether today’s authors rely on one theory of the past to base their own story around, or whether they want to think out of the box to produce better work. The Monomyth also shows us how and why stages are linked, and without even reading all of a story, we can correctly predict what will happen in it, if the author has followed the plot of the Monomyth. In this essay I will explore how useful the Monomyth is as a tool for literary criticism with reference to Harry Potter, Cool Runnings, and Twilight.

Joseph Campbell believed that a single Monomyth exists. This is the idea that there is a pattern running through all stories and that there is a similar structure between all narratives and myths all around the world. This pattern was described in Campbell’s book A Hero with a Thousand Faces (1949). The summary of the Monomyth is:

“A hero ventures forth from the world of common day into a region of supernatural wonder: fabulous forces are there encountered and a decisive victory is won: the hero comes back from this mysterious adventure with the power to bestow boons on his fellow man.”

Campbell’s belief was that stories follow seventeen stages, however, there are three main stages: separation, initiation and return.

It is my opinion that the Monomyth is quite useful as a tool for literary criticism because it can be successfully applied to some books and films. For example, Cool Runnings is a film which can fit into all 17 stages of the Monomyth. Cool Runnings tells a story of the loose truth about the Jamaican bobsleigh team. The separation is when the team faced difficult hurdles on their journey to success. But they continued training hard and never losing hope. The initiation is everything that happens in between. These events can include one of the member falling out with his father (Atonement with the father- step 9), meeting their coach (Meeting with the Goddess- step 7), considering giving up (2nd Failure), believing that their goal is non-existent (Road of Trials – steps 6), and striving for success. The return section is when the team are supported back home in Jamaica and despite the team not winning, they are praised and have given everyone the gift of love and pride; especially when the team carry bobsleigh to the finish line after a crash, showing great courage.

Despite the fact that Cool Runnings fits perfectly within the boundaries that the Monomyth offers, few other stories do the same. An example to support this statement could be the story of Harry Potter; the separation is when after years of living with the Dursleys, Harry is finally told that he is a wizard and after some encouragement, he enters the magical world of Hogwarts and meets both friend and foe. The initiation takes place every time Harry thralls Lord Voldemort during his years, and all the bits in between like Quidditch, problems at school with homework, teachers and unsolved mysteries. Finally, the return section of Harry Potter is when he defeats Voldemort and is praised by the whole wizarding world, free at last.

Contrary to the fact that the novels of the Harry Potter series do follow the basic structure of the Monomyth, not all stages are included in the story. These stages include the likes of steps 5- Belly of the Whale, 7- Meeting with the Goddess, 12- Failure of the Return, 13- Magic Flight, 14- Rescue from Without, which are not included in the story because these steps are not relevant to the stories and stages of Harry Potter. This is a good example of how the Monomyth cannot be completely reliable, and therefore not the best tool for literary criticism.

Another literary theory I have studied is Jungian archetypes. Jung also had a belief that there was a common pattern that ran through all characters in stories. In every story, there was always a:

1. Hero
2. Shadow/devil
3. Parental figure
4. Child archetype
5. Trickster
6. Wise old man
7. Animas/animus

This ties in with the Monomyth, because for example, in Harry Potter, there is one of each listed above portrayed in character. The hero is Harry, the shadow is Voldemort, the parental figure is arguably Sirius Black, the child archetype could be the baby Harry, the trickster is also Sirius, the wise old man has to be Dumbledore, and finally the animas/animus are Ron and Hermione. Jung’s archetypes tells us that in stories, there will always be certain characters that play particular roles to influence the outcome of the story. For example, without a parental figure, the step ‘Atonement with the Father’ would be non-existent, and therefore the story would be less eventful.

Plus, in my opinion the Monomyth is quite biased when it comes to the genres it is aimed at. I think the main genres are action, adventure and the supernatural. The reason Harry Potter fits quite well into the Monomyth is because it contains all of these genres. However, a story like Twilight may not be so well suited for the Monomyth because it contains the genres of tween-fiction and romance which are quite the opposite of adventure and action. Therefore it does not fit into the Monomyth, so as a result I think the Monomyth is quite closed-minded and there’s not much of a chance.

Furthermore, contrary to Jung’s archetypal fitting into most stories, I do still think that, as with the Monomyth, they’re sexist. You can tell from the name being the hero - no mention of a heroine or feminine power there. There is also the father figure, like Campbell’s theory there is an archetypal with the father. I think mothers can also play a great role in stories- take Lily Potter for example. She dies to save her son, and therefore, good things came her son’s way.

Moreover, there is the wise old man. I do acknowledge that most recent stories like The Hunger Games, Harry Potter and The Hobbit do have wise old men as main characters, but traditional fairy tales all have a fairy godmother. So overall, I feel that Carl Jung is another example of sexism in books, but his archetype theory is quite correct and reliable in most cases.

A women called Maureen Murdock expressed the same views, and her book The Hero’s Journey: Women’s Quest for Wholeness (1990) in response to Hero with a Thousand Faces. This book showed Maureen’s feminist view as to how the Monomyth should include more about women, and Campbell replied: “Women don’t need to make the journey through the whole monarchical, mythological journey, the woman is there. All she has to do is realize that she’s the place that people are trying to get to.”

I thought that was a very sexist response indeed, because there are a lot of things women can do, and Campbell just portrays us as a prize for the quest of the hero.

There is a Bechdel test to check whether modern day movies are sexist. There are three questions:

1. Are there two or more women in it who have names?
2. Do they talk to each other?
3. Are they talking about something other than men?

It’s honestly surprising as to how many movies fail this test, which just shows that there is still sexism not only in books, but now in movies too. Films such as The Hobbit, Avatar and Pirates of the Caribbean all fail this test.

I think to make the Monomyth less about men, they should talk about an adventurer rather than a hero, and there should be an atonement with a parental figure rather than the father. Jung should also include a heroine in his archetype to make it more about women.

I think the fact that the Monomyth was written during a time when women were not treated equally to men influences the sexism a lot of it because people, what they know, and Campbell must have grown up with the idea that men were greater than women, and reflected that in his Monomyth.

In addition, if authors do believe the Monomyth is useful, then all our stories will have the same structure and it will get quite repetitive. Campbell actually said, “I got halfway through The Hero with a Thousand Faces and found myself thinking if this is true - I don’t want to know. I really would rather not know this stuff, I’d rather do it because it’s true and because the Monomyth does actually wind up creating something that falls into this pattern than be told what the pattern is.” I do agree with this statement because the generations of authors may grow up thinking that is all real, and all our stories will be the same and just predictable.

Overall, my opinion is that Campbell’s Monomyth isn’t the best tool for literary criticism because it was written mainly based on supernatural stories, and in current time we have all sorts of different genres. It may also encourage more sexism in stories. However, I do also think that it’s alright for writers to use the Monomyth for structure and as a back bone to their writing.

Bibliography


About the authors

J. Kolgjini is a Year 8 pupil at Eastbury Comprehensive School. Emma Whipday has recently completed a PhD at UCL on violent homes in Shakespeare’s tragedies; in her research, Emma explores how Shakespeare draws on popular representations of murderous husbands and wives in Hamlet, Othello and Macbeth. Emma lectures on Shakespeare at UCL, the School of Speech and Drama, and Brunel College at the University of Oxford.

PhD Tutor’s note

“The Hero’s Journey” is a Brilliant Club English Literature Programme for Key Stage 3 pupils. This course introduces pupils to literary criticism using Joseph Campbell’s theory of the monomyth, which suggests that all myths and stories around the world use the same basic structure. I have nominated J’s essay because constructs a sophisticated argument about the usefulness of Campbell’s theory. J analyses a wide selection of recent novels and films, and draws on an impressive range of literary theories, from Jungian archetypes to feminism. She expresses her opinion clearly and confidently, and gives concrete examples to support her points. This is a well-constructed and convincing essay, and an outstanding piece of work. I hope that J will continue to demonstrate her elegant essay style, her confident opinions backed up by concrete evidence, and her wide reading, in her humanities essays in the future!
INTRODUCTION
In my final assignment I will be interpreting and analysing the first excerpt of ‘Pythagorean Silence’ by Susan Howe. I will also be doing a literature review of the difficulty of a poem and looking at other reviews by Bernstein, In, Stein, Purves, Chafe and Press. I have chosen Susan Howe’s poem because it was rich with meaning and I found it fascinating and attention grabbing, but on the other hand, subtle in its meaning. Her poem is engaging by virtue of its writing technique, but challenging in meaning, possibly making it more enjoyable.

LITERATURE REVIEW
My first extract on the topic of difficult poems is from Chafe. He argues ‘It is not only unfamiliar words, phrases, and locations that may create some difficulty, but also the description of unfamiliar patterns of behaviour’ (1991: 12). I agree with Chafe’s comment completely: I think Chafe’s extract is very relevant to the poem I have chosen because there are no unfamiliar words or phrases, yet it is still difficult to decipher. It is the locations and unfamiliar patterns of behaviour in the poem that make it difficult, such as this, line ‘View of odds images swept rag-tag’.

Chafe’s extract is relevant to the argument about difficult poems. Purves’s extract (1991:1) is also relevant to the argument on difficult poems, and he talks about readability formulae, created to mathematically work out the difficulty of a poem, based on its sentence length and word frequency. But there must be a flaw in the formula, since the poem I’m reviewing does not have long sentences and certainly does not have a lot of words, but is not an easy poem. Purves points out, ‘They seem to work with non-lexical texts, but do these formulas really hold up when one deals with poetry, drama, or fiction?’ As an example of the formula’s flaws, you could have an extremely long sentence with an unusual amount of words and it might be an easy read because of the simplicity of the words and sentence structure. Purves gives another example, Many of William Blake’s lyrics would be low on a readability formula, but many readers find them difficult. I have read some of William Blake’s poems and agree with his comment about them, they are easy to read but not easy to understand.

Bernstein also takes an interest in difficult poems, and my next extract is from him. It is from his essay ‘The Difficult Poem’, and I will also be including parts from his essay which are not in his given extract. He gives 5 questions that help work out whether one is dealing with a difficult poem or not. I answered those questions with the poem I’m reviewing, and through the questions are not an exact formula, I’ve worked out that my poem is not a difficult one. I do not find the questions hard to understand, I do not find the poem’s vocabulary hard to understand, and even though I have struggled a little in places for my interpretation the poem does not make me feel stupid and my imagination has not been affected by the poem.

There is another side to the difficult discussion about the authors of difficult poems. Steiner has interesting comments about how authors of poems approach the difficulty of them. Steiner (1978: 33-34) says ‘The poet may choose to be obscure in order to achieve certain specific stylistic effects’ which is likely in the case of the poem I am reviewing. I think Susan Howe uses abruptness and confusion as a writing style and it is a very effective writing style for the subject she wrote her poem about in my interpretation.

ANALYSIS
In my poem, I found the style of the writer, Susan Howe, was very subtle but effective. There are very few words in the poem compared to the story it tells, which is a result of her subtle, though in some places sudden, writing style. These abrupt snippets of action highlight the important parts of the poem, such as the start of the poem where she writes ‘fails’ and ‘falls’ on lines 4 and 5 by themselves, spaces away from the rest of her writing, and also the word ‘suddenly’ on line 6 by itself. This also creates the sense that the poem is going faster, and the story it tells is moving on quicker than the longer, more drawn out parts of the poem, which is an engaging element of her writing style.

Enunciation is an important part of Susan Howe’s writing style and technique. She uses it to emphasize certain words and phrases, spacing out the poem and using it to control the reading speed.

The first example of enunciation is ‘or character / suddenly’ which is its sudden, and even making the word ‘suddenly’ come suddenly. She then continued to use in lines 3-4 ‘steps out to seek for truth / fails / to emphasize the fail and falls, possibly hinting at the poet’s struggle. Other examples of her emphasizing specific phrases and words are ‘Sequence / trails off’, ‘Which is / which / view of odds images swept rag-tag’, and ‘tense / as an order’.

‘These sudden fragments of her writing almost lead to lack of coherence in places. In lines 16, 17 and 18 she writes ‘Which is / Which / View’ which has no coherence at all. I cannot find a reason why she wrote this and how it fits in with the rest of the poem. I think it works as a good technique to create a sense of confusion in the reader. Or it could be used to express things happening too quickly for the character to register which makes sense with her sudden way of writing.

There is another potentially confusing part, but instead it is a wonderful effect of semantic deviation. ‘Flocks of words flying together’ has a slight hint of semantic deviation, and even though it is contributed to lack of coherence, it still classes as coherence. It fits in with the next line of the poem which is ‘Cast off to crows’ keeping on the theme of birds and flying. It is a good use of a metaphor.

‘Flocks of words flying together’ also counts as defamiliarization, since it relies upon an ordinary aspect and turns it into an unusual one, and it’s portrayed in a different way by the writer to make an effect of semantic deviation and metaphor.

In the first five lines, Susan Howe uses very abrupt verbs and adjectives as such as ‘fails’ by itself spaces away and ‘fails’ with the same space technique, making it seem even more abrupt and sudden, as well as sudden. ‘That is the only place in the poem where she uses that effect, and could be to portray that time went more quickly at the start. Perhaps it is referring to the fact that time seems to pass quicker when you are younger, like the character mentioned. In the next five lines, 5-10, her sentences and lines are longer, allowing for a slower speed of reading and describing things of the poem. She then repeats the effects of the first five. From lines 10-15 reading speed stays at the same rate, maybe slightly slowing down from the lines before line 15-20 gets faster, but then ‘w’ between lines ‘Waving fables and faces War’ quite clearly means there is word of war, and then the war begins, but due to the time the poem is going faster, and the story it tells is moving on quicker than the longer, more drawn out parts of the poem, which is an engaging element of her writing style.

SUMMARY OF ANALYSIS
During my analysis, I have discovered a lot about the style and technique of the poet Susan Howe. Her techniques are clear and strong, and she uses her words and spacing carefully to create a certain effect to the poem. In some places she uses speed of reading or confusion or abruptness, and she chooses her words carefully to create a very precise effect to the reader to express the story in the exact way she wants. She uses as little words as possible, portraying the story in snippets of technique and phrases, and her writing style is one of my favourites and engages me the most.

INTERPRETATION
In this section I am going to give evidence towards my interpretation and explain in further detail about the story I read when I read Susan Howe’s poem. I have thought carefully through many different interpretation possibilities, and know that the interpretation I have come up with is the most plausible and agreeable. I could have found. Susan Howe’s poem does not have a clear interpretation, and I think for this poem it is very much the case that no interpretation is wrong or right, since there are many possibilities of how you read it.

I think Susan Howe’s poem is based on a character and the travels he makes in his life time, but also has a strong mention of war. It is also a poem about the theme of time. The poem is from, with only a mention of ‘we’ and the rest in third person and no hint as to who it is. This character comes ‘suddenly’ or ‘suddenly’ / steps out to seek for truth, then ‘fails / falls / into a stream of ink’, the ink possibly meaning depression or sadness since he failed to find the truth, and their ‘Sequence trails off’, meaning possibly his regularity of life goes due to depression/sadness portrayed by the ‘stream of ink’. This character than gains renewed hope and ‘must go on’, and the poem dives into the mention of the war, which is where there are even more interpretation possibilities to choose from.

‘Waving fables and faces War’ quite clearly means there is word of war, and then the war begins, but due to the time the poem is written and the fact Susan Howe is American it is unlikely there was a real war to inspire her poem. Or it could be an exaggeration of something happening in the characters life, just an argument or fight she has been in. She has a mention of the war is very sudden, and ruins. I think her writing style and technique expresses the struggles with finding the truth, and his emotions, and then it mentions war and brings images of manoeuvring between points and ruins. I think her writing style and technique expresses the poet efficiently on certain topics, either confusion or rapidness or randomness, and is created with good use of enunciation and spacing. She creates good images with the words and lines chosen, and I enjoy reading the poem immensely.

CONCLUSION
In my review of Pythagorean Silence Excerpt 1 I have found out a lot about the writing style of Susan Howe. Her techniques are engaging and easy to understand, and her way of writing and the words she uses captivates the reader, and is very enjoyable to read. Her poem in my mind is split. At first it is about a character, and his struggles with finding the truth, and his emotions, and then it mentions war and brings images of manoeuvring between points and ruins. I think her writing style and technique expresses the poet efficiently on certain topics, either confusion or rapidness or randomness, and is created with good use of enunciation and spacing. She creates good images with the words and lines chosen, and I enjoy reading the poem immensely.

Bibliography


About the authors
E. Cramp is a Year 8 pupil at George Spencer Academy in Stapleford, Nottingham. Davide Castiglione is completing his PhD at the University of Nottingham, on the topic of difficulty in the language of modernist poetry.

PhD Tutor’s note
E’s essay is the best one across the two groups of pupils I have been working with. The feedback I have given to Susan Howe and explored in detail its stylistic features and the effects these create in the poem, Susan Howe’s poem introduces an almost experimental approach, from introspection to stylistic analysis, from argumentation to evaluation. It is challenging, for pupils this age and in such a short time span, to understand and interiorize the basics of a literature review, but E. engages effectively with the critical sources provided. The essay is well structured, and well supported for the reader with facts and figures. The independent use of discipline specific language is impressive. E. has added an experimental, postmodernist post which is certainly not part of the syllabus.

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PYTHAGOREAN SILENCE BY SUSAN HOWE – AN ANALYSIS
E. Cramp, supervised by D. Castiglione

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DEFINITIONS
There is no single definition to the term terrorism and all depends from which side of the conflict you look at it. A hero of someone could be seen as a terrorist by the opposing side. The Oxford Dictionary’s definition of terrorism is, “the unlawful or unauthorized use of violence and intimidation in the pursuit of political aims”. In my opinion, there are a couple things wrong with this definition. The first thing being that it says that you need to be official or authorized not to be classified as a terrorist. But governments are authorized and official which means that they can’t be terrorists. The second thing wrong with the above definition is that it rules out any other objective other than a political one.

Another definition I found incorrect was the Collins Dictionary’s definition: “terrorism is the use of violence in order to achieve political aims or to force a government to do something they don’t want you to do”. This one is very similar to the first one. They both say terrorism can only be against governments and that if you’re after the government you’re a terrorist. But this one also says that if you are trying to force the government to do something you are a terrorist. So if the government is trying to force someone to do something they’re not terrorists. Also the government probably has more power than the ‘terrorists’ and this definition fails to explain what is that makes something a terrorist.

TYPES OF TERRORISM
There is more than one type of terrorism so I have found two that probably cause the most damage to innocent people.

1) State terrorism
Many people argue that states cannot be terrorists but I disagree because states have the power to cause terror to innocent people of their own country and of others. An example would be communist countries that suppressed their own people and that of Nazi Germany, which conquered neighbouring countries, and the killing of six million Jews in WW2.

2) Bio terrorism
This is the international release of toxic agents to harm or bring terror to people. The U.S. centre of disease control has classified the bacteria, viruses and toxins that could be used in an attack. These include: anthrax, botulism, the plague, smallpox, tularemia, and hemorrhagic fever due to the Ebola virus or Marburg virus. (Bioterrorism, 2014).

EXAMPLES OF TERRORISM IN THE PAST
There are a couple of different examples of terrorism in the past but should all of them be considered as terrorism? For example Nelson Mandela who is now a very important figure in black history was considered a terrorist by the government of South Africa. But I believe he was a freedom fighter fighting for equal rights in South Africa. A freedom fighter is someone who fights for freedom not always through violence. According to my definition he had a good reason for his actions, which was freedom and equal rights. Nelson Mandela did not attack innocent people instead he targeted government buildings and other important infrastructure when left with no other choice. He was also the head of an organisation called the Umkhonto we Sizwe (MK), which was the militant wing of the ANC (African National Congress). The ANC was accused of some attacks on innocent civilians, but Nelson Mandela said that he was not part of them and he never endorsed killing people. His actions are justifiable. When Mandela was in court he said: “This conclusion was not easily arrived at. It was only when all else had failed, when all channels of peaceful protest had been barred to us, that the conclusion was reached of something embarking on violent political struggle . . .” (Mandal, 1964).

Another example of terrorism is Adolf Hitler who was the leader of Germany in WW2 (World War Two). A World war is a war involving many large countries from all around the world. Hitler ordered an unprovoked attack on Poland, which made France and Britain declare war against Germany. He was a racist who believed the German race was the most superior race in the world and he only liked blonde haired people with blue eyes whom he called the “Aryan race”. Someone who is racist is someone who thinks one race is superior to the other or someone who hates a certain race. His plan was to eliminate the Jewish and the gypsies, to rule all over the world and enslave any race that weren’t Aryan. In fact he was not Aryan himself. Hitler was a terrorist because he attacked innocent people, he killed for the purpose of world domination, he killed innocent people, because of who they were and that they weren’t Aryan. His type of terrorism is state terrorism and his actions are unjustifiable.

A more modern example of terrorism is Al-Qaeda (“The Base”). They are an Islamic extremist group who were the key part of the 9/11 terrorist attacks. They killed $25 million bounty on him. Eventually he was shot and killed in a private residential compound in Abbottabad, Pakistan. Al-Shabaab (“the youth”), an extremist group based in Somalia, was also part of Al-Qaeda. In 2012 they pledged alliance with Al-Qaeda. They are also held responsible for many deaths. I believe that Al-Qaeda and Al-Shabaab are all terrorists because they both are responsible for many deaths and attacks on innocent people, such as 9/11 and their attack on Somalia, they were forceful and forced their beliefs on people and they killed for their interpretation of religion. Their actions are unjustifiable.

An example of terrorism that is happening at the moment is Isis (Islamic state of Iraq and Syria), which is also an extremist group. The group kills Muslims and non-Muslims and anybody who does not embrace their twisted ideology. They are also in charge of the beheadings of many aid workers who went to Iraq and Syria to help those in need, were kidnapped and shortly after killed. They have made videos of them beheading these innocent people and committed their crimes on camera. Many young Muslim children and teenagers have been brainwashed to go to Iraq and Syria to help Isis commit their crimes. Isis, Al-Qaeda and Al-Shabaab claim to be part of the W Motion group. When talking about Al-Jihad there are two extreme views: the ones who say that there is no such thing in Islam and the ones who say you always need to perform jihad, like Isis, who are so extreme that they believe that you can kill Muslims if they commit a sin and you can kill any non-Muslim. But this isn’t the real Islam this is their interpretation of it. They have taken the real religion and twisted it so it can suit their needs. But why is Isis killing fellow Muslims in Iraq and Syria if they are the practically the same religion? So therefore I believe that Isis’s actions are unjustifiable because they kill innocent people, torture them and they do it for their false interpretation of a religion, which isn’t a good enough reason to justify their actions.

CONCLUSION
My conclusion is that terrorism is unjustifiable and killing is always wrong. I have arrived at this conclusion because if you kill it doesn’t just affect one person it affects their family, relatives, friends and people who knew them. What if the person is on your side? And in the end if you use violence people will remember you for that and all the innocent people you killed and not what you achieved. Even if it’s for freedom you shouldn’t hurt people because they have a right to live just like you have a right to freedom. I also think that it is wrong to use violence or any interpretation of it because which religion would allow people to kill people? Even if you are part of the government you should not use your position to your advantage. For freedom fighters there is the non-violence option of civil disobedience; it is a method effectively used by Dr. Martin Luther King and Mahatma Gandhi.
I turn first to the railway. The railway was introduced in England at around 1830. The country’s clear-cut landscape was divided into large estates and farms, and the railway gave rise to (commerce, boarding houses, repairs, etc.). Dickens focuses on the struggle between the past and the present. He describes the railway as a ‘great earthquake’ that ‘rent the whole country to its centre’ (p. 67). This is a very dramatic and violent way to look at the railway. The telegraph was as ‘a great earthquake’ that ‘rent people an agency in conquering distance. The railway before it had done so, but this method was faster, of much greater subtlety (it does not damage societies like the railway does) and it was information-based, given that you could send only words. Despite all this, I feel that the most important element of all, in regard to literature, was that the telegraph worked with electrical messages that were transmitted by an invisible force. The messages left where they were and then arrived somewhere else—without—any physical movement. To imaginative and creative minds this would have been both astounding and stimulating; ideas would have formed that hitherto had been too fantastical or outlandish. I believe this subtle, invisible movement of information was the origins of ‘telepathy’ or the transmission of ideas, and this is best exemplified by its use in Bram Stoker’s Dracula.

Dracula is a vampire: a supernatural being with power over the physical and metaphysical realm. His powers include telepathy, immortality, and shape-shifting. I believe his telepathy was directly inspired by the telegraph, for, as I stated previously, the telegraph allowed you to send messages across great distances, apparently without physical movement. For, as Jill Matus writes: “The invisible force of electricity, apparently an immaterial phenomenon, spurred the cultural imagination of communication and transmission (as in the telegraph) and this was a very dramatic and violent way to look at the railway: the word ‘rent’ implies that great force was used in bending the community and ‘earthquake’, naturally, suggests the railway was a disaster.

Dickens focuses on the struggle between the past and the encroaching modernity brought by the railway. He describes it as a ‘moment of truth’ and ‘the conquering engines’ and describes those that they affect as ‘the vanquished’. This is very negative imagery and highlights quite plainly the damage he feels it has inflicted on people and their communities. Within all this destruction, he makes sure to mention that a vestige of the old ways ‘Stagg’s Gardens—is secure!” (p. 233-4). Here he is displaying his concern for the old ways being eroded by the new.

Overall, it is clear that Dickens’s novel displays a concern about how much of the old world will be left in the end, and whether the railway will continue to damage communities and the environment. From this we can see that its impact was huge in its description of the time. His writing has been influenced so greatly by the railway that he cannot help but—in his representation and description—note how enormous its negative impacts were on Victorian culture. It affected communities geographically and psychologically, and it impacted upon society too: it seems the railway that linked the country at the same time broke apart the links between classes. For, as Jane H. Berard writes in Dickens and Landscape Discourse, ‘The increased wealth of some only seemed to separate classes further’ (p. 37).
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Marketing plays a major role in today’s society, and is often a crucial element of being able to sell a product well.

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TO WHAT EXTENT DO STORIES PLAY A ROLE IN THE BUILDING OF PEACE BETWEEN COMMUNITIES?
It was famously said by Plato that ‘those who tell stories rule the world’ (Gottschal, 2012). This essay questions the validity of this statement in times of peace building.

R. Finney, supervised by M. Rohse
The structure of composite volcanoes is composed of layers of lava flows, separated by pyroclastic material (from previous eruptions) in up to equal proportions (sometimes successive layers of lava and pyroclastic flow). Mount Etna has had a very eruptive history with the majority of eruptions classified as Strombolian, with sub-plinian tendencies. This giant structure has been under constant stress, erupting non-stop since 1983. On the other side of the world, Kilauea is a typical homogenous or shield volcano situated on the Hawaiian Island at 1,247 metres above mean sea level (AMSL). This area is known as a hotspot volcano, shown in Figure 2. Hot mantle material is found within the structure (associated with previous eruptions), very little pyroclastic material is found within the structure (associated with previous eruptions). Kilauea has a very interesting formation, which is uncommon in volcanic structures. Instead of forming at the volcanic edifice, it is instead known as a hotspot volcano, shown in Figure 2. The speed of flow of lava is highly dependent on the composition and temperature. Lava flows can be damaging to any structure, property and land over which they flow. The flow of lava is highly dependent on the composition and temperature (Figure 4). Lava found typically in shield volcanoes (Kilauea) constitutes as basaltic (lowest concentrate of silicon dioxide, high in trace metals such as iron calcium and magnesium), whilst lava typically associated with composite volcanoes (Mount Etna) are rhyolitic (higher concentration of silicon dioxide, low in trace metals).

Pyroclastic flows refer to the fragmented rock and dense gases that move ‘fluid-like’ at high velocities away from the erupting source, usually when violent volcanic eruptions occur. Volcanic eruptions can be categorised using the Volcanic Explosivity Index (VEI). This index is a logarithmic scale above VEI of 2 up to a maximum at VEI of 8 (super volcano) in terms of parameters such as increasing volume of tephra (rock fragments > 64 micrometres), plume height and frequency of eruption, etc. An analysis of VEI for historic and current eruptions from the Smithsonian Volcanic Survey is summarised in Table 1 and Figures 6 show that Kilauea, typical of shield volcanoes, have VEI of zero; a characteristic of effusive, Hawaiian style eruptions. These are distinctive of basaltic lava having low gas and water vapour content. In contrast, Mount Etna, typical of composite volcanoes, have a much higher VEI (Figure 6); in the case of Mount Etna averaging VEI of 2 with some eruptions up to VEI of 5.

3. PRIMARY AND SECONDARY HAZARDS
Lava flows are common for all volcanic types and are relatively slow moving, which do not usually present a hazard to people who can generally move out of the way. However lava flows can be damaging to any structure, property and land over which they flow. The speed of flow of lava is highly dependent on the composition and temperature. Lava found typically in shield volcanoes (Kilauea) constitutes as basaltic (lowest concentrate of silicon dioxide, high in trace metals such as iron calcium and magnesium), whilst lava typically associated with composite volcanoes (Mount Etna) are rhyolitic (higher concentration of silicon dioxide, low in trace metals). It is this higher concentration of silicon dioxide which shapes the property of the magma; the silicon dioxide forms large tetrahedral based polymeric structures greatly increasing lava viscosity. The typical viscosity of rhyolite is 108 Pa.s with classic temperatures of 800ºC, whilst for basalt it is 1-102 Pa.s with temperatures of 1200 ºC. Increasing temperature tends to reduce viscosity by effectively breaking down the extent of silicon dioxide polymerisation. In general, the lava from shield type volcanoes is expected to be relatively faster moving whilst having the ability to cover larger areas close to the volcano. As the lava moves it cools and becomes more viscous before the flow stops and solid layers form. The hazard from lava eruptions for either type of volcano is relatively localised around the volcano (although covers a large area for Kilauea) and does not have a regional or global impact.
These powerful explosive events are characteristic of composite volcanoes having highly viscous lava with very high gas and water content. When the magma rises above a critical height (corresponding to a critical pressure), explosive forming and bursting of the gas bubbles fragment the magma into the gas/liquid mixture under high pressure. Explosive release during a volcanic event forces ‘clumps of liquid’ which cool as they fly in the air forming pyroclasts or volcanic ash. At high release pressure, (high VEI explosions) the material can rise very high into the atmosphere only to be carried by the prevailing winds across long distances away from the source with potential global footprint. At lower explosive pressures (lower VEI about 2-3); the eruption column is only several hundred metres high and when that collapses, it produces a pyroclastic flow rapidly travelling down the sides of the composite volcano.

Pyroclastic flows can form in many ways from the collapsing of the eruption column, or an explosion on a lava dome or lava flow. With the mass of the dense mixture combined with velocities up to 200 m/s this flow can destroy almost anything it comes into contact with. The temperatures can vary within such a flow, with the pyroclastic flow generally between 200-700°C. Following this flow, a mixture of ash and gas accumulates together forming a very dense, opaque cloud. What makes this hazardous dangerous to people is the amount of momentum it can gain in response to gravity, which in turn makes it very hard for local inhabitants to escape in time. Figure 7 clearly highlights the fast travelling pyroclastic flow, with the rising cloud of smoke and ash lagging behind due to its slower speed and greater buoyancy. Ignimbrites deposits remain hot and could be hazardous to those trying to prevent lava flow, such as in the Mount Etna eruption of 1992, where controlled explosions and specific unearthing diverted the lava flow from affecting the town of Zafferana, Sicily. Applying the principle of conservation of energy, it is easy to understand that the conversion of gravitational potential energy into kinetic energy of the debris, contributes to the speed of the mass down the steep angle of the slope.

While Mount Etna has both effusive and explosive eruptions, the latter can cause a significant pyroclastic flow. The ash produced poses a major hazard for local villagers and with the nearest airport being only 35km away (Figure 8) from the volcano, large areas can be affected. Despite the known frequency of eruptions, sulphur dioxide (SO2), hydrogen chloride (HCl), hydrogen sulphide (H2S), carbon monoxide (CO) and carbon dioxide (CO2). Basalt lava from shield volcanoes (such as Kilauea) has a lower concentration of dissolved gases such as carbon dioxide compared to composite volcanoes. Once released into the atmosphere, these gases can be carried by the winds and ‘washed out’ of the atmosphere to be deposited as acid rain while carbon-dioxide and water vapour adds to the ‘greenhouse effect’. Carbon monoxide (CO) can be fatal through asphyxiation which poses an additional local hazard. The extent of the secondary impact from these gases tends to mirror that of ash; for shield volcanoes the impact is local while for composite (for very high VEI) the impact can be global.

Pyroclastic flows are naturally associated with the more violent composite volcanoes, with VEI 2-3. The famous historic eruption of Vesuvius in Pompeii (79 AD) is an example of such a powerful event killing over 20,000 people. In spite of the power of these events, pyroclastic flows are only dangerous locally; the flows will lose energy over flat surfaces and eventually deposit as a surface layer extending many tens of kilometres and do not have enough energy to have a regional or global impact.

The greater the explosive nature of the volcano, the more the ash can contribute to a local, regional and global footprint. Low VEI explosive events, typical of shield volcanoes (Kilauea), eject small quantities of material up to a 10-100m into the air (sometimes 500m, typical of a Hawaiian style eruption). This material is not carried far and forms dense ash deposits quite locally to the eruption. In populated areas, evacuation is usually the only action; the ash density is sufficient to collapse roofs, damage structures and destroy any agriculture, as well as cause asphyxiation. High VEI explosive events, characteristic of composite volcanoes have the power to eject large volumes of material high into the atmosphere. This fine material can be carried over significant distances by the trade winds, can remain in the atmosphere for momentous timescales (months to years); from a composite volcano such as Krakatoa, (1883) and be deposited globally. Hence, ash from shield volcanoes is only a significant hazard locally, whilst for composite volcanoes the impact of the ash will be significant locally and even regionally and the global impact (apart from a thin layer of ash dust) is generally felt through secondary effects such as reflection of sunlight (leading to cooling of the earth), colder winters and impacts on crops.

Together with ash, volcanoes also release large quantities of gases into the atmosphere, mostly water vapour (H2O) along with minor amounts of carbon dioxide (CO2), sulphur dioxide (SO2) and hydrogen chloride (HCl), hydrogen sulphide (H2S), carbon monoxide (CO) and carbon dioxide (CO2). Basalt lava from shield volcanoes (such as Kilauea) has a lower concentration of dissolved gases compared to composite volcanoes. Once released into the atmosphere, these acidic gases can be carried by the winds and ‘washed out’ of the atmosphere to be deposited as acid rain while carbon-dioxide and water vapour adds to the ’greenhouse effect’. Carbon monoxide (CO) can be fatal through asphyxiation which poses an additional local hazard. The extent of the secondary impact from these gases tends to mirror that of ash; for shield volcanoes the impact is local while for composite (for very high VEI) the impact can be global.
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PhD Tutor’s note

I nominated the paper of R. Hamida on ‘Relating the impact of hazards from volcanic eruptions to participation in and experience of Earth Sciences’. He provides a detailed explanation of the main types of volcanic eruptions, and offers clear and well referenced explanations for their formation. This information is then used to link two contrasting volcanic eruptions from the Smithsonian Global Volcanism Programme, data on eruption frequencies and magnitudes from the Global Volcanism Research and Monitoring Network, and a comprehensive view on hazards relating to each volcano presented on historical eruptions and an understanding of physical volcanoclastic eruptive processes. A key hazard assessment is plotted showing the difference between the two volcanic types. The paper is very well written and illustrated throughout; it demonstrates a tremendous amount of hard work and the author clearly has an aptitude for conducting independent research and critical thinking.

LITERATURE REVIEW

There are a few empirical studies that have previously addressed the placebo effect in association with either energy drinks or marketing. Looking at Shiv, Carmon and Ariely’s article (2005) they found that pricing could create a placebo effect, as ‘pricing can alter the actual efficiency of products to which they are applied’ (Shiv, Carmon, Ariely, 2005). They therefore, based their hypothesis on the pricing of energy drinks and whether discounted energy drinks can affect the result that people expect it to have. They tested this on two groups of people, where one group had the normal priced energy drink and the other group had the original energy drink overall were able to do more word puzzles than the other group.

The placebo effect is a favorable outcome arising purely from the belief that one has received a beneficial treatment” (Clark et al, 2001). In regards to this research, the participants who watch the advertisement should experience a placebo effect, allowing them to be able to complete an increased number of word puzzles than the other group.

INTRODUCTION

Marketing plays a major role in today’s society, and is often a crucial element of being able to sell a product well. Many people get subconsciously persuaded by all of these marketing techniques, and fall to the pressure of buying the product and believing it will have the same effect on them. Therefore, part of the purpose of this study is to look at the effects that marketing can have on a product and assess its importance. In particular, this research experiment will be mainly focusing on advertisements and whether or not this marketing technique can have a placebo effect. A placebo effect is when you take or use something, that has no physical or chemical change or effect on the person, but yet it still provides results. “The placebo effect is a favorable outcome arising purely from the belief that one has received a beneficial treatment” (Clark et al, 2001). In regards to this research, the participants who watch the advertisement should experience a placebo effect, allowing them to be able to complete an increased number of word puzzles than the other group.

Abstract

A study looking at whether or not advertisements can have a positive effect on people’s expectations of the products, in particular focusing on whether or not watching an advertisement of an energy drink can help to enhance their performance, hence creating a placebo effect. To test this hypothesis simulated data of 200 participants was used. There were 100 individuals in each group who all had to drink the same energy drink, and then see how many word puzzles they could then complete in 30 minutes. However, the treatment group watched an advertisement of the chosen energy drink beforehand which showcased what the effects and benefits of the energy drink were, whereas the controlled group didn’t watch this advertisement.

CAN THE PLACEBO EFFECT OF WATCHING AN ADVERTISEMENT VIDEO OF AN ENERGY DRINK INCREASE A PERSON’S ABILITY TO COMPLETE MORE WORD PUZZLES? AN EXPERIMENTAL STUDY

S. Lumley, supervised by E. Castle

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However, their study has been criticized as Karp and Rondoue claim that they replicated the work of Shiv, Carmon and Ariely’s research experiment, and they found the reverse outcome. In fact, their results showed that lower prices lead to better product efficiency. They then point out that “in reality consumers have their own preferences of differing prices and can choose to purchase discounted or regular priced goods at different outlets” (Karp, Rondoue). I agree with this criticism of Shiv, Carmon and Ariely’s work as I believe that if people had the option most people would in fact choose the discounted product rather than paying the normal price for something that they are still going to end up with the same product just cheaper. However, I do agree with the idea that pricing can cause a placebo effect, so I believe a better way of testing whether price has a placebo effect is to test price against different products rather than against the same product. For instance we could test a cheap home brand energy drink against a different more expensive energy drink, as given that they are different products people will automatically expect the more expensive product to be better and more efficient, which could then lead to a placebo effect as “marketing actions such as changes in the price of a product, can affect neural representations of experienced pleasantness” (Plasman et al).

Caglar, Lauren and Gavan have extended the research of Shiv, Carmon and Ariely in a different way by demonstrating the importance of motivation and a ‘person’s desire to experience the products purported benefits” (Caglar, Lauren and Gavan, 2005). They believe that when people want the physical symptoms and are highly motivated, a placebo effect will more likely manifest. So whilst drinking the energy drink all participants were then asked to answer a short questionnaire testing their motivation levels, questions included “How much would you like the energy drink to increase your mental performance?” and “How much would you like to have the benefits of the energy drink?” The results showed that the participants who answered higher in the motivation questions and showed they had higher motivation levels tended to get higher marks in Wechsler’s digit test no matter which group they were in. Hence, then proving Caglar, Lauren and Gavan’s hypothesis that motivation and ‘wanting something’ are the major factors in causing placebo effects. I agree with the idea that if you want something to work, it is more likely to happen. However, one thing I must point out is that I believe that motivation and the placebo effect are different things and “it might be further argued..."
that a placebo effect should only be so described if the participants themselves do not propose an alternative explanation, such as increased motivation” (Beede, 2007).

**HYPOTHESIS**

For this study, both groups will drink the same energy drink and then see how many word puzzles they can complete in 30 minutes. However, the treatment group will watch an advertisement beforehand, whereas the control group won’t. The hypothesis is that ‘advertisements do affect people’s perceptions of how effective a product can be, and thus cause them to unconsciously carry out the perceived effects’ (hence the word ‘placebo’). This will take the form of an alternative hypothesis (H1), where the treatment group will perform significantly better than the control group in puzzles completed in 30 minutes.

**THEORY**

The two theories that underpin the placebo effect are the expectancy theory and classical conditioning theory, as they can both lead to a placebo effect. The expectancy theory is based on the idea that if a person is told that a product will have an effect upon them, they are likely to unconsciously change in the way that is expected. This leads to a placebo effect, because the product will be exactly the same, but because they’re told the product will have an effect it will then cause a placebo effect, resulting in them having the expected effect.

The other theory is the classical conditioning theory, which is based on forming an association between a stimulus and response. In this case it is the advertisement and the hypothesis that the advertisement will have an effect. If we pair the treatment group with the controlled group, then it could be possible for the placebo effect to happen naturally, for instance moving your hand away from a hot surface. Whereas, other responses can be conditioned, for instance a well-known example is Pavlov’s dog experiment, which basically consisted of a dog being conditioned to salivate when a bell is rung due to the fact that the dog had been taught to associate the bell with the food. The placebo effect can also be explained by this theory, as if a behavior has been learned then the learned behavior can always happen. Therefore, if a person is given what they think is a pain killer, but in fact doesn’t contain any pain relief they will still associate getting the pain killer, with the pain decreasing. So even though there isn’t an active pain killer, they believe it will help, so their pain will still decrease causing a placebo effect.

The expectancy theory underpins my hypothesis and research, as the treatment group will watch the advertisement video, which will inform them of the effects of the energy drink. This will then cause a placebo effect, as they will unconsciously expect the effect to occur in accordance with the advertisement allowing them to complete more word puzzles than they normally would.

**EXPERIMENTAL DESIGN**

The population size of this experiment was based on 200 volunteers, who were randomly broken down into two separate and groups, each group containing 100 participants. The benefit of using volunteers for my research is that they will have to invest their time in a random control trial to sort my participants into the two groups, as this allowed my participants to be randomly allocated into the groups and help to minimize allocation bias. The benefits of using a randomized controlled trial, is that all participants should remain unaware of which treatment was given until the study is completed, helping to stop other factors from affecting the results. The drawbacks however, of using a randomized control trial are that in some cases they can cause participants to not be taken as seriously. Mossey et al. all concerned that if the treatment group watch a placebo video, which was not an effective placebo, they may think that they were not taken seriously. This can be seen as an ethical concern, as participants may not be taken seriously as a participant, so their reactions may not be taken into account.

For that reason before I decided whether or not to use randomized controlled trial, I made sure what I was testing was ethical and since the only difference between my treatment group and the controlled group is that the treatment group watches the advertisement, I have come to the conclusion that using randomized controlled trials in this study won’t cause any ethical issues.

**RESULTS**

To assist in the analysis of the initial data I first completed a summary statistics table this allowed me to gather up the initial data. This table gives me an indication as to whether or not my research would match my hypothesis. For instance, looking at the statistics table it can be seen that group 2 has a higher mean and standard deviation than group one, which describes the increased performance of group 2’s distribution being centered on an increased average of 4.81 puzzles completed in 30 minutes than group 2. To get a more accurate picture of the results an ANOVA test was then conducted to compare the effects of the treatment and control groups. The amount of puzzles completed in 30 minutes in timed and controlled conditions, where one group watched an advertisement video based on the energy drink and the other group watched an unrelated video. There was a significant effect of the advertisement on the performance of the participants and the amount of puzzles completed in 30 minutes at the P<.05 significance level for the single factor condition [F(1,198) =28.88, P<.05]. The significance level was 0.0000, which shows that there is basically zero chance that these results could just be just a coincidence, and that it is definitely a result of the placebo effect. These results support my hypothesis that advertisements can affect people’s perceptions of how effective they think a product will be via the placebo effect. Looking at the graph (shown below) it represents both the group mean and the overall mean for both groups. Looking at the difference between the mean of a group and the overall mean you can clearly see that the treatment group’s mean is higher than the overall mean of the participants. This therefore helps to represent that the treatment effect could be in place, which means that the placebo effect must also be happening.

**DISCUSSION**

Although my experiment did produce significant results and the results do support my hypothesis, there are still some possible limitations to this research. For instance, a major weakness of using a random control trial to sort the participants into the groups is that it doesn’t account for the participant’s academic ability. This may have caused one group to have more academically able participants than the other and thus potentially have affected the overall results, as the test I used required people to carry out word puzzles. Therefore people with higher academic ability will automatically be able to perform better. For this reason one of the possible extensions that I would add if I were to do this experiment again would be to control variables such as the participant’s natural intellectual ability, due to the fact that the test I am using to test if the participant’s intellectual ability has been enhanced after watching the advertisement and drinking the energy drink. So therefore, if I could control intellectual ability and try to make sure there are the same types of academic ability in both groups it will help to produce more accurate results and help to prove that it is in fact the placebo effect that is causing these differences. I could do this by making the participants see how many word puzzles they can complete before the drink energy drink. So that I can compare these to the amount of puzzles they have completed after they have drank the energy drink and the treatment group has watched the advertisement. This will allow me to compare both sets and see if the energy drink and advertisement did help to increase their intellectual performance.

Also a further direction for this experiment would be to try a different outcome, for instance I could test to see if watching the advertisement of the energy drink could also increase someones physical performance. As there has been studies that have looked at the placebo effect in regards to exercise “the placebo effect plays a role in the health benefits of exercise: ones mind-set mediates the connection between ethical and one’s health” (Crum, Langer, 2007). The placebo effect in sports performance (Beede, 2007) the effects of caffeine on exercise (Cox et al 2002). However, I haven’t come across any on the placebo effect that both advertisements and energy drinks could have on physical performance, which will allow me to look at a different perspective. I would do this by making the participants carry out a bleep test, rather than the word puzzles. This would allow me to see the difference between the increase in physical ability and the increase in someone’s intellectual performance after watching the advertisement of the energy drink. It would also allow me to compare both sets of research and evaluate which it had the biggest placebo effect on. I would also do a pilot study this time, as this will allow me to do a small scale test beforehand to try and make sure the experiment works and will produce the required results.

In conclusion, this experiment proves that advertisements can cause placebo effects as the results show that a placebo effect did in fact take place in the treatment group, whereas the participants watched an advertisement of the energy drink before they drank it. Confirming the hypothesis that advertisements do in fact cause a placebo effect, as they show what the product is meant to do, so people automatically assume it will work the same for them. Even though variables such as academic ability weren’t accounted for, I don’t believe that it is significant enough to have affected my results. However I would carry out this experiment again, as the population of my participants was considered large enough to normalise the specific talents of individuals. So for that reason I believe the results still support my hypothesis.

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INTRODUCTION
It was famously said by Plato that ‘those who tell stories rule the world’ (Gottschall, 2012). It must be initially recognised that whilst stories have a progressive impact in conflict transformation, undeniably they also withhold an inescapable power to diminish an entire population into violence. Therefore it would be incomplete to consider the extent of the role of storytelling towards peace without also identifying the role within conflict and violence. Consequently the contrasting outcomes of story and narration will be discussed in order to conclude that: whilst the use of stories and dialogue can have a dramatic impact in reconciliation and peace building between communities, there is greater evidence to support that stories play a larger role in the origin of conflict. This conclusion will be explored initially upon human psychological disposition concerning the approach to forgiveness, whilst also considering the importance of time.

Literature surrounding the topic often focuses on particular definitions of violence. Throughout the analysis four definitions will be considered: structural and direct violence, and objective and subjective factors. The first of the terms originate from sociologist Johan Galtung, who describes violence manifesting in two different forms: ‘direct’, referring to physical, verbal and immediate behaviour to inflict pain, and ‘structural’, which defines a social structure as a source of harm when denying people of their basic needs (Galtung, 1969). The second are taken from Zizek’s short book ‘Violence’ which labels violence as ‘subjective’, immediate and influenced by a clearly identifiable party concerning understanding and behaviour, and ‘objective’, independent of personal perceptions for example territory or language (Zizek, 2008).

VIOLENCE
Psychologists Melanie Green and Tim Brock argue that engaging in storytelling ‘radically alters the way information is processed’. Their studies have proved that as a listener becomes more engaged, they in parallel become more changed by the story. Notably they also observed that more absorbed listeners were unable to recognise inaccuracies within the dialogue (Green and Brock, 2000). It is in within this research that the threatening power of stories is demonstrated: when reading alone one is often unconvinced and critical, however, when captivated by dialogue one becomes emotionally stimulated and consequently left defenceless in identifying indoctrination techniques or false information.

Forgiveness and Time
Undoubtedly stories take a certain amount of time to make a definitive change within society. However upon its initiation through story, violence is rapidly accepted, particularly when taking a direct and subjective form. It is this combined with the difficulty of forgiveness that makes violence through stories more prominent than peace: the fear of unknowingly accepting evil makes it difficult to forgive.

Research by Lynette Hoy states that humans are “hard-wired” to experience ruptured relational bonds, psychological distance, physiological arousal, and the desire to retaliate when they have been hurt by another person, further suggesting that through personal disappointment humans naturally lead to a desire to ‘recompense for the damages’ (Lynette Hoy, 2007). This difficulty in relation to forgiveness is noticeably prominent within three specific factors that cause violence: History, Power and Identity and Culture. All of which are able to facilitate mass loathing and intolerance towards those who are defined as ‘the other’ through specific methods individual to each factor.

History
It is extremely difficult to overcome stories that are embedded into history as people are essentially programmed with ideas of ‘the other’, resulting in the process of dehumanization. Dehumanization becomes easier following an upbringing based on a single historical viewpoint formed from collective stories and within a collective memory; it follows that dehumanization obstructs the forgiveness process as it becomes impossible to recognise the other as having genuine emotion and reason, consequently resulting in the case of violence yet a greater difficulty regarding healing.

An example of historical control within the reoccurrence of violence can be understood from the story of the Ku Klux Klan (KKK). The KKK originated in the 1860s but then re-emerged in the early 1920s and again following WWII, attempting to restore white supremacy through murder against black and white Republicans. Their racist approach against African-Americans organizes from the dominant ideology of society in the context of the African slave trade at the dawn of capitalism in the 1500s and 1600s (Lance Sefa, 2002). The power of the KKK was kept operational by the power of dialogue throughout history; personal stories, folktales and assumptions were stated to create perceptions that would essentially justify both structural and direct violence from a subjective form.

This notion is centred upon cultural violence: prevailing attitudes and beliefs rooted into the morals of the impressionable child or adult begin to occupy their behaviour concerning the power and necessity of violence. (Galtung, 1969) ‘This aspect of cultural violence essentially justifies misdemeanour, the individual recognises killing a person as murder, yet killing hundreds or thousands is declared ‘war’.

TO WHAT EXTENT DO STORIES PLAY A ROLE IN THE BUILDING OF PEACE BETWEEN COMMUNITIES?
R. Finney, supervised by M. Rohse

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disagreement concerning the settlement, which has led to numerous acts of severe direct violence. The conflict has been described as ‘intractable, unceaseable and insoluble’ due to the historical nature and severity of the conflict and the severely unorganised peace negotiations. (Bar-Siman- 09, Y., 2010).

Identity and culture and conflict are inextricably linked. Violence predominantly arises from problems between cultures, concerning politics, the economy, and racial or religious complications. Although deemed a part of social interaction, conflict by means of culture has a tendency to diminish into war or direct violence. The role of culture within violence consequently outweighs the equivalent within peace as it is extremely challenging to discover and comprehend the different protagonists regarding preconceived assumptions. (LeBaron, 2003)

Identity and Culture

Stories allow people to re-humanize as well as dehumanizing others. Whilst the process of re-humanization is often a leading factor to peace, this process also allows people to create an isolated identity and negative peace within their own collective story, as the process of dehumanization creates an enemy, and leaves people with the ability to encode itself amongst a group’s identity, creating a cycle of ‘rigidification, separation and distortion’. (Northrup, 1989)

A recent situation illustrates specifically the seemingly unrecoverable effects of conflict within culture and identity. The Israeli and Palestinian conflict arose from claims by both cultural groups concerning the same area of land as their rightful habitation. For years there has remained significant

Power and Knowledge

Power provides for easy exploitation. Those in power have the ability to decide what stories are created, destroyed, censored and heard and the quantity of truth.

Examples of mass exploitation through one-dimensional narratives represents the power to reduce whole nations into conflicts by domination, a well known example being taken from Palestinian poet Mourid Barghouti, who writes that someone in power may easily dispossess a people by telling their story and starting with a simple linguistic trick: ‘secondly’ by neglecting to speak of what occurred first the storyteller can manipulate any situation. Barghouti describes that through this technique ‘the arrows of the Red Indians are the original criminals and the guns of the white men are entirely the victims.’ (Barghouti, 2008)

It follows from this therefore that those in power can create the definitive and single story through their influence in the creation of popular knowledge by access to journalism, academia and literature. There are many ways to inspire and control people through story; sadly hate is among the strongest and its results are conflict and violence. It is what leads to the two fundamental types of violence termed by Galtung. Notably, the most powerful dictators have used structural form to construct the foundations for a swift and decisive action, the most famous example of this method being revealed by Adolf Hitler during the Holocaust. Hitler knew that hatred must stem from outrage and so created his story through propaganda. His success was achieved through invasion; ideas were reinterpreted to form a new horrific anti-Semitic reality and, furthermore, effective messaging moved the audience to subconscious actions before realization. This was the structural form, which led to the rise of dehumanization when implementing direct violence. (Kathryn Kinser, 2010)

Furthermore, power dictates the time it takes for a story to be heard. Peace stories are often ignored as there is no possible control perceptions most successfully through media and accurate censorship, as Hitler did and recent dictators have continued to do. It is also easy to prevent peace from coming to light by negative stories; individuals have the ability to make stories ‘untraditional antihero’ (ibid.) through empathy, despite recognizing that they have committed an immoral action. It is this empathy that evokes emotion and furthermore eases the breakdown of prejudices and subsiding of the past. Empathy allows the single story to be completely overturned in order to gain a different understanding of the protagonist, therefore essentially counteracting any evil that they may have caused. Empathy in storytelling often creates peace in situations of war, segregation and isolation as it ensures that both the listeners and speakers obtain a full understanding of the other’s motives and personal situation.

Although unconventional, a model of the power of empathy to form understanding can be taken from a narration used within a modern television program, Breaking Bad. Walter White of the hugely popular AMC series Breaking Bad is a chemistry teacher leading a normal life until cancer hits at age 50. He decides to get into the drug business to ensure financial security for his family in his absence. He essentially starts to establish a drug empire and cuts no corners when it comes to his family’s safety’. (Deepakpal, 2014)

Undoubtedly the viewer recognizes the immorality of the drug business but he is able to understand why Walter White has committed an immoral action. It is this approach that can be mirrored to realistic situations occurring previously. Again however it is often difficult to combat defiances of persons who are truly fixated upon a single story and are resistant to listening and co-operating in order to overcome underlying issues.

Concluding Summary

In order to build peace between communities there are specific factors required regarding the storytelling process. These factors are essentially more challenging to achieve than storytelling techniques in order to generate direct or structural violence, and are answerable predominantly to human attitudes towards forgiveness and the function of time in fuelling structural aggression and direct violence. In violence the time taken for manifestation occurs quickly and the time taken for effect is relatively long-term although forgiveness proves to be less challenging. It therefore seems that the role of stories in peace is less successful; four wars may be betrayed in the time taken to reconcile a singular cultural conflict.

Undeniably, once conflict has sown the seeds for violence previously there occurs numerous obstacles to understanding and compromise. These may stem from cultural or identity prejudices, historical collective memory, personal resilience or even social position regarding undermned power. Hence peace stories for forgiveness are rarely intensified by physical action and hence require more focussed efforts, and so more acceptance of defeat. Dialogue or narration of personal experiences has been proven as a voice of resistance against destructive authority and exclusion.

Power and Knowledge

Storytelling and narrative projects are productive as a means to peace by their accessibility and ability to allow each voice to be heard, in contrast to peace treaties, laws or a simple acceptance of defeat. Dialogue or narration of personal experiences has been proven as a voice of resistance against destructive authority and exclusion.

Developments in storytelling have proven effective against violence through both spoken and literary means. Literature results in social and political change and aims to provoke stability within these fields by neutralising ideology, Testimonial literature, or the Testimonio emerged in Latin America. ‘The Testimonio is ‘an authentic narrative told by a witness who is moved to narrate by the urgency of a situation’; it enables them to express their experiences, memory or story in attempt to overturn undesirable situations such as war, oppression and revolution. (Coral Walker, 2011)

Storytelling gives way to both personal and collective empowerment. Narration allows one-sided stories to be contended and consequently makes way for change within the definitive story. The challenge arises from allowing each voice to be heard in undemocratic societies. It is only when
PhD Tutor's note

I am putting forward R.'s work as she has shown a great degree of originality in the way she has structured her answer to the essay question, which demonstrates her advanced understanding of the complex concepts that were discussed during the tutorials. In addition, she has shown high independent research skills. She has provided and aptly used a wide range of references, which shows that she carried out her own research beyond the material that was provided in the handbook. Her work showed academic rigor and is of an exceptionally high standard for her age-group, notably thanks to its level of analysis.