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Contents

Editorial

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Year 11

Principia is the philosophical journal of Prince Alfred College. Established and first published in 2005 by Mr Foy, it will be celebrating its 10th Volume this year.

What is philosophy? The word 'philosophy' arrives from the two Ancient Greek words of 'philo' and 'sophia', meaning 'love' and 'wisdom' respectively. Taken together, 'philosophia' at its most basic linguistically would suggest that philosophy is the love of wisdom.

This is undoubtedly true. However, philosophy has come to embody the study of fundamental truths to fundamental questions in our lives; those fundamental questions constituting of:

- The nature of reality and existence (metaphysics)
- The fundamental question of knowledge (epistemology)
- The fundamental question of how to live and act (ethics)
- The fundamental question of governments and citizens (politics)
- The fundamental question of reasoning (logic)
- and the fundamental question of beauty and art (aesthetics)

Philosophy has a rich tradition, historically dating back to the most ancient civilisations such as Ancient Greece and Ancient China. Philosophy mainly deals with ideas; as human beings, most would argue that our ability to think, rationalise, understand, and analyse our universe is our greatest asset. Philosophy in this sense serves to explore and attempt to understand the fundamental things in our being and our universe.

Philosophy is also practical in daily life. Not only does philosophy as an attitude of thinking enrich and aid our lives, philosophy has many practical applications. For example, take logic. The development of logic was crucial in precipitating the digital age; logic is now a powerful tool used by computers for their software, and many philosophers are credited for helping to develop logic to create so many complexities, while also setting challenges around which logic will try to surpass. Another example is ethics. Ethics is vitally important in our everyday lives. Ethics is what guides us on how to live our lives - whether we should do this or whether we should do that, the decisions we make are an important component in our lives, and obviously, ethics can help us determine what choice we should make!

Prince Alfred College has a strong philosophical tradition. The school culture emphasises the importance of critical self-reflection, of thinking about intentions, actions and consequences. Especially in the senior year levels, philosophy allows personal reflection, comprehension and appreciation of one's place in the world, a world which is becoming increasingly demanding. The College's ethos of Princes Man, one who is well-rounded and globally orientated is supplemented by philosophy.

Whether we still live in the Age of Enlightenment is a question that has been long debated, one which is still being debated, and perhaps one which will not reach a definitive

conclusion in the foreseeable future. Yet, it would be wise to take the motto of the Enlightenment; coined by Horace, the ancient Greek poet; embraced by Immanuel Kant, perhaps the central figure of modern philosophy; and affirmed by Michel Foucault, a thinker in the postmodern mode. It is, in a sense, the uniting feature of all philosophy and all philosophers, from east to west, from ancient to modern, from one to the other. It is a challenge, not just for intellectuals in academia, but a challenge for everyone; for those in high offices of power, for those young minds in classrooms.

Sapere aude. Dare to know.

To what extent can we use the just cause threshold, derived from just war theory, to justify contemporary military intervention as specified by the Responsibility to Protect document?

Tim Hobbs

Year 12

1. Introduction

We live in an increasingly volatile geopolitical landscape.[1] The issues and preoccupations of the 21st century present new and often fundamentally different types of challenges that faced the world in previous centuries. These new challenges are often uncertain and unpredictable and they call for new expectations of action and new standards of conduct in national and international affairs.[2] The modern world and a new historical context have enabled global awareness and recognition of crises unfolding anywhere on the planet. Consequently, the global community is faced with a difficult question; when a population is suffering serious harm, be it as a result of an internal war, insurgency, repression, state failure or other crisis, and the state in question is unable or reluctant to stop or avert it, how can the international community respond? Should we utilise diplomatic measures to avert suffering or should the international community respond with a military intervention to stop the bloodshed?[3] This specific question is addressed by a relatively neoteric concept called the Responsibility to Protect, which is widely endorsed and becoming an "emerging [international] norm."[4] The Responsibility to Protect acts as set of guidelines the international community can follow in any crisis to determine an appropriate course of action. One of the criteria that is used in the Responsibility to Protect is the *just cause threshold*, which determines under what circumstances a military intervention could be employed. This threshold maintains links with another concept which is centuries old called *just war theory*. Saint Thomas Aquinas (1225 — 1274),[5] a Catholic priest and an influential philosopher, was one of the first to formally outline the criteria for a just war, which were published in his famous work *Summa Theologica*. One of his criteria was the *just cause criteria* and from this the *just cause threshold* has been developed and applied in our modern world. So we must ask the question how relevant and appropriate is an older ethical tradition and philosophical idea to today's modern and historical contexts? To what extent can we use the *just cause threshold*, derived from *just war theory*, to justify contemporary military intervention as specified by the Responsibility to Protect document?

2. Historical Context

2.1 Global Community:

Until recently, communities, kingdoms and nations operated more or less as separate entities. Their internal affairs were their own business and they fought wars to achieve their geopolitical goals. This was the case until the end of World War One when the

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[1] Jeremić, 2012

[2] International Commission on Intervention and State Sovereignty, 2001

[3] Ibid

[4] The Secretary General's High-Level Panel on Threats, Challenges and Change, 2004

[5] Internet Encyclopaedia of Philosophy, 2015

League of Nations, "the first universal organisation entrusted with the lofty task to maintain international peace and security,"[1] was founded. In the past there had been alliances, treaties and pacts but the emergence of a global community, coming together to make decisions and resolve conflict, is an unprecedented event in world history.

The United Nations (UN) has brought the world together with a common goal to maintain international peace and security[2] as "more than ever before in human history, we share a common destiny. We can master it only if we face it together."[3] It is important to stress that the global community is a relatively new situation and that with it come new challenges, expectations, responsibilities and opportunities. One of the achievements of the global community is the establishment of the International Criminal Court, a court that operates on a global level to prosecute individuals for international crimes, such as genocide.[4]

3. Modern Context

3.1 Modern World:
In our modern world an explosion of information and communication technologies, such as the internet and mass-media, the dawn of the computerised age and advanced development of transportation technologies, such as air travel, have enabled extraordinary levels of global awareness and recognition. These new realities have contributed to an ability to understand what is going on, on the other side of the planet. Crises unfolding anywhere around the globe now have the world's attention and as a result citizens expect and demand immediate action be taken.

Immense changes in warfare are another factor that must be considered. Warfare is now more dynamic than has been known hitherto. The advancement of technology has dramatically changed warfare in the 21st Century and completely altered the significance of military action. The new notion of a military intervention, "action taken against a state or its leaders, without its or their consent, for purposes which are claimed to be humanitarian or protective,"[5] is also completely different to that of a war. The implications these new realities have on a global scale cannot be understated. So if today's modern context has changed dramatically, are older ideas and ethical beliefs still relevant today?

4. Terminological Clarification

4.1 Just War Theory:
The concept of *just war theory* is centuries old. It is a broad term that encompasses the evolution of a range of ideas relating to the justification of war. Usually such theory will consist of a number of criteria that must be fulfilled for war to be justified. Saint Thomas Aquinas suggests that "for a war to be just, three things are necessary,"[6] the war is declared by a legitimate authority, it has a *just cause*, and peace must be the central motive. This thinking from the 13th Century, is a source from which the Responsibility to Protect has drawn from.

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[1] Tomuschat, C, 1995
[2] United Nations, 2015
[3] Annan, K., Former Secretary General of the UN, 2000
[4] Coalition for the International Criminal Court, 2015
[5] International Commission on Intervention and State Sovereignty, 2001
[6] Aquinas, T. St. (Originally 1265-1274) (Translated and Revised 1920)

4.2 The Responsibility to Protect
The Responsibility to Protect is a set of guidelines that the international community can follow in any crisis to determine whether or not it is appropriate to employ a military intervention. For the purposes of this paper, it will be referred to as the Responsibility to Protect or RtoP.

The basic principles of the RtoP were outlined in a report by the International Commission on Intervention and State Sovereignty. It is based on three primary elements; the responsibility to prevent, react and rebuild. Each involve addressing the root causes of the conflict, taking coercive actions and assisting with recovery efforts following the conflict. The RtoP also states that before considering a military intervention, less intrusive diplomatic measures must be tried. Should a military intervention be required, a number of criteria must be fulfilled, these include the *just cause threshold*, the question of right authority, the precautionary principles and the operational principles.

4.3 The Relationship between Just War Theory and The Responsibility to Protect
The RtoP is in part derived from *just war theory* and as such they have points of convergence, specifically in terms of *just cause*. The *just cause threshold* used in the RtoP to determine whether a military intervention is justified, is derived from the *just cause criteria* in *just war theory* to determine whether a war is justified. Both doctrines are similar in principle. They agree that conflict goes against what is beneficial to society but recognise that it may be necessary in some circumstances to preserve peace. However, a crucial distinction can be made. *Just war theory* deals with the justification of war while the Responsibility to Protect deals with intervention. Intervention is not necessarily a war and thus this is where the two concepts differ.

 As previously stated, *the just cause criteria* stems from *just war theory*. Nevertheless, the current global context, the rapid development of new technologies and the formation of the Responsibility to Protect, may suggest we need to understand the relationship between *just war theory* and the *just cause criteria* differently. The global context is such that we must now think of *just war theory* as a component of the *just cause criteria* and war as only the most drastic form of military intervention.[1] This being the case, the words *'just cause,'* are now more broadly relevant than the words *'just war.'*

5. Investigation

5.1 Just Cause Criteria
The *just cause criteria* calls for a legitimate reason as to why a war should be used in order to service justice and peace. Over the course of history and across cultures, various dialogues relating to the justification of war have been recorded. Two common themes bind these dialogues together to form the *just cause criteria; 'legitimate reason,'* and *'using violence to service justice and peace.'*

5.12 Legitimate Reason
The earliest recorded manifestation of legitimate reason in *just cause* comes from ancient India, in a famous Hindu Scripture. The Mahabharata recounts a "dynastic struggle and

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[1] Foy. M., personal communication, 2015

great civil war in the kingdom of Kurukshetra,"[1] in which characters attempt to establish criteria in order to fight a *just war*, one of them being *just cause*. They believe that it is immoral to attack out of rage[2] and thus one must have a legitimate reason for attacking.

In ancient Rome, philosophers including Cicero, also attempted to articulate the conditions of a justified war. Cicero believed a legitimate reason was necessary, including just vengeance, self defence and the defence of one's honour. He based his arguments on the assumption that human nature and reason turned society against war. Saint Augustine, who also lived during the reign of the Roman Empire and was familiar with Cicero's teachings, was one of the first Christians who argued that war could be just. He proposed that a just war is "one that avenges wrongs, when a nation or state has to be punished, for refusing to make amends for the wrongs inflicted by its subjects, or to restore what it has seized unjustly,"[3] so either a war in response to an aggressor or a war to reclaim something that has been stolen.

Aquinas lived 900years after Augustine and was the first to formally outline the requirements for a just war in his *Summa Theologica*. Many of his philosophical ideas pertaining to the areas of ethics and political theory are still relevant today. Aquinas defined *just cause* as, those who will be attacked, should be attacked because they "deserve it on account of some fault."[4] Aquinas's statement here summarises the theme of legitimate reason which has pervaded history and culture.

5.13 Using Violence in the Service of Justice and Peace

Another theme shared across history and culture related to *just cause* is, *'using violence in the service of justice and peace.'* Saint Augustine was one of the first to suggest that a war is justified when "we go to war [so] that we may have peace."[5] Aquinas concurred. He believed the attacking force must intend "the advancement of good, or the avoidance of evil."[6] Aquinas also believed that the Church should be a pacifist when it came to conflict, but should use defence as a means of preserving peace. He argued that pacifism did not provide the defence of innocents and therefore the maintenance of peace may require the use of force to preserve it in the long-run.

5.2 Just Cause Threshold

The contemporary understanding of the *just cause criteria* is manifested in the *just cause threshold*. The RtoP suggests that the *just cause threshold* is reached if there is "large scale loss of life," and/or "large scale ethnic cleansing."[7] The Catechism of the Catholic Church, created by Pope John Paul II, also suggests that the *threshold* is reached if "damage inflicted by the aggressor on the nation or community of nations [is] lasting, grave, and certain."[8] This contemporary understanding of *just cause,* although adapted to satisfy the modern purpose, incorporates the same themes of *legitimate reasoning* and *using violence in the service of justice and peace* that have present throughout history. These themes highlight a number of problems associated with the *just cause threshold*.

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[1] Columbia Electronic Encyclopedia, 2014

[2] Robinson. P. 2003

[3] Aquinas, T. St. (Originally 1265-1274) (Translated and Revised 1920)

[4] Ibid

[5] Ibid

[6] Ibid

[7] International Commission on Intervention and State Sovereignty, 2001

[8] Catechism of the Catholic Church, 1992

5.21 The Conflict between Peril and Protection

One of the issues with the *threshold* is the *'conflict between peril and protection.'* This is heavily re-emphasised by the interchangeability between the terms 'humanitarian intervention,' and 'military intervention.' The word humanitarian has connotations with help and protection while the word military has connotations with disaster and peril. An example of this on the international stage is the US-led invasion of Iraq. US President George Bush assured the world that the mission was to "free the Iraqi people," and "fight for the security of our [nations] and the peace of the world."[1] Ostensibly a motive for intervention was protection. Arguably however, the peril was exacerbated. The invasion, although successful in its intent to protect the people of Iraq, resulted in an 8year military conflict. Violence is considered by many morally and ethically wrong. The use of violence on an international scale has even more vast and long-term consequences, not just in terms of human life but also for stability, the economy and environment. A military intervention, no matter what its motivations, entails the threat of violence and therefore is a problem associated with the *just cause threshold.*

5.22 The Issue of Sovereignty

Sovereignty, "the concept that states are in complete and exclusive control of all the people and property within their territory,"[2] is another concern associated with *just cause*. This concept is a fundamental cornerstone of the United Nations Charter. In Article 2.1 the Charter states that, "the Organization is based on the principle of the sovereign equality of all its Members."[3] Here sovereignty can be interpreted as, the state being in control of the people and things within it, and that it is of equal status to other sovereign states. For people, sovereignty is also a declaration of national identity. It stands for everything that a people are, representing their cultures and traditions. The issue that arises here is that if the international community decides to intervene in a country's affairs, in accordance with RtoP, they are breaching country sovereignty. This was seen in Iraq when coalition forces intervened. While this may have been welcomed by some, it could be argued that they breached Iraq's sovereignty and by doing so blatantly disregarded the charter of the United Nations.

5.23 The Problem of Interference

Finally, *just cause* calls attention to is the problem of interference. If we look at this from an individual's perspective, when is an individual obliged, or entitled, to step in to attempt to resolve other people's problems? Are they not meddling, liable to compound, rather than remedy the situation? If an individual is put into a situation whereby they are at home and they hear a heated argument next door, and then they realise that something terrible might happen to one of the occupants of their neighbour's house, the individual must make a decision. Should they do nothing and risk serious injuries or even death on the part of one of their neighbours? Or should they intervene by going over there or calling the police? This decision is to some extent similar to the one that states have to make on the international stage and it is yet another problem that *just cause* raises in the global community.

5.3 The Responsibility to Protect:

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[1] Bush, G. Former President of the United States, 2003
[2] The Levin Institute - State University of New York, 2015
[3] Charter of the United Nations, 1945

The RtoP is based on the tensions that lie between, peace, order and violence. The RtoP attempts to resolve these tensions by creating peace and order in the midst of violence. Whether it is successful in doing so can only be judged on a case by case basis. Due to the unpredictability of conflict and that fact that "success is relative,"[1] it is difficult to determine to what extent the RtoP can be successful.

5.4 What does it mean to protect?
Protection can be viewed along a spectrum. At one end we could be protecting the world, its people and the systems that govern it, while at the other end we could be protecting material possessions and personal information. Somewhere in the middle is the protection of individuals and ourselves. When applying the RtoP, protection can be viewed on the global level. Nevertheless, while this narrows down the context of the word protect in relation to how we will be using it, it does not say what it means to protect.

The dictionary definition of the word protect is to "keep safe from harm or injury."[2] Obviously in the applied context, protection could mean that we are trying to ensure that the world, its people and the systems that govern it are not harmed or fragmented in anyway. However, while this reveals the goal of protection it still does not say how we can protect. If there is a need to protect something, there will be something threatening it, thus in order to protect we could stop the threatening force. The way in which this is done really depends on the context of the specific situation.

5.5 Do we have an ethical responsibility to protect people in need?
As we are aware, the emergence of the global community has provided us with new opportunities for common action and more importantly new responsibilities to protect our fellow citizens in need. Through the UN and other intergovernmental organisations, states have the capacity to quickly and effectively take collective action that can prevent conflict and suffering. The word 'community,' suggests an identity shared between a group of people, recognition of commonalities and an underlying understanding of each other. The global community shares these attributes as a result of the human condition and our common humanity. Recognising our common humanity, is recognising what makes us inherently human; the unalterable part of humanity that makes us who we are, regardless of gender, race, culture, religion or social class. If we understand and recognise our common humanity, and we choose to identify ourselves as part of the global community as a result of that, then we must be ready to help our fellow humans in need. If we don't, we are neglecting what it means to be a part of community and failing to recognise our common humanity. Therefore we do have an ethical responsibility to protect people in need. The UN recognises this in one of its founding charters. Article 1 of the Declaration of Human Rights states "all human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood."[3]

However, even though the international community accepts that there is an ethical responsibility to protect people in need, there have been occasions when they have failed to act upon this responsibility. A prime example of this is the 1994 Rwandan genocide. Genocide is a heinous crime against international law, which entails "acts committed with

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[1] Hauss, 2003
[2] Oxford Dictionaries [online]. 2015.
[3] United Nations, 1948 (The Universal Declaration of Human Rights)

intent to destroy, in whole or in part, a national, ethnical, racial or religious group."[1] The international response to the crisis in Rwanda was slow. The international community neglected the atrocities and as a result over 800,000 people died.[2] This example further highlights the belief that the international community does have an ethical responsibility to protect people. If we do not protect people in need, we do not only prolong conflict and suffering but we fail to recognise our common humanity. We fail to see the things that we have in common with those around us.

6. An Alternative View to Intervention

China has another view of how crisis situations should be handled. Their non-interventionist, non-interference policy derives from a different philosophical stance. Lao Tzu[3] was a philosopher in ancient China.[4] He is accredited as the author of the *Tao Te Ching*[5] which translates to *'The Book on the Way and the Virtue,'*[6] a legendary classic which is the major source to Taoism. Lao Tzu supports the concept of *'non-action,'*[7] the idea that "we should not hurry to action, since most things in the world take care of themselves if left alone."[8] In the *Tao Te Ching,* he says "use non-action to win the world…I do nothing and people transform themselves…I cultivate emptiness and people become prosperous."[9] This interprets as, by not intervening, people use their conscience to make the right choices and better both themselves and their communities. If this is applied to the international stage it would promote non-interference in the affairs of another country and so military intervention, as specified by the RtoP, would be unnecessary. Since 1955, when China attended the Bandung Conference, China has affirmed its non-interventionist foreign policy. In the final communiqué of the conference, it committed to the "abstention from intervention or interference in the internal affairs of another country."[10] This has been evident most recently in their blocking of UN Security Council resolutions on the crisis in Syria.

7. Argument

Considering the above investigation, to a significant extent we can use the *just cause threshold,* derived from *just war theory*, to justify contemporary military intervention as specified by the Responsibility to Protect document. *Legitimate reasoning* and *using violence in the service of justice and peace* have been cornerstones of this historical and culturally convergent ethical tradition. The modern interpretation of the idea, the *just cause threshold*, incorporates these cornerstones but has been adapted to suit the new global context. In the past *just cause* operated by giving individual states the moral authority and justification for going to war. The new notion of a military intervention for humanitarian purposes, requires the threshold to adapt. The threshold is now reached when "large scale loss of life," and/or "large scale ethnic cleansing,"[11] occurs. It has had to evolve with a changing world but retains its core elements. Despite the contextual

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[1] United Nations, 1948 (Convention on the Prevention and Punishment of Genocide)

[2] History.com, 2009

[3] a.k.a *Laozi* or 老子 - literally translating to 'Old Master.'

[4] Ames, 2015

[5] a.k.a the *Daodejing or* 道德经

[6] Stenudd, 2015

[7] a.ka. *wu wei* or 无为 - literally translating to 'non-action.'

[8] Ibid

[9] Addiss and Lombardo, 1993

[10] Final Communiqué of the Asian-African conference of Bandung, 1955

[11] International Commission on Intervention and State Sovereignty, 2001

difference between a war and a military intervention, both ideas still require a *legitimate reason* and the *use of violence to service justice and peace.*

This *service of justice and peace* has renewed significance in the current global context. The unprecedented establishment of the global community requires its members to honour the term 'community,' to recognise our common humanity and be willing to help our fellow humans in need. If the use, or threat of violence, can legitimately serve the cause of justice and peace in the case of older wars, then it can also, with perhaps even greater justification, justify contemporary military intervention for humanitarian purposes. *Just cause* is in contrast to traditional Chinese thinking about non-interference. 'Non-action,' fails to recognise the potential that military action has to serve justice and peace, thus fails to recognise the potential of *just cause*. Instead, it relies upon fate to see that the right thing is done by others, which neglects the global community's responsibility to protect its citizens. Nevertheless, if the global context is such that we are now equipped with advanced technologies that allow for worldwide awareness of crises and suffering, the 'just' component of *'just cause'* has added force, even if its application is now more complicated. Adding to these complexities is the conflict between peril and protection, the issue of sovereignty and the problem of interference. It is clear that new capabilities and realities that give states the ability to intervene to stop suffering, relate directly to the notion of *just cause. Just cause* provides the same moral framework today that it did centuries ago. Hence the old idea is clearly relevant to the new context.

8. Conclusion

To a significant extent we can use the *just cause threshold*, derived from *just war theory*, to justify contemporary military intervention as specified by the responsibility to protect document. This essay has placed critical scrutiny on one important component of the RtoP and its implications for the world. It only examines one part of a much broader topic whose complexities are vast. The justification of military intervention, the other criteria used to determine the legitimacy of an intervention and the possible ramifications of the issues associated with *just cause* and RtoP, are all matters that could be further explored. Humanity has drawn upon the experience of the past and moulded the original theory to suit the needs of the present, but in keeping with the same themes, values and ethics. With the progression of time and the evolving nature of our modern world, the *just cause threshold* and the responsibility to protect will likely become more relevant in our society than they have ever been before. Just cause was, is and will continue to play a pivotal role in the decision making process to maintain international peace and security.

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To what extent should student autonomy, established through existentialist philosophical priorities, be the basis of contemporary educational practice?

Andy Nguyen

Year 12

Philosophical priorities of educational practices

Education plays an important role in the development of human beings from both an academic and intrinsic perspective. Through education, people develop a better understanding of both themselves and the world around them. Several philosophers throughout history have highlighted the significance of education for both society and the individual – these include the early works of Confucius, Socrates and Plato through to the contemporary forms of education developed through the works of William Bagley and John Dewey. Due to the different forms of education, it becomes clear that the purpose and priority of education, specifically a school-based education, is open to dispute as what education attempts to achieve differs significantly between different people. The initial beliefs of education are considerably different to the beliefs of contemporary education – this can most likely be attributed to the changes in society, technology and people. It is important to determine the philosophical priorities that need to be promoted through a school-based education such that a decision can be made on how schools should be conducted. Of the various educational practices, one contributing thread is the idea of student autonomy which adheres to existentialist priorities and hence emphasises the notion of freedom within learning. Generally, the idea of student autonomy is different to other educational practices as it challenges the Platonic ideas of education that are predominant within current contemporary educational practices. As existentialist ideals prioritise freedom within education, it could be beneficial for contemporary educational practice to adhere to student autonomy – evidently however there are other forms of educational practices that have philosophical priorities aside from educational freedom. This leads to the question: to what extent should student autonomy, established through existentialist philosophical priorities, be the basis of contemporary educational practice? Through the analysis of the prior and current educational practices, in comparison to student autonomy based education, a rational decision can be made about how educational practices should function within the 21st century school-based education system.

The Ancient Philosophical Foundations of Modern Education

Philosophical priorities and purposes of education can be identified from early philosophers such as Confucius who lived around 500BCE (The Biography 2015). Confucius believed in education for social purposes rather than individual development as 'the moral values he advocated were ultimately related to governing and regulating social relationships' (Palmer 2001 p. 4). Placing the needs of the community above the needs of oneself was a key component of Confucian understanding as Confucius says 'to restrain oneself and return to the rituals constitutes humanity' (Huang 1997 p125) in which 'humanity is the supreme virtue and the total of all virtues' (Palmer 2001 p3). In order to develop an effective community and thus achieve humanity, Confucian education identifies a development path that students should adhere to: 'achieve self-cultivation first, then family harmony, then good order in the state, and finally peace in the empire' (Palmer 2001 p4). Thus, through this identified path, 'the training of talent loyal to the

government was the fundamental principle of the official Confucian education' (Palmer 2001 p4). Although Confucian education appears to be significantly community-orientated, Confucius still 'expected his students to be motivated and active learners' (Palmer 2001 p2). Confucius placed a large emphasis on the desire and motivation to learn as he stipulates that 'those who excel in office should learn, those who excel in learning should take office' (Huang 1997 p. 180). Confucius regarded those in governmental positions with utmost esteem and hence it can be interpreted that Confucius identifies a motivation and desire to learn as an important skill that must be developed within educational practice.

Socrates and Plato were also significant figures in the foundations of modern educational practices, both having their own philosophical priorities and beliefs in regard to the purpose of education. Socrates believed in how those 'who care for the city as a whole,' which he referred to as the 'overseers' (Rice 1998 p. 42), must be 'philosophic, spirited, swift and strong' as well as lovers of learning (Dillon 2004 p. 42). In this regard, he has similar ideals to Confucius as he also highlights the importance of community stability. Socrates highlights how the love of learning is necessary in developing efficient overseers and hence stipulates how motivation and desire to learn as being key components of education. This concept is further emphasised by Plato through his understanding of 'living well' and 'the truth' (Rice 1998 p. 42). Plato describes 'living well' as 'living in the light of truth' which is achieved by being 'philosophers – lovers of wisdom, learning and the truth' (Rice 1998 p. 42). Plato identifies being lovers of learning as a key component of living well and hence all people should have a love of learning in order to live a fulfilled life. Furthermore, he suggests that although people 'are born with the natural capability of knowing the truth,' 'it will come to nothing unless that capability is cultivated through … education' (Rice 1998 p. 43). While Socrates identifies a love of learning as being necessary for the structure and functionality of society, Plato suggests how the love of learning 'goes beyond what is necessary to know to coordinate the activities … to ensure physical survival' (Rice 1998 p. 42). Plato suggests how the purpose of learning extends beyond understanding how to survive in the world – learning should be an activity that strives for truth.

Although much has changed since the time of Confucius, Socrates and Plato, their ideas of education are still central to the current education system. They all identified the motivation and love of learning as being essential for the function of the government and society, the ability to live well as well as a way to seek truth. Consequently, a love and motivation to learn should be retained and promoted within contemporary education.

Differentiating Contemporary Educational Practices
The education system has evolved since ancient times and with it; different educational philosophies and practices have been developed. One way to differentiate contemporary educational practices could involve subdividing them into 2 main approaches: teacher-centred approach and student centred approach. The former focuses on the teacher being the main authority figure while the student acts as an 'empty vessel' whose purpose is to receive knowledge from the teacher via various instructions and lectures (University of Southern California 2014). This teacher-centred approach appears to be grounded upon the beliefs of Socrates – specifically, the Socratic Method is heavily orientated towards the teacher as being an authority figure. As part of the Socratic Method, the teacher 'questions students in a manner that requires them to consider how they rationalise and respond' (Coffey 2009) while the teacher must also 'establish guidelines to help students understand their roles and responsibilities' (Copeland 2005 p. 15). Evidently, the Socratic

Method appears to incorporate many beliefs of a teacher-centred approach and hence it could be suggested that the teacher-centred approach is the result of a Socratic understanding of education. Alternatively, the student-centred approach views the students and the teachers with relatively equal roles – the teacher tends to adopt the position of a mentor who facilitates learning. The success of this approach is measured through a combination of informal and formal assessments that incorporate the student's interests and collective learning (University of Southern California 2014). The student-centred approach seems to adopt many Platonic ideals as it focuses on cultivating personal interests of the student such that education is more personal and relatable. It could therefore be suggested that the teacher-centred approach and the student-centred approach represent the educational differences between Plato and Socrates.

Often different educational practices tend to preference one of these approaches over the other depending on the philosophical priorities from which the approach derives. Educational practices that perceive the student as being unaware of their educational undertaking are more likely to adopt a teacher-centred approach as the teacher must guide the students through their education such that the students are able to experience a sense of success. Alternately however, educational practices that perceive students as being aware of their educational undertaking are more likely to adopt a student-centred approach as the process of education becomes more about enhancing the student's learning preferences such that they develop an internal sense of success. Naturally, these 2 approaches are relatively general and do not encompass all approaches to education but they nevertheless offer a basis to which educational practices can be distinguished. Additionally, educational practices are not necessarily confined to following a single approach – educational practices are capable of incorporating ideals from both of these approaches. Essentially, contemporary educational practices have a wide range of philosophical priorities that underlie the approach in which they adopt. Different educational practices act to cultivate, what they understand to be, the necessary philosophical principles for students. Consequently, it is important to determine the philosophical principles that should be cultivated within contemporary educational practice such that the students are able to have a fulfilling educational experience.

Essentialist Educational Practice
One educational practice, that favours a teacher-centred approach, is essentialism which was heavily supported by the educator and theorist William Chandler Bagley (Encyclopedia of World Biography 2004). Bagley suggests that education should function in terms of repetition and automatism. He identifies that 'the law of habit building becomes the basis of … formal education' since it enables 'experience of the race' to be 'transmitted safely from generation to generation' (Bagley 1912 p. 14). Although not explicitly stated in terms of education, the famous Greek philosopher Aristotle would also support repetition within education as he believed how 'we are what we repeatedly do. Excellence, then is not an act but rather a habit' (Durant 1926 p. 84). Bagley and Aristotle identify repetition as an important component of 'excellence' – in terms of schooling as well as for life. It can therefore be postulated that according to Bagley, and to some extent Aristotle, the transmission of predetermined information and skills from teacher to student is the main philosophical priority of education.

Although this would suggests a relatively stagnant educational practice due to the lack of curriculum flexibility, Bagley highlights that students should 'be affectively motivated – that is, the individual undergoing the discipline should have, if possible, a strong incentive for making perfect responses' (Bagley 1912 p. 19). The motivation to learn expressed by

Confucius, Socrates and Plato continues to be a part of essentialist learning as without motivated learning, 'inattentive repetition' produces 'inadequate habits' (Bagley 1912 p. 19). Despite encouraging student motivation, the extent to which it is important is less significant in essentialist learning as Bagley suggests how students should only be motivated 'if possible' (Bagley 1912 p. 19). The love of learning and wisdom was initially expressed as a necessity for living well, however through the educational practice of essentialism it becomes optional. This highlights a deficit in essentialist education as predetermined information and skills continue to be taught irrespective of student motivation – it is just a preference that students are motivated. With reference to Plato, essentialist educational philosophy, in which the students do not necessarily love learning, prevent the students from developing an understanding of truth.

Alternately, the process of repetition that is inherent within essentialism is criticised by the philosopher and educator John Dewey. Dewey proposes how 'automatic skill in a particular direction … tends to land him in a groove or rut' (Dewey 1946 p. 16). Automatism discourages critical and creative thinking as students do not experience situations that promote these skills. Dewey highlights how 'automatic skills' (Dewey 1946 p. 15) can lead to students becoming 'rendered callous to ideas' as they '[acquire] special skills by means of automatic drill so that their power of judgement and capacity to act intelligently in new situations [becomes] limited' (Dewey 1946 p. 15). Evidently, the inability to think constructively and critically is detrimental to the student for both society and their own lives. Students who have adapted to an automatism style of learning are unable to adapt to new challenges and experiences – this would be a clear disadvantage for the student in further applications of life.

Additionally, Dewey also recognises the imposition of previously acquired knowledge as a significant issue. He specifies how 'it imposes adult standards, subject-matter, and methods upon those who are only growing slowly towards maturity' (Dewey 1946 p. 4). The essentialist educational practice has inherent problems as it is not suited to the development of students – rather, students are accelerated into maturity. As stipulated by Plato, 'education must begin at the level of the student' (Rice 1998 p. 78) such that the students are able to develop their own personalised understanding before naturally transitioning into adulthood. Instead of this, the information that is taught is predetermined and hence 'the very situation forbids much active participation by the pupils in developing what is taught' (Dewey 1946 p. 5). Students are therefore forced to have a passive learning experience which can then result in students 'to associate the learning process with ennui and boredom' (Dewey 1946 p. 15) rather than students having a love for learning which is essential, as previously expressed by Plato.

Despite the various issues, components of the essentialist educational practice appear to be present within the contemporary education system – particularly through the use of testing and examination as primary forms of measuring success. Examinations encourage students to memorise information through constant repetition which is a distinct similarity between contemporary education and essentialism. Additionally, the information which is taught for examinations is produced through the accumulation of past knowledge – students are very rarely examined on their ability to think critically. Contemporary education does not purely revolve around the process of examination, but it is nevertheless a large component of many educational practices. It becomes clear that much of contemporary education follows the philosophical priorities of the essentialist educational practice.

Due to the flaws of essentialist learning – as identified by Dewey and to an extent Plato – there needs to be a reform in the education system which shifts away from the understanding that 'learning means acquisition of what already is incorporated in books and in the heads of the elders' (Dewey 1946 p. 5). Education must promote a love of learning whilst also enabling each student to have fulfilling and relatable experiences. In doing so, education will involve more enjoyable learning experiences for the students whilst also encouraging critical thinking and awareness.

The Pragmatic Alternative
Working from the pragmatic understanding of human knowledge, Dewey develops an educational practice that focuses on a student-centred approach. Pragmatic educational practice was 'a product of discontent with traditional education' (Dewey 1946 p. 4) as he believed traditional education was responsible for 'silencing and ignoring student interests … [whilst] over-relying on testing to assess student learning' (Palmer 2001 p. 180). Rather than emphasising the notion of repetition and testing, pragmatic educational practice endorses 'an intimate and necessary relationship between the process of actual experience and education' (Dewey 1946 p. 7). This change in philosophical priorities creates a more personal educational experience as it '[does] not repel the student, but rather engage' and hence 'his activities are, nevertheless, more than immediately enjoyable' (Dewey 1946 p. 16). Again, the desire and enjoyment of learning that was identified by Plato remains consistent with the pragmatic educational practice.

Dewey believed how '[we must] make each one of our schools an embryonic community life, active with the types of occupations that reflect life of larger society' (Dewey 1899 p. 39) and thus education must replicate the conditions of society such that students are prepared for the future. Dewey therefore suggests how education must have practical relevance and make a 'contribution in the broadest sense to the public and personal good' (Palmer 2001 p. 179). It is through the process of education and schooling that 'intellectual development, and consequently social progress,' (Palmer 2001 p. 179) can be achieved – this then leads to 'a larger society which is worthy, lovely and harmonious' (Dewey 1899 p. 40)

Although Dewey promoted an educational practice based on experience, he also stipulates how although 'older education imposed the knowledge, methods and rules of conduct … it does not follow that the knowledge and skill of a mature person has no directive value for the experiences of the immature' (Dewey 1946 p. 8). Dewey suggests that 'a crucial role was to be played by the teacher in helping to link children's interests to sustained intellectual development and educative experiences' (Palmer 2001 p. 180). As part of a pragmatic educational practice, teachers are to 'work out the kinds of materials, of methods, and of social relationships that are appropriate to the new education system' (Dewey 1946 p. 19) such that students are exposed to valuable 'experiences that live fruitfully and creatively' (Dewey 1946 p. 17).

The issue that then arises is how teachers would be able to choose what experiences are appropriate to promote. So far, education has been 'to a large extent the cultural product of societies that assumed the future would be much like the past and yet it is used as educational food in a society where change is the rule, not the exception' (Dewey 1946 p. 5). Contemporary education has assumed that the past and the future would be relatively similar and hence many philosophical priorities of educational practices have remained stagnant. Society is forever changing and hence it is therefore challenging to determine the experiences that are necessary for students to have in order to succeed in the future.

Educational Practice and Human Virtues

All of the various educational practices that have been explored, including those of ancient times, appear to assume that education has a specific purpose. In relation to the ancient educational practices, Confucius and Socrates suggest that education is for the purpose of societal and governmental stability while Plato identifies that education is for the purpose of exploring truth. In relation to the contemporary forms of educational practice, Bagley indicates that education is for transmitting information between generations while Dewey implies that education is for developing social progress. Each of these educational practices attempts to cultivate fixed human virtues which they believe to be the most significant.

Each of these human virtues are significant in their own right as they each express an idea about humanity and how it should function. The issue is however, that these educational practices assume that humanity has a fixed nature and hence they find it appropriate to repeatedly cultivate specific human virtues. Humanity however, is not fixed and is liable to change. Dewey, as part of a pragmatic educational practice, recognises this and hence realises that it is difficult to identify the necessary experiences a student must have for the future. This unfixed nature of humanity is again evident when comparing the various educational practices that have been identified. Evidently the philosophical priorities of ancient educational practices are vastly different to the philosophical priorities of contemporary education. The changes in philosophical priorities could be attributed to many different factors such as technological advancements and changes in governmental structure; however these factors can ultimately be ascribed to the forever changing nature of humanity.

Although the identified educational practices attempt to promote human virtues, they fail to recognise one inherent human virtue which is how humans are prone to change. The identified educational practices function in such a way that they contradict the open understanding of humanity which needs adaptability. Humans need the freedom to change and educational practices should reflect this.

Existentialist Educational Practice

Existentialist views of society reject the notion that people are 'determined by external factors such as heredity, society, family or fate' (Michelman 2008 p. 156) and as such, it rejects the deterministic understanding of society where people are educated or developed for a specific reason. Rather, existentialism recognises how humans are 'indeterminate, ambiguous beings in constant process of becoming and change' (Cox. 2009 p. 14) and it is because of this constant process of change that humans are unable to have any sense of predetermined fate or nature – it was often stipulated by Simone de Beauvoir, a French existentialist philosopher, that 'man's nature is to have no nature' (Cox 2009 p. 17). This existentialist understanding of human nature was established by Jean-Paul Satre in which he insists how 'existence precedes essence' (Macomber 2007).This idea 'refers to the view that each person exists first, without meaning or purpose, and strives thereafter to give himself meaning and purpose. A person's essence is to have no essence other than the one he must continually invent for himself' (Cox 2009 p. 17). As beings without essence, existentialism highlights how 'he is fundamentally and inalienably free whatever his circumstance, that nobody can in fact take his freedom away from him however much they try to enslave him' (Cox 2009 p. 45) – as highlighted by Sartre, 'people are condemned to be free' (Barnes 1993 p. 462). Existentialism is based upon the view that humanity is absolutely free and as a consequence, 'every act and every attitude must be considered a choice' (Solomon 1987 p. 240). The rejection of a deterministic understanding of

humanity leads to the idea that humans are self-defining creatures who continually make decisions that then leads to the development of themselves. It must be stipulated that 'freedom is not freedom from responsibility,' rather 'freedom is having to make choices and therefore having to take responsibility' (Cox 2009 p. 45). The consequence of having such overwhelming freedom is that humans must accept the responsibility for their decisions as every decision made is their own. Conversely however, freedom enables people to develop their own existence and hence 'one self-righteously finds himself as the creator of meaning' (Solomon 1987 p. 240) – exploring one's existence enables a person to eventually develop a sense of essence or meaning. 'A life lived in awareness of existential freedom is an authentic life, one that realises the most genuine possibilities of human existence' (Michelman 2008 p. 156) while alternately, failing 'to live accordingly is to live in what existentialists philosophers call bad faith' (Cox 2009 p. 9).

In relation to education, Juan Luis Vives, a scholar during the 16th century suggested how 'learning requires freedom and leisure' (Cottom 2003 p. 3) – ideals that are evidently promoted as part of an existentialist educational practice. Existentialist philosophical priorities promote learning and understanding for the self rather than for societal or practical purposes. Existentialist educational practices attempt to 'liberate students and teachers from the restrictions upon learning imposed by doctrines' whilst '[emphasising] self-expression for each individual' (Hartley & Lutz 1970 p. 90). The philosophical priorities of existentialism are based on the view that humanity is absolutely free such that the student should have ever greater control in their learning and hence have a better understanding of who they are and what they enjoy – essentially, a better understanding of their existence. It is through this notion of freedom that the educational practice is then capable of promoting a sense of student autonomy in which the students are able govern and command their learning such that it better reflects their unavoidably self-choosing existence. Existentialist educational practice prioritises the development of the student into a human being, a being that choose themselves, as opposed to alternate educational practices which prioritise developing the student for future integration into society as a main priority.

Through an existentialist understanding of humanity, the identified educational practices become unviable as they do not effectively accommodate the inherent human virtue of adaptability and the need for freedom. As a result, a student is restricted in their personal development as a human being while the ability for a student to succeed within the current education system is also limited. Due to the defective nature of contemporary educational practice, there must be reform and modification of the education system. By accepting an existentialist understanding of humanity, educational practices must become less restrictive and hence adhere to the notion of student autonomy which promotes existentialist philosophical priorities. It is through student autonomy that students are provided with the freedom to become self-aware beings and thus an existentialist understanding of human beings accommodates for humanity's unfixed nature.

Conclusion
There has been a significant development between ancient and contemporary educational practices. Each educational practice identifies philosophical priorities which it deems to be the most significant – as educational practices have changed throughout time, it indicates how there have been shifts in philosophical priorities. It is through these philosophical priorities that educational practices are able to cultivate specific human virtues that they believe to be necessary for the students. By accepting that humans are inherently susceptible to change it becomes evident that educational practices must have the

philosophical priority of freedom. As a result, existentialist philosophical priorities must be adopted into the contemporary education system as these priorities coincide with the inherent human virtue of adaptability.

However, the validity of this conclusion is based on the acceptance that the inherent virtue of adaptability is the most significant human virtue that should be cultivated through education. It is likely that there are other inherent human virtues which are not focused on as part of student autonomy. It is possible that the existential fixation on freedom and change could be impeding the recognition of other inherent human virtues that should also be cultivated within education. Before any decision can be made about how contemporary education should function, one must question: what inherent human virtues should be promoted as part of contemporary educational practice or whether or not there are other inherent human virtues aside from adaptability?

From a purely existentialist understanding of humanity however, educational practice must adhere to the notion of student autonomy as failing to do so would be disregarding the inherent changing nature of humanity.

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Would an increase in the provision of prerogative necessarily equate to enhanced happiness?

Caleb Rice

Year 12

Introduction

We can often feel restricted in society, and think that there are too many 'rules' in the world that we live in. It is possible that at times we have felt that we have had no freedom, or perhaps limited liberty, because of these boundaries. We might suggest, '*I would be happier if I had more choice.*'

We might argue, for instance, that we are unhappy because we cannot take notes into a test, or that we must obey the speed limit. Is it possible, however, that these limitations in our everyday world are central to our happiness? Conceptually, happiness is difficult to define. It is likely that as individuals we strive for some kind of contentment, pleasure, peace, or tranquillity in our world – a sense of bliss may be an innate human objective, and an inborn and natural desire.

We might ask *how does happiness have any relevance to limitations?* We might think that these confines are merely impositions and obstructions to our everyday well-being.

Some might believe that mankind is restricted, and often as such, that the happiness of mankind is restricted – arguably this is not necessarily the case. Perhaps, to some extent, we cannot have happiness without experiencing some kind of restriction or limitation. This essay examines the premise that an increase in our capacity to choose would lead to increased happiness. Therefore we must ask, *would an increase in the provision of prerogative necessarily equate to enhanced happiness?* To explore this question, we must first examine what choice and agency are, how happiness can be understood, and the implications of restricted and unlimited prerogative.

Agency & Choice

In this world there exists things that can act, and things that can be acted upon. Things that can be acted upon – like a pen or a book – require an agent to make them useful and to achieve a purpose. As human beings, we are agents, as we have the ability to perform actions, especially on things that need to be acted upon. For example, an agent has the ability to perform an action with a pen – one may write with it. Agency,[1] therefore, – being derived from *agent* – is the ability and capacity to act and choose. It is useful to differentiate between choice and agency, as they are not the same.

Holton[2] defines a choice as something that:
   1) *Is an act.*
   2) *Is not determined by prior beliefs or desires.*
   3) *Is necessary for action.*

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[1] Williams, G. (2015). *Responsibility*, from The Internet Encyclopedia Of Philosophy
[2] Holton, R. (2006). The Act Of Choice, from *Philosophers' Imprint,* pp. 3-4.

Perhaps we may not entirely agree with Holton's definition. Choice must be an act, as it is a matter of *doing* something, and something cannot be *done* or carried out if a choice is not made; hence it is necessary for action. Furthermore, a choice cannot be made unless something is *done*; and *done* might simply mean choosing to do nothing. However, one might argue that our choices may be determined by our prior beliefs and desires. We could walk to a store with a desire to buy a sandwich because we perceive that we are hungry, and we might even have in mind what type of sandwich we would like, so we might argue that we have not made a definitive choice, but rather that our choice is being guided by our desires. One counterclaim might be that when the choice is placed before us, we may not choose a sandwich at all. That being said, when discussing conscious choices one might argue the following: an individual might tap his pen on the table as he thinks, so is that a choice? Perhaps we experience conscious choice, which is intentional, but we also make subconscious choices, like tapping our pen. This leads us to the issue of what can be identified as intentional conscious decisions, and what are subconscious and habitual. For the purpose of this essay, only intentional and conscious choices will be considered. Intentional choices are conscious acts; therefore, as knowers and agents, we have the ability to choose – which ability allows us to be capable of fulfilling some purpose.

Boyack[1] suggests that the definition of *agency* can be broken down to three main elements. It requires:
1) *Options to choose from.*
2) *Freedom to choose.*
3) *Consequence for the choice.*

This is logical, as we cannot have the capacity to choose – *agency* – without having *options* to choose from, or a lack of restriction – *freedom* – and consequences for our choices. We might first ask, are all three notions necessary for agency, or will one or two suffice? If we had no *options* there would be nothing to choose, and hence freedom would be void. If severe *limitations* were placed upon us we would not be completely free to choose, and hence options would never exist in principle due to the limitations in place. Further, if there were no consequences to our actions, then choices would be made in vain, whether they were free or restricted, because they would serve no purpose. Boyack suggests that these three elements are necessary conditions for total agency to exist. He proposes that these elements can be imagined as legs of a 3-legged stool, and thus, in principle, agency could be weakened or altogether destroyed by reducing or removing one of these legs. Agency, then, can be defined as the capacity to act or to choose – which capacity only exists if the three criteria stated above are satisfied – whereas choice is simply the act of choosing.

Theological Point Of Departure: A War In Heaven
In some theistic religious traditions, the origin of choice is considered to be from God. A loving God would give mankind the provision of prerogative so that we could have the ability to choose for ourselves, and to direct our own lives. To examine this idea it is useful to consider the following Christian perspective – this point of departure allows us to consider the implications of no choice and unrestricted prerogative.

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[1] Boyack, C. (2015, February 8). *A Widespread Misunderstanding About Satan's War On Agency*, The Blog Of Connor Boyack.

The opinion of the *Church of Jesus Christ of Latter-day Saints* could be briefly summarised as:

The entirety of mankind first existed with God as spirits before the earth was created.[1] In this pre-earth existence, God organised a council with mankind, and two plans were proposed. Mankind was given the ability to choose which plan to follow:

- The first, suggested by Jesus Christ, – which plan could be referred to as the Plan of Happiness[2] – offered that mankind could come to earth and gain bodies. This plan involved giving individuals the ability to choose freely every action, whether good or evil, on the earth, and there would be consequences for each individual's actions.
- The second plan was proposed by Lucifer, and he suggested that mankind also gain bodies, but have limited agency; specifically that there would be no consequences for an individual's actions.[3] As we know from the Book of Revelation, Lucifer 'fell from heaven' for 'rebelling against God.'[4] If Lucifer was able to disregard the consequences of an individual's actions, this individual's capacity to choose – agency – would be restricted, and furthermore his or her choices would be void as they would be purposeless. With this plan, we would have only limited *options* and *freedom to choose*; however we could do anything we desired, whether it was right or wrong, and we would not be punished.

This leads us to the next part of the argument; how does happiness relate to prerogative? Without consequences to actions, mankind not would perhaps experience true happiness, so maybe ultimately mankind would be living in an emotionless state. If we translate this idea into more general terms, it suggests that the absence of choice would find us without happiness, and it also suggests that unrestricted choice would ultimately find us without happiness. Therefore it is perhaps requisite that we have something in-between the absence of choice and unrestricted prerogative to be truly happy.

Consider the following knowledge claim:

If there is no law, there is no wrong. If there is no wrong, there is no right, and if there is no right, there can be no happiness or achievement in doing what is right. And if there be neither right nor happiness there cannot be punishment or misery.[5] These statements propose the claim: if we do not know right, we cannot experience happiness. The obvious counterclaim is that very young children do not have a sense of right from wrong, yet they seem to be able to find happiness and joy. This idea can be extended to those that have mental disabilities. Illnesses such as autism can effectively reduce an individual's capacity to understand and feel (depending on severity), to a similar level of competence as a young child. Arguably, these individuals can still experience happiness and sadness even though they do not necessarily know right from wrong, and this counter claim suggests such knowledge is not necessarily requisite for happiness. That being said, a child's mind

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[1] The Church Of Jesus Christ Of Latter-day Saints. (1981). *Plan of Happiness*. Retrieved from *The Guide To The Scriptures*.

[2] The Church Of Jesus Christ Of Latter-day Saints. (1981). *War In Heaven*. Retrieved from *The Guide To The Scriptures*.

[3] Boyack, op. cit.

[4] King James Version of the Holy Bible, Book of Revelation 9:1.

[5] The Church Of Jesus Christ Of Latter-day Saints. (1830). *The Book of Mormon* (pp. 57)*.* (J. Smith, Trans.) Salt Lake City, Utah, USA.

could not appreciate achievement in doing what is right. Therefore, the happiness that is experienced by these individuals contains no real understanding. Perhaps without understanding, their happiness is void. The other inherent point the claim constructs is that we cannot know and experience happiness unless we can contrast it with opposite emotions, such as misery and sadness. Before we continue further, let us examine some of the ways happiness might be understood.

Happiness: What Is It?

Happiness in its own right is difficult to identify. A pianist might enjoy listening to a piece of music, or playing the very instrument with which he is familiar. What brings someone joy is relative to the individual, and therefore it is difficult to characterise a universal definition of happiness. Perhaps joy, peace, safety, contentment and gratitude are just a few of the words that we associate with happiness. Over the course of time and evolution of human reason, many different philosophers have attempted to define happiness. Socrates, Aristotle, Plato, Epicurus and The Stoics all suggest different theories for what is happiness. Many of them had similar ideas, however these can be separated and categorised by examining the different principles central to each school of thought.

Eudemonia: The State of Flourishing

Eudemonia is the principle that suggests happiness is a good and well-lived life. This state is characterised by the idea that flourishing in one's life is ultimately the *good composed of all goods*,[1] and allows individuals and societies to *live well* together. For Socrates in particular, eudemonia specifically involves developing and striving to be perfect in virtues,[2] such as self-control, wisdom, courage, piety and justice. Similarly, Aristotle believed we cannot judge a life until it is over, and that a person's ultimate legacy will determine whether they have lived a *good* life. A person's emotional well-being also determines if they are flourishing.[3] Similarly, the Stoic philosophy suggests that we will flourish if we align our desires and preferences with what is available to us, regardless of whether it is preferred.[4]

To determine whether an individual has lived a good life is quite subjective, and it is also very difficult to measure the extent to which an individual has *flourished*, however the concept of *living well* and being content with one's life may be essential in any sense of happiness.

The Hedonic View & Ataraxia

Epicurus adopted a more hedonic view and equated happiness with pleasure. He sought for pleasure and avoided pain, and this became known as seeking *ataraxia*,[5] or inner tranquillity.[6] But is happiness necessarily pleasure? Things that are pleasurable, for example money, and things that can be bought, are perhaps only means whereby we can access short-term happiness. For example, we can spend our money on possessions, but

[1] Pennock, S. F. (2014, November 2). *Eudaimonia: Personal Happiness According To The Greeks*, Positive Psychology Program.

[2] ibid.

[3] ibid.

[4] Strange, S. K. (2004). *The Stoics on the Voluntariness of Passion in Stoicism: Traditions and Transformations.* UK: Cambridge University Press.

[5] Oxford Dictionary. (2015). *Ataraxy*.

[6] Pennock, op. cit.

these possessions will not last, and may one day be worthless, and bring no one pleasure. Ergo, pleasure is not permanent. Real happiness, therefore, must be something more stable and long lasting.

Utilitarian View: Actions are Right if they Benefit the Majority
We can also look at happiness in contemporary utilitarian and hedonic terms. Utilitarianism would suggest that an action is only right if it promotes happiness, and therefore that which promotes the greatest happiness for the greatest number is the guiding principle of conduct.[1] The counterclaim to this principle is that sometimes that which general society thinks will deliver the greatest happiness is in fact incorrect, and as a result the majority of society suffers.

Knowledge, Wisdom & Spirituality
Perhaps happiness also comes from knowing who we are, where we are going, and why we are here. Sometimes this kind of knowledge only comes through religion, whether it is theism or atheism. A theist, of any denomination, may find peace, tranquillity, hope, joy and contentment in the practicing of his or her religion and through worship.

In some Hindu belief systems, there are four yoga levels that draw an individual closer to God; the greatest of which being *Raja*: spiritual purification and self-understanding that leads one to union with the divine.[2]

As for many human belief systems, that which is sacred can be what makes an individual happy, as it often brings a sense of purpose in life. Identity is an ever-changing construct for a human being, as we are always learning new things, and our identity is made up of what we know and who we believe we are. Surely, then, our identities are, to some extent, shaped by our happiness? Our happiness contributes to who we are, and is also part of our identity.

Happiness may come from wisdom, as hope that comes from beliefs allows an individual to look forward earnestly to that for which they believe they have knowledge. For example, many Christians believe they will return to live in God's presence when they die, and for them, their belief brings them happiness.

If happiness is simply relative to the individual, it is very difficult to draw any general conclusions. Researchers have attempted to measure happiness for years, and they still try to do this through the use of short quizzes that ask you to 'rate' how satisfied you are with life.[3] But a numerical and statistical gauge is not an accurate measure of one's emotional feelings of happiness. If we really wanted to measure happiness, we could simply measure the amount of the neurotransmitter dopamine released by the brain during a particular event.[4] But a scientific approach may not be ethical in this situation. After considering the many different philosophies of happiness, a working definition of happiness is required for this essay. Perhaps, our ability to accept and work through the trials that life throws at us is what keeps us at peace within ourselves, and allows us to find satisfaction with the

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[1] Oxford Dictionary. (2015). *Utilitarianism*.
[2] Nishpapananda, S. (2010). *Hinduism, Happiness, and the Good Life*, Interdisciplinary Journal of the Dedicated Semester Happiness: Traditions and Tensions.
[3] Diener, E., Emmonds, R. A., Larsen, R. J., & Griffin, S. (2010). The Satisfaction With Life Scale. *Journal of Personality Assessment*.
[4] Bergland, C. (2012, November 29). *The Neurochemicals of Happiness,* Psychology Today.

whole that is human life. Perhaps happiness is a combination of the principles discussed earlier. We might define happiness as finding tranquillity, and flourishing in one's emotional and physical capacities and religious beliefs, and finding satisfaction and contentment in life.

This brings us back to the main point. We have examined ways of understanding choice, agency, and happiness, and have examined the implications of no choice in a religious context. Now, it is necessary to analyse the question. Given that choice – *prerogative* – is a provision, would an increase in its availability necessarily equate to enhanced happiness? Does having *more* choice mean that we will be *happier*?

Prerogative & Freedom
We are not equating freedom with choice, and therefore increased prerogative is not the same as increased freedom. Thus, perhaps not *all kinds* of choice are necessary for human freedom. We live in a society where people think differently, and have different opinions; such is human nature. Thus, laws are put in place, and we *choose* whether or not to follow them. For example, we are not forced to obey the speed limit, but if we *choose* not to abide this law, we will suffer consequences for our actions, meaning the consequences of the law, if we are caught. So is unrestricted choice necessary for human freedom? By defining unrestricted prerogative as having options to choose from and full control of what one chooses, we can perhaps claim from the following example that no, it is not absolutely necessary: a speeding driver is free to make a choice – and it is a *choice* because it meets the three criteria proposed earlier – and as such may have chosen consequences if he or she is caught. The obvious counterclaim is this; during World War II, some Japanese commanders captured and forced allied soldiers to build the Thai-Burma Railway. Some soldiers were forced to send letters to their homelands saying that they were safe and well.[1] Arguably, they had a choice – they could choose to send the message and preserve their lives, or they could refuse, and as such find themselves facing execution. Perhaps, in this situation, natural human self-preservation limits choice. This human objective relates to individuals specifically and cannot be generalised, as some soldiers refused and were killed, whilst others saved themselves by lying to their commanders back home. In these two examples we can see that we have choice, but not unrestricted prerogative. Perhaps it is not possible to have choice without such limitations. Thus, both freedom and limitation are necessary for true prerogative.

Consider a different example: we might choose to go to a supermarket and buy a packet of chocolate chip biscuits. In our local supermarket it is likely that there are many different types, with different brands and with different ingredients. How do we choose which box to buy, when there are so many options available? In this example, we are free to choose a box, however, *unrestricted prerogative*, as mentioned before, would involve having no consequences to our actions. Therefore, we can only have *unrestricted* prerogative if we have an infinite number of options. However, as free agents, our options are limited by default as the store will only sell so many types of biscuits; thus, we do not have unrestricted prerogative. Essentially, we must have a somewhat limited prerogative to be able to make choices.

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[1] Rowley, T. (2013, October 18). *Burma Railway: British POW Breaks Silence Over Horrors,* The Telegraph Department Of Veteran's Affairs: Australian Government. (2015). *The Thai-Burma Railway & Hellfire Pass: Surviving & Staying Sane*, Hellfire Pass Commemoration.

Prerogative & Happiness

Unrestricted prerogative cannot be equated with happiness, however choice and freedom do relate to happiness. The Greek philosopher and historian Thucydides said, *"The secret to happiness is freedom…"*[1] This brings us back to the idea of choice and agency, and more specifically to the concepts of existentialism and determinism. We must ask ourselves, how free are we? Determinism implies that events, actions, thoughts and decisions have been determined; meaning each flows on from the other as a cause-and-effect.[2] There are two forms of determinism: theistic, which suggests that events are determined by God; and scientific, which suggests that prior casual linkages determine events.

Ultimately, both forms of determinism suggest that as human beings we are not responsible for our actions, as they are determined by factors beyond our own control, and it is for this reason that religious philosophers have been so much concerned to refute the notion of determinism. In contrast, existentialism is the philosophy that deals with the idea that we have individual existence, and that human life is completely undetermined, such that our existence is entirely our own responsibility.[3] Arguably, existentialism implies that we choose our own destinies, and define our own meaning in life.[4] As human beings, we have to make rational decisions in an irrational universe. An existentialist would argue that there is no God, and that individuals are entirely free and that we are wholly responsible for our lives, and as such this school of thought is a total rejection of determinism. Determinism is incompatible with our definition of agency, as for a choice to have a consequence we must be responsible and accountable for it. For the purpose of this essay, we will continue to work on the premise that we are free to choose, and we are responsible for our actions, meaning we will consider a viewpoint similar to that of existentialism.

What is ideal, more choice or less? We have been focussing on the issue of choice and happiness. Perhaps it is natural to think we want choice, but sometimes when we actually get it, we might not want it after all. Perhaps we believe that *obtaining more* choice will make us *happier*. Consider the following example: the physician Dr Atul Gawande[5] reports in *The New Yorker* that in a recent study, a group of people were asked if they ever were to have cancer, would they want to choose their own treatment. In fact, 65% of people surveyed said they would prefer to choose their own treatment. However, of those that actually got cancer, only 12% actually wanted to choose their own treatment, and 88% preferred *not to choose.* Perhaps it could be inferred, therefore, that as human beings we think we would like more choice than we have, but when we are actually presented with that option, we *choose* not to *choose* – this is what some existentialists refer to as inauthenticity, as this situation illustrates that it is requisite that we choose our own lives. That being said, it could be argued that of those surveyed that got cancer, they did not wish to choose their own treatment for other reasons, which are not reflected in the

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[1] Thucydides. (n.d.). *Thucydides Quotes*. Retrieved from Brainy Quote.
[2] Mastin, L. (2008). *Determinism*, Philosophy Basics.
[3] Mastin, L. (2008). *Existentialism*, Philosophy Basics.
[4] Honderich, T. (2003). *Free Will*, in J. Baggini, & J. Strangroom, *What Philosophers Think* (pp. 173-182). New York: Continuum Books.
[5] Gawande, A. (1999, October 4). Whose body is it, anyway? *What doctors should do when patients make bad decisions* . New York City.

statistics. So, it is perhaps a fallacy to think that more choice will make us happier, because if we are given more options, it may become more difficult to make a choice.

Let us consider some different variants of choice:

No choice: If we had no choice, we would have no freedom, and as such would live in a determined world. We would not be able to do anything we desired, because our choices and desires would already be determined. Our actions would have no consequences.

Unrestricted choice: If we had unrestricted choice, also meaning unrestricted freedom, we would have unlimited and infinite options, therefore we would not have consequences to our actions because actions would never actually be chosen and done.

Limited choice: Perhaps this is the world that we live in. If we had limited choice we would be free to choose, but our options would be limited so that we could actually be capable of making proper and informed choices. Our choices would have consequences.

Lastly, if we do not experience the negative side of life we cannot comprehend or understand the positive and happy side. Humans are beings that have experiences, and we remember these experiences. Schelling said, *"Joy must have suffering, suffering must be transfigured into joy."*[1] If we had never experienced sadness, pain, misery, discomfort and grief, we would not know what happiness was. We must experience sorrow to be able to contrast it with happiness. If, from birth, we were forced to experience nothing but happiness, we would not know what sadness was, and ultimately, that utopic happiness would become our sadness because to us, they would be one and the same.

Conclusion
The evidence strongly suggests that it is the restriction on our prerogative that makes us capable of making choices and decisions. Freedom cannot be equated with unrestricted prerogative, as complete freedom, in effect, becomes a restriction, as it involves no consequences. The unlimited nature of infinite options implies that there are no meaningful consequences, and no *best* option or outcome, so in reality, no effective choice or informed decision can be made. We only have the capacity to choose if we have options, freedom and consequences for our choices, and as such, without one of those elements, our capacity to choose is lessened.

An increase in our capacity to choose would not lead to increased happiness, for unrestricted prerogative does not give us a greater sense of satisfaction – if we continually get everything we want, we will not appreciate that which we already have. Thus, limitation teaches us acceptance, gratitude, tolerance, patience and contentment, and these are some of the guiding principles of happiness. Therefore, the evidence strongly suggests happiness will not increase if our capacity to choose is increased

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[1] Schelling, F. (2006). *Philosophical Investigations into the Essence of Human Freedom.* (J. Love, & J. Smidt, Trans.) New York, USA: SUNY.

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Acknowledgements

The Limitations of the Liberty of Thought and Discussion

Yu Le Kong-Lim

Year 11

While John Stuart Mill's *On Liberty* bears with it many charms and is as intellectually fruitful in modern times as it was in 1859, it seems a prudent exercise to identify limitations to Mill's great thoughts, especially of those concerning his strong defence of freedom of expression and thought outlined in the chapter *Of the Liberty of Thought and Discussion*.

To briefly outline Mill's arguments (and run the ever-present risk of flawed reductionism of arguments), Mill finds freedom of expression to not only be a fundamental right of individuals, but also of great benefit for society itself. His argument centres on the defeat of falsity through the discussion of opinions and criticisms of the commonly-held truths of society. Identifying the key results, Mill argues that only benefit would arrive out of these interactions. Either the contender's assertions are wholly false – then he will be able to correct his judgements, or the contender's assertions are partially true – then this will be a useful addition for knowledge while promoting the wariness of commonly-held truths, or the contender's assertions are wholly true – in which case common society's truths will benefit from amendments. Mill provides significant rebuttal against arguments that some assertions or opinions are immoral and thus should not be expressed. Mill also presents a utopian vision of freedom of expression helping societal progressivism, until old zeitgeist falsities are discarded forever.

> *Men are not more zealous for truth than they often are for error, and a sufficient application of legal or even of social penalties will generally succeed in stopping the propagation of either. The real advantage which truth has, consists in this, that when an opinion is true, it may be extinguished once, twice, or many times, but in the course of ages there will generally be found persons to rediscover it, until some one of its reappearances falls on a time when from favourable circumstances it escapes persecution until it has made such head as to withstand all subsequent attempts to suppress it.*

There are several drawbacks to Mill's arguments for the liberty of thought and discussion – blind spots or weaknesses, if one may use that phrase.

First and chief amongst Mill's practical assumptions is that of the equal rights and liberties of each member in society. It is not that Mill believes that all societies do indeed currently have equal rights and liberties for each member (just as one can recognise the limitations of today, Mill also recognised the limitations of his day), and neither is it his belief that dissenting opinions are not often shut down, and that truth always prevails over falsity. Yet it seems that Mill poses his ideal society as one in which dissenting opinions can be rationally considered and compared one at a time. Mill argues that not only is legal restriction of free speech immoral, but social restrictions - in which other members of society seek to suppress one's views or even when one seeks to self-regulate one's views to conform to what society deems as moral – are also immoral.

Mill is able to successfully defend his liberalising enterprise for thought and discussion, yet it seems that a strong undercurrent in his arguments centres on an optimism of rationality. It seems to be the belief of Mill that rational agents in society will be able to discern truth and falsehood, and follows that all members of society should critically and rationally consider all discussion, regardless of whether they support the common opinion. Mill seems to have a strong belief in the existence of certain immutable truths on which one may be able to base our arguments. Then if were to consider these arguments and find flaws in the connection of argument to premise, then one would be able to dismiss the argument. Whether certain immutable truths exists or not is out of the scope of this analysis (one should at least consider this strong belief with a critical and perhaps justifiably sceptical eye), yet what happens to public discourse when even the premises are disputed?

Mill criticises the suppression of the majority opinion over the minority opinion (as expressed in his concept of the tyranny of the majority), yet is unclear as to the proper resolution of such problem. Is the solution the uneasy coexistence of these contradicting and conflicting opinions until further knowledge is divined? Perhaps so, and it is certainly a noble intention; yet, is it feasible to conceive this in practical existence? One may hesitate in this case in considering the (perhaps healthy or unhealthy) social divisions this may create, and also the desire of the democratic majority to seek a resolution, and often the triumph of the majority will. This is rightly identified as a source for potential impediment in the social progress and progress of knowledge and thought.

Furthermore, the question of the reasoning capabilities of the majority seems to be absent of resolution. The so-called tyranny of the majority and the fear of 'mob' power, that which may be encapsulated in the term populism, seems to sometimes stand in opposition to reason. In reality and in practical society, the temperament of the popular majority can often become an echo chamber, to borrow a metaphor, and as the common maxim holds, those who shout the loudest may not always be those who are the most correct. The temperament of the popular majority can also be susceptible to the influences of institutions which perpetuate norms, lessening the capabilities of critical reflection. Minority voices often have the softest voices, as they are disadvantaged from circulating their thoughts and opinions; they often lack the democratic privileges which the dominant groups in society may hold, and a disempowered position when engaging against common opinion. All of this can be avoided, Mill may argue, if society as a whole embraces the values expounded in *Of the Liberty of Thought and Discussion*; that is, the further liberalisation of public discourse with no state intervention and a strong, robust and healthy press. However, there seems to be a failure to regulate the tyranny of the majority in practical terms, if one was to rely solely on liberalising public discourse; the idea of free speech can only be based on the requirement of free, civil, reasoned, responsible, robust and equal public discourse which does not threaten the individual's sense of security, otherwise disadvantaged individuals will be dissuaded from public discourse. Therefore, it is contended that Mill underestimated the true significance of this point, and also perhaps the ability of the state or other associated institutions from regulating the requirements of a good public discourse.

While Mill's arguments regarding the liberty of thought and discussion and powerful and certainly hold much merit, it is important to reflect on the limitations of the enterprise of liberalising public discourse. One should remain vigilant of commonly held opinions and the tendency towards judging the current condition of public discourse as already free. Instead, there should be continued critical assessment towards both the ideas of our time and also

towards the standards and privileges of public discourse in order to properly embrace the spirit of liberty.

Is it the case that 'Without the group to verify it, knowledge is not possible'?

Jack O'Brien

Year 12

As a naturally sceptical person I find information hard to accept simply from individual accounts. That is, I require some evidence of group verification, before acceptance. This scepticism may have been brought about through society's dependence on group verification through procedures such as juries, moderation and academic review boards, to the point where it has integrated itself into my personal belief system. Yet I question whether this is an accurate belief. Without the group to verify it, is knowledge possible? This claim opens up several knowledge questions whose analysis is required to determine the claim's accuracy. These are: why does personal knowledge sustain a stigma of inaccuracy and is this stigma justified; is group verification an effective method to remove inaccuracies in knowledge claims and can knowledge only be legitimate when shared or are there other ways of verification? These considerations help assess whether or not this claim should be implemented into daily philosophy and the implications of such a move.

As alluded to above, personal knowledge is viewed with little reliability in modern culture and is often discounted due to this negative stigma. The issue often derived in regard to personal knowledge is that a 'claimer' may likely struggle to separate themselves from their own claim or are unable to view the claim from a different perspective. As such, a situation of self-involvement is formed which can distort someone from objectively viewing their claim. A major issue with personal knowledge is that, for knowledge to be personal knowledge, it can only be obtained by one person, one perspective and from one person's interpretation of data. This can be seen through history as an area of knowledge, specifically at the end of World War One. At this point Germany was suffering a shattered economy and had over 763,000 civilians dying from starvation.[1] Despite this, Field-Marshall Hindenburg, who spent his time during the War on successful areas of the Western Front, assessed the war from this perspective and believed that Germany was in a winning position, using memory to claim that Germany's loss was due to bureaucrats who 'stabbed [Germany] in the back'.[2] This perspective of the war fails to account for the many other factors in the war's end and highlights the inaccuracy personal knowledge can contain. This inaccuracy can have drastic consequence. Take Liam Campbell who developed schizophrenia after smoking Marijuana.[3] Prior to his initial smoke Liam, worried whether marijuana would have adverse effects, questioned his friend Danny as to his experience when smoking. After Danny recounted the

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[1] C. Vincent, The politics of hunger : the allied blockade of Germany, 1915–1919 Athens, Ohio : Ohio University Press, Page 141

[2] W. Shirer, The Rise and fall of the Third Reich, Simon and Schuster (1960) p. 31

[3] Schizophrenia Daily News Blog: True Story of Cannabis-Induced Schizophrenia / Psychosis. 2015. [ONLINE] Available at: http://www.schizophrenia.com/sznews/archives/001365.html. [Accessed 03 July 2015].

personal knowledge he gained from his experience, that it gave no lasting damage, Liam agreed to smoke, only to develop a crippling mental disease. However, if Liam had addressed group verified knowledge, such as that from Schizophrenia.com, then he would have seen that the risk of psychosis is increased by 700% for marijuana users.[1] This illustrates a clear example of how personal knowledge can be an inaccurate source of knowledge. Yet, despite being individual in its nature, personal knowledge can sustain a legitimate foundation. This can be seen in the natural sciences and the work of Ignaz Semmelweis, a Hungarian physician who pioneered the practise of medical staff washing their hands[2]. Through observation and intuition, Semmelweis noticed a correlation between medical students who had operated in the disease ridden morgue and the high death rates in the wards they practised in. After demanding all medical staff wash their hands before entering wards, death rates decreased from 451 each year to almost nothing. Despite this clear use of reasoning, Semmelweis' theory failed group verification by the scientific community, largely as they felt Semmelweis was insinuating that doctors were dirty people. However, his theory was later accepted following further scientific discoveries. Overall we can perceive that personal knowledge has the potential to fall victim to inaccuracy as people are often unable to account for all possible variables, whether that be different people involved or viewing a situation from a singular angle rather than from a holistic standing. However, in some cases, where results can be tested and repeated as well as involving a self-critical personal, personal knowledge is able to remove these variables, becoming much more reliable.

In the Semmelweis case study it appears that emotion in the form of pride, at the scientific community's assumption that Semmelweis' theory was an attack on their way of life, heavily influenced the group decision against what some would stipulate as a clearly effective solution to hospital death rates. Through this we are led to question the legitimacy of group verification in the production of knowledge. In this, a major concern that must be addressed is that of shared subjectivity. Group verification is seen as advantageous by many to personal knowledge as it, in theory, allows the formation of knowledge to be impartial rather than subject to personal intent, emotion or faith. Yet the 'group' is such a flexible term that any real assumptions about the effectiveness and objectivity of its decisions is hard to make. In the Semmelweis case study, the 'group' was comprised entirely of doctors, the people whose actions Semmelweis was criticizing. Here, there was a large amount of shared subjectivity in which all members of the 'group' shared a similar pre-existing aim in respect to the success of Semmelweis' theory. Such shared subjectivity dilutes the objective impression that group verified knowledge provides. This is further increased by the struggle for any group to remain entirely impartial. In a group's formation there is usually some aspect that unifies that group and in this unity shared subjectivity is formed. This group subjectivity, through a unified mind-set, can be found in nearly any group, whether it be Semmelweis' verification committee or the Animal Rights Committee consisting only of humans and thus prioritising human life above all others[3]. In essence this means that, while group verification has the potential to remove inaccuracies and bias, the existence of group subjectivity and common unity means that it can sustain just as much inaccuracies as personal knowledge. These inaccuracies are probably best demonstrated through different groups concluding different results on the same issues. This can again be seen in the natural sciences through examples such as the differing acid/base theories, of which both theories passed group verification in

[1] IBID

[2] History Learning Site. Semmelweis I. 2015. [ONLINE] Available at: http://www.historylearningsite.co.uk/a-history-of-medicine/ignaz-semmelweis/. [Accessed 03 July 2015].

[3] ICLAS. 2015. Ethics and Animal Welfare Committee. [ONLINE] Available at: http://iclas.org/committees/ethics-and-animal-welfare-committee. [Accessed 05 August 15].

their individual fields of chemistry. One acid/base theory is that of Gilbert Lewis, a chemist whose team focused on electron movement, who theorised that acids were molecules that could accept electron pairs[1]. Conversely, Johannes Brønsted, whose team specialised in inorganic chemistry, theorised that acids were molecules that could donate protons[2]. While similar proposals their differences illustrate how interpretations can differ using the same data and that this interpretation is often based on personal experience. This illustrates while group verification has the potential to remove inaccuracies and personal bias this is not always the case and struggles to be truly exempt from being partial to a particular outcome.

Acceptance of the flawed nature of group verification leads us to address other possible ways of verifying knowledge, this being the pragmatic idea of truth. In essence, this addresses verification as if something can be shown to be true then it is true. Take, for instance, Sir Humphry Davy's discovery of potassium through the process of electrolysis[3]. He could verify that he had isolated potassium through sense perception, in that there was a physical product produced. As such, Davy was able to verify that he could produce potassium without group verification. Through this pragmatic method, group verification was not necessarily necessary to produce knowledge. However, while group verification may not be necessary for the verification of such knowledge it has a role in supporting it. This can be seen where group verification is able to give an objective view and spot previously unnoticed errors. This can be seen in mathematics, with examples such as the proof of Fermat's last theorem[4]. Andrew Wiles submitted what he considered to be an accurate proof on 23 June 1993 after six years of research. However, group verification showed this to be wrong, enabling Wiles to amend his paper and give an accepted proof. What this demonstrates is that pragmatic verification is subject to the same flaws as both group and personal verification. While humans are involved in the process of verification this verification will be subject to human error, human emotions and beliefs.

Addressing the question as a whole makes us look at its implications and accuracy. Hopefully what this essay illustrates is that all methods of verification are, to some extent, flawed and therefore unable to produce entirely accurate knowledge. All verification is subject to individuality and subjectivity, even if that be group subjectivity, and all verification has the potential to produce accurate knowledge. However, if we are to take personal knowledge as equally valid as group verified knowledge then not only would all personal accounts have to be taken without question but a great deal of our society, with juries, scientific paper reviews and moderation of any kind would be futile. Group verification has a much lower chance of being subject to subjectivity than that of personal knowledge and a great deal of individual bias is removed through the process of group verification, although clearly not all. Yet as the question dictates that 'without the group to verify it, knowledge is not possible' I conclude that this is not accurate as personal knowledge has the possibility to be knowledge, although

[1] Chemical Heritage Foundation. 2015. Gilbert Newton Lewis. [ONLINE] Available at: http://www.chemheritage.org/discover/online-resources/chemistry-in-history/themes/molecular-synthesis-structure-and-bonding/lewis.aspx. [Accessed 06 August 15].
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[3] Chemicool.com. 2012. Potassium Element Facts. [ONLINE] Available at: http://www.chemicool.com/elements/potassium.html. [Accessed 05 August 15].
[4] Maths.org, Fermat's last theorem and Andrew Wiles 2015. [ONLINE] Available at: https://plus.maths.org/content/fermats-last-theorem-and-andrew-wiles. [Accessed 03 July 2015].

maybe for the purposes of a functioning society this should be the philosophy adopted to ensure that, in instances of personal bias, it is more likely to be removed.

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Is it the case that 'In certain areas of knowledge, simple parts are connected into a more complex whole, in others a complex whole is separated into its formative parts.'

Tom Munn

Year 12

The idea of certain areas of knowledge simple parts are connected into a more complex whole and in other a complex whole is separated into its formative parts can be discussed by referencing two areas of knowledge, Mathematics and the Natural Sciences. Mathematics can be describes as simple parts, axioms, which are built upon and connected to form the complex wholes of theorems, whereas contrastingly the natural sciences could be said to examine the complex whole of the natural world and separate it into its formative parts. This essay will address the significance of using the term 'areas of knowledge' within the context of the topic statement, the effect of differing approaches within an area of knowledge on these processes and the distinction between a formative and simple part.

The topic refers to 'simple parts', 'complex wholes' and 'formative parts' without a discrete definition. From this, a question arises: How do we know what is a 'formative part' and what is a 'simple part'? As 'complexity' and 'simplicity' are subjective, one may claim that the definition can be discerned from the statement as such: knowledge that is connected into a more complex whole is defined as a simple part, whereas knowledge gained from the separation of a complex whole is a formative part. These definitions may be appropriate in some situations, for example, the structure of mathematics, wherein axioms are 'connected' to create 'complex wholes' of theorems. A counterclaim is that this definition is limited, as it does not directly relate to the knowledge, rather, how the knowledge is related to other knowledge and therefore creates situations where knowledge is both considered a 'simple part' and a 'complex whole' simultaneously. This can be shown with our knowledge of an individual atom, which, by the above definition is a 'simple part' since knowledge of multiple atoms is combined to provide knowledge about molecules. It can also be considered a complex whole as knowledge of its properties can be derived from combining knowledge of sub-atomic particles. These apparent contradictions, wherein something is both 'simple' and 'complex' can be avoided by defining these terms in regards to the source of their knowledge rather than the processes which they undergo. This can be achieved by classifying knowledge as 'Synthetic' or 'Analytic'. Analytic claims are those which are true by definition, for example, 'A right angle is 90 degrees.' whereas synthetic knowledge is not necessarily true and requires observation to be verified, for example, 'Iron has a melting point of 1538 C'. Although these two classifications are appropriate for the majority of the Areas of Knowledge, they do not account for knowledge that is neither true by definition, nor requires observation, knowledge gained through intuition. An example of this is shown in the field of mathematics where Andrew Wiles intuitively knew that Fermat's Last Theorem was

correct before he completed its proof. If intuitive, synthetic and analytic knowledge are evaluated in terms of the topic statement, then synthetic knowledge can be considered analogous to a formative part of the complex whole of observation whereas both intuitive and analytic knowledge can be considered to be a simple part as they do not require separation from the 'complex whole' of observation.

The topic statement claims that "In certain areas of knowledge, simple parts are connected into a more complex whole, in others a complex whole is separated into its formative parts", the lexical choice of "in certain" and "in others" has a significant implication for the examination, it implies that all areas of knowledge are separated exclusively into one group or the other, and therefore an area of knowledge will not contain both connection of simple parts and separation of complex wholes. This raises the knowledge question 'how are areas of knowledge defined in order that they might be categorised in this way?' It could be presumed that the author(s) of the prescribed topic would use the TOK syllabus definition of Areas of knowledge, which are "Specific branches of knowledge, each of which can be seen to have a distinct nature and methods of gaining knowledge..." (*IBO, Theory of Knowledge Guide*) The previously stated implication and this definition of Areas of Knowledge are incompatible as it is possible for an area of knowledge to have knowledge from both categories, as shown by the natural sciences. Although the natural sciences have traditionally relied upon empirical evidence, known through our senses which, according to the definition above would involve the processing of a complex whole into formative parts, many modern sub-fields of science utilise knowledge gained through logical processes to calculate values. A specific example of this is within the field of chemical dynamics wherein ab initio methods, those without experimental data, have been used to accurately calculate the "equilibrium rate constants for ortho-para conversion in hydrogen and deuterium by and atomic mechanism" (B.C Garrett & D. G. Truhlar, 1979). These ab initio methods use the previous empirical data as a basis for calculations that rely only on reason as a way of knowing, which is in effect the process of accepting the previous claims and using them as 'axioms' to work upon using reason, thereby going from simple parts into a complex whole of the final calculation. A counterclaim, made by some more empirically reliant scientists, is that this process is unscientific because of its 'mathematical' methods and a lack of experimental data, or observation. If accepted, this counterclaim would indicate that the current Areas of Knowledge should be separated into the largest possible sub-groups that consistently use only one of the methods outlined in the topic statement. This is limited significantly by the process of technological development increasing the availability and efficiency of computers which promotes an increase in the use of mathematics to gain scientific knowledge, opposed to its previous use as a tool in analysis. This can be used both to develop more precise knowledge, such as in the ab-initio methods mentioned above, or to generate more sophisticated predictions, such as the development of climate models, for example the improvements between the Hadley Centre Atmospheric Model's second and third version (V.D. Pope, M.L. Gallani, P.R. Rowntree & R.A. Stratton, 2000). These continual changes would therefore modify the sub-groups making them inconsistent over any significant time period. As a result of this it is probably, pragmatically ideal to retain the syllabus definition of Areas of Knowledge and reject the implication that each Area of Knowledge is limited to either 'simplifying' or 'connecting' knowledge.

If one accepts that Areas of knowledge can contain synthetic, analytic and intuitive knowledge then subsequently, one may consider the verity of specific combinations of these processes when creating knowledge. One may consider the natural sciences, which are traditionally considered synthetic fields, which has, as stated above, an increase in the amount of analytic knowledge cause by an increase in the use of mathematics. This reliance upon mathematics prompts the question; "are mathematical axioms created or discovered?". If mathematics is considered to be discovered, then one may claim axioms are arbitrarily created through definitions, thereby making mathematics completely analytic. Although this may be acceptable within isolated mathematics, many applications of mathematics for example, M-theory, a development upon string theory, relies upon the accuracy of mathematics as the primary source of its knowledge. If the mathematical axioms are arbitrary then our understanding of the universe at a sub-atomic level may be completely flawed if the mathematical axioms chosen are inconsistent with the unobservable qualities described by M-theory. If axioms are considered intuitive knowledge, then one may claim axioms are not only the formative parts of mathematics, but also a formative part of observable reality, as they would be objectively correct, contrasting the subjectivity of axioms being created. This would imply that a purely intuitive set of axioms would provide perfectly valid knowledge within the natural sciences. A counterclaim to this is the use of different and often contradictory axioms; this can be shown by the existence of both Euclidean and non-Euclidean geometry, which is created by essentially inversing the axioms of Euclidean geometry. The existence of two opposite sets of axioms would therefore oppose the idea that one set of axioms can adequately describe and provide a model of the observable universe to such a degree of accuracy that it would not be unreasonable to assume the unobservable could also be described by the same axioms. Alternatively, if one rejects the proposed advantages of a unified set of axioms they could claim to be able to obtain knowledge using appropriate axioms for a given situation, such that the results are consistent within a given set of axioms. This consistency would allow knowledge to be gained from a combination of simple knowledge being connected into a complex whole, in areas where knowledge is normally gained by separating formative parts from the complex whole.

Overall, although many fields utilise multiple types of knowledge, as opposed to only one, the knowledge gained from these processes vary because of their nature, as in the case of simple knowledge being connected into a complex whole, the complex whole must be accepted if the simple parts are, contrasting the increased subjectivity caused by using sensory knowledge to separate an observed complex whole into formative parts. This distinction could provide an insight into variations within the nature of knowledge in different areas.

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Is explanation a prerequisite for prediction?

Matthew Lovell

Year 12

The terms explanation and prediction are crucial to the scientific process. Therefore, the human sciences and the natural sciences will be the areas of knowledge explored in the essay. Their meaning will be developed and questioned during the essay. However, it is imperative that the term prerequisite is defined initially. A prerequisite refers to a necessary condition for a phenomenon to occur and, with reference to explanation and prediction, it raises several knowledge questions. Namely, how is accuracy relevant in determining the relationship between an explanation and prediction? Is empirical evidence explanatory? What is the role of ways of knowing in defining and applying the definitions of prediction and explanation?

When inductively reasoned and explained, how does the accuracy of a prediction change? Inaccurate predictions of the medicinal effectiveness of the drug Baycol (Cerivastatin), approved in 1997 for the treatment of dyslipidemia, were founded on an inductive explanation (Pippin, Sullivan, n.d.). Pre-clinical tests, conducted on animals such as rats, mice and monkeys, revealed damage to muscle tissue only at very high doses (Pippin, Sullivan, n.d.). It was predicted that, because the drug had been tolerated by all species of animal tested, the drug would be tolerated by humans (Pippin, Sullivan, n.d.). However, the drug was later linked to more than 100 human deaths, as post-withdrawal tests found that rat cells were 200 times more resistant to the effect of the drug (Pippin, Sullivan, n.d.). The dependence on universal consistency indicates the limits of the accuracy of an inductively explained prediction. Similarly, in the human sciences inductive methodology is used to explain events. Specifically, in economics, generalisations are inferred regarding habits of consumption and production. Very few economists predicted the collapse of the American housing market and the consequent global financial crisis of 2008. One economist, David Lereah, predicted in 2005 that because of growing consumption the "housing market will continue to expand" (Herman, 2005). In this case, Lereah's inductive economic explanation did not allow for the changing subprime lending and government housing policies suggesting that an oversimplified explanation can preclude predictive accuracy. However, although problems of induction exist, this does not necessarily indicate that an explanation is not a prerequisite for a prediction. An oversimplified explanation is still an explanation and an inaccurate prediction is still a prediction.

Can an inaccurate explanation lead to a prediction that appears justified by a correlation but, on further investigation, prove not to be causative? In the field of microbiology, conventional wisdom was that peptic ulcers were caused by stress and when Western Australian doctor Barry Marshall proposed that the bacteria H. pylori was the underlying cause he was swiftly ridiculed in the scientific world (Weintraub, 2010). However, Marshall's hypothesis attracted academic attention, and was subsequently corroborated, when, after drinking a Petri dish containing H. pylori, he developed a peptic ulcer (Weintraub, 2010). Marshall's scientific endeavours introduce the problematic nature of causation and correlation. The difficulty in determining the differences between cause and correlation can lead to hasty and inaccurate explanation. However, an accurate prediction could potentially be made from an inaccurate explanation. While, before Newton's law of universal gravitation, scientists could not

correctly explain gravitation, they could predict with perfect accuracy that if a ball was thrown in the air it would return to the ground (Manners, 2000, p. 10). Given that such inconsistency exists in how the accuracy of an explanation affects the accuracy of a prediction, the accuracy of a prediction or explanation can be considered irrelevant to whether an explanation is a necessary condition for a prediction.

Aldous Huxley, primarily using imagination, accurately predicted the development and widespread use of pharmaceutical antidepressants in his dystopian novel *Brave New World* (Jones, Pero, 2006, p. vii). The novel, *Brave New World*, raises the issue of what can be considered a scientific prediction or, more explicitly, does a prediction require an evidential basis? A scientific prediction, generally speaking, refers to a forecast of what will happen under certain conditions. If it can be assumed that at least one way of knowing must be used to arrive at a prediction and all ways of knowing are evidential, the explanatory power of a prediction could be clearly defined. Evidence refers to an actual indication of something and some ways of knowing, such as emotion and language, seem clearly evidential. For example, neuropsychologists often predict a child's future intelligence based on their interaction in spontaneous conversation and, in a court of law, a juror's judgement can be influenced by emotional evidence such as a victim impact statement (Grewe, Yeates, 2005, p. 452; Salerno, Bottoms, 2009, p. 273-296). However, whether this applies to other ways of knowing is less clear. Memory has a dubious evidential basis, which is perhaps best exemplified by the anthropological findings of Terrence McKenna. Following his encounters with Amazonian tribes, McKenna predicted what he believed to be the decline of shamanic gnosis observing that it "is possibly dying; certainly it is changing" (McKenna, 1992, p. 9). The truth of this prediction is effectively irrelevant. However, the influence of what McKenna describes as "the ecstasy and exaltation induced by hallucinogenic plants" on his anthropological study is very important (McKenna, 1992, p. 9). Hallucinogenic substances lead to a misrepresentation of reality such that there is a substantial likelihood that McKenna's memory would have been distorted by the "hallucinogenic plants" (McKenna, 1992, p. 9). If McKenna's memory was based on hallucination rather than reality, whether it is an actual indication of something, and thus in accordance with the definition of evidence, could be questioned.

Irving Fisher, a famous American mathematical economist, falsely predicted in 1929 that "stock prices have reached what looks like a permanently high plateau" (Poitras, 2011, p. 177). Fisher, perhaps inadvertently through language such as "looks like", indicates a dependence on the way of knowing, intuition, to predict an outcome in the human sciences. The explanatory foundation of this kind of prediction is unclear, raising the knowledge question: what constitutes an explanation? Rather simply, the term explanation can be defined as anything that clarifies meaning. However, the application of this definition can be problematic. To label Fisher's claim an explanation would depend on the assumption that an explanation can be accepted purely as the method that was used to develop the knowledge of the event being predicted. Effectively, the only basis of Fisher's claim, in this particular circumstance, was his intuitive understanding of economics. Therefore, if this was Fisher's sole justification and is not considered an explanation, an explanation is not a prerequisite for prediction. Other ways of knowing such as emotion are clearly explanatory. Psychologists, gathering knowledge through the assessment of emotion, can analyse the body language of the patient to determine their psychological disposition (Myers, Hansen, 2005, p. 33). However, it is more difficult to establish the explanatory power of ways of knowing such as intuition. Fisher, although not offering a reason why, states that "stock prices have reached what looks like a permanently high plateau" (Poitras, 2011, p. 177). The expression "looks like" is indicative of an intuitive and seemingly indescribable feeling that Fisher has. Although, ostensibly, this may have less of an explanatory basis than other ways of knowing

such as reason, it clarifies what caused Fisher to arrive at this specific prediction. Overall, while the degree may vary, the method that was used to develop knowledge of the predicted event can be acknowledged as some form of an explanation.

Can it be argued that an explanation, regardless of accuracy, be derived simply from the informative capacity of a prediction? Until heliocentrism became scientifically accepted, it was believed that any deviation from seasonal climatic norms was religiously driven (Vanderpoel, 2011, p. 114-115; Żołędziowski, 2000). This faith-based explanation of climatic patterns was developed because of predictions of seasonal climatic variation and, significantly, was established after the predictions were made (Żołędziowski, 2000). Similarly, explanation may be necessary to predict about phenomena that are not empirically observable. In the field of physics, the existence of the Neutrino particle was predicted by Wolfgang Pauli, an Austrian-born Swiss scientist, before any empirical evidence of it was established (Barnett, Muehry, Quinn, 2000, p. 48). In fact, Pauli's hypothesis was not corroborated until more than 20 years later in an experiment conducted by Cowan and Reines (Barnett, Muehry, Quinn, 2000, p. 48). Pauli based his hypothesis on the explanation that energy and momentum did not seem to be conserved in some situations of radioactive decay (Barnett, Muehry, Quinn, 2000, p. 48). Clearly, some form of explanation is required to predict about unobserved phenomena because, given their existence cannot be observed, their existence must be explained. However, Pauli's prediction introduces a broader question: can empirical evidence alone be considered an explanation? As established, explanation refers to the clarification of meaning and empirical evidence appears to, albeit sometimes inaccurately, clarify meaning. Predictions and explanations about the migratory patterns of the Southern Right Whale can be based purely on empirical evidence. Scientists could observe, with no other scientific knowledge, that during the austral winter Southern Right Whales migrate from Antarctica to the southern coasts of South America, South Africa, Australia or New Zealand (Hoare, 2009, p. 80-81). Moreover, they could observe, empirically, that Antarctica is colder than the regions that Whales are migrating to (Hoare, 2009, p. 80-81). Demonstrably, the evidential basis of the prediction, being capable of clarifying meaning, suggests that empirical evidence has inherent explanatory qualities.

Several conclusions can be drawn from investigating the relationship between explanation and prediction within both the human and natural sciences. The irrelevance of accuracy to whether explanation is a prerequisite for a prediction can be established. Moreover, although application of the definition of explanation can be problematic, all forms of evidence and ways of knowing appear explanatory. However, conclusively defining that some ways of knowing, such as memory, are evidential is difficult. Assuming their role in arriving at a prediction, the evidential basis of ways of knowing are pivotal to establishing whether an explanation is a necessary condition for a prediction. Ultimately, considering the explanation necessary for both observable and unobservable evidence, if the evidential basis of all ways of knowing could be corroborated, an explanation may be considered a prerequisite for prediction.

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What are the advantages and disadvantages of using models to produce knowledge of the world?

Luke Cialini

Year 12

Models are a simplified representation of reality, a human construct allowing for manageable inquiry in which people such as myself, even with limited experience in many areas of knowledge, can more easily produce knowledge about reality, fulfilling my desire to produce knowledge of the world and advancing my understanding of reality through active discovery. Models are used in many areas of knowledge, leading to key breakthroughs, as well as the prediction of outcomes. The use of models to produce knowledge of the world has several advantages and disadvantages. In order to assess these, it needs be considered as to whether different models have different advantages and disadvantages, if the knowledge produced from models can be applied to reality and still be true, and if a user can know if a model is sufficiently accurate for their purposes.

Models are used in different forms in almost every aspect of life, and as a result, many different models exist. When assessing the advantages and disadvantages of models, I considered whether different models have different advantages and disadvantages? Models can be sorted into two main categories, physical and conceptual models. Physical models usually physically replicate a component of reality, aiming to eliminate variables for more effective and in-depth analysis. The orrery, a moving model of the planets in the solar system, is a physical model I became interested in after discovering this unique looking model at a friend's house. The orrery allows us to determine the positions of the planets and their motion on a more manageable scale. However, by omitting certain aspects of reality in modelling, essential understanding can be compromised. This explains my initial confusion in determining what the orrery was, as the relative sizes of the planets is not scaled, and as a result it is difficult to determine the orrery is a representation of our solar system (8planets, n.d.). Due to this omission, we could mistakenly deduce incorrect information about the relative sizes of the planets, a disadvantage to this model. On the other hand, conceptual models are generally more abstract, and therefore more open to interpretation. They are often further removed from reality than physical models. Conceptual models were an essential component of my Mathematics IA in which I attempted to predict the winner of the AFL competition by graphically modelling the relationship between each team's ladder position and various statistics. As only one factor pertaining to ladder position could be analysed at a time, many variables had to be omitted. As a result it took a lot of effort to bring all the variables together, allowing more room for errors in assessment. This acts as a further disadvantage in comparison to physical models. Conceptual models also deal with more intangible ideas such as those in the human sciences. In a careers workshop at school, we used the Myer-Briggs personality test to identify our strengths and weaknesses. This test is binary in nature, not accounting for the people in-between, for example you must identify yourself as either introverted or extroverted (Burnett, 2013). Such a discrete model is clearly not a perfect fit for such intangible phenomenon naturally occurring over a continuous spectrum. These three examples illustrate that the advantages and disadvantages of models in producing knowledge varies among individual investigations. Not only does the type of model, physical or conceptual, influence the advantages and disadvantages of a model, but

also the area of knowledge in which the investigation is taking place, all of which influence how effectively the realistic situation can be modelled.

Furthermore, because models omit variables in order to simplify reality, they are not a replication of all of the conditions of reality. Can the knowledge produced from models be applied to reality and still be true despite details being omitted? The way a particular component acts in a model, independent of certain variables, may not be the same as it acts in reality. As a result, we cannot always directly apply knowledge produced from a model to the realistic situation. A pertinent example of this is the economic model of bond rating, developed by Fitch and Moody, which applied discrete ratings to predict risk of default. This model failed to accurately rate the 600 billion USD mortgage backed CDO market, which was given the highest rating before having to be downgraded the following year leading into the 2008 financial crisis (Owusu-Ansah, 2011). This illustrates how we cannot assume that the situation portrayed by the model and the realistic situation are commensurate. This suggests that the simplification process can undermine the advantages in initially creating and using the model, as the relevance and accuracy of the knowledge produced is reduced. If we produce a model using a correct and sufficient amount of knowledge taking into account sufficient variables, then models can be more accurately used to investigate a simplified aspect of reality. This is evident in the use of the model of the atom in modern natural science. Although quantum mechanics has greatly increased our understanding of the atom leading to models such as the planetary model being superseded, due to its simplicity, this planetary model has endured as one of the most widely used models of the atom (Nuffield Foundation, n.d.). The Rutherford-Bohr model of the atom was taught to me in IB physics, and the syllabus requires us to also be aware of the limitations of this model. Although this model was sufficient in providing proof for the existence of spectral lines, it was not sufficient in enabling us to more accurately calculate the wavelengths of energy for atoms other than hydrogen (Avogadro Website, 2007). For this, more encompassing models like the quantum mechanical model of the atom must be used. It is therefore clear that the advantages of models depend on the purpose of investigation, which determines the relevant variables. The disadvantages of modelling can be limited by manually accounting for the omitted variables. Further calculations can be made for other possibilities, and the effects these would have on the outcome. The EPA uses this method in its attempt to predict the future of climate change. Due to the large number of variables at play, they assess a number of situations including a high CO_2 emission scenario, a low CO_2 emission scenario and the theoretical value of emissions at which CO_2 would stabilize (EPA, n,d). This allows them to predict future changes, and actively adapt these variables as the future plays out to develop their models to be more accurate. The simplified model of climate change makes the analysis of the effects of different variables more manageable, and allows for future predictions to be made which otherwise could not be made. These features act as advantages, however these predictions have the potential to mislead us, for example the fearful predication that the Pacific Islands would disappear is misleading, with 80% of islands remaining stable or increasing in size over the past 20-60 years (McDonald, 2010). As a result models are an advantage in the sense that they increase understanding of some aspects of reality, but not necessarily always in an accurate or useful manner.

The advantages and disadvantages of using models depends on one's purpose, but can a user know if a model is sufficiently accurate for their purposes? Meteorology involves models that are constantly being formulated to predict weather patterns. In America, the National Weather Service investigates these patterns and presents their models to the public, but how can we as users of these models know if they are accurate? Four Americans investigated this.

They found that because different models, such as the Global Forecast System (GFS) and the Mesoscale Forecasting System (MFS), have different uses, it is extremely difficult to determine the accuracy of models. The GFS is good at predicting long range forecast, but weak at predicting smaller scale specific events. Contrastingly, the MFS is good at determining specific events such as thunderstorms and localized snow patterns, but weak at long range forecasting. (Fagan et al., n.d.) Although this allows us to adjust our use of models to our purposes, the general public, including myself, do not have sufficient knowledge to determine which model to use without researching. An example of such a model that I myself am unable to understand is the modelling of isobars. The implications of such representations, and their relevance to my reality are something that I cannot comprehend due to their abstract representation. The researchers also found that intuition is involved in meteorology to different extents. As meteorological data is not available everywhere, computer models must fill in this data, generating numerous possibilities from which the meteorologist must intuitively determine the most likely situation (Fagan et al., n.d.). In this case, the sufficiency of the model is restricted by the limited available data. Although an inability to accurately determine the sufficiency of a model serves as a disadvantage to their use, if we remain aware of the possible limitations of particular models, then they can be used to simplify complex situations with limited disadvantages.

Ultimately, the use of models to produce knowledge has advantages and disadvantages. Models allow us to predict situations and manipulate reality in a way we would not normally be able to, however, their effectiveness depends on how well they represent reality. When using and producing models, we must strive to include all relevant variables, resulting in the most accurate representation. If we oversimplify reality we will be disadvantaged, as the knowledge produced may not correspond with reality. If we are aware of the limitations of models and work to reduce their disadvantages, they are a good way to simplify the investigation of complex aspects of reality, however if we are not, incorrect knowledge may be accepted and impact the accuracy of further investigations.

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'No knowledge can be produced by a single way of knowing'

Ray Brown

Year 12

Numerous questions arise from a statement as absolute as "No knowledge can be produced by a single way of knowing." The production of knowledge involves the use of methodology from areas of knowledge but how do these areas help us distinguish knowledge from stimuli, information and experience? The methodology of an area of knowledge usually focuses on the use of ways of knowing. Yet is it possible for any area of knowledge to produce knowledge through a singular way of knowing? And if so, what would knowledge produced through a single way of knowing look like? The implications of these questions are significant as the way we develop knowledge is crucial to our human development.

The topic focuses on the methodology of knowledge production and hence it is important to consider how areas of knowledge help us distinguish knowledge from stimuli, information and experience. Each area of knowledge has a specific methodology which allows for the production of knowledge. In the natural sciences, knowledge is generally produced through a methodology which is methodical but not strict. For an investigation to be appropriate regarding scientific methodology it needs to be empirical, inductive, systematic, logical, predictive, objective, and exist to seek knowledge for knowledge's sake. The discovery of the double helix demonstrates how these aspects rely on the connection of ways of knowing in order to produce knowledge. Unsure of how genetic information was stored in DNA, James Watson and Francis Crick used the ways of knowing of perception (perceiving the available information), intuition (intuitively suggesting an unexplored answer) and reason (deducting it to be possible) to hypothesise the structure of DNA.[1] Through testing and the use of perception (to observe the results) and reason (to deduce their solution was correct), results provided what appeared to be evidence for the double helix structure of DNA. Furthermore, Crick and Watson could represent and verify their findings in a form appropriate to the natural sciences allowing this crucial piece of knowledge to be produced.[2] Numerous ways of knowing were used in line with a methodical scientific approach suggesting the data collected is in fact knowledge. However, there are limits to this methodology as it is impossible to prove something will occur every time in the natural world. It takes one contradictory result to call a theory's legitimacy as knowledge into question. This is an issue as what is considered knowledge currently may be dismissed as phenomena. However, the boundary between knowledge and phenomena is variable and dependent on the way of knowing and the area of knowledge used. Although all areas of knowledge can to some extent produce knowledge, some areas cannot easily translate particular stimuli (which has been identified by the ways of knowing) into knowledge. Stimuli observed through language can be used as a form of evidence and contribute to the production of knowledge in the area of history. Yet it would struggle to do the same in the natural sciences. In *Myth of Er*, Plato describes the cosmos as the Spindle of Necessity.[3] This language suggests Plato believed in a geocentric

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[1] Profiles.nlm.nih.gov,. 'The Francis Crick Papers: The Discovery Of The Double Helix, 1951-1953'. N.p., 2015. Web. 6 Aug. 2015.

[2] IBID

[3] Brumbaugh, Robert S. (1954). "Plato Republic 616 E: The Final "Law of Nines"". *Classical Philology*

view of the universe. Historians can use this as evidence for the idea that some ancient Greeks believed in a geocentric view of the universe. However, the natural sciences cannot accept this linguistic evidence as proof for the geocentric theory of the universe. Language in itself is not individually sufficient to be applicable to methodology of the natural sciences whereas it is applicable to the methodology of history. This demonstrates that particular stimuli identified by the ways of knowing can be translated straightforwardly into some areas of knowledge whereas it is not possible to do so in other areas. This suggests the difference between knowledge and stimuli, experience and phenomena is variable and dependent on the methodology applicable to the relevant area of knowledge.

This leads to an interesting question; can any area of knowledge produce knowledge through a singular way of knowing? Many consider the production of mathematical knowledge to be a pursuit completed through a single way of knowing, reason. However, the legitimacy of this claim can be questioned. A mathematician produces mathematical knowledge through theorems which need to be verified in light of current axioms and previously proven theorems. Yet how does a mathematician portray this verification? They do so through numbers and symbols. Regardless of verbal language abilities, mathematicians across the world can generally understand the work completed by others through these numbers and symbols. Does this mean mathematics can be considered a language? The Macmillan Dictionary defines language to be "signs, symbols, sounds, and other methods of communicating information, feelings, or ideas."[1] If all mathematicians can understand the "signs" and "symbols" prevalent in mathematics then it is reasonable to assume in context of this definition that mathematics is a language. However, the Cambridge Dictionary defines language as "a system of communication consisting of sounds, words, and grammar."[2] Although mathematics possesses its own form of words and grammar, it is hard to argue its communication consists of "sounds." This highlights the inadequacy of language in itself. However, both definitions focus on communication through sensory exchange as an essential aspect of language. Hence, mathematics can be considered a language and as a result, it requires both reason and language to produce knowledge. The fact language requires a sensual exchange seems to suggest that without perception, it would be difficult to exercise language. Considering mathematics is a language, it would be problematic to produce mathematical knowledge without perception. Perception also plays an important role in other areas of knowledge. The natural sciences is a branch of science which deals with the *physical* world.[3] *Physical* is crucial in this definition as our sensory perception is the means in which we receive information from the physical world. How can we deal with the physical world if we have no means to interpret it? Without perception, Robert Hooke could not have produced the knowledge of the cell which is crucial to our understanding today.[4] One may argue not all knowledge within the natural sciences is produced through perception. We have no sense or instrument so astute that we can perceive an atom in its entirety yet we claim to possess knowledge of it. This knowledge is argued to have stemmed from the use of imagination, intuition and reason rather than perception. Yet, this knowledge actually stems from the perception of other factors which provide evidence for the existence of the atom. Without perception, it is possible this knowledge would never have been produced. This is not to say that any area of knowledge could sufficiently produce knowledge through perception alone.

[1] Macmillandictionary.com,. 'Language Definition And Synonyms | Macmillan Dictionary'. N.p., 2015. Web. 6 Aug. 2015.

[2] Language Meaning, definition in Cambridge English Dictionary. 'Language Meaning, Definition In Cambridge English Dictionary'. *Dictionary.cambridge.org*. N.p., 2015. Web. 6 Aug. 2015.

[3] Oxforddictionaries.com,. 'Natural Science - Definition Of Natural Science In English From The Oxford Dictionary'. N.p., 2015. Web. 6 Aug. 2015.

[4] Science-of-aging.com,. 'Robert Hooke And The Discovery Of The Cell'. N.p., 2015. Web. 6 Aug. 2015.

Perception, like the other ways of knowing, is a means to interpret stimuli. These mathematical and scientific examples lend themselves to the idea that a number of ways of knowing need to be used in conjunction with each other to produce knowledge. This suggests the topic statement is justified in its assertion.

However, if knowledge could be produced through a singular way of knowing, what would it look like? To examine this, we have to consider the way of knowing which is likely to provide some tangible result. For example, it is hard to grasp the knowledge imagination could produce without the incorporation of other ways of knowing. Philosopher John Locke believed we begin our lives with no knowledge and derive all through our experience.[1] Leonardo Da Vinci concurs, stating "all knowledge has its origin in perception."[2] These are difficult claims to refute, yet, is this to say that perception in itself is capable of producing knowledge? A 1983 study titled *Seeing Reddish Green and Yellowish Blue* was conducted by Hewitt Crane and Thomas Piantanida.[3] The study focused on showing participants new 'colours' in order to see their reactions. These colours were the product of putting two colours such as red and green so close together that they ceased to be two separate colours but became simultaneously red and green. Participants used perception in an attempt to gain knowledge yet they found it hard to grasp what they had seen. Even an artist with a large colour vocabulary struggled to describe what was seen. One could argue this is due to the inadequacy of language in expressing knowledge. This is evident in events involving any form of stimuli, particularly visual imagery, as it is often hard to correlate an experience with words. The failure to associate language as a way of knowing with sense perception causes the experience to be simply an experience, not knowledge. It appears without the combination of perception with other ways of knowing, knowledge does not appear to be knowledge, but rather stimuli. This suggests that despite perception appearing to be the basis of the majority of knowledge, it in itself is incapable of solely producing knowledge. Hence, it is reasonable to believe that when produced through a single way of knowing, supposed knowledge is stimuli, suggesting no knowledge can be produced through a single way of knowing.

It is sound to believe that no knowledge can be produced by a single way of knowing as there appears to be overwhelming evidence supporting this statement. Yet, it cannot be classified as a fact. There is excessive ambiguity in the way that we produce knowledge to easily state absolutes. Language provides a consistent problem when attempting to fit these ambiguities into neat conclusions. Like language itself it is arguably these ambiguities which make such a pursuit beautiful. If the information we perceived from our environment could be systematically considered knowledge through the use of a singular way of knowing, would that not ruin the value of the pursuit in its entirety? If there was no ambiguity there would be no struggle to produce knowledge. Without struggle there would be no desire. And without desire we would not develop.

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[1] Baird, Forrest E; Kaufmann, Walter (2008), *From Plato to Derrida*, Upper Saddle River,NJ: Pearson Prentice Hall, pp. 527–29

[2] BrainyQuote,. 'Leonardo Da Vinci Quotes At Brainyquote.Com'. N.p., 2015. Web. 6 Aug. 2015.

[3] Crane, H., Piantanida, T. 1983 'On seeing reddish green and yellowish blue.' Science Magazine, Vol. 221 no. 4615 pp. 1078-1080. Available from Science http://www.sciencemag.org/content/221/4615/1078.long {10/6/15}

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Is it the case that he main reason knowledge is produced is to solve problems?

Timothy Hobbs

Year 12

Every day I am faced with problems and to solve these problems I am required to obtain and produce knowledge about the world, the people in it and the systems that govern it. If this knowledge is a prerequisite for the solving of problems, it follows that one of the main reasons knowledge is produced is to solve problems. However, how do we know that we are seeking and producing knowledge to solve problems? Can knowledge be produced without solving problems? And if there is more than one reason why knowledge is produced, how do we measure the importance of reasons against one another? These knowledge questions can be explored in relation to different areas of knowledge and ways of knowing, including the natural sciences, ethics, history and reason.

It could be said that anything can be identified as a problem. However, this is unclear and not a particularly helpful way of understanding the topic. For example, the area of knowledge of art could be characterised as solving the problem of fulfilling human emotional needs. However, thinking of artwork as merely a way of emotional expression or going to a musical simply to evoke an emotional response does not do justice to the diverse and rich nature of these experiences. To assess the claim we need to realise that there are many ambiguities associated with the word 'problem' and also different usages of the word which make it difficult to assess the knowledge claim. It could be said that there is a problem of language in assessing the claim. It must be understood that there are many different types of problems which cannot necessarily be solved using the same approach. There can be practical, methodological or technical problems which all require unique and different methods to be solved. These problems may also be tangible or intangible and it is important to note that they can be understood on different scales. Therefore the dynamic nature of the word problem and the ambiguities associated with it is a difficulty in judging the claim. For the purposes of this essay the word problem can be defined as a situation regarded as harmful and needing to be dealt with or overcome.[1]

How do we know that we are seeking and producing knowledge to solve problems? The natural sciences is an area of knowledge that can be used to show that knowledge is produced to solve problems. The construction of a scientific theory often requires the use of a method similar to that of the *hypothetico-deductive method,* which involves "direct observation and experimentation [which] will, through inference, predict further effects that can be verified or disproved."[2] This method and similar methods, used in the natural sciences, are essential to understanding the world around us and highlight the fact that one of the reasons knowledge is produced is to solve problems. The method requires the identification of a problem through observation by

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[1] Oxford Dictionaries.com, (2015)
[2] Encyclopedia Britannica, (2015)

means of sense perception, formulation of a hypothesis using reason and then seeking the answer to explain and solve the problem through a series of tests. An example of this is Edward Jenner's smallpox vaccine. Jenner watched on as smallpox devastated mankind and observed the problems that this created. He also noticed that dairymaids were protected from smallpox after having suffered from cowpox.[1] He hypothesised that cowpox was a natural immunity against smallpox. He tested his theory and developed the first successful vaccine for smallpox,[2] solving the problems that smallpox had created. Clearly, Jenner identified a problem and used knowledge to solve it. Thus it can be shown, through methods used in the natural sciences, that one of the main reasons knowledge is produced is to solve problems.

Nevertheless, scientific experiments have been carried out that solve problems but do not necessarily intend to and thus are counterarguments to our central idea. Some scientific experiments have produced knowledge as a result of serendipity or by complete accident. These experiments produced knowledge without the intention to solve problems and thus counters the idea that the main reason knowledge is produced is to solve problems. There are many examples of this, including the discovery of the applications of penicillin,[3] the discovery of the hallucinogenic properties of LSD[4] and the discovery of vulcanised rubber.[5] However, one that really stands out as an accidental discovery is the X-ray. Wilhelm Roentgen, a German physicist, was exploring the path of electrical rays from an induction coil through a partially evacuated glass tube.[6] However, while carrying out this experiment he noticed that penetrating rays were being emitted from one of his tubes and later discovered that these penetrating rays could be used to view internal structures of the body without the necessity of surgery.[7] This accidental discovery was a result of an experiment that did not intend to solve this particular problem but produced knowledge that did, revealing that knowledge can be produced without the intention of solving problems.

Another question we must explore is, can knowledge be produced *without* solving problems? Could we not have other motives for the production of knowledge? People can produce knowledge because they find it a pleasurable experience, have a professional obligation or maybe even out of curiosity and our innate human desire to explore. It is said that "curiosity and exploration are vital to the human spirit."[8] The area of knowledge of the natural sciences can again help us to explore this concept. Giovanni Cassini was an astronomer in the 17th Century.[9] He showed a keen interest in astrology, and his extensive knowledge led to his first appointment as an astronomer,[10] where he was the first person to observe four of Saturn's moons. At the time this production of knowledge did not solve any problems, it was simply a discovery. Cassini did not do this with the intention of solving a problem but rather was motivated by his own curiosity. In my biology lessons I do not encounter problems as such, but rather produce knowledge as part of an educational experience. I am motivated by my own curiosity and desire to learn as opposed to a desire to solve

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[1] Riedel, S. (2005)
[2] The Jenner Museum.com, (2015).
[3] American Chemical Society, (2015).
[4] HISTORY.com, (2015).
[5] Goodyear Corporate, (2015).
[6] British Library United Kingdom, (2015)
[7] Ibid
[8] National Aeronautics and Space Administration, (2015).
[9] European Space Agency, (2015)
[10] Space.com, (2012).

problems. Thus it could be suggested that there are other reasons, besides solving problems, why knowledge is produced. The fact that there are other reasons suggests there is not one clear reason as to why knowledge is produced and consequently, casts doubt on the fact that the *main* reason knowledge is produced is to solve problems.

So if this is the case how do we measure the importance of reasons against each other? How can we substantiate the claim that the production of knowledge to solve problems is more important than the production of knowledge for the sake of curiosity? Ostensibly, this is an extremely difficult task. However, we can demarcate what this might entail by looking at the area of knowledge of ethics. This year, during a TOK lesson our class discussed some moral and ethical dilemmas, one of which was a dilemma involving a group of friends who had gone out camping. The group had driven to a remote area and had become intoxicated with alcohol. One of the group decided to climb a tree, he fell and was bleeding badly. If he didn't receive medical attention he would most probably die. The other two friends are left in the morally compromising position of whether they break the law and drive under the influence to the nearest town which is 20km away or follow the law and leave their friend to bleed out in pain. My initial response to the problem was to drive the friend slowly with the hazards blinking to the nearest town. However, one of my peers thought that this was wrong and argued that the friends should stay at the camp site. There were reasons for and against both options. However, I realised that each person's response to a situation like this will be different because everyone has slightly different perception of the world and slightly different values and morals. I also realised that had the situation been slightly different I may have emphasised different priorities. Reasons why people would decide to take a particular course of action will vary from situation to situation. Another example of this could be seen through the area of knowledge of history, which is the study of past events and civilisations. Historians and archeologists work to produce knowledge of previous civilisations not just to solve a problem, but to increase our understanding of people and societies,[1] maintain a country's culture, as is being done in Cambodia with the Khmer people,[2] or even out of curiosity and passion.[3] Each desire to produce knowledge and each situation is driven by different motivations and reasons. The main reason for these productions of knowledge is difficult to delineate because the reasons are different for each person and for each situation. Thus it can be said that it is difficult to measure the importance of reasons against one another, specifically reasons for knowledge production because in any given situation our reasons can vary. Therefore it is difficult to say the *main* reason knowledge is produced is to solve problems.

Ultimately, we can say that solving problems is *a* reason for the production of knowledge. However, it need not be the *main* reason for the production of knowledge. The fact that there are multiple reasons to produce knowledge coupled with the idea that it is extremely difficult to measure the importance of reasons against one another, suggests that there is insufficient evidence for me to satisfactorily agree with the topic claim.

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[2] Exploration in South East Asian Studies, (1997)

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Is it the case that he main reason knowledge is produced is to solve problems?

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Year 12

The main reason knowledge is produced to solve problems. Initially I am inclined to rely on intuition and agree with the statement. However within the statement there are several elements that need to be explored in further detail. Such as, is there only one main reason that knowledge is produced? Furthermore, is 'produced' an appropriate term for discussing knowledge? The statement also fails to specify what kind of problem produces knowledge, therefore I will establish the parameter of problems to those of a purely practical nature, as opposed to hypothetical problems. This is a significant difference because with the appropriate mindset anything can be seen to be a problem and as such every application of knowledge is a solution. This is an unreasonable bias in favour to the statement and so by limiting the term 'problem' to only practical issues, I can address the statement in detail, avoiding complications with different types of 'problem'. Additionally I will maintain the assumption that 'to solve' a problem implies a complete and resolute outcome to the problem.

Is knowledge produced? My initial thought was to question the validity of the term 'produced'. A prevalent debate among philosophers from as early as 500 B.C is that of the origin of mathematical concepts; especially whether they are invented or discovered [Lamb n.d]. Neither of these terms are directly equal to 'produced' however it seems that to 'produced' knowledge is a similar philosophy to 'invent' knowledge. Given that this is an already well established issue among mathematicians I will explore the origin of knowledge with regard to the Area of Knowledge (AoK) that is Mathematics. The concept that Mathematics if purely theoretical — and as such invented — is relatively modern and can be summarised by this Leopold Cronicers quote, "God created the natural numbers all else is the work of man" [Weber 1893]. This would suggests that famous theorems such as Pythagoras' $A^2 = B^2 + C^2$ do not exist outside of conscious thought. On a more personal level in early algebra my Mathematics class was required to show our understanding of pro-numerals by creating entirely new equations. While the principle of Algebra was certainly not our invention it is clear that the formulas we invented were completely theoretical and failed to describe any real world scenario as such we essentially invented these equations. There are strong arguments to suggest that Mathematics has been invented by humanity, and exists only as a concept or logic exercise. This is consistent with the term 'produced'.

The common counter-claim is that Mathematics is the natural law/language of the universe and exists completely independent of human interpretation. This seems to be a far more intuitive claim as it replaces uncertainty with certainty. It suggests that the universe is being governed by a finite set on concrete number laws that can be broken down and simplified into what we now call Mathematics. With regard to the previous examples, this claim says that $A^2 = B^2 + C^2$ has been true and will always be true regardless of whether Pythagoras discovered it or not. And with regard to my algebraic equation, the idea that Mathematics is 'discovered' endows my insignificant equation with a timeless significance. Suggesting that my equation was a method of describing something I was not even aware of. There seems to be no answer to this conflict of views as the answer may be specific to the particular area of Mathematics in question. Given these two strong contrary claims, it is unfair to say definitely that knowledge is 'produced' (a term which favours the view that Mathematics is 'invented'). However if the term 'produced' was be totally unbiased to the origin of knowledge then it

could be an appropriate term for discussing knowledge. It is also important to acknowledge that the term 'produced', does not necessarily refer to the origin of knowledge at all. It could simply mean becoming aware of already existing knowledge. For example an individual could research into the collective shared knowledge of the mathematical community and gain new personal knowledge. This could be considered the production of knowledge.

Does all knowledge solve problems? The statement, all knowledge solves problems, like most definitive claims is impossible to prove or disprove without the benefit of 'the bigger picture'. However it is a reasonable claim as it is supported by several real life examples. My Grandmother and I were building a rose trestle for her garden, neither of us knew how and as such we were faced with a problem. We then researched and produced sufficient knowledge to build the trestle, hence solving the problem. However there are also examples of knowledge being the solution to problems long after the knowledge itself was originally produced. Godfrey Hardy, boasted that his work in the area of Mathematics (number theory and analysis) would never be put to practical use, however it is now invaluable in cryptography and genetics [The Editors of Encyclopædia Britannica 2015]. It is a powerful thought, that all knowledge at some time may be a solution to a problem not yet conceived. This shows that knowledge can be produced independently of any practical problem. However what if there was a case of purely theoretical knowledge with absolutely no applications? It would be unable to solve any physical problems. Of course a lack of knowledge could be considered to be a problem (Hardy's problem was a 'hole' in his area of science). With this understanding any knowledge, applicable or not is still solving a problem simply by existing. Therefore all knowledge does solve problems. This is an unreasonable conclusion because essentially everything can be regarded as a 'problem' in some capacity: hypothetical, theoretical, practical etc. By reestablishing the original parameters around the term 'problem' to mean purely practical problems it is clear that while all knowledge may eventually provide a solution to a practical problem it can be produced prior to problems existence. When my Grandmother and I were building the rose trestle we produced knowledge (via research) as a direct result of the practical problem. A counter claim is that the reverse process is more true. The reverse process being all knowledge is produced as a result of problem solving. This suggests that producing knowledge has no intentional purpose but rather is simply the result of solving a problem.

A friend of mine is currently working on a PHD in bio-chemistry, he told me that occasionally the only way for him to progress in his research is to use the 'trial and error' method. As such it is not until he stumbles on the correct formula that he is able to claim to have solved his academic problem. However once having solved the problem he is left with new knowledge of significant scientific value. This is an example of how solving problems can lead to knowledge. While I think this claim is certainly valid, it fails to address the fact that preliminary knowledge is needed to solve the original problem. My friend had to understand the situation and complicated components of the potential solutions in order to make his family of 'trial and error' formulas. Therefore this claim does not discredit the idea that knowledge solves problems. However it does show that knowledge can be produced post/independently of solving a problem.

How can we know what the 'main reasons' are? I have already established that knowledge can be produced independently of a problem hence, it must have been produced for a reason other than to solve a practical problem. To determine how we can know our 'main reasons' (motivations) for producing knowledge I will look at the AoK that is the Arts. After speaking to several Art teachers around my school (music, visual) I learnt that the main reason for producing Art is to 'express emotions'. As discussed above this could be explained in terms

of a problem however it seems more likely that the teacher's own explanations are adequate for explaining their motivations. This suggests that the main reason knowledge is produced in the Arts is completely detached from a practical problem. I determined this conclusion by carrying out a brief interview with my teachers, and while such a method is fraught with uncertainties, their answers were consistent with responses from artists across the world who were asked similar questions [Smith, March 2008]. Although there were some other responses such as to address a political agenda. By exploring the Arts I have found that 'solving' problems is certainly not the only main reason for producing knowledge.

Additionally in more conventional WoK for producing knowledge such as the sciences, there is room for speculation about genuine motivations. A problem is fundamental for research funding for the sciences and so a problem is found, but that is not to say there aren't other main reasons behind the production of knowledge such as curiosity or ambition.

The topic statement is very definitive and categorical, as such as single verified contrary claim can ruin the statements integrity. I believe that in the AoK of the Arts the main reason is not the solve problems but to simply express an emotion or perhaps a political agenda. As such the topic statement is inaccurate for the Arts. Furthermore looking at the sciences I found that knowledge can be produced completely independently of any problem. However I made these claims for specific AoK and it is unfair to extrapolate these conclusions to every other AoK. Therefore it is possible that there is only one main reason and it is indeed to solve problems. However given the exemptions I did find I am inclined to believe that there are several main reasons for producing knowledge.

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