TOK Essay

Title 6 – “One way to assure the health of a discipline is to nurture contrasting perspectives.” Discuss this claim.

Personal Code:

Session Number:

Word Count: 1470

"One way to assure the health of a discipline is to nurture contrasting perspectives." Discuss this claim.

What does it mean 'to assure the health of a discipline'? I and most other people would agree that an area of knowledge which is constantly evolving and becoming more useful to the people who use it can be considered a 'healthy' discipline. A discipline will only remain 'alive' as long as it is contributing to society. For example biogenetics, the field of biology that deals with modifying genes of living organisms[1] is a healthy discipline in my opinion as it is constantly finding new ways in which genetic modifications can contribute to the society. How would a discipline assure its 'usefulness'? For the most part, there are two ways; firstly, by discovering new knowledge and secondly, by validating and maturing the pre-existing knowledge, improving the reliability of the knowledge in a certain discipline. For most areas of knowledge, contrasting perspectives work in favor of the second way, maintaining the usefulness of a discipline by allowing the validation of existing knowledge and replacing it with something more reliable and hence, more useful if applicable. A discipline becomes more useful as it becomes more reliable because, with an increase in reliability, more people are able to confidently use the knowledge in that discipline as they believe it is credible. Similarly, a discipline would 'die' and lose its health if it loses its credibility due to being unreliable, as the knowledge in that discipline would no longer be considered trustworthy hence people will stop using it effectively killing the discipline. However, knowledge in some disciplines may become less useful if contrasting perspectives are encouraged. For example, in areas of knowledge that rely extensively on memory as a way of knowing. That said, **to**

[1] HarperCollins Publishers. 24 Jun 2012. Definition of 'biogenetics'. https://www.collinsdictionary.com/dictionary/english/biogenetics. Accessed 19 Dec 2018.

what extent do contrasting perspectives contribute to the usefulness of knowledge in natural sciences and history?

In natural sciences, encouraging contrasting perspectives can improve the reliability of knowledge hence increasing the discipline's potential to contribute to society. Claims are based on the scientific method in natural sciences which requires logical or experimental evidence in order for a theory or claim to be counted as valid. However, the logic or experiment used to make these claims may themselves be flawed and may fail to capture the true picture of the reality. Contrasting perspective help with defeating this shortcoming of knowledge in natural sciences by providing room for additional logic and evidence that can help in revealing these shortcomings using an alternative method.

For instance, the theory of atomic structure in physics has greatly benefited from contrasting perspectives and helped the discipline to mature. In the late 1800s, the 'plum pudding model'[2] of the atom was widely regarded as the most accurate. Despite being completely plausible by the logic at the time, many scientists chose to disagree and instead worked on experiments to prove their theories. This lead to the creation of experimental evidence for a far more credible theory, which disproved the plum pudding model and replaced it with Rutherford's model. Therefore, contrasting perspectives may very well benefit the health of discipline in the area of knowledge of physics.

Also, quite evidently, encouraging contrasting perspectives in natural science can help avoid confirmation bias. Confirmation bias refers to one's tendency to only look for evidence that agrees with their theory often resulting in the validation of factually inaccurate

[2] Matt Williams. 19 Jan 2016. What Is The Plum Pudding Atomic Model?. https://www.universetoday.com/38326/plum-pudding-model/. Accessed 21 Dec 2018.

knowledge based on previously published factually incorrect claims.[3] Looking at contrasting perspective would prevent one from only looking at knowledge which agrees with their opinion allowing them to discover any flaws that exist in their method before they publish their findings as new knowledge. For example, in 1960's a group of scientists had claimed to have discovered a new form of water which they named polywater[4] – a form of pure water which displayed unusual characteristics compared to regular water. Many other scientists around the world validated the credibility of this new discovery by replicating the original experiment and obtaining similar results. However, it was later discovered that the unusual characteristics of the water were caused by human sweat contaminants and polywater was not at all pure water as it was earlier assumed but rather a mix of diluted human sweat. The popularization of factually incorrect knowledge can be credited to confirmation bias in this case. The scientists were so convinced that the water they were testing is pure that they did not bother to consider the possibility of contamination as a source of error which was causing water to display these unusual characteristics. This could have been prevented if contrasting perspectives were encouraged for example, rather than repeating the original experiment which had an inherent drawback. Scientists could have tried to look for alternative ways to examine polywater which would have revealed the flaw in the original experiment.

However, as evidence and logic are always susceptible to being flawed, nurturing contrasting perspective may also result in the validation and acceptance of claims that are actually untrue and hence degrade the usefulness of a discipline. For instance, despite being

---

[3] Shahram Heshmat. 23 Apr 2015. What Is Confirmation Bias?. https://www.psychologytoday.com/us/blog/science-choice/201504/what-is-confirmation-bias. Accessed 21 Dec 2018.

[4] Joseph Stromberg. 7 Nov 2013. The Curious Case of Polywater. https://slate.com/technology/2013/11/polywater-history-and-science-mistakes-the-u-s-and-ussr-raced-to-create-a-new-form-of-water.html. Accessed 21 Dec 2018.

a very well accepted and proven fact that the speed of light is the universe's speed limit, the fact was disapproved by very convincing evidence gathered by CERN which instead suggested neutrinos are capable of achieving speeds greater than that of light. However, a flaw was later discovered in the evidence presented by CERN which confirmed that the new theory although convincing was actually untrue. In this case, the scientific communities' openness to contrasting perspective resulted in a misleading conclusion which could have resulted in a degradation of the discipline of physics if the flaw was not discovered sooner.

In some areas of knowledge, however, the benefits of the potential improvements in a discipline of knowledge may be overpowered with the disadvantages of nurturing contrasting perspectives. This is particularly true in the area of knowledge of history as it heavily relies on memory as a way of knowing. Recitation from memory as a way of knowing is susceptible to being influenced by exaggeration and forgetfulness both of which can result in the production of unreliable knowledge. Knowledge in history is often built up from memorial accounts about a particular event from multiple people or records. If contrasting perspectives are present when this is done, as in different people and records reciting the same event differently, the reliability of collective knowledge gained deteriorates as it's difficult to say who is giving the most accurate account. For example, multiple accounts exist explaining why the RMS Titanic failed to avoid the iceberg. Some accounts claim that the iceberg was not spotted in time because the ship's crew had no access to binoculars due to losing the keys to the shelf that stored them[5]. Other accounts state that the iceberg was missed because the crew was simply distracted and were not watching for icebergs. Contrasting perspectives in this case creates confusion as different accounts make it difficult

[5] Alan Boyle, NBC News. 1 Apr 2012. 10 causes of the Titanic tragedy. https://www.nbcnews.com/sciencemain/10-causes-titanic-tragedy-620220. Accessed 22 Dec 2018.

to decide what actually happened. This can make the knowledge in history less reliable making it less useful for someone who depends on its accuracy.

On the other hand, contrasting perspectives can help avoid bias in history. Many events in history involve large groups of people who have been affected differently by the same event. This makes everybody's experience different creating a large variety of contrasting perspectives in historical records for these types of historical events. Looking at records from only one group of people to determine what happened would not obtain reliable knowledge as it would be biased or one-sided. For example, World War 2 (WW2) was experienced differently by the different groups involved in the war. While the United States experienced an increase in moral of its people as the nation's strength was displayed the Jewish population perished because of the Holocaust. If WW2 was only studied using the records reflecting the situation in the United States, the war would seem a lot more positive than it was. Also, if it was only looked at from the Jews perspective, we would miss certain positive aspects of the war. Hence, in this case, contrasting perspectives can help to improve the reliability of knowledge as considering contrasting perspectives gives a better picture of the actual event.

Overall, weather contrasting perspectives improve or worsen the usefulness an area of knowledge completely depends on the nature of the area of knowledge. For instance, natural sciences mostly benefit from contrasting perspectives as these areas of knowledge improve when contrasting perspectives are nurtured. On the other hand, areas of knowledge which depends more on memory as a way of knowing like history can also be disadvantaged by contrasting perspectives. However, all disciplines can benefit from contrasting perspectives in terms of reducing bias. Bias is a common enemy of all knowledge in almost all

disciplines and contrasting perspectives help to make up for this shortcoming of knowledge by forcing knowledge creators to be more open-minded.

Word Count: 1470

Bibliography

Alan Boyle, NBC News. 1 Apr 2012. 10 causes of the Titanic tragedy. https://www.nbcnews.com/sciencemain/10-causes-titanic-tragedy-620220. Accessed 22 Dec 2018.

HarperCollins Publishers. 24 Jun 2012. Definition of 'biogenetics'. https://www.collinsdictionary.com/dictionary/english/biogenetics. Accessed 19 Dec 2018.

Joseph Stromberg, Slate. 7 Nov 2013. The Curious Case of Polywater. https://slate.com/technology/2013/11/polywater-history-and-science-mistakes-the-u-s-and-ussr-raced-to-create-a-new-form-of-water.html. Accessed 21 Dec 2018.

Matt Williams, Universe Today. 19 Jan 2016. What Is The Plum Pudding Atomic Model?. https://www.universetoday.com/38326/plum-pudding-model/. Accessed 21 Dec 2018.

Shahram Heshmat, Psychology Today. 23 Apr 2015. What Is Confirmation Bias?. https://www.psychologytoday.com/us/blog/science-choice/201504/what-is-confirmation-bias. Accessed 21 Dec 2018.