CONNECTION

The Bradfield College Scholars' Magazine 2025

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IS THERE A CONNECTION BETWEEN WEATHER AND CRIME?

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As Summer approaches, we are all anticipating a heat wave, but should we also be preparing for a crime wave?

In France in the 1800s Adophe Quetelet first noticed a distinct link between the weather and crime rates, with a peak in summer. This may be due to what is referred to as the 'heat hypothesis' suggesting that increased temperature causes an increase in aggression and therefore violent crime (eg murder and rape). This is because people often feel more agitated and irritable as the heat can cause discomfort. On hotter days, more alcohol is often consumed, fuelling aggression. A study reported by the BBC showed that 'there were about a third more accusations of crime on days hotter than 32°c than on days cooler than 10°c '. The routine activity theory states that this is because more people are gathering outside and therefore, altercations are more likely to happen. Additionally, school and university students are on their holidays and are the most prominent group in crime data. Robberies are thought to increase on warmer days as people often leave their windows open and their houses unattended. But is it really this simple?

Volatile weather, such as an unexpectedly warm day in the winter, has been shown to majorly increase crime. A study conducted in the USA in 2023 reported that murders and robberies rose by 30.8% during hotter days in the winter. As well as this, a study conducted in seven US cities over ten years concluded that for every 5 °c rise in average temperature, there was a 4.5% increase in sex crimes in the following week. Christopher Thomas, an expert in criminology, said that 'in the winter, if you suddenly have a warm day, people get excited, go out more, and change their behaviours. And so, that increases the risk of victimisation, it increases the circumstances in which these types of crimes can occur.'

Climate change is widely acknowledged as a real threat to all of us, impacting us socially and economically. Climate change increases temperature volatility and natural disasters. The recent wildfires in LA created more opportunities for crime, showing how during crises, crime rises; there was a significant surge in looting, with three people being arrested for stealing $200,000 worth of items from an evacuated house. The General Strain Theory framework shows that climate change will increase resource shortages, bringing more flooding and danger to homes, which will lead to more social unrest and ultimately to more crime due to an increase in poor mental health. As more of the world develops and migration becomes more frequent, natural resources have become scarcer, and this idea is encapsulated in the Homer-Dixon model. This predicts that as the effects of climate change are felt, violent crimes and robbery will increase. Matthew Ranson projected that climate change will likely fuel 22,000 additional murders and 3.5 million additional assaults in the USA alone.

Overall, we can see there is a direct connection between weather and crime, with the most prominent trend

being that violent crime increases on unexpectedly warm days. As climate change drives more temperature volatility and natural disasters, we should expect to see increased conflict over resources, sadly, another negative effect of the crisis.

Bella L (I)

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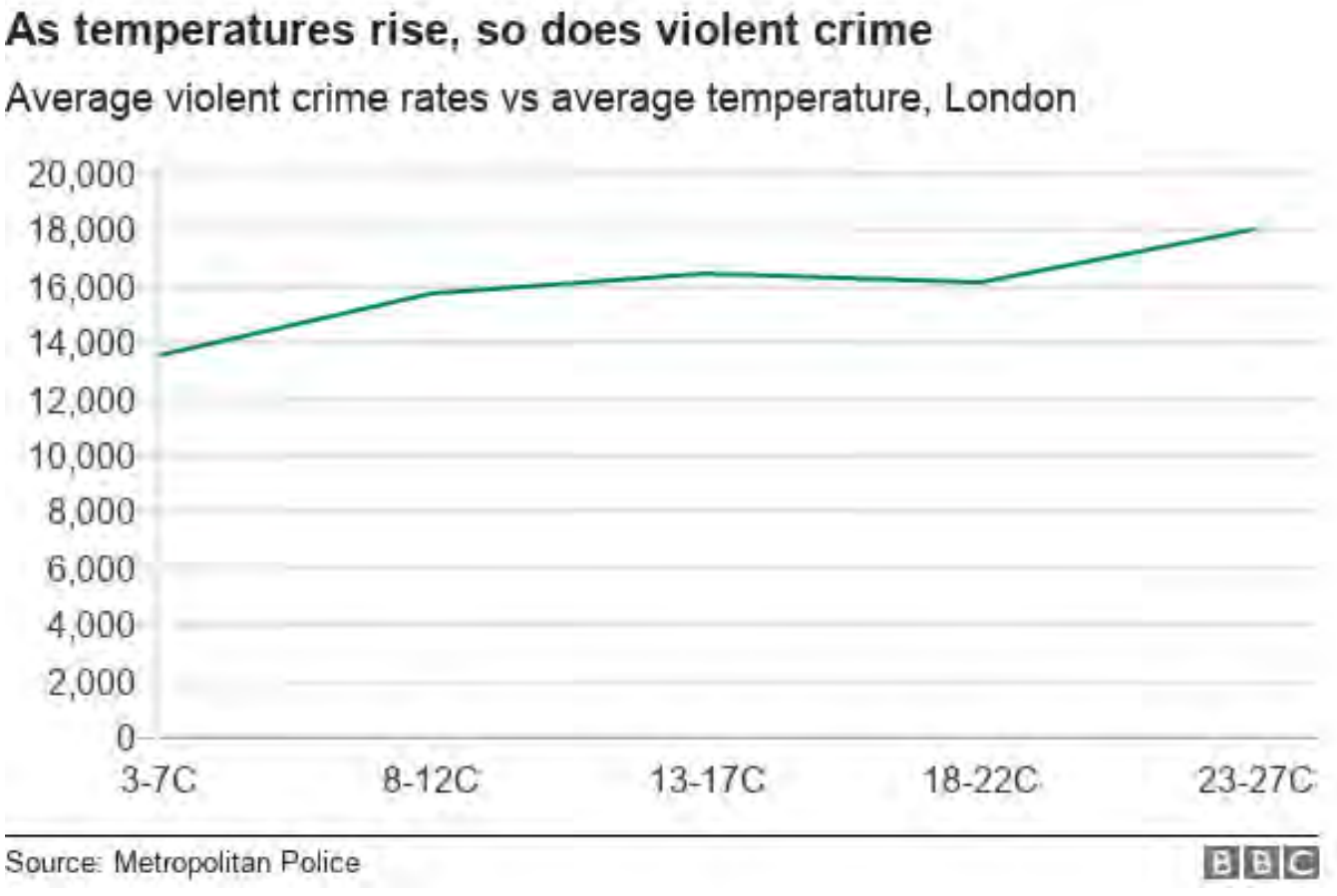

SUPERFINE THREADS: CONNECTING THE PAST WITH THE PRESENT

A fashion revolution fuelled by protest and pride, Black dandyism is a timeless recognition of individuality, and with the 2025 Met Gala's theme of "Superfine: Tailoring Black Style" celebrating the history and impact of Black culture on fashion, the refined elegance of the Harlem Renaissance seems a pertinent way in which to highlight the ongoing racial and systematic tensions not only in the USA, but across the globe.

In racially segregated America, dandyism became a way of rejecting the social and civil barriers placed on Black people, as a means of asserting one's own identity in a country which sought to define people by the colour of their skin, rather than their character. Sharp shirts, polished brogues, impeccable grooming all became symbolic of the cultural revolution that was taking place through fashion, in order to reassert dignity and resistance to social confinement.

Black dandyism has been brought back to the limelight by this year's Met Gala theme and embodies the idea of fashion not only as a form of self-expression, but also as an art medium with a message. The dress code this year was "Tailored for You" which perfectly compliments the celebration of identity that Black dandyism stands for, and the among array of looks on display on the Red Carpet on the first Monday of May, a number of exquisitely curated ensembles particularly stood out to me. One fashion revolutionary who embodied Black dandyism in Britain in the eighteenth century was Beau Brummell, who famously said, "Don't talk about your clothes, let your clothes do the talking," which many celebrities executed perfectly. These looks demonstrated not only intricate craftsmanship, but a creative innovation of cultural heritage and autonomy.

Jodie Turner Smith's equestrian-inspired Burberry ensemble paid tribute to Selika Lazevski, a black horsewoman of the Belle Époque in Paris during the late twentieth century. The rich burgundy colour of the outfit highlights the lavish styles of late-1800s Parisian couture and the top hat mirrors Lazevski's portrait in 1891 by Paul Nadar. The leather coat's puffed shoulders and cinched waist blend traditional Victorian fashion with a contemporary feel and the entire look exudes strength and power, thus emphasising the celebration of Black equestrian legacy and that of dandyism. Turner-Smith's collaboration with Burberry this year coined her "the epitome of elegance and strength." I thought this look was especially beautiful with its attention to detail and the mesmerising embossed floral pattern almost acting as a metaphor for the everlasting imprint of Black culture on the evolution of fashion.


Jodie Turner Smith

Two of the Met Gala's co-chairs particularly stood out to me with their fashion statements for the evening: Lewis Hamilton and Pharrell Williams. Hamilton's Wales Bonner exploration of cultural self-expression meticulously included a multitude of references to both the Harlem Renaissance and African heritage. This

look acts as a profound narrative of Black fashion and identity, showcasing elements such as a cowrie shell-embroidered sash, acknowledged as protective talismans in African culture. Another emblem of African heritage is the Whirligig African Daisy which shaped Hamilton's cufflinks, symbolising new beginnings and the sun's life force – perhaps a modern-day metaphor for strength and resistance to a lack of racial recognition and Black expression. As well as being deeply symbolic, the tailoring of the Formula 1 driver's Met Gala cropped jacket, coattails and high-waisted trousers intertwined the influence of dandyism with historical storytelling.

Lewis Hamilton

The Creative Director of menswear at Louis Vuitton and globally renowned style icon, Pharrell Williams, seemed to give Black dandyism a contemporary outlook on the Red Carpet. Brought to fruition by the Louis Vuitton design team, Williams's personal custom design included a double-breasted blazer featuring 100,000 pearls, coupled with a pair of tailored black flared trousers – a silhouette characteristic to the creative icon – exuding the "Tailored to You" dress code. As Williams told Vogue, "To me, dandyism is about intentionality… not just about dressing well; it's about using style as a form of self-expression and freedom," and this is exactly what he represented at the event.

Pharrell Williams

Jenna Ortega

A final iconic look from the 2025 Met Gala was Jenna Ortega's Balmain metal ruler dress. Oliver Rousteing, the creative director of Balmain is known for his innovative and thoughtful couture in response to the Met Gala's dress code each year, such as Tyla's stunning sand dress on the 2024 Red Carpet. Jenna Ortega's dress paid a direct tribute to the art of tailoring itself – made out of hundreds of metal rulers vertically aligned to accentuate a sculpted form. The avant-garde look underscores not only the craftsmanship behind the 2025 Met Gala theme, but also draws attention to the design process behind tailored garments – the very instruments used to produce these creative visions themselves. This was another personal favourite of mine due to Rousteing's 'outside-the-box' approach to the dress code.

In conclusion, the 2025 Met Gala fused creativity with history, as well as an important cultural message to the modern day. The celebration of the heritage Black dandyism served not only as a tribute to the intricate art form of tailoring, but also as a stamp of resistance, identity and pride. Tailored silhouettes coupled with thoughtful storytelling and unique detailing, the event allowed for a platform for cultural dialogue – honouring the importance of the past while asserting the power of cultural expression shaping the future.

Sophia J (M)

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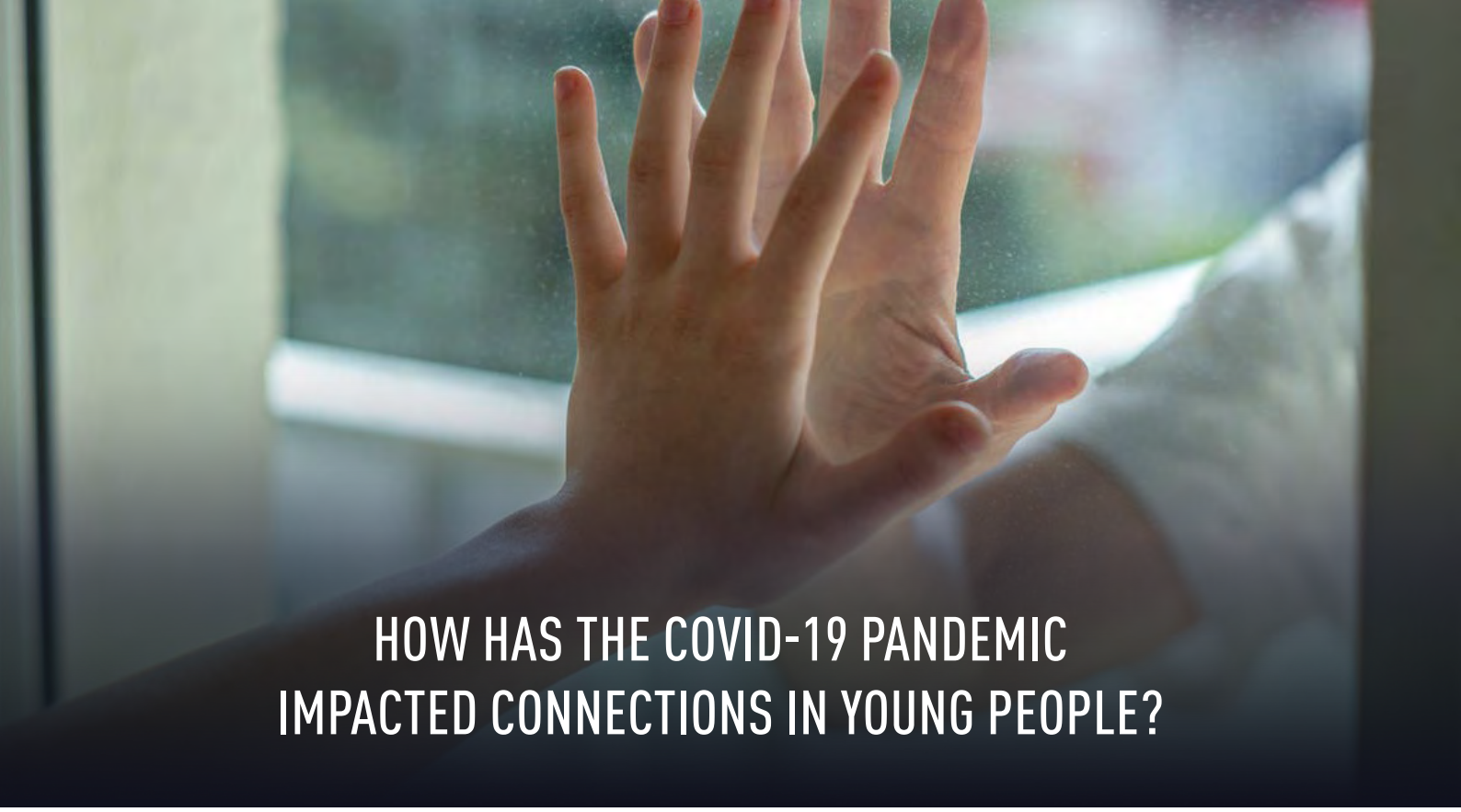

HOW HAS THE COVID-19 PANDEMIC IMPACTED CONNECTIONS IN YOUNG PEOPLE?

The Covid-19 pandemic had a global impact on people of all age groups and ethnicities across the world. But how has this affected our age group and our connections? And is it still affecting us today, even if the pandemic was now five years ago?

One of the main reasons the pandemic negatively impacted everyone, but especially young people, was due to the lack of socialisation and face to face contact with one another that the pandemic regulations imposed. This paved the way for isolation and loneliness to become a large aspect of many young people's lives. On the 20th of March 2020, just over five years ago now, Gavin Williamson, the then Secretary of State for Education announced that schools would be closing in England and Northern Ireland. Although this was considered an important measure in order to contain the spread of the virus, it has since clearly shown that closing schools had a detrimental effect on children and young people's cognitive development and social skills. This enforced break in the normal approach to in-person education not only had an effect on learning, but also importantly on relationships with friends and family.

The pandemic also forced young people to turn, even more than normal, to their phones for connections. A recent large-scale survey reported an almost 20%

increase in social media usage worldwide, due to the pandemic. This reliance on our phones for connection made social bonds more surface level and superficial. Not only did this make our connections worse, but it also allowed for increased levels of cyberbullying, which especially affects young people.

Cyberbullying is defined as the use of technology to harass, threaten or target another person. The intensive use of mobile phones and other devices, due to the boredom and loneliness of lockdown, made cyberbullying much more prevalent as it has become so easy and accessible to post or comment harmful things online – hence more likely than physical bullying which has always been around. Multiple studies have drawn links between being a victim of cyberbullying and depression, anxiety, loneliness, low self-esteem and even suicide. These mental health impacts from the huge rise in cyberbullying brought about by the COVID pandemic, could be a key cause for young people's connections with others to have deteriorated.

For those on a low income, the pandemic and the multiple country-wide lockdowns that were imposed, disproportionately affected them. Despite the government furlough scheme which paid vast numbers of people who were made redundant because of the pandemic at 80% of their normal salary, many still didn't feel they were supported enough throughout this time. Furthermore, disruptions to children's education impacted poorer families more as they tended to be less well-equipped for learning online. This was often due to inadequate access to laptops, poor internet connection, speed and sometimes less parental oversight than in more wealthy households. This shows how the pandemic impacted the connections of certain young people within society, as those in the more

economically disadvantaged areas and families, faced tougher conditions and had a larger disruption to their education than others.

Young people's connections with one another can be hugely impacted by their mental state and a recent survey from the 'Mental Health of Children and Young People (MHCYP)' focused in England, found that before the pandemic, 1 in 9 children and young people suffered from a mental health condition, but by October 2020 this figure had worsened by a third to 1 in 6. Having strong, healthy and happy connections with friends and family is difficult if you are struggling from serious mental health issues and often a person who is suffering will feel lethargic and hence not make the effort to sustain social connections, potentially going as far as feeling resentment towards others, pushing away those closest to themselves and pushing them towards ever worsening connections. This survey's evidence of a significant increase in mental health issues in young people is a global issue and has had significant impacts. There is also published literature about past pandemics that actively discussed the negative psychological impacts that periods of isolation or "lockdown" have had.

So, has lockdown completely changed the way we connect with others and is there any hope?

Due to constant changing conditions and the availability of information in this modern age, young people are becoming increasingly buffeted by information and all sorts of electronic interactions with people, meaning they have to be increasingly resilient. For some, especially those already suffering from, or prone to mental health issues, the lockdowns meant that they could spend time getting better and many people actually reported their well-being or mindset even improved throughout lockdown. However, for those who the pandemic and lockdowns did harm, a plethora of new strategies and help emerged. For example, online therapy sessions over Zoom that have continued beyond the pandemic period. This means that despite a totally unprecedented period of dystopian isolation, our young generation is now arguably more equipped to deal with similar stressful situations in the future. They were also able to be connected to their friends, despite the isolation, through their phones, so in many ways it is questionable whether for most people, they were really lonely.

Overall, it is hard to measure the true impacts that the pandemic had on our connections as these impacts felt differently by different people. If you ask around, you will find that each individual had a different experience of Covid-19, some positive and others more negative. Therefore, it seems clear that the pandemic had an impact on our young generation and the true extent of this may take decades to discern. It does seem that, were there to be another pandemic, there would likely be a much higher barrier regarding a decision to close down schools, and maybe to imposing lockdowns, as the solution for controlling the spread of the virus.

Cecily C (M)

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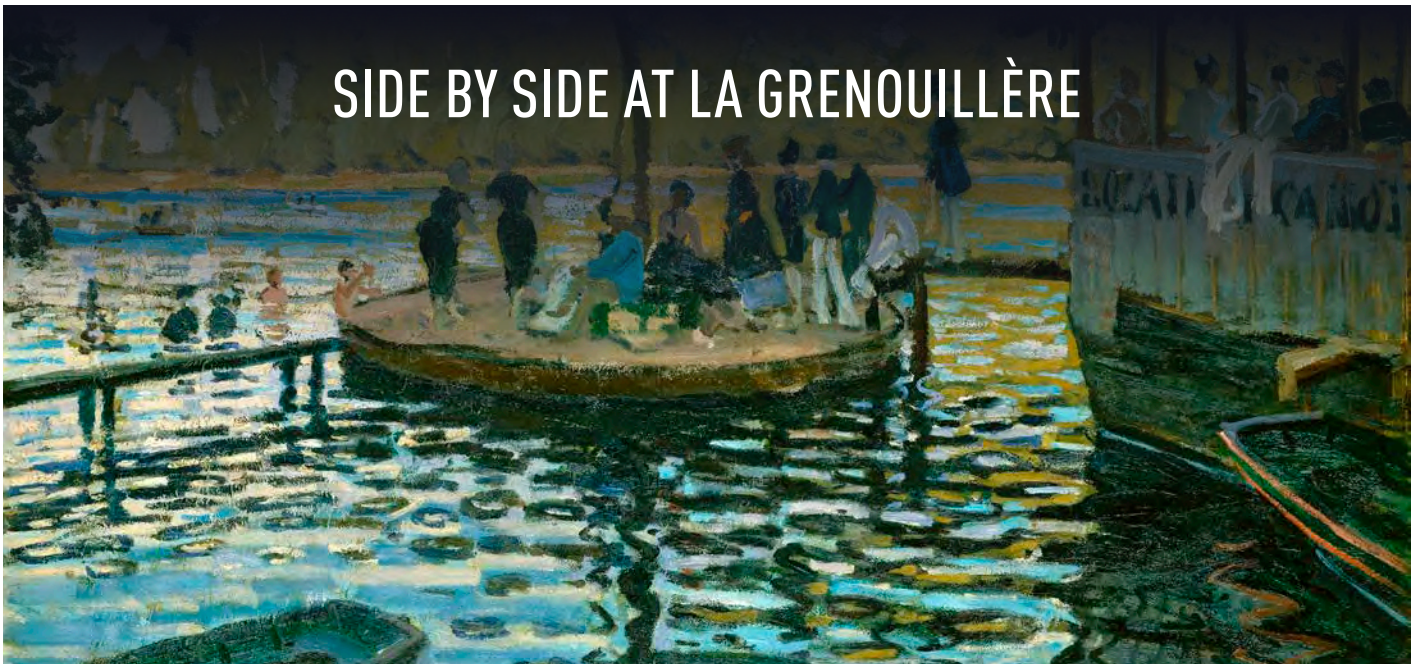
SIDE BY SIDE AT LA GRENOUILLÈRE



Art has always been considered a way of expressing oneself, a way of sharing emotions, feelings and opinions. However, one aspect of art that is perhaps overlooked is the social and collaborative part of it. Whether this is through inspiration of other artists and works, or having direct discussion and contact with other artists, communication and connection between artists has, throughout history, played a vital role in the development of art. This can be taken a step further by looking at the relationship between Claude Monet and Pierre-Auguste Renoir, two French Impressionist artists who, born a year apart in the 19th century, both came from poorer backgrounds, and would become famous French artists (Meyers, 2024). Studying art as adults, they helped shape the Impressionist style and over time became close friends. A testament to their friendship can be seen in their paintings, both called 'La Grenouillère', which they painted side by side, sitting on the bank of the River Seine.

'La Grenouillère', translated as 'The Frog Pond', was an outdoor café on a barge where the bourgeoisie would gather in the summer months to socialise and bathe in the Seine. Renoir, trying to keep up with Monet's talent for painting air and accurately capturing the atmosphere (Péne, 1914), decided to paint the river scene with Monet. In 1865, in a letter to Bazille, the son of a wine merchant, Monet wrote 'I do have a dream, a painting of the bathing place at La Grenouillère. … Renoir, who has just spent two months here, also wants to paint the same picture' (Meyers, 2024). Four years later the two artists achieved this dream.

Although they painted on the same day, were sat next to each other, and both trained as artists in the studio of Professor Charles Gleyre at the Ecole des Beaux-Arts (Alax, 2024), there are notable differences in their depiction of the idyllic scene, and it is these differences which present their individual styles.

Firstly, it is notable that Renoir has chosen to place focus on the islet, called 'Le Camembert' (kiamaartgallery, 2015), on which the figures stand, compared to Monet's work which arguably focuses more on the water. Monet's work is seen to have a stronger sense of structure and balance which is achieved through the use of converging lines which meet at the islet (Meyers, 2024) and the rowing boats which mimic the left-hand converging line. Moreover, Monet's inclusion of the sky provides the viewer with a more holistic view of the typical scene at 'Le Camembert'. This view is further enhanced by his depiction of the water, painting rippled reflections of the central tree and barge. Fitzgerald argues that Monet was the first inventor of echoing the effect of light and grasping the mood and atmosphere (FitzGerald, 1905). However, although Renoir only paints a glimpse of the sky, he still fully captures the atmosphere of the scene and landscape due to his loose brushstrokes. This can be particularly seen in the trees which line the riverbank, as their leaves and branches are almost presented to be swaying in the cool summer's breeze. In comparison, Monet pays less attention to the naturalism of the trees and thus, arguably, portrays a more static background scene as opposed to Renoir's painting which presents movement in the swaying leaves of the central and background trees, and in the full sails on the left-hand side of the painting. Although, I would argue that despite the background in Monet's work being more static, the water in the foreground has been painted with such effective highlights that it perhaps presents more movement than the water painted by Renoir.

In addition to their differing approaches of realism, the artists also chose slightly different colour palettes. This can be seen in the presentation of the water as in Monet's work, the water has cool, blue tones with dark yellow reflections of the trees, which contrasts the warmer and muted tones of Renoir. Renoir also includes a mottled reflection of the two figures on the right-hand side of the islet, presenting how despite his loose brushstrokes, he does pay attention to the effect of light. Moreover, Renoir uses bright white impasto on the water to present the ripples created by the bathers and the effect of the sunlight (kiamaartgallery, 2015). It is their time spent painting 'en plein air' which truly allowed them to differentiate the actual colour of an object and the colour that is perceived by the human eye (Grant and Cramer, 2018). Painting outdoors became such a fascination for impressionists such as these two artists, that Monet even claimed to not have a studio at all (Grant and Cramer, 2018).

In conclusion, by looking deeper into the two works, which both present the same scene, it becomes apparent that the artists drew inspiration from each other. Not only does this encompass the style and techniques utilised, but importantly, Renoir would not have painted this work if it weren't for Monet. Monet acted as an inspiration to Renoir, and so by pushing each other in discussion and in art, they contributed greatly to the development of the Impressionist style and art as a whole.

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MORE THAN A GAME: THE UNBREAKABLE CONNECTION IN TEAM SPORTS

After the final whistle has gone, whether win or lose, the team finished together, exhausted but united. In that moment they are not just athletes, they are a family. Often team sports are seen as simply a load of skills and strategy hidden behind the mask of competition. However, it is much more than that. Beneath the surface, sports create something much deeper: the unbreakable connections between the players.

No matter what happens in the final game, everything leading up to that, creates friendships and strong bonds between players. This is from all the hours of training, wins and losses; blood, sweat and toil. You do it as a team. It can all stem from the role of trusting each other and communication. As four-time Olympic champion Jesse Owens said, “Friendships born on the field of athletic strife are the real gold of competition. Awards become corroded; friends gather no dust.” The bonds built through sport last far longer than just the game. There are many famous examples of team sport friendships such as Megan Raphinoe and Alex Morgan, who were teammates for over a decade and won multiple titles together or, Marcus Rashford and Jesse Lingard who grew up together in Manchester United club’s academy and remain close friends today.

Team sports not only build friendships, but also improve confidence and resilience. The support system within a team can help athletes handle stress better, which significantly contributes to overall resilience. Additionally, goal setting is also very important in improving resilience – you cannot always win – and helps athletes to stay motivated, not just on the sports field. There has also been recent research showing that there is significant evidence that social support and feeling connected can help people maintain a healthy BMI, control blood sugars, improve cancer survival and decrease depressive symptoms. When comparing team sports and individual sports, it is clear that individual sports lack the opportunity for athletes to form the same bonds as those who are on teams as they do not experience the same social aspects. Individual sports can often feel lonely, causing athletes to have an unhealthier relationship with losing as they lack the support from a team. An example of this would be Michael Jordon who is widely regarded as the greatest basketball player of all time. He was once cut from his high school basketball team, but instead of giving up he was resilient and became a six-time NBA champion. After overcoming this setback, he was then encouraged by his teammates, who helped him become the player he is today.

Team sports are used as a unifying force to bring people of different backgrounds and beliefs together. One

of the main examples of this is the Olympic Games, which brings people together from all over the world to compete, some as individuals, but many as a team. This also brings together nations to support their country. Another example of this would be South Africa's 1995 Rugby World Cup. Nelson Mandela – the then president of South Africa – understood the impact of team sports on how they bring people together, or how in fact they could bring a whole nation together. During the Apartheid era ,South Africa was very much racially divided and Mandela realized that sport might be a way to bring a fractured nation together. And he was right, it helped bring the whole nation closer – whatever their race. This might be the reason why team sport is so important in South Africa today. Team sports don't just bring together athletes from different places, they also can help to bring a community together. If a local team or school does well it can cause a sense of unity between people who all support the same team and may not have normally formed a friendship with that as a strengthening force.

When a team disbands, players retire or become injured, the loss of that connection can be significant – as you go from seeing your teammates for many hours a day, multiple times a week to what, a few times a year? This then causes athletes to have to adjust to life without their team, who were such a significant part of their life and find new connections. This is essential because connections can be just as important to physical and mental health as exercise and healthy eating. Research has shown that the psychological and physical health benefits of social contact are so great that they can even boost life expectancy. In comparing this to individual sports the loss is significantly greater with team sports as they don't just lose the sport but also the connection between the players.

But in the end, while medals may be lost, games long forgotten, it is not just the competition the athletes remember, but the life-long friendships and connections that go with it.

Emily D (Faulkner's)

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WIRED TO CONNECT: THE NEUROSCIENCE BEHIND HUMAN CONNECTION

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Human connection is not only a social need, but also an essential aspect of brain activity. Neuroscience has discovered that our brains are built to develop relationships, using complex networks of neurones, neurotransmitters, and hormones to help us to build connection with others.

Oxytocin, often known as the "love hormone," plays an important role in building trust, bonding, and empathy, while dopamine is responsible for the pleasure that we feel from positive social encounters. These chemical messengers help shape our ability to connect right from the moment we were born.

Brain imaging studies show that social rejection activates the same parts of the brain as physical pain, demonstrating the significant impact that loneliness has on our well-being. Loneliness is not only an emotional state; it also has measurable impacts on stress levels, immune function, and even life expectancy. In contrast, strong social connections have been linked to reduced cortisol levels, improved mental health, and a stronger immune system.

With an increasing amount of our interactions being online, it is even more important to understand the neuroscience behind human connection. Technology can help us to communicate globally, but it is not always enough to meet the basic, biological requirement for face-to-face human interactions. Research has shown that in-person connections activate mirror neurones, which allow us to understand and respond to emotions, creating empathy and closer relationships.

By learning about the science of social connection, we can start to make building real connections a priority in our own life. Through friendships with friends, family, and community, connection needs to be developed, not just for mental health, but for brain functioning and physical strength.

Flora C (J)

HOW NARRATIVE PERSPECTIVE AFFECTS THE CONNECTION BETWEEN THE READER AND STORY IN LITERATURE

Narrative perspective and one's connection to both the characters and plot within a piece of literature share significant interrelation. Narration, the 'act or process of narrating a story' (Collins Dictionary, 2025) exists in three forms: first person, second person, and third person, with each one possessing its own benefits and limitations in how the reader connects with the text, albeit first and third person are the most frequent forms of narration. Details within a story that are provided and kept hidden from its audience determine the readers perception of a certain situation; a particular point of view shaping trust and insight and furthermore influencing how they may favour one character over another (Sniader Lanser, n.d.). First person narrative can engage the reader towards the character narrating, yet simultaneously form a biased opinion as you are only provided with a singular point of view, whilst third person narrative gives you a well-rounded perspective of the plot and characters but provides this often in a broader, more surface-level sense. Therefore, regardless of in what manner it is formed, when specifically focussing in on first and third-person narration, both play a crucial role in establishing a connection between story and reader.

The first-person narrative is told in the form of the narrator referring to themself and their experience; they are embedded in the narrative, using personal pronouns such as 'I', 'we', 'he', 'she', etc. On account of this, the reader gains insight into the inner workings of the narrator's brain, revealing their deepest thoughts and emotions, however restricting you to the complete, but biased understanding of solely that character. The use of first-person narration or the 'unreliable narrator' restrains the story to a singular point of view meaning that any information on other characters is formed merely out of perception from the narrator's perspective, as they are limited to only the information that 'falls within his own first-hand knowledge of the world or what he comes to learn second hand from others'. When looking upon F. Scott Fitzgerald's 'The Great Gatsby' we are provided with the narrator of Nick Carraway, gaining his perspective on not his own story, but rather Jay Gatsby's and describes him as having, 'one of those rare smiles with a quality of eternal reassurance in it […]. It faced, or seemed to face, the whole external world for an instant and then concentrated on you with an irresistible prejudice in your favour'. This presents Gatsby, from the view point of Carraway, as a charismatic individual with the capacity to make any singular person feel important in the 'whole external world' with a mere smile, prompting the reader to feel connected to Gatsby as they learn of his charm. However, 'seemed to face' calls into question the validity of this description alluding to a potential insincerity within Gatsby. If we were to be told 'The Great Gatsby' from the perspective of Tom Buchanan, a character who initially loathes Jay Gatsby for his lack of aristocratic background, deeming him a fraud, he may delve deeper into this 'seemed to face' aspect, portraying Gatsby as a pretentious character who uses charisma to benefit himself. This would consequently

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shift the reader's perception of Gatsby, weakening their connection to him as they absorb the negative picture of him painted by Buchanan (Diasamidze, 2014).

Similarly in Bram Stoker's 'Dracula' you are told the story in the first person from the majority of the characters excluding Count Dracula himself, and descriptions regarding him share a similarity to: 'as the Count saw us, a horrible sort of snarl passed over his face, showing the teeth long and pointed; but the evil smile as quickly passed into a cold stare of lion-like disdain,' across different characters' narratives. The combination of first-person narrative and Dracula's lack thereof, means that the reader is given no emotional context to the character and no background as to what his motive is. Therefore, words such as 'horrible' and 'evil', being the only style of adjective describing Dracula, are presumed to be true, causing the reader to have a lack of empathy for the Count and take a greater likeness towards characters such as Johnathan and Mina who are only portrayed in a positive light. These aspects of the first-person narrative are why it is often referred to as the 'unreliable narrator' and can disrupt the connection between narrator and reader. For those who are aware of the restricted information the narrator is able to convey, it can mean hesitance in trust surrounding what that character says as it may not be accurate. This can be seen quite evidently in Mary Shelley's 'Frankenstein' in the assumption of the creature's intentions: Frankenstein, upon bringing his creation to life, describes how when looking at him, 'one hand was stretched out, seemingly to detain (him)' however when you are given the creature's perspective he explains how when in search of food and shelter in the village, '(he) had hardly placed (his) foot within the door before the children shrieked, and one of the women fainted'. The townspeople did not understand the creature's intentions and instead viewed him as dangerous, their fear displaying how perception massively alters the portrayal of a character, because where Frankenstein saw a threatening hand, it may have merely been a new-born child wanting comfort from his father. These contrasting narratives form a lack of connection with Frankenstein once receiving the creature's perspective, as you begin to understand the creature was born innocent, not malicious, and thus cannot trust everything the narrator says. This includes the Creature because, as with all first-person narratives, the narrator is simply relaying events that they have perceived, not understood (Fetzer, 2024).

On the contrary, third-person narration refers to the narrator existing beyond the events of the story and talking about 'he', 'she', 'it', 'they', etc. There are three distinct types of third-person narration, consisting of omniscient, limited, and objective: omniscient refers to the all-knowing narrator having complete knowledge on numerous characters including their thoughts, past experiences, and future happenings, however not as meticulously as the first-person narrator. An example of this can be seen in Leo Tolstoy's 'Anna Karenina' where the narrator shifts between character narratives, adopting their subjectivity in how they perceive the world but without coinciding their emotions, which in turn, 'hides the cracks and fissures of underlying multiple subjectivities' (Egdorf, 2016). The third-person limited perspective is somewhat similar to the first-person narrator in the sense that they convey the full picture of one singular character in which they are aware of the thoughts and emotions which drive their actions; they can only recount information that that character is aware of. 'Murder on the Orient Express' by Agatha Christie explores this idea; to note the description 'the expression on M. Bouc's face gave him, as he would have expressed it, furiously to think. It was clear that something out of the common had happened,' which explores Hercule Poirot's limited knowledge since he is only aware that something 'out of the common' has happened because of M. Bouc's expression. The narrator can only impart the knowledge Poirot has available hence prompting him to then ask '"What has occurred?"' because he has not yet learned the finer details of M. Bouc's expression, only that it suggests that something is wrong and therefore this is all the information the reader can receive. This follows the same restrictions as first-person narration in the sense that you cannot completely trust the narrator because their plot is only a retelling of the protagonist's perception, which is not necessarily accurate. Finally, third-person objective narration accesses the least information on the characters and acts merely on an observational status, relaying actions and speech but remaining detached from underpinning emotions, which you can see in Hemingway's 'Hills Like White Elephants'. The short story opens with 'The hills across the valley of the Ebro were long and white. On this side there was no shade and no trees and the station was between two lines,' which is simply the narrator factually describing the landscape as opposed to explaining how it makes the character feel, leaving analysis of the symbolism behind the setting, to be interpreted by the reader. Despite the variation in third-person narrators, they all somewhat lack a deeper understanding on the characters due to not actually being that person, which in a way causes a greater connection to the actual storyline for the reader, due to the reduced description on the characters going elsewhere in the text, bringing about greater thought provocation on the message behind the story.

It is evident that narrative perspective plays a pivotal role in how different characters and situations are perceived by the reader and thus, how they connect with the story. The first-person narrator is biased towards that character, feeding their opinions and impression on something directly to the reader as fact, thus allowing them to sympathise with the narrator as they understand their emotions. This therefore often causes a greater connection with the narrator rather than other characters because you understand them better – opening opportunity for empathy. Nevertheless, whilst the third-person narrator (except from potentially 'limited') gives a wider perspective of the characters, it is not as in depth and generally lacks understanding of motive. This results in the reader connecting more with the story as a whole, as you are given wider context but less emotional detail, thus causing you to have to interpret information yourself; considering the text on a deeper level and therefore perhaps connecting with it more. This in conclusion shows how narrative perspective is not merely an arbitrary decision of the author but rather a tool selected to control how the story and characters within are perceived, thus determining the reader's connection; whether that be the intimate perspective of the first-person narrative or the impartial, wide scope of the third-person narrative, both achieve connection between the reader and the story through different means.

Ginny B (M)

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HOW BUSINESSES CONNECT WITH CONSUMERS TO INFLUENCE THEIR BEHAVIOUR

More than ever before, businesses all around the world are using psychology and human nature to influence consumers without them knowing. This concept is explored in the book 'Nudge' by Richard Thaler and Cass Sunstein, and it essentially explains how businesses use small 'nudges' to influence consumers and achieve certain outcomes. Having read this book, I was completely fascinated by the methods that these businesses use, combining economics and psychology to guide consumers into making certain decisions. The book uses the 'nudge' as an umbrella term, exploring a number of key techniques within the nudge. Although nudge theory can certainly be applied to all areas of life, I will be primarily focusing on how it is used in the world of business.

One of the numerous techniques that can be used within the nudge is 'choice architecture'. This technique looks at how our environments are consistently designed to push us into making certain decisions. The book explicitly notes that there is no such thing as an environment that isn't intentionally designed to promote certain behaviours. One clear example of this technique being used in business is in the layout of a supermarket. Although not obvious at first sight, supermarkets use choice architecture to maximise sales. For example, many supermarkets often place essential items at the back of the store. The idea behind this is that consumers will have to pass many other appealing items on their way to these commonly chosen essentials, and will therefore be tempted into picking up some of these options on the way. Additionally, supermarkets often place more profitable items at eye level in order to catch the attention of shoppers and therefore increase sales of these items. Similarly, products targeted towards children are placed on lower shelves, in the hope that they will be easier to spot for any children walking around the shop with their parents.

Another technique within this wider theory is the idea of 'defaults'. Many services such as Spotify and Netflix use defaults in order to maximise customer retention. When we sign up for a subscription service, rather than having to resubscribe every month, we are kept on the subscription list by default unless we actively unsubscribe ourselves. This avoids any potential friction, making it easier and therefore more likely for consumers to continue subscribing. Linked to these subscription services, another concept introduced is 'sludge' which is essentially where friction is intentionally injected into certain processes. Everyone knows the unnecessarily complex process of unsubscribing from a subscription service. The reason behind this is that these services are purposefully creating sludge in the hope that consumers will give up in their attempts to unsubscribe themselves, maximising customer retention. Usually the primary aim of these businesses is to reduce sludge in order to facilitate ease of use, however in certain circumstances such as these, the principles are flipped.

One example of nudges being used in the real world of business today is through Apple's pricing system. When Apple releases a new iPhone, they will usually release two or three models, ranging from a base model to a premium model. The high end models are priced considerably higher than the base model, making the base model seem much more affordable in comparison, increasing overall sales. This is a technique known as anchoring, where people 'anchor' onto a certain piece of information, changing their perspective on another piece of information. In this case, they anchor onto the price of the expensive premium model, making the base model seem more appealing. Another example used by retail stores such as Amazon, is the wording they use when announcing limited time deals. By using phrases such as 'Don't miss out!' or 'Only 5 left in stock – order soon!', they are harnessing a technique known as loss aversion. This refers to the tendency for consumers to find more satisfaction in avoiding the loss of something, rather than acquiring that same thing instead. Using this psychological bias, rather than highlighting what consumers will gain if they do make the purchase, Amazon highlights what these consumers are missing out on if they don't make the purchase. This is because they know that the latter option will more likely resonate with consumers due to this psychological bias.

Through nudge theory, businesses are able to uses tiny cues to make impactful changes to consumer behaviour. Besides the world of business, this idea has been applied to many areas such as organ donations, road markings or even the design of park benches. By reading this book, not only will you become more aware of the nudges that are being placed upon you, but you will also learn how to use them yourself. Nudge theory demonstrates that influencing behaviour doesn't always require big changes – sometimes the smallest adjustments lead to the biggest results.

Freddie W (H)

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THE CONNECTION BETWEEN LIGHT POLLUTION AND OUR VISION OF THE STARS

People may exclaim that the night sky is beautiful every now and again, the stars speckling the deep black sky. But have these people really seen the night sky? For most people, the answer would be no, especially in urban areas. More than 80% of humanity is affected by light pollution. As our world becomes more technologically advanced, the population increases, more and more buildings and lighting systems are being created, and this number will only increase. What a lot of people don't know is that this light pollution is corrupting our view of the milky way and its beauty. The picture below represents what can be seen in some isolated locations on Earth where there is little to no light pollution.

Light pollution can be seen in multiple forms: light trespass is when unwanted light escapes from one property to another; over-illumination is using excessive light where it isn't needed, and light clutter is the redundant clusters of lighting found in many public areas. The collection of all these type of light pollution above cities is called sky glow. Light pollution is largely due to the poor designs of lighting which allows artificial light to shine upwards and outwards instead of focusing it downwards, where it is needed. Common causes of light pollution are streetlamps, shopping mall/parking lot lights, exterior lights for homes and signboards. The image below depicts the best and worst proportioned streetlights, when concerning their light pollution emissions.

In heavily light polluted areas, the night sky can often appear as dull and empty opposed to colourful, and star speckled as you would expect. This is due to the previously mentioned skyglow which is the scattering of artificial light due to particles in the sky, drowning out the fainter light from distant celestial structures. There are two main types of scattering which cause this effect, Rayleigh scattering and Mei scattering. Rayleigh scattering is where shorter wavelengths of light (e.g. blue) are scattered more than longer wavelengths (e.g. red). For instance, artificial blue light at night contributes to a fuzzy glow that reduces the contrast in the sky. Oppositely, Mei scattering is when large particles (e.g. smoke or water vapour) scatter all the wavelengths of light evenly. This type of scattering is very common in humid cities and also causes the sky to seem fuzzy and featureless.

Furthermore, different colours of light can change how much they contribute to light pollution. Blue and white LED's scatter more in the atmosphere, increasing the intensity of skyglow and further reducing the visibility of stars. Additionally, full-spectrum LEDs normally contain a mix of wavelengths, including blue light, which makes it more harmful to the skies compared

to filtered lights, which have a reduced impact on skyglow and light scattering. However, traditional low-pressure sodium (LPS) lamps that emit a dim yellow/orange glow are less disruptive as they have a narrower spectral output (most of the energy within a limited wavelength) and thus don't scatter as much in the atmosphere.

In order to create a visual of the effects of this light pollution, the Bortle scale was created, a nine-numbered system that measures the brightness of the sky. Bortle 1 represents a clear dark sky in which the Milky Way can be seen in full detail, as well as thousands of stars and even faint nebulae (clouds of dust and gas). Contrastingly, Bortle 9 represents most inner-city skies in which only the moon, a few bright planets and the brightest stars are visible. Most people live in Bortle 7-9 areas, meaning that they never even see the Milky Way in their lifetime.

To address the title, I believe that we are killing the night sky. Technological advancements have given us a great insight into space, but if light pollution continues, then even the strongest telescopes won't be able to see the brightest stars in the sky.

Marius PC (E)

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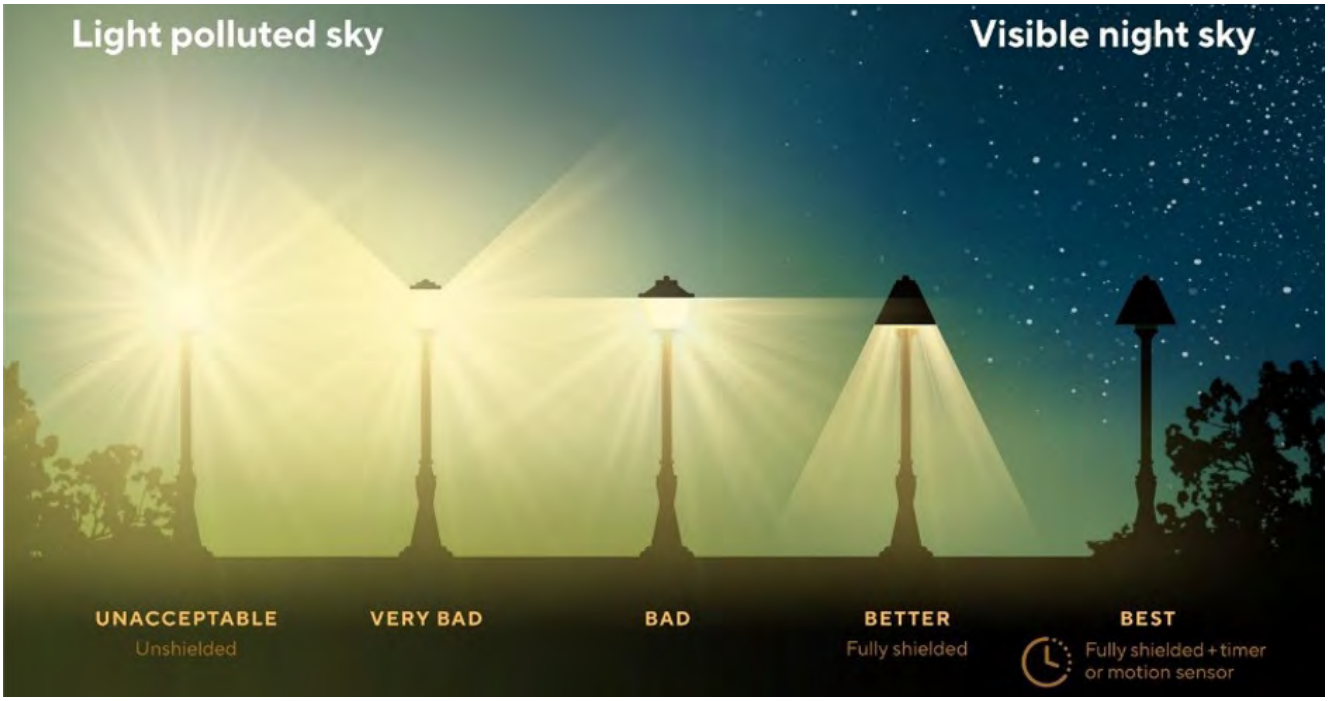

WEAVING CONNECTIONS ACROSS TIME

Time is like a tapestry, with each era connected and intertwined with the last. Man's time on earth has seen the rise and fall of numerous civilisations and empires, each being shaped by the one before it. History is not just a record of the past; it makes up the building blocks of the present. Every innovation, every social shift, is the result of countless actions by our predecessors, spanning many generations. Over thousands of years, philosophical ideas about the world have evolved to shape our laws and inform our moral viewpoints. As so much is passed down through the years, it is hard not to acknowledge that if the tapestry had been woven slightly differently, if just one event had played out differently, the world as we know it would not be the same.

11,000 years ago, humans started farming. That enabled them to settle down and create permanent settlements. By providing a more stable food supply, farming enabled tribes to build more connections between each other, and around 7,000 years ago, they traded with other tribes. Villages such as Jericho in modern-day Palestine gradually built up into towns, and this led to the formation of more complex social hierarchies. These traders connected tribes and encouraged cooperation, and they were the first threads on a tapestry of connections that are still being added today. Over time, as more tribes became intertwined, civilisations grew and flourished. The Ancient Greeks produced philosophers such as Socrates, Plato, and Aristotle, whose ideas have formed the basis of much Western philosophical thought.

Technology advanced over the rise and fall of the Greek and then Roman Empires. Rome was famous for its roads, which became the main supporting infrastructure connecting its civilisation. However, progress is not linear or inevitable, and in Western Europe, after the fall of the Roman Empire, came the so-called Dark Ages. For about eight hundred years, human advancements across Europe drastically slowed and, in many ways, went into reverse. Connections wilted, threads were cut, and many techniques and practices from the classical era, such as sculpting, medicine, and architecture, were lost. The tapestry of our connections became threadbare, and communication over distances became more difficult as trade routes went to ruin.

Some seafaring civilisations like the Vikings bypassed roads and thrived for a few centuries, developing

outposts in Greenland and America long before Columbus, but when they too inevitably fell, the trade routes and connections broke.

During periods of upheaval like the "Dark Ages", in addition to the physical connections between people decaying along with the roads, other connections were lost, and humans forgot many essential things passed down through generations. This shows the importance of keeping bonds with history. When they were torn apart 1500 years ago, it led to a millennium of witch-hunts and crusades in Europe, with diseases breaking out and decimating populations. It is a valuable lesson that we should learn from the past – the loss of knowledge can set societies back for centuries.

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However, Europe recovered, and in the 14th century the Renaissance began. It would last for around three hundred years, yet in that comparatively brief time, artists and scientists like Leonardo da Vinci, Michelangelo, Isaac Newton and Galileo Galilei were born. It led to new foundations of science, philosophy and art and paved the way for numerous aspects of life in the modern world. One of the key things about the Renaissance that allowed its ideas to spread so quickly was that new ways of connecting with other people were developed. Most significantly, the printing press, developed by Johannes Gutenberg, which allowed information to be spread quickly and cheaply, adding vibrant connections to the tapestry as it made knowledge easily accessible to the lower classes, who before had no such access to the changing ideas of the world. This shows the power of connections and how one invention can contribute to a revival of learning, following centuries of stagnation.

In the modern world, staying connected is more important than ever. It has become a matter of necessity, as people soon fall behind if they cannot keep up with what is happening in the world. Social media is one of the easiest ways of doing this. Everything you could want to know is in one place, with news being updated constantly. It has allowed humans to stay coordinated, meaning that even if you live in remote areas, you can still be in touch with the world.

Throughout history, humans have been most successful when connected and trading with others. Now, in the present day, social media has made it even easier to thrive, and people can stay as interconnected as they wish. However, we must be careful—does social media really offer an alternative to face-to-face relationships? Moving forward, we should try to strike a balance to avoid losing the personal interactions that define the essence of human relationships.

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THE LANGLANDS PROGRAM: CONNECTING MATHEMATICS

Whilst mathematics is far too expansive to hope to be universally connected in the same way that physicists dream of the Theory of Everything creating a comprehensive framework of physics, if anything in modern mathematics comes close, it would be the Langlands Program. First proposed in a 1967 letter by Robert Langlands while he was working at Princeton University, the program was a set of speculative conjectures aiming to draw links between two of the most significant areas of mathematics: number theory and harmonic analysis.

For most of mathematical history, it has seemed inconceivable that these two branches of maths, could be meaningfully connected. Number theory, which studies the properties and relationships of numbers, and harmonic analysis, which breaks down complex functions into simpler, periodic components like waves. The Langlands Program was the catalyst to bridge that gap; it suggested deep correspondences between objects from these fields. This bold claim has proved instrumental in one of the most celebrated 20th century mathematical discoveries.

In 1637, Pierre de Fermat, a French lawyer and amateur mathematician, unwittingly set the wheels in motion for a 350-year-long mathematical mystery when he jotted down an equation in a copy of Diophantus' 'Arithmetica'. He stated that an +bn = cn could never be true for nonzero integers a, b, and c when n was an integer greater than 2. He ended his annotation with the tantalising line, "I have a truly marvellous demonstration of this proposition which this margin is too narrow to contain." And with that, the search was on. Fermat's Last Theorem became a question which would elude some of the greatest minds in mathematics.

The groundwork for what Andrew Wiles would eventually use to prove this theorem was laid in 1916 by Srinivasa Ramanujan, a self-taught Indian maths prodigy. He was fascinated with a specific function which multiplied infinitely many terms together, known as a modular form. The beauty of modular forms lay in the fact that when complex numbers were input, the results could be represented as images with stunning internal symmetries (diagram 1). Although these had been studied before, Ramanujan's genius was to look at them from a different perspective; he expanded all of the terms in the function and gathered its coefficients. Then he noticed that the coefficients had a fascinating property: if you knew all of the function's prime coefficients then you could use that to calculate all the non-prime coefficients. For example, multiplying the coefficients of the third and fifth power would give you the coefficient of the fifteenth power. Unfortunately, Ramanujan could only observe this pattern, and the task fell to Pierre Deligne, nearly six decades later to prove why, using a key insight from Langlands' conjectures called functoriality, to connect harmonic analysis to number theory.

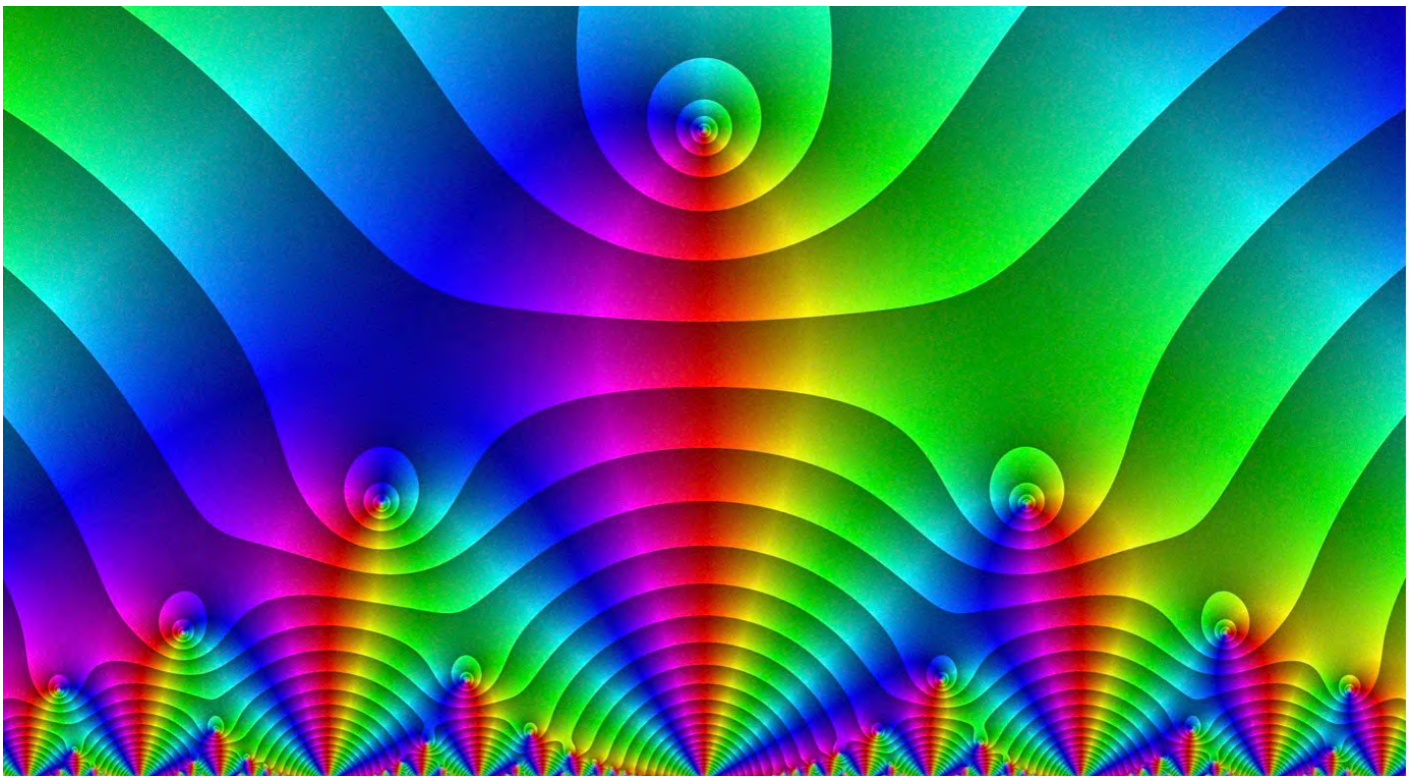

Diagram 1

The next level in the foundation of Wiles' proof was done by Yutaka Taniyama, Goro Shimura, and André Weil. They created the Taniyama-Shimura-Weil conjecture, predicting that for any elliptic curve, the associated function would be a modular form, with the same symmetries as the objects Ramanujan had studied in harmonic analysis. Elliptic curves are equations in which one variable has the highest power two and the other has the highest power three. For example: 2y2 = x3-3x2 -10. When graphed, these equations give the distinctive shape pictured (diagram 2). This connection was further solidified by Gerhard Frey in a pivotal conjecture. Frey suggested that if Fermat's equation had a solution, this solution could be used to construct an elliptic curve without a modular form. Therefore, when this was proven by Ken Ribet, it meant that if there was a solution to the theorem then the Taniyama-Shimura-Weil conjecture would be false.

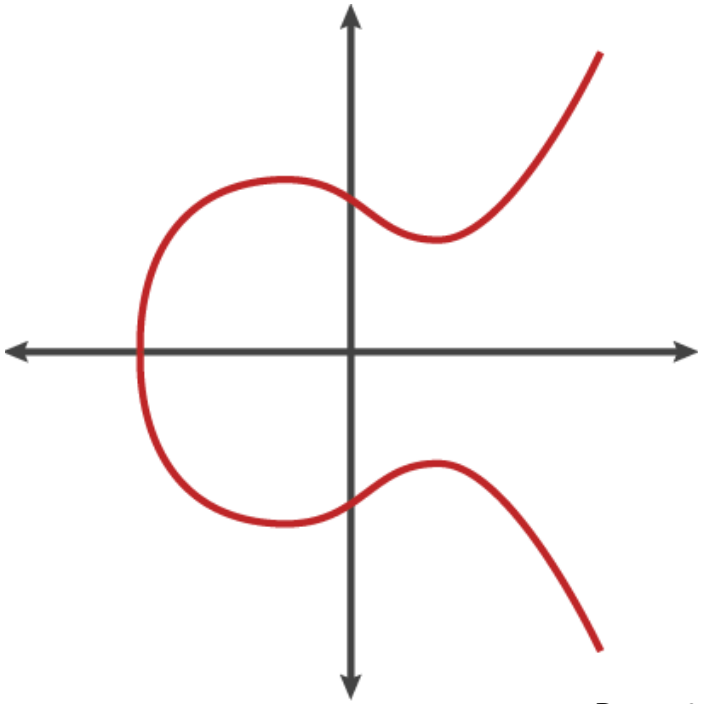

Diagram 2

The breakthrough came when Andrew Wiles proved that every semistable elliptic curve is modular, a result now known as the modularity theorem. This was enough to imply the proof of Fermat's Last Theorem. His work was very technical and utilised Galois representation and ring homomorphism, but in extremely oversimplified terms, he looked at how many rational solutions there were to elliptic equations using a complicated form of modular arithmetic, which deals with integers by considering only their remainders. A useful analogy is a clock: if it's 11 o'clock now, adding 4 hours gives 3 o'clock, not 15 o'clock. This is because when telling the time, you are intuitively dividing the time by 12 and taking the remainder, just like how modular arithmetic works. In the clock analogy, the modulus is 12, but this could easily be any other number. Wiles chose to use prime moduli, counting the number of rational solutions, he manipulated these results, combined with many other techniques to prove partially the Taniyama-Shimura-Weil conjecture, and completely prove Fermat's Last Theorem.

These intertwined developments reveal how bridges between different areas of mathematical research can create solutions to seemingly impossible mysteries. The Langlands Program, a proponent of these connections in mathematics, offers an inspiring vision that has not only helped to solve centuries-old problems but still promises to aid new research. Just last year, a group of nine mathematicians proved the geometric Langlands conjecture with a staggering 1000 pages of proof over a series of papers, showing that the ideal of the Langlands program remains an aspiration for mathematicians today.

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THE 'SPECIAL' RELATIONSHIP: THE CONNECTION BETWEEN THE UK AND USA

The relationship between the UK and USA was first labelled as 'special' in 1946 by the former Prime Minister Winston Churchill, and this phrase has since been repeated and emphasised in political dealings. So, how did this connection develop, and how 'special' is it really?

Colonial Period and Independence (1607-1785)

While Columbus discovered America in 1492, the relationship only developed in the 17th century, when English settlers established colonies in North America – the first of these colonies being Jamestown which was founded in 1607. These colonies relied on Britain for governance, trade and military protection. They also used a system called 'mercantilism' where Britain controlled all trade, ensuring economic dependence. This relationship, whilst weighted in Britain's favour, was thriving until the mid-18th century, when tensions began to grow. Britain had just finished fighting in the Seven Years' War and subsequently were struggling financially, so, they imposed taxes and regulations on American colonies to recover – for example the Stamp Act (1765) and the Townshend Acts (1767). These angered colonists who were already resentful of the fact that they did not have a 'self-government' and so, were unable to govern themselves and make their own laws. This led to many protests culminating in the Boston Tea Party in 1773. In an attempt to restore their authority, Britain released the Intolerable Acts which simply angered the American colonists further. In 1775, the American Revolution began with the key battles including Lexington and Concord (1775), Saratoga (1777) and Yorktown (1781). Eventually, after a loss of moral and economic struggles, Britain entered peace negotiations. Then, in 1783, the Treaty of Paris was signed, officially ending the war and allowing the United States to be recognised as independent. To summarise, the relationship between Britain and the USA began as incredibly one-sided, with the United States being the property of Britain. However, the American Revolution allowed the US to be seen as independent and, in 1785, the two countries established diplomatic relations when John Adams became the first American plenipotentiary minister to the Court of St James's.

A Break from Alliance – The War of 1812

From 1803, Britain was engaged in conflicts with France – the Napoleonic Wars. In 1807, the British announced plans to stop and inspect merchant ships trading with French-controlled territories and to seize anything that was thought to be aiding the enemy war effort. This put a blockage on US trade with France and the UK, which crippled the US economy. Additionally, the British were forcing Americans into the Royal Navy; supporting the Native Americans who were resisting the American colonists' westward expansion, and the British Canadian colonies were threatening an invasion of America. These tensions led President James Madison to declare war on Britain in June 1812. Some main events of this war included the burning of Washington D.C. (1814) and the Battle of New Orleans (1815). Neither side gained significant territory, and the economic strain pushed both nations

to negotiate peace. The compromise at the end of the war was that, in exchange for Britain leaving America alone to prosper, the US would allow Canada to exist whilst submitting to British naval domination – this and more was all agreed through the Treaty of Ghent (1814). To conclude, whilst this war was viewed as a stalemate, it did have a lasting impact on the relationship between the UK and US, leading to peace and cooperation in the following decades.

The World Wars

The World Wars significantly strengthened the relationship between the UK and the US, shifting it from occasional rivalry to a deep alliance. During WWI, the US had a policy of strict neutrality, and they were willing to export any product to any country. However, due to blockades enforced by the British, America could not export anything to the Germans or neighbouring countries, so their trade was mainly to the Allied Powers like the UK. After the Zimmermann Telegram in 1917, the US finally declared war and joined the Allies and, in 1918, the Allies, with the US, won the war. Afterwards, the UK and US maintained economic ties but had slightly opposing foreign policies. The US favoured isolationism, avoiding European conflicts, whilst Britain dealt with the rising tensions in Europe. The Great Depression in 1929 further weakened global economies which limited cooperation. However, the shared concerns over growing threats from Nazi Germany gradually brought the two countries closer again.

During World War II, the US again remained neutral early on, although they did show sympathy towards Britain and the Allies. This can be seen from the Lend-Lease Act in 1941 where the US provided the Allies with weapons and supplies. Additionally, Britain received $31.4 billion out of a total of $50.1 billion which was sent to the Allies from the US. After the Pearl Harbor attack in 1941, the US officially joined the war. The agreement of the Atlantic Charter set the foundation for post-war cooperation and led to the formation of the United Nations. Technical collaboration between the US and the UK was even closer than before as the two shared secrets and weapons. Following the end of World War II on 8th May 1945, the US took a leading role in shaping global affairs, which contrasts with how they responded after World War 1. During the Cold War, UK-American relations grew ever closer, co-founding NATO in 1949 and strengthening military, political, and economic cooperation, forming the lasting 'special relationship'.

Present Day

So, what can we say about the 'Special' Relationship today? The UK-American relationship is historically deep and is still strong in military, intelligence and economic cooperation. The connection has grown over centuries because it helps the interests and values of both countries. However, it is not always equal, and 'special' often means "useful" rather than unique. The start of the second Trump presidency may bring rougher times and the potential for trade wars that will need flexibility and settling from the UK government and leaders. Hopefully, the two countries will remember Churchill's words when speaking to the Pilgrims in 1932, "I believe that there is one grand valiant conviction shared on both sides of the Atlantic. It is this: together, there is no problem we cannot solve."

Charlotte K (I)

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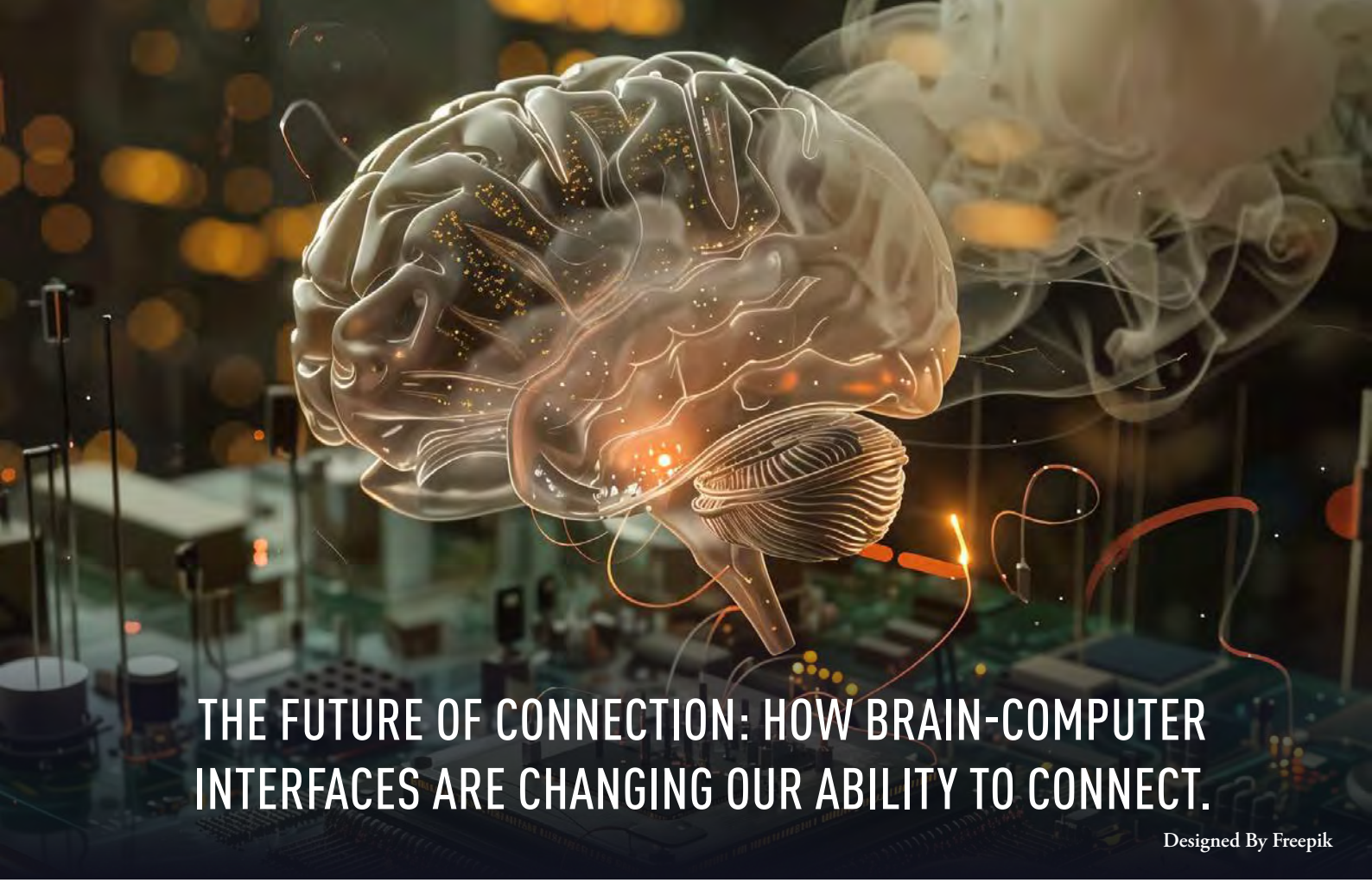

THE FUTURE OF CONNECTION: HOW BRAIN-COMPUTER INTERFACES ARE CHANGING OUR ABILITY TO CONNECT.

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Connection, in the multitude of forms it may take, is vital for the human experience we know. From face-to-face conversations to digital interactions, the way in which we connect with others and the world around us has evolved rapidly in recent years. Among the most significant tools of connection is communication. With the advent of technological advancements, such as Generative AI, the Apple Vision Pro, and virtual reality, we are forced to consider how technology is altering the way we interact with one another, and the ways in which we are able to form connections.

Beyond the impact of innovative technologies on communication, emerging technologies such as Brain-Computer Interfaces (BCIs) are introducing an entirely new form of connection, linking our minds with machines. These groundbreaking scientific advancements have the potential to allow us to forge direct connections between the human brain and computers, possibly leading to an entirely new era of connection, as part of which we can communicate by thought, bypassing traditional methods such as speech or writing.

When most people hear the term 'Brain-Computer Interface,' they may envision a sci-fi scenario – perhaps 'Air-Dropping' your thoughts to a computer, or even a wire leading from your brain to a computer, magically translating complicated neural signals into code.

However, in reality, BCIs are devices that process brain activity, sending signals to an external software, allowing individuals to control devices with their thoughts. In this way, we may be able to establish a direct form of communication between our brain and an external device (Becher, 2023).

Our brain communicates through a mixture of electrical and chemical processes. This neural activity from our nerve cells and synapses can then be captured by invasive, or even non-invasive BCIs. It does this through the use of sensors which are able to detect the voltage, frequency, and intensity of each spike in brain signal, transferring this information to an external system (Bitbrain, 2020). The computer software is then able to decode the complex and intricate data using AI or machine-learning algorithms, ultimately translating the recorded measurements of the brain's activity into a form that can be understood by other devices.

These devices then have the ability to pass the translated information from the brain onto a secondary device, laying evident the enormous potential of BCIs. One of the most commonly considered examples of a secondary device is a robotic limb or a wheelchair. Through forging this connection between thoughts and such devices, BCIs could empower patients with paralysis to regain motor functions and mobility. BCIs could also be used to treat certain neurological conditions (www.sciencedirect.com, n.d.). Particularly for individuals

who suffer from 'Locked-in Syndrome,' a rare neurological disorder characterised by a complete paralysis of voluntary muscles, apart from those associated with eye movement, BCIs could significantly improve quality of life. It would present non-verbal patients with the ability to connect again, by allowing them to communicate with others through their thoughts. This would have vast positive effects on the well-being of such patients, potentially reducing the sense of isolation they must experience. By acting as a 'speller', BCIs could provide non-verbal individuals, for example those affected by 'Locked-in syndrome,' with the ability to communicate. Therefore, beyond the prominent clinical applications of BCIs, they also have the ability to significantly influence our social and emotional spheres, truly revolutionising the human ability to connect with others. Other potential future applications of BCIs include the control of mobile devices or military drones through thoughts. They even have the potential to improve or treat neurological disorders, as well as enhance our cognitive performance by boosting our productivity and aiding our memory functions.

One of the most prominent emerging BCIs is being developed by Elon Musk's neurotechnology company 'Neuralink.' In May 2023, their device was even approved for human trials in the US, a significant step. Since then, it has already been successfully implanted in a patient, which clearly lays evident the imminence of such emerging technologies (Neuralink, 2024). However, with any new technology, especially one so closely linked to our thoughts, comes the necessity for ethical considerations. For instance, if a computer is able to almost 'read our mind,' how can we ensure that we stay in control of our thoughts and privacy? Who will have access to this very personal data, and how could it be protected? There are also concerns about the potential for misuse of such technology, including the possibility of unauthorised parties accessing someone's thoughts or even manipulating them. Before widespread use of BCIs is possible, we must find ways to safeguard against these risks and ensure that the technology is used for the benefit of society as a whole. In this way, emerging technologies such as Brain-Computer Interfaces have the ability to revolutionise the way we connect with others, impacting areas such as healthcare, mobility, and communication in general.

The potential of this newly developing technology is astonishing, yet careful considerations of the ethical implications will be crucial in ensuring that BCIs positively affect humanity.

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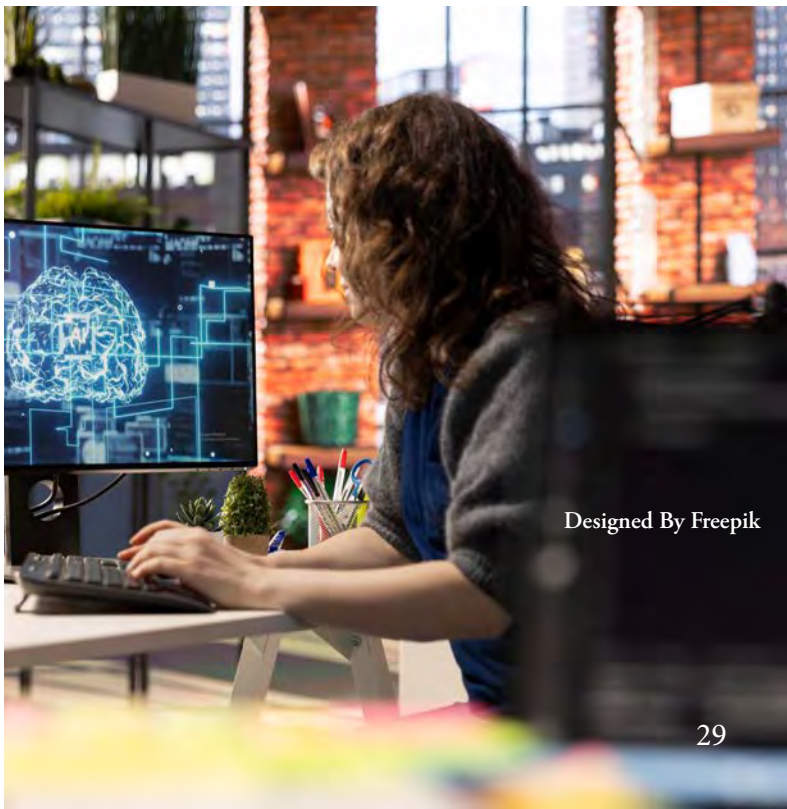
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THE HEALING POWER OF POETRY

Making connections through words

Poems come in all different shapes and sizes - from raps to sonnets, from odes to limericks, from haiku to ballads. Some are long, some are short, some rhyme, others don't. Poems are used all around the world to express how people are feeling and can be a powerful way to communicate and connect with one another. But in a world of hashtags, LOLs, and emojis, what's the point of poetry?

Poetry brings people together – sharing words helps us to become more connected to ourselves and to others, and this is all the more essential during times of uncertainty. Knowing that someone, somewhere, has felt the same way, somehow makes everything more bearable.

So, what is poetry and why does it matter? Britannica defines it as "a type of literature, or artistic writing, that attempts to stir a reader's imagination or emotions. The poet does this by carefully choosing and arranging language for its meaning, sound, and rhythm." Poetry is everywhere; it can be found in stories, in love letters, in speeches, songs and greeting cards. It helps us to connect with our emotions and convey them in a unique and special way.

Reading poetry has many recognised benefits – not only can it help to improve verbal skills and critical thinking, it also develops empathy and insight, and encourages creativity. Medical research has shown that poetry is good for our brains because it triggers an emotional response like music; MRIs have identified that when we read or listen to poetry, areas in our brain's right hemisphere, linked to reward and emotion, light up from being activated.

Poetry makes us smarter – it's not just about reading words, but about understanding the sounds, meanings, and emotions of words, so that when our brains put all these things together, brain function peaks, thereby strengthening memory and cognitive health.

There are also therapeutic benefits to reading poetry, enabling us to explore our emotions, work through trauma, and support the healing process. And it is this - the very power of poetry to make us feel connected - that speaks most powerfully. Poetry unlocks a feeling of closeness to others, uniting us as we discover we are not alone in our emotional experiences. When we have a poem by our side, it feels like a hug from a friend, and knowing that others have experienced what we're going through, makes us feel less alone. Poetry gives us the words and images to express our emotions when we struggle to find them.

My 90-year-old Grandad recently passed away, and my family said farewell to him at a beautiful and moving ceremony that struck the perfect balance between sadness and celebration. It reminded me of Horatio's words to his friend Hamlet after he had died: "Goodnight, sweet Prince, and flights of angels guide thee to thy rest". Shakespeare's words captured my emotions perfectly on that day; I felt a strong

connection to my Grandad and to all those who were there mourning him, and this made me feel less isolated.

My Mum and I have a shared connection through poetry, and one of our favourite works is 'Catrin' by Gillian Clarke. It describes the deep bond between a mother and her teenage daughter, reflecting the internal conflict parents face as their children grow up. Clarke remembers the day she gave birth as "…our first / Fierce confrontation…" and the painful and messy "struggle to become two" separate people. That struggle lingers to the present day when her daughter defiantly demands to stay out late, and Clarke feels the familiar sharp tug of love that still tethers her to her child. Many mothers and daughters will have experienced the same "trailing love and conflict" and will feel a connection through identifying with the emotions in this poem.

Poetry also explores the connection between humanity and nature, evoking feelings of wonder, respect and care for the environment and fostering a personal relationship with the natural world. Many poets write about nature to bring awareness to ecological issues, or to remind us of Nature's power. In his narrative poem 'Blackberry-Picking', Seamus Heaney recalls a childhood memory of picking blackberries in August and watching them spoil, which he uses as an extended metaphor for the painful experience of growing up and losing the innocence of youth. The vivid descriptions of the berries - "glossy purple clot / Among others, red, green, hard as knot" which become like "thickened wine" - light up the landscape of Heaney's early days, connecting him, and us, to nature. But the berries wouldn't last; as the "sweet flesh would turn sour", the harshness of reality and decomposition emphasise that beauty and vulnerability go hand-in-hand. The poem ends with Heaney saying although he "hoped they would keep, (he) knew they would not," but creating a glimmer of light that draws us in; through poetry, he expresses the beauty of memory and a shared connection that gives us hope.

Poetry also has the unique ability to connect with history, humanising people from the past by giving them a voice. When we engage with the words of from those who have shaped history, we connect with their thoughts, emotions and aspirations, and can empathise with them on a personal level. Poetry can be an important tool for teaching history – in her autobiographical poem "Presents from My Aunts in `Pakistan", Monica Alvi explores the theme of confused identity as she describes her experience of growing up caught between two cultures. Having emigrated to England as an infant, Alvi doesn't know what to do with the delicate Pakistani "salwar kameez" she receives as a gift from her aunts. She knows Pakistan is going through political strife and imagines she can feel its pain "throbbing" through the pages of a newspaper. Poems like these give us a vivid and meaningful understanding of history and connect us to others through shared humanity.

So, if poetry helps us connect to others, and to the world around us, how do we make it part of our everyday emotional lives? I like to keep poetry close by writing down my favourite lines – such as Maya Angelou's inspiring words from her poem "Still I rise": "You may tread me in the very dirt / But still, like dust, I'll rise." Rudyard Kipling's poem "If' is another of my favourites, especially the lines: "If you can dream – and not make dreams your master; / If you can think – and not make thoughts your aim." Reading and re-reading poems such as these helps to comfort and inspire me.

Another way of staying connected to poetry is to learn it by heart. Writing out a poem first gives you time to learn it – each word, each line, each pause, as it works its cathartic magic. Learning poems by heart can help us to connect with our feelings, and often provides answers to our deepest emotional conflicts.

Poetry, if we let it and embrace it, can be a great way to empathise with each another, and understand one another. Yet we don't have to be an expert on poetry to enjoy it; poetry is for everyone. As Plato said, "Poetry is nearer to vital truth than history." What could be better that sharing the pleasure of poetry with family and friends to stay connected to them?

Scarlett B (J)

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'Catrin' by Gillian Clarke
'Blackberry-Picking' by Seamus Heaney
'Presents from My Aunts in Pakistan' by Monica Alvi
'Still I rise' by Maya Angelou
'If' by Rudyard Kipling

19TH CENTURY OPERA INFLUENCES YOU, HERE'S WHY.

We are constantly surrounded by the remnants of long forgotten traditions of the past. One such tradition is the conventions of 19th-century Opera. In this article, I will explore how composers such as Beethoven and Wagner have impacted the drama, art, and architecture of Bradfield and the wider world.

At the end of the eighteenth century, after the rise of Beethoven, one of the most influential composers in history, German Opera did not know how to proceed. Beethoven had pushed the classical tradition as far as possible, leading to the uprising of a new period, the Romantic era.

Some varieties of opera had started to search for a more 'classical' formula at the turn of the 19th Century. However, after the lengthy domination of the opera seria and the da capri aria, a dramatic movement began to advance to return drama to a more intense and less moralistic focus.

This movement, 'reform opera', is primarily associated with German composer Christoph Gluck and Italian poet Ranieri de' Calzabigi. Reform Opera continued throughout the works of German revolutionist Carl Maria von Weber until Richard Wagner, rejecting both the Italian bel canto tradition and the French 'spectacle opera', developed his union of music, drama, theatrical effects, and occasionally dance. This fascination with unifying the arts to create an ultimate, all-powerful art form was known as Gesamtkunstwerk.

This German term, meaning 'total artwork', refers to the way in which operas blend music, drama, staging, and philosophy into a seamless whole. Wagner used the exact term, Gesamtkunstwerk, only twice, in his 1849 essays Art and Revolution and The Artwork of the Future , where he speaks of his ideal of "unifying all works of art via the theatre".

Wagner felt that the Greek tragedies of Aeschylus had been the finest (though still flawed) example of total artistic synthesis, but it had subsequently been corrupted by Euripides. He thought that during the entirety of human history up to the present day (i.e. 1850), the arts had diverged further and further apart, resulting in such 'monstrosities' as Grand Opera. Wagner thought such works celebrated bravura singing, sensational stage effects, and meaningless plots.

In his book Opera and Drama (completed in 1851), Wagner takes these ideals further, describing in detail his idea of the union of opera and drama (later called music drama despite Wagner's disapproval of the term), in which the individual arts are combined for a more common purpose.

It is best revealed in Wagner's Ring Cycle. This vast work consists of four operas – Das Rheingold, Die Walküre, Siegfried and Götterdämmerung. The story follows the struggles of gods, heroes and a collection of mythical figures over the possession of a magic ring that grants domination over the entire world. The drama continues through three generations, until the final cataclysm at the end of Götterdämmerung. For the staging of this work, Wagner placed great importance on such elements as a darkened theatre and seating arrangements that focused the attention of the audience on the stage, which were revolutionary ideas at the time.

Wagner's Siegfried, from The Ring, Siegfried discovering the sleeping Brünnhilde.

Alongside these revolutionists in Germany, a similar movement began to emerge in England, the Arts and Crafts (here's where Bradfield comes into play). The Arts and Crafts movement, after the saturation of machine fashioned materials of the industrial era, aimed to construct buildings which embodied the culture, religion and personality of the town. The oldest parts of the college (all of main-school, Chapel, History, MFL) were constructed during this period of British architecture, meaning they conform to the ideals of movement. If we look at the trefoil windows on the roadside Quod classrooms, we see how religious identity and culture were being implemented into small details around the school. Similarly, the integration of

Alongside these revolutionists in Germany, a similar movement began to emerge in England, the Arts and Crafts (here's where Bradfield comes into play). The Arts and Crafts movement, after the saturation of machine fashioned materials of the industrial era, aimed to construct buildings which embodied the culture, religion and personality of the town. The oldest parts of the college (all of main-school, Chapel, History, MFL) were constructed during this period of British architecture, meaning they conform to the ideals of movement. If we look at the trefoil windows on the roadside Quod classrooms, we see how religious identity and culture were being implemented into small details around the school. Similarly, the integration of Chapel directly to the Bloods corridor creates a seamless transition between two vastly different functional buildings.

William Morris (1834-1896) was a British artist who was heavily associated with the British Arts and Crafts movement and largely influenced the ideas of John Ruskin, who believed that industrialisation led to a decline in artistically crafted goods. Morris believed a home must nurture harmony as well as infuse its inhabitants with a creative energy. This is evidenced in Bradfield by the materials used to create main-school. Those black pebbled-dashed decoration on the walls of Chapel and History were taken from the chalk pit where Greeker now lies. This is a prime example of how the Arts and Crafts utilised local stone to infuse handmade, personalised culture into all aspects of living.

The quote "Have nothing in your houses that you do not know to be useful, or believe to be beautiful" epitomised Morris' way of living via Gesamtkunstwerk. This conviction to make beautiful things, and make them well, often led to taking influences from other art forms in order to aid in the design of these buildings.

Morris' and Philip Webb's Red House, designed in 1859, is a major example, as is the Blackwell House in the Lake District, designed by Baillie Scott.

William Morris and Philip Webb's, Red House, 1859

William Morris and Philip Webb's, Red House, 1859

Some architectural writers have used the term Gesamtkunstwerk to signify circumstances where an architect is responsible for the design and/or oversight of the building in its totality: shell, accessories, furnishings, and landscape. It's is difficult to make a claim in for when this term was first used to refer to a building and its contents (although the term itself was not used in this context until the late 20th Century); already during the Renaissance, artists such a Michelangelo saw no strict division in their creation of architecture, interior design, sculpture, painting and even engineering.

Nonetheless, evidence of complete interiors that embody the concept of Gesamtkunstwerk can be seen before the 1890s, most notably with the design of Versailles or the Schönbrunn Palace. Architects would have an all-inclusive ownership over the exterior and interior design, creating harmonious works of art by unifying the whole, from garden to tableware.
This ideology of Gesamtkunstwerk was regularly engaged with the Art Nouveau artists and architects of the period. Robert Adam and Augustus Welby Pugin are examples of this trend, which creates an overall harmonising effect that, in some cases, even extends to the design of table silver, china, and glassware.
Unfortunately, the idea of Gesamtkunstwerk almost entirely disappeared during the First World War; however, it resurfaced with the Bauhaus and the De Stijl movement in the late 1910s and early 1920s.
(Example of Gesamtkunstwerk in architecture can be seen on the following page)

In closing, whether you like it or not, by being associated with the College, you are constantly being exposed to ideas first introduced by long-dead composers. So next time you're in the Main Dining Room or walking past Quad, you can try to understand the meaning behind the architecture around you.
It does not simply function as a space to learn, but embodies the music, drama, and art of centuries long past, culminating in a societal melting pot of culture to give you the best possible understanding of the wider world.

Villa Majorelle (1901-1902) in Nancy, France
Architect: Henri Sauvage
Furniture Designer: Louis Majorelle
Ceramist: Alexander Bigot
Stained Glass artist: Jacques Grüber

The Municipal House (1904-1912) in Prague, Czech Repeblic
Arhictects: Oswald Polìvka and Antonìn Bašánek
Painter: Alphonse Mucha
Sculptors: Josef Mařatka and Ladislav Šaloun

Gresham Palace (1904-1906) in Budapest, Hungary
Arhictects: Zsigmond Quittner and Jozsef Vago
Sculptors: Géza Maróti, Miklós Ligeti and Ede Telcs
Stained Glass artist: Mikva Róth
Metalwork artist: Gyula Jungfer

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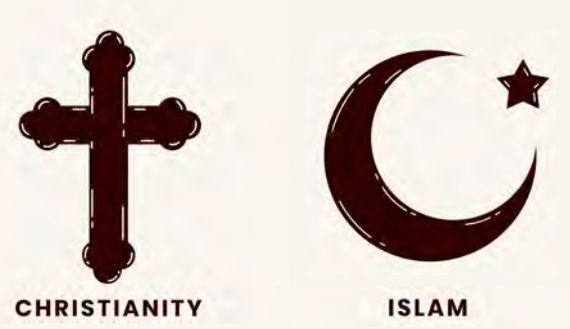
HOW THE CONNECTION BETWEEN ISLAM AND CHRISTIANITY HAS BEEN SHAPED BY THE PAST

The relationship between Islam and Christianity, two of the world's largest religions, has been shaped by periods of conflict and mistrust throughout history. But why do religions with such similar beliefs and morals often find themselves in tension because of their differences? A significant example of this tension was the Crusades that happened between the eleventh and fifteenth centuries. These long-lasting conflicts have made a huge impact on the modern world between the two religions. However, it is not just religions that experience tension, many of us will, or have, experienced tension in our own personal interactions, even with some of our closest friends. So why did the crusades happen, and where do Islam and Christianity now sit?

Islam and Christianity are two very similar religions; they both base their beliefs on God – the creator and sustainer of the universe. However, there are also many differences, such as the Christian belief in the Holy Trinity: God the Father, Son and Holy Spirit. Muslims believe this makes Christianity a polytheistic religion (a religion that believes in more than one God). The Crusades were a series of religious wars between Christianity and Islam that were based around the holy land of Jerusalem. This land was a very important place for both religions, therefore they both thought they should have control over it. Christians wanted the land as it was where Jesus, their Saviour, died, but to Muslims it was where the prophet Muhammad ascended to heaven from. For Muslims, fighting was seen as an act of lesser Jihad – the military struggle to maintain faith and support Islam. Muslims had control over the land before the Crusades, but Christians still went to Jerusalem as a place of pilgrimage. It was around 1077 when Muslims began to see Christian presence as a threat to their authority. The wars were encouraged by the Pope, meaning that Christians thought they were fighting for God. In 1095, the Pope promised forgiveness of knights' sins if they went on a crusade to win back Jerusalem.

The Middle Ages are considered the Golden Ages for Muslims, as during this period they achieved significant progress in places like Syria, Persia and Jerusalem. Following this progress in the Middle Ages, Muslims came forward with knowledge of science, mathematics and medicine. People from all over the world started to gather in Baghdad for learning and research. However, these years were



not prosperous for Christianity – just after the fifth century, the Western Roman empire fell and life in Europe became laborious. This fall meant a period of decline in Europe due to political instability and the loss of a centralised government. This time period was often referred to as the "Dark Ages". Due to the fall of Christianity in this period, Islam had seized control of many holy sites, which subsequently led to Christians waging war in an attempt to win back their holy land.

The aftermath of the Crusades left a huge impact on both religions as it reshaped their interactions and perceptions of each other. While the conflict divided the two religious communities, it also created opportunities to exchange culture. For example, Islam shared their knowledge with those in Europe, which contributed to the beginning of the Renaissance. The Crusades can teach us so much as a worldwide community, principally the importance of accepting co-existence. This period of war introduced the concept of 'rough tolerance', forcing religions to live alongside each other and adapt to new circumstances. Everyone can benefit from adapting to different environments, especially in a school setting; connection is so important for everyone – whether that is to friends, family, pets or hobbies. The Crusades show us that by embracing our differences, society can advance more rapidly and gain a greater understanding of the modern world. It is because of the Crusades that we had the Renaissance, and changed our views on contemporary society.

Imogen M (M)

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THE CONNECTION BETWEEN LINGUISTICS AND SOCIAL BEHAVIOURS

Each society, big or small, is similar in its reliance on language and its ability to connect people to one another, as well as to the country or location in which it is spoken. The uniqueness of every language contributes and coincides with the individuality of various cultures, having a large impact on one's identity, their perception of the world and the way that they think. As said in a Chinese proverb, "to learn a language is to have one more window from which to look at the world", demonstrating the importance that language has in experiencing the world in which we live. I will be exploring the ways in which language influences an individual's thoughts and behaviours through the lens of linguistic relativity. This poses the question, are our world views trapped by the constraints of language?

A common understanding of language is that it is a cognitive structure used to convey human thoughts and emotions in order to communicate within a community or group. So how can language influence the way we think if it is used to express our internal experiences? A study carried out by Dr. Anna Franklin explores language and colour perception in young brains through gathering a group of toddlers and infants and presenting them with a screen of colourful tasks and games. In assembling children at different levels of development, the study was able to decipher the way in which linguistics influences one's ability to discern and separate different colours from one another – an activity which is done in the left side of the brain, where the majority of language functions take place. The children wear eye trackers, allowing the researchers to observe their eye movements as they interact with these displays, providing an insight into the cognitive processes taking place within the child's mind. Through the experiment, the scientists attempted to further delve into the argument that we strongly acknowledge the distinction between colours due to the language we've associated them with. After evaluating results, they reached the conclusion that toddlers who hadn't yet learnt the words for the colours had stronger activity in the right side of their brain, in comparison to the toddlers who do know the words, of which the left side of the brain was more active. Thereby, the study concludes that "learning the word for a colour changes the way in which your brain processes that colour", exhibiting how language influences our perception of the external world. This experiment demonstrates the ways in which language impacts brain activity, due to the specific anatomy of the brain, which is dedicated to speech and articulation, known as the Broca's Area. Therefore, surely if the brain is anatomically equipped with certain functions, it's merely waiting for external factors and experiences to make use of it?

The observations so far explored, which highlight the ways in which speech impacts our mind, directly correlates with the 20th century Sapir-Whorf hypothesis of Linguistic Relativity, stating that language influences the way we think, and therefore act, or even determines it. One of the most popular examples of this hypothesis was researched by Benjamin Lee Whorf, leading him to form this theory, in which he visited the Hopi tribe in the village of Mishongnovi, Arizona. From his trip, he analysed how the Hopi language differed from the majority of other languages, through its lack of grammatical features used to express the past and future tense, thus preventing any portrayal of literal time in that language. Instead, the Hopi followed the phases of the moon and cycles of the sun. Therefore, when adapting American-English, which would be spoken in work environments, it's said that the Hopi had found it difficult to be on time in daily activities. Additionally, the harsh, scorching location of the Hopi tribe would, to anyone adjusted to the luxury of air conditioning or under-floor heating, lead to a life of discomfort through its extreme heat and dryness. Therefore, as explored by Peter Buru in his essay connecting the 'Temporal Aspect of the Hopi language and its Experimental Application in Postmodernist Novels', the Hopis' inbuilt timelessness, imposed by the restraints of language, have perhaps facilitated their survival by means of influencing their perception and outlook on the world, highlighting the connection between linguistics and way of life.

The Sapir-Whorf theory caused much controversy in the world of linguistics, such as alternative arguments relating to the impacts of culture and was later deemed feeble, due to insufficient explanation and lack of clarity in its argument. For example, 'His idea that people cannot conceive of realities for which they have no words just doesn't make sense: how would we ever learn anything if that were true?' Overall, with both sides of the debate holding reason and demonstrating interesting thought, the topic of linguistics on social and worldly perceptions remains one which still sparks intrigue, perhaps being an example of the universality of curious thought, in contrast to the individuality of language.

Posy H (M)

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THE POLITICS OF PHYSICS: WHEN THE CONNECTION BETWEEN PHYSICS AND GEOPOLITICS PUTS A HANDBRAKE ON INNOVATION

At 02:56 on July 21st, 1969, Neil Armstrong, as he took the first step in human history onto an object beyond Earth, uttered his famous line over the static-filled radio: "One small step for man, one giant leap for mankind." But Apollo's mission was not simply exploration. It was a direct result of the Cold War, where the US and USSR each attempted to gain the scientific and technological edge over the other, leading to rapid explosions of technological growth on both sides, along with reduced scientific transparency between the countries of the world. So, was this really "one giant leap for mankind", or just one for America and its allies? How much does politics influence science in our modern era? And how much more progress could be made if we were more transparent?

At the same time that the US was developing its Saturn V rockets, the USSR was developing N1 rockets—both designed to do the same job: lift humans into space and get them back down in one piece. Although the N1 ultimately was unsuccessful, numerous parts of its design, including its closed-cycle rocket engines, went on to influence modern designs.

With the two nations working on identical projects at similar times, there were bound to be many overlaps, leading to redundant efforts, where time, energy, and manpower were all thrown at the same problem, when only one budget would have been sufficient. Had the two nations pooled their knowledge and resources rather than duplicating efforts and disallowing scientific communication, the Moon could have been reached years earlier and at a fraction of the cost.

It is often said that competition is the most significant driver of progress. The Cold War was no exception. Countless technologies were created or advanced due to the two superpowers' rivalry. From stealth technology and advanced nuclear weapons to better prosthetic limbs and the internet, much progress was accelerated due to the Cold War. Unlike traditional wars, the Cold War had relatively little direct conflict, allowing resources, manpower, and brainpower to be funnelled into scientific progress rather than destruction.

However, this progress came at a cost. For every breakthrough, there was another identical one wasted. Just imagine how much potential was wasted when every idea was conceived, developed, and deployed independently twice, while scientists on each side were forced to work in isolation, unable to exchange ideas or refine each other's discoveries.

This was neither the first nor the last time politics hindered scientific progress. A few decades earlier,

during the anti-communist era of McCarthyism, some of the world's greatest scientific minds, including the likes of J. Robert Oppenheimer, were purged from the scientific community, losing their security clearances to work on government projects and being driven from the scientific community during an anti-communist witch hunt. Some of the world's greatest minds, young and old, were shunted by the US just because of weak evidence of loose leftist connections. This created an atmosphere of censorship within the scientific community, and many scientists had to be very careful about what they said, did, or published, while many left government work altogether.

However, the stalemate of the Cold War would not last forever. On December 21, 1991, the Soviet Union was officially dissolved. This was a turning point for scientific transparency, as many papers and research projects, previously unseen outside the Soviet Union, were finally published, and bans on Soviet-West collaboration were lifted. This led to a huge influx of Russian and ex-Soviet contributors to civilian science and a greater budget for peaceful science, as military progress became a less immediate issue.

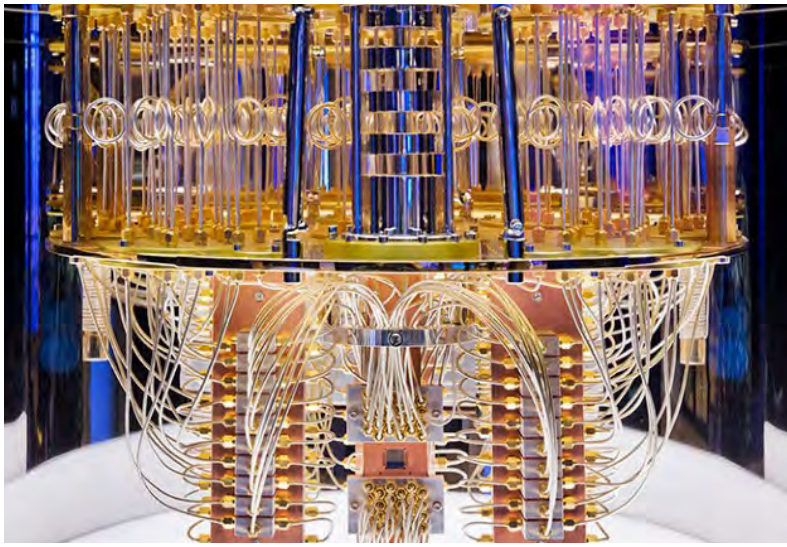
With the fall of the Soviet Union, barriers to cooperation crumbled, paving the way for rapid advancements. Many Western scientists finally met their Soviet counterparts and exchanged ideas and discoveries as colleagues instead of rivals. Space agencies began working together properly for the first time, with fleets of US space shuttles and Russian Soyuz rockets launching researchers into space regardless of their nationality. The crown jewel of this cooperation is the International Space Station, a permanent research station built by five space agencies that were once rivals, situated in low Earth orbit. It is the ultimate symbol of international collaboration.

At some point in January 2031, the ISS will be decommissioned. The greatest symbol of international collaboration will literally burn up and fall to the bottom of the Pacific as space debris. It will be succeeded by a collection of space stations owned and maintained by single nations or sometimes even corporations.

We appear to be entering a new era of geopolitical tension, reminiscent of the Cold War, with increasing scientific barriers. Scientific transparency has decreased as geopolitical tensions rise between the US, Russia, and China. The US's restrictions on semiconductor exports to China have put a strain on its growing AI industry, while many countries, including the UK, have put restrictions on licenses to export and work with quantum computers, citing risks of espionage and security threats, but reducing the overall progress and development of this new technology.

In conclusion, looking back at history, we can see how far we have come through cooperation and how much political tensions restrict progress. If we want to continue making leaps for the good of all humanity, we must balance security with openness and ensure that science remains a bridge to the future, not a battlefield.

Ludo F (A)



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THE CONNECTION BETWEEN ACADEMIC SUCCESS AND PARTICIPATION IN SPORT

The relationship between academic success and sporting participation has been a highly debated subject, with many arguing that participating in sport may hinder academic progress due to athletic commitments, taking time away from studies. Conversely, others believe that the cognitive skills, personal discipline, and problem-solving skills that many may develop significantly benefit academic achievement. Balancing sports and academics can present issues of constant fatigue leading to decreased cognitive performance and therefore the ability to retain information; however, if effectively balanced, the values needed in sport, such as resilience and teamwork, can lead to enhanced academic progress. This essay will explore both sides of the argument, the relationship between academia and sports, and the benefits and potential drawbacks on a student's education.

One of the key arguments in favour of sporting participation and the positive effect it has on academia is its positive effect on cognitive function and human well-being. Numerous studies have shown that playing sports and doing physical activity improves concentration, memory and overall brain function. Physical activity can help you think, learn, problem-solve, and enjoy an emotional balance. It can improve memory and reduce anxiety or depression (CDC, 2025). According to research conducted by the University of British Columbia in 2017, aerobic exercise, due to increased blood flow to the brain, can increase the size of the hippocampus, the area of the brain responsible for learning and memory. Additionally, it will stimulate the production of a protein (BDNF) associated with improved learning and memory. (Carl W Cotman, 2007)This suggests that those who engage in sport may develop better cognitive abilities, therefore improving academic performance.

In conjunction with cognitive benefits, participation in sport plays a vital role in mental well-being. The pressures of academic life can sometimes lead to high levels of stress and anxiety, which can negatively impact a student's ability to focus and perform well, retain information and create the neural links needed to learn. Engaging in physical activities helps reduce stress by releasing endorphins, which improve mood and promote relaxation. This improved mood and relaxation state is more likely to lead to increased academic motivation and open-mindedness to taking on board new information. This indicates that sport can serve as an effective tool for creating a positive mindset that can be applied in academia, leading to greater academic success.

Beyond cognitive and psychological benefits, sporting participation can also instil essential skills that are transferable to academic benefits. Values such as resilience and discipline, which are crucial in a sporting setting in order to gain success, can also be applied in an academic setting. For example, if undergoing challenges such as demanding coursework or struggling with a particular topic, the grind that is applicable in sport when encountering adversity is equally important in an academic environment. Furthermore, teamwork and leadership skills gained during physical activity can enhance classwork environments, leading to better discussion, but also the ability to, if struggling, ask someone for help instead of independently struggling. A report by the National Federation of State High School Associations (NFHS) found that student athletes often

exhibit skills such as adaptability and confidence, which can both lead to academic improvements (Amaro, 2020).

Despite the numerous number of benefits, there are a few potential setbacks. One of the main issues raised about participation in sport and academic performance is time management. Depending on the sport, training schedules are becoming more and more rigorous for students, meaning less time can be dedicated towards working, revising and consolidating work. As the majority of students may 'enjoy' physical activity, they may end up prioritising it after being torn between the two, leading to increased fatigue but also more stress and anxiety that a decreased time working may provide. This fatigue undoubtedly will negatively impact academia. Mental tiredness and physical strain can negatively affect a student's ability to retain information, but also focus in class, resulting in a decrease in the ability to strive high academically. Another challenge is the choices that will inevitably occur when wanting to meet academic expectations, which may prove a better choice in the long run, but also wanting to excel in sport, and the euphoric feelings gained when playing. Trying to balance a student-athlete life poses many difficulties, but the potential drawbacks pose issues that could negatively impact both academia and sporting success if used wrongly.

Ultimately, the relationship between academic success and sporting participation contains both positive and challenging aspects. Whilst sports can provide cognitive and psychological positives to academics, they can also potentially harm performance due to the time constraints applied and the physical and mental exhaustion that could occur. However, if managed correctly through time management and a balanced approach, the advantages of playing sport arguably outweigh the potential setbacks. In conclusion, sporting participation and academic success can positively complement each other, providing features that enhance the other, creating a well-rounded approach to sport and learning.

Freddie G (H)

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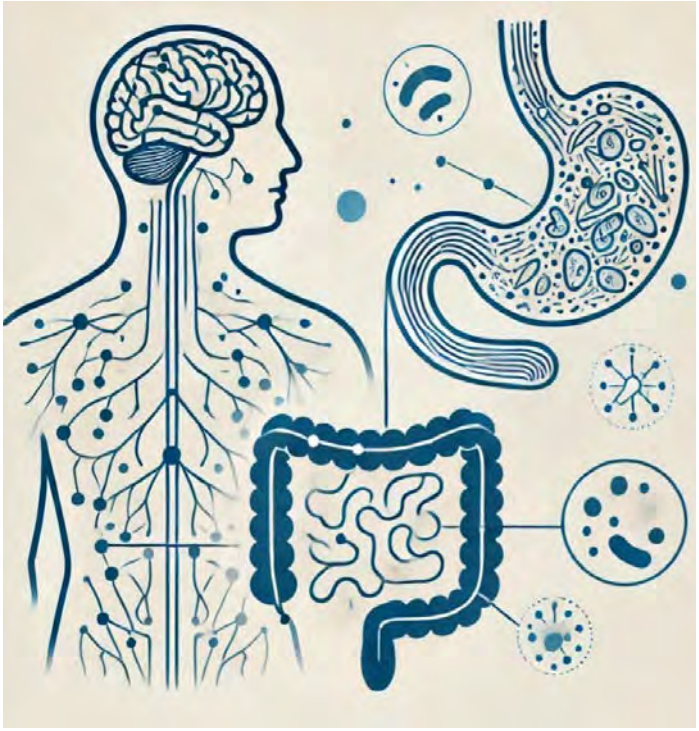

THE CONNECTION BETWEEN THE MICROBIOME AND MENTAL HEALTH DISORDERS

Within the human body exist trillions of tiny microorganisms, referred to as the microbiome, that act as an additional organ and play a crucial role in maintaining overall health. In recent years, the relationship between the microbiome and mental health has become one of the most intriguing and controversial topics in scientific research. Understanding how gut bacteria interact with the nervous system could offer valuable insights into mental health conditions, such as depression and anxiety. This knowledge may pave the way for scientists to prevent and develop more effective treatments for mood disorders, by targeting gut health through diet, probiotics and lifestyle interventions.

The microbiome:

The human gut microbiome refers to all the microscopic living organisms that reside in the intestines. It can weigh as much as two kilograms (about the same as the brain) and contains nearly one thousand different species of bacteria. Most of these bacteria are useful but some can be harmful and cause disease. When there is an overgrowth in harmful bacteria in the gut or a reduction in beneficial ones, it is called microbiome dysbiosis, which can have adverse effects on physical health such as weight gain, gut problems such as irritable bowel syndrome (IBS), increased risk of diabetes and many more. While the gut has a critical impact on physical health, research has shown that it also plays a key role in mental health.

How the gut affects the brain:

The brain and gut are linked via a communication system referred to as the 'gut-brain axis'. The vagus nerve is a key component of the 'gut-brain axis', connecting the brain and the digestive system – playing a key role in transmitting signals between the two. Chemicals produced by the gut bacteria are transferred to the brain through the vagus nerve. One of these chemicals is serotonin, a neurotransmitter that is known as the 'happiness hormone'. According to the 'Gut Microbiome-wide Association Study' around 90% of the body's serotonin is produced in the gut. This could explain why there is such a profound connection between the health of your gut and mental wellbeing.

The gut and depression:

According to Priory Mental Health Statistics 2025, around 280 million people worldwide suffer from depression with adults between 16-29 most at risk. Research has linked an imbalance in the gut microbiome – microbiome dysbiosis - to a disruption in the typical production of neurotransmitters, such as serotonin, leading to the development of depressive symptoms. A Psychiatry Research study published by Dr Gupta found that individuals with major depressive disorder have significantly lower levels of beneficial gut bacteria. Diets high in processed foods and sugars can harm your gut microbiome and cause microbiome dysbiosis. Additionally, sleep deprivation or low sleep quality can cause an imbalance of gut bacteria. On the other hand, diets rich in whole foods, fibre, and omega-3 fatty acids can improve your gut health and benefit your mental health. Furthermore, regular exercise has been shown to positively influence gut bacteria and reduce inflammation.

How to optimise gut health for mental health:

Supporting gut health is key to mental wellbeing and reducing symptoms of depression and anxiety. You can do this by taking probiotic supplements to help increase beneficial bacteria in the gut. Additionally, eating fermented foods, for example kefir, yoghurt and kimchi, enhances microbiome diversity while reducing harmful microbes. It is important to consume a varied diet rich in whole foods and fibre to support digestion and brain health. Avoiding artificial sweeteners, often found in diet drinks and sugar-free products, is essential to maintaining a healthy gut, as they can harm bacteria

and the gut lining. Similarly, minimising ultra-processed foods (like crisps and fast food) protects gut health, and increasing polyphenol-rich foods, including dark chocolate, olive oil, whole grains, and green tea will promote it. By making these mindful choices, you can cultivate a balanced gut microbiome that supports overall well-being.

In conclusion, the gut microbiome plays a crucial role in both physical and mental health, with growing evidence linking gut health to mental disorders such as depression and anxiety. The complex communication between the gut and brain through the 'gut-brain axis', highlights the significant impact of gut bacteria on emotion well-being. Factors such as diet, sleep and lifestyle choices can either support or disrupt the delicate balance and therefore impact mental health. By prioritising gut-friendly habits – such as consuming probiotics, eating a diverse and fibre-rich diet, and avoiding artificial additives, one can enhance gut health and reduce symptoms of depression and anxiety. As research continues to uncover the full extent of this connection, optimizing gut health may become an integral part of mental health treatment and prevention strategies.

Molly C (K)

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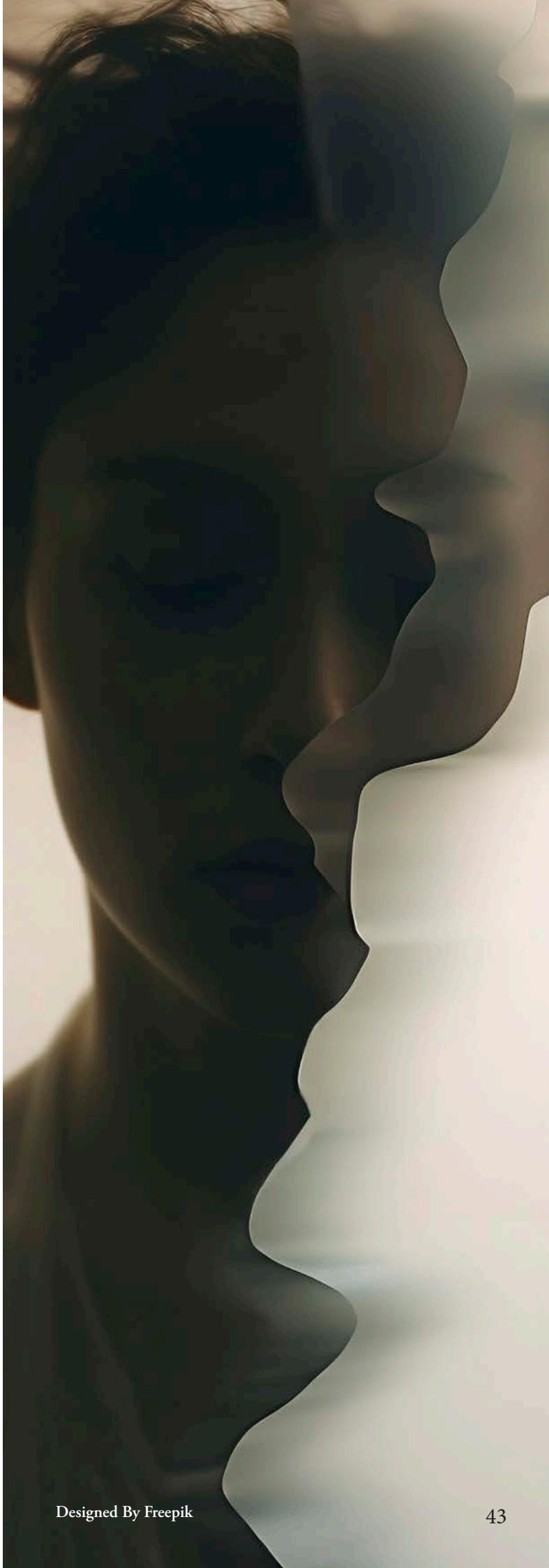

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LOST IN THE NOISE – LONELINESS IN A CONNECTED WORLD

"Water, water everywhere nor any drop to drink"

In a world that is constantly moving, loneliness has turned into a surprisingly widespread issue. You'd think that with crowded cities, busy workplaces, and a never-ending stream of social events, we'd feel more connected. Yet, many of us struggle with a deep sense of isolation. Research indicates that loneliness is increasing, even in places where people are constantly interacting. The truth is, modern life often encourages people to engage in shallow relationships, valuing speed over meaningful connections and independence over a sense of community. This article dives into the puzzling reality of loneliness in our noisy world, shedding light on the social and cultural changes that have made it tougher to forge genuine connections.

Walking through a busy city street, you are constantly surrounded by thousands of people - yet no eye contact is ever made. In packed trains, in offices, and cafes, everyone sits shoulder to shoulder, absorbed in their own worlds, so closely connected yet can be miles apart. Urbanisation has created densely populated areas, but never created as dense connections within. Research suggests that people in large cities report higher levels of loneliness than those in rural areas, where a community is much closer. It becomes clear that the more people we live among, the easier it becomes to merge into namelessness, making it a normality to only ever form meaningless connections.

In modern society, social interactions are everywhere, yet they are rarely genuine. Whether at work, with strangers, or even among friends, conversations can seem more like transactions, built mostly on politeness rather than real connection. We can exchange respectful greetings and ask how one another is doing, but we rarely dive deeper than the surface-level remark on the weather. While these interactions might give the impression that we're socially engaged, they do little to relieve the feeling of loneliness. Many people find themselves in crowded rooms, smiling and chatting, yet still feeling completely disconnected, surrounded by small talk, but feeling separated from something genuine.

This sense of isolation is only reinforced by a modern society that values self-sufficiency over community. In most Western cultures today, being independent is celebrated, while relying on others is often viewed as a sign of weakness. This is in contrast with collectivist cultures, where strong community bonds are held dear throughout life. In our societies, the focus tends to be on personal achievement and self-reliance, which can make it difficult to build deep, meaningful relationships. As time goes on, this way of thinking can push people further into solitude, creating an environment where everyone feels they are forced to do it alone, even when they long for connection.

As a result, forming and keeping meaningful relationships has become increasingly difficult. People always relocating and other modern complications can mean that many friendships are short-lived. Even within families, the traditional support systems of past generations have weakened, with fewer multi-generational households and less frequent in-person interactions. All the while, many people hesitate to open up emotionally, fearing judgment in a society that often victimizes vulnerability. In this environment, feeling out of touch is a common problem.

However, loneliness is by no means inevitable. Even though society can make creating lasting bonds difficult, meaningful connections are still possible. But it requires effort. Rather than maintaining a portfolio of acquaintances, make sure to prioritise more meaningful relationships in order to feel less removed from yourself and others. Investing time in friendships or being present in conversations can also help counteract the isolation that we discussed modern culture creates. Having deep conversations, working together on projects, or partaking in new experiences with others can really help create a sense of belonging that's much deeper than just casual interactions. Real connection isn't about being one person in a crowd; it's about those moments of closeness that turn relationships into the connections we value.

To conclude, the feeling of isolation in our hyper-connected world isn't just about being physically alone; it's about how we connect with each other. With urban living, a focus on individualism, and the norm of shallow interactions, many find themselves surrounded by people yet still feeling isolated. While modern life encourages us to try to stand on our own two feet, real happiness often springs from relationships grounded in shared experience. To prevent this retreat into seclusion, we need to take a step back, actively seek out authentic connections, and remember what it truly feels like to belong.

This has been generated by AI. I think it gives an interesting insight to how AI views our problems without being able to actually experience them.

This is an artwork I found that represents my point very well. It reminds me of the quote from Samuel Taylor Coleridge's poem, 'The Rime of the Ancient Mariner': "Water, water everywhere nor any drop to drink".

Otto E (Faulkner's)

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"A psychologist explains how modern life is making us lonely, but it doesn't have to" – BBC Science focus. A psychologist explains how modern life is making us lonely, but it doesn't have to - BBC Science Focus Magazine

WEB OF LIFE

All animals are connected to one another in some way, whether by a food chain, habitats, socially or through DNA. Even humans are connected very closely to certain animals, such as chimpanzees and other apes. This article explores how all animals are connected and how animals use these connections to benefit both themselves and others.

Animals connected through food chains are extremely important to one another and can be put into different categories called trophic levels. These levels are roughly divided into three sections: producers or autotrophs (the first trophic level), consumers (second, third and fourth trophic levels) and decomposers (fifth trophic level). In different ecosystems, animals are all connected by a food chain. For example, in a marine ecosystem, phytoplankton provide food for krill, which are the main food source for blue whales. Each animal relies upon the level below it for food which shows a connection as all animals depend on each other for survival and interdependence. Interdependence in a food chain is where, if there are fewer secondary consumers, then there will be fewer and fewer tertiary consumers. Furthermore, if there are too few predators, such as foxes, then prey populations will rapidly increase, which can result in food shortages for certain species.

Animals are also connected through their habitats – many by symbiotic relationships. A very well-known symbiotic relationship in a habitat is between clownfish and anemones. These two animals have a very unique connection, because the clownfish, who are immune to the anemone's stings, live among the anemones' tentacles, protecting them from predators. In return, the clownfish keep the anemones free of parasites, provide food to the anemones through faeces and chase away other fish that feed on the anemones. This is a good example of animals being connected in a habitat, showing how they work together for mutual benefits as opposed to only working against each other, which is a stereotypical ideology of animals.

Animals are also connected through their social structures, both in their species and with other species. An example of animals with complex social structures are naked mole rats. Naked mole rats live in a eusocial colony, meaning that they have one queen who breeds, and most other mole-rats spend their entire lives working. When the queen dies or is removed from the colony, a few females will fight to the death to become the new queen.

The naked mole rats also have a select few who are the soldiers. When a predator, such as a snake, enters the tunnels, the workers give an alarm at which the soldiers run towards the predator. The soldiers are often the mole-rats with the longest teeth so that they can attack predators better. They also often form walls with their bodies to block a predator. All this makes naked mole rats a prime example of a well-developed, connected social structure.

Many animals also share a social connection with humans. Some examples of this are dogs and cats. Dogs have lots of skills to be able to understand human words, emotions and actions. This gives them the ability to connect with humans. This social connection is often used in environments such as farming and rescue because the dogs can understand what humans are wanting them to do.

Dogs also have a social connection with human emotions. It has been proven by the National Institution of Health that hugging dogs releases the 'happiness' hormone, oxytocin, in humans. This is the same hormone that causes bonding between mothers and children. This release shows that dogs have a huge impact on humans' social lives and can affect both how they act and feel.

Finally, animals are connected through their DNA. A prime example of this is humans and apes. Humans and chimpanzees share 98.8% of their DNA. This shows that animals can be so closely connected yet so incredibly different, with humans and chimpanzees descending from a single species several million years ago. Chimpanzees have 48 chromosomes and humans only have 46, which means that if there was no fusion between two ancestral chromosomes, humans and chimpanzees would not be different.

In conclusion, there are lots of different connections in the Web of Life, in many forms, with animals creating complex social structures, arrangements for mutual benefit and also connections through wellbeing. These connections are vital for survival and balance in the world, highlighting how complex the natural world is and how different it would be without these connections. These can help us to appreciate the Web of Life and how important it is to maintain the current biodiversity for the health of the planet.

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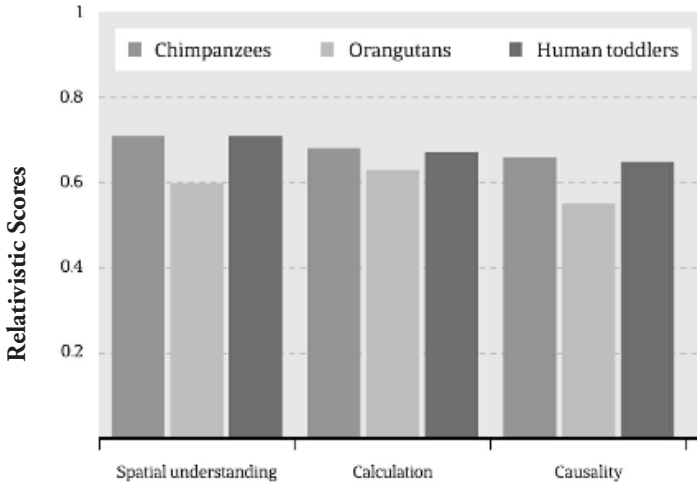
THE POWER OF HUMAN CONNECTION

In evolutionary terms, we have only just emerged. Were you to condense the history of life on earth to span just one calendar year, instead of four billion, up until mid-October bacteria had the place to themselves. Only in November did life as we know it first appear, with the branches and the buds, the bones and the brains. And humans? We arrive on the 31ST of December, at approximately 11pm. In the blink of an eye we populate the Earth, building castles and pyramids, steam engines and rocket ships, conquering the planet, with the universe following shortly. But why us? What separated Homo sapiens from the rest? Why is it that we build the museums, while the Neanderthals are stuck in the displays? The answer is fairly simple; we mastered the most fundamental art of survival: connection.

Plastered to Darwin's theory of evolution, but first coined by philosopher Herbert Spencer, is the phrase 'survival of the fittest'. Yet humans were never the fittest, the fastest, or the strongest, nor even the smartest – the Neanderthals' brain being on average, 15% larger than ours. Moreover, in a series of thirty-eight tests designed by a research team in Germany, comparing the intelligence of toddlers (since they have had less time to learn from those around them) to other primates, by assessing subjects on spatial awareness, calculation and causality, the results, as shown, do us no favours.



So, toddlers scored the same as zoo animals. But what this graph leaves out is that subjects were also tested on a f ourth skill: social learning. That is, the ability to learn from others, and these results offer an interesting break from the pattern. The extended graph below illustrates perfectly what it is that sets humans apart – that while on par in almost every cognitive test, our ability to learn is unmatched. We're built to bond and to play, to form connections, allowing us to gain the wisdom and skills of others.

And how exactly are we the masters of connection? One interesting and entirely unique feature of humans, noted by Charles Darwin as "the most peculiar and the most human of all expressions" is our ability to blush. Although it sounds peculiar, blushing is after all

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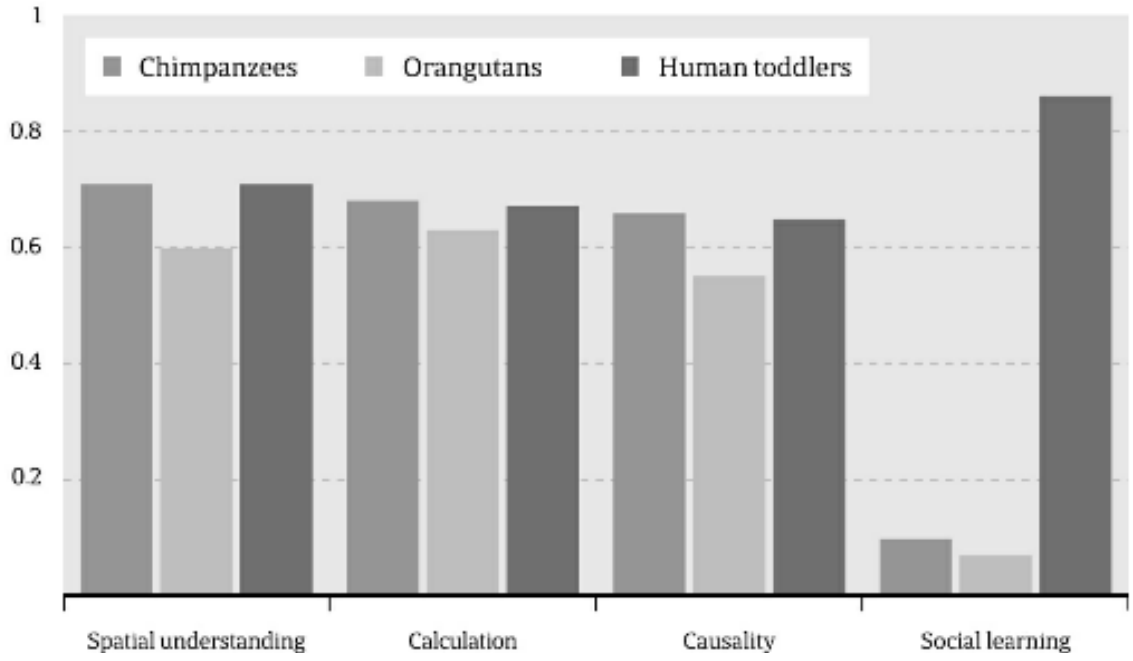

quintessentially social, it is people showing they care what others think, signalling sincerity and emotional vulnerability, which is a powerful tool in founding trust and enabling cooperation. A similar phenomenon occurs when we make eye contact, due to another solely human trait: the whites of our eyes. Differing from other primates – more than two hundred of them – which produce melanin that tints their eyes, humans evolved to allow others to follow the direction of our gaze; the object of our attention plain for all to see, a difference which profoundly shapes our social interactions. Imagine the difficulty in building trust were we not able to look one another in the eye and know that it meant something.

Another key difference between us and our pre-historic rivals is the gradual smoothing of our brow ridge. Whilst the torus supraorbital is seen to be more pronounced in Neanderthal's skulls and those of living chimpanzees and orangutans. Humans evolved to possess a ridge far less protruding, a ridge scientists believe may have impeded communication, as we now use our eyebrows in various subtle ways to convey emotion. Try simply expressing surprise, disgust, or sympathy and see how much your eyebrows move.

Language itself stands as an evolutionary moment testifying to humanity's ability to share and connect. Whilst before, there were admittedly gestures, sounds and facial expressions, the birth of language catapulted our species forward in bridging the chasms between individual minds, allowing for abstract thought, shared storytelling, and collective learning. Knowledge became cumulative, wisdom of group elders maintained better than ever before. Even the chemistry of our bodies reveals the origins of human connections. Oxytocin, aptly labelled 'the bonding hormone', floods the human system during embrace, when we laugh, or simply when we spend time with loved ones – a biochemical reminder of the days when group cohesion meant the difference between life and death. Those lacking such capacity for attachment are far less likely to find allies, protection, and pass on their genes.

Thus, over generations, it was those who could form the strongest social bonds that flourished – our biological success is a testament to it. It has been necessary that we are a reflection of the feelings of others, that Homo sapiens express empathy like no other species. This is how bonds are made, knowledge is shared, and progress accelerated. That is what separates species, making us 'the fittest'. Perhaps, as theorised by one Russian geneticist, Dmitri Belyaev, the evolution of humanity is more accurately predicted on a different phrase: 'survival of the friendliest'.

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TO WHAT EXTENT DOES MUSIC BOOST PRODUCTIVITY

Does music actually make you work better?

This is a question many people ponder, particularly in school environments like Bradfield, in which productivity is so key with the large volume of content that you are required to learn for your end-of-course exams.

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In this article, I will cover the most significant influences that hinder productivity and how/ whether music can be used to resolve these issues. If you do use music when you are working, I recommend you keep reading to find out which genre of music is most beneficial for increasing your productivity and whether this is potentially the genre that you are already listening to—the results may surprise you!

Firstly, the biggest influence that will hinder your productivity is distractions from external sources. Having too much background noise, interruptions from other people (colleagues) and technology are the three biggest distractions that will reduce your productivity and limit your work progress. Although music may not be able to solve all these issues, particularly technology, which is slowly increasing in its impact as a distraction, it can aid many of them, for example …

- I have just mentioned how music may not be the most effective solution to limiting the distraction of technology, with the ability to place devices on less distracting modes, such as 'do not disturb' or 'sleep', preventing notifications from disturbing your work. However, music can also play a part in reducing technology's impact. In particular, if you usually have an alert conjoined to your notifications, music will reduce the chance of you processing and responding to this notification. If you typically have your notifications silenced, the impact of music may not be as critical. However, it is still proven to increase your focus with certain areas of the brain that are responsible for attention and prediction being engaged. Therefore, playing music while working may reduce your attention from technology such as phones placed near you, as you are more primarily engaged in your work.

- Secondly, interruptions from other people may be reduced if you are listening to music. Ultimately, if someone is desperate for your help or attention, music is unlikely to make a significant difference in stopping you from noticing them tapping your shoulder or hovering over you. However, more discrete forms of interruptions may be reduced by listening to music. If someone enters your room quietly when you are working in a prep session, it can be easily argued that if you have headphones on and are evidently working, they are less likely to disturb you for a matter that has little importance. If you were working without headphones, however, you would most likely notice their presence as they enter the room and therefore their disturbance would have impacted you before a word is even spoken.

- Finally, the most obvious distraction that music can solve is background noise. Background noise is almost everywhere, and inevitably, there will be some form of background noise in your workplace, whether created naturally, by another person or even by yourself. Music simply solves this issue by creating a "listening bubble", drowning out external auditory stimuli. Research has shown that 85% of employees have trouble concentrating in their work environment, and evidence shows that music significantly helps this issue, with 9/10 workers performing better when they are listening to music.

Different genres of music are also suggested to have different impacts on productivity, depending on listening history, personality, and the type of work being completed (Cannon, 2024). Evidence shows that Pop is consistently the best genre of music for increasing productivity, whether it is school/company-based work or personal. This is because Pop songs are quite similar to other pop songs and therefore with fewer surprises, not all your attention is demanded, so concentration on your work is easier. Music therapist, Marianne Rizkallah states "Pop music's predictability is its strength, making it at home in any productivity playlist" (Carr, 2024)

The above data shows the different genres of music that are optimal for different areas of work. Although ambient, dance, and classical music are some examples of genres that have a role to play in increasing productivity, Pop is still presented as the most effective solution, with 58% of people completing tasks more quickly when listening to pop music.

The information on the right also presents the types of work in which music is not as effective for increasing productivity. For example, if you are trying to learn new words in a foreign language you are studying, perhaps music should not be used to increase your linguistic processing and help retain the new information. (Carter, n.d.) For many tasks, music without lyrics can be more effective. Music with lyrics can reduce your ability to process auditory data and complete language-oriented tasks. Therefore, if you feel you struggle to work without music, music without lyrics could also be an effective solution.

Ultimately, I am not able to give you a definitive answer to this question, as music may have different impacts for different people, but hopefully, I have helped you understand to a greater extent how you can use music to boost your productivity. When you next find yourself procrastinating in a prep session or when doing personal work, perhaps you will try a different genre of music that aligns more with the work you are doing.

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CONNECTION

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