**“Only seeing general patterns can give us knowledge. Only seeing particular examples can give us understanding.” To what extent do you agree with these assertions?**

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Period 6

IB Theory of Knowledge

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 There is a fine line between knowledge and understanding. Although I do not believe that the two are the lowest forms of thinking, Bloom’s Taxonomy is a useful framework to distinguish the two. Knowledge is at the lowest tier of Bloom’s Taxonomy. Knowledge is justified true belief, which is a belief that has been proved by evidence. Understanding comes up in the next tier.[[1]](#footnote-1) Understanding is knowledge that can be explained and applied. In this TOK essay, it will be shown that “only seeing general patterns can give us knowledge” and “only seeing particular examples can give us understanding” to the extent that perception is certainly a way to gain knowledge and understanding, but language can also be perception’s assistant. Reason and emotions can be used to gain knowledge and understanding in different forms. Natural science, mathematics, history are areas of knowledge that are based around patterns and examples to find knowledge and understanding.

 Perceiving, or seeing, patterns and examples do give you knowledge and understanding. For example, in math class, my teacher has a system of teaching. First, she uses inductive learning to teach us concepts. When I learned how to derive functions, she had us take notes to understand its process. She then showed examples of problems where we had to derive. My teacher used deductive learning to teach by examples and to make sure we understood how the concept of deriving worked. A mix of inductive and deductive learning promotes greater learning by using patterns.[[2]](#footnote-2) There is a concept called the selectivity of perception from the TOK book in which what is perceived is filtered and blocked at times, which can block patterns and examples from a person.[[3]](#footnote-3) Sometimes in math class, my teacher has the students identify the pattern themselves. Most of the time, I am not looking at the right spot to find the pattern because my eyes are so focused on the wrong spot. My perception was selective and prevented me from taking in knowledge.

 Language helps people gain knowledge and understanding because communication creates clarity where perception doesn’t. I remember in Spanish class I was being taught how to form the subjunctive tenses. The teacher wrote down the steps on the whiteboard and explained each step. I had learned how to form the subjunctive, but I wasn’t sure how to use it. The teacher gave examples by writing sentences with the subjunctive in it. I then had understanding of how the subjunctive worked because she talked through it. My teacher’s use of language strengthened what perception failed to portray. In some cases, language is ambiguous and creates confusion. For example, when my friends asked me how I did in a cross country meet, I responded with “terrible.” Now terrible has differing levels of negativity for each person. One friend could have thought I ran 5 kilometers in 30 minutes, and another friend could have thought I ran that in 25 minutes. It’s even more ambiguous if I believe 5 kilometers in 22 minutes is terrible. Language can possibly hinder and worsen what is known and understood. It is important to take what is heard with a grain of salt.

 Deductive reasoning allows one to deduce knowledge by going from general patterns to the specific. Inductive reasoning allows one to induce understanding by going from specific examples to the general. My backyard has an apricot tree that produces apricots in the summer. Ever since I was a child, there would be many apricots around the house during summer. I unknowingly used the syllogism, “I have seen apricots in the house when it’s summer. It’s summertime. Therefore, there are apricots in the house.” I was able to deduce when to expect apricots based on the general pattern that I observed for a great part of my life. I demonstrated knowledge by knowing when to expect apricots. As I grew older, I took it a step further. I made another syllogism, “There are apricots in the house. It’s summertime. Therefore, apricots are a summer fruit.” I induced a general statement with the example I observed in my backyard. I understood the timeline of apricots with reasoning I observed throughout my life. Reasoning provides a different, possibly deeper form of knowledge and understanding.

 People can claim knowledge and understanding cannot be gained from emotions, but in fact it’s possible. An example of this is when people buy certain products because it makes them happy. Since I grew up around electronics as a child, I know that electronics make me satisfied and happy. I also understand that I am likely to buy electronics over other products because of how I feel about them. Another example of emotions being used to gain knowledge and understanding is through political commercials. In the commercials, the people will see specific examples of candidates’ past. They will use the specific examples to make a judgment of who to vote for based on their understanding. Emotions help one gain a different form of knowledge and understanding.

Natural science with the scientific method is a way to find patterns and examples to gain knowledge and understanding. Gregor Mendel was a scientist who discovered principles about heredity. He performed experiments where he bred peas to observe traits. He noticed that two traits of the same category appeared in a three to one ratio. For example, for every three inflated pods there was one constricted pod. He concluded that dominant alleles mask the effect of recessive alleles. He also came up with the law of segregation.[[4]](#footnote-4) The scientific method is comprised of five parts. The fourth part is analyzing the data. When Mendel analyzed the data, he saw a general pattern. The fifth part of the scientific method is to make a conclusion. Mendel concluded his experiment with an explanation of the pattern he saw, and therefore he has shown understanding. The scientific method is meant to find patterns from data. Then the data is turned into a statement that shows understanding. Patterns and examples combined with a focused area of study, natural science, allow one to gain knowledge and understanding.

 In mathematics, axioms are to knowledge as theorems are to understanding. Axioms are universally accepted laws that require no proof. Theorems are statements formulated from axioms. The Pythagorean Theorem was derived from 10 axioms found in Euclid’s Elements.[[5]](#footnote-5) Axioms are deemed as common knowledge that comes observing general patterns. Euclid’s Elements contains axioms that became a basis for many theorems. Theorems are derived from axioms that demonstrate understanding by creating a formula to describe specific examples. The formula of the Pythagorean Theorem is “a2 + b2 = c2,” and this formula describes the lengths of right triangles only.[[6]](#footnote-6) Mathematics is based around finding general patterns and gaining knowledge from it. Understanding is shown when formulas are created from specific examples. The area of focus, mathematics, becomes more known and understood by the process of patterns and examples.

History repeats itself to the point where people use patterns to show knowledge of the events. Particular examples are used make inferences about history. In one example, Germany was punished after losing in World War I.[[7]](#footnote-7) This lead to an uprising in Germany that caused World War II. Once Germany lost World War II, it was decided to not punish Germany because it would cause another uprising and eventually another war.[[8]](#footnote-8) The general pattern that was observed was the occurrence of wars in a short period of time. After the fall of Japan in the pacific theater, the US decided to help Japan rebuild. The US understood the consequences of punishing a nation, so they decided not to. A different example of history where people were ignorant and refused to learn from history is with Hitler and the invasion of Russia in 1941. Hitler attempted to invade Russia during winter. This placed Hitler’s army at a disadvantage because they were not prepared for the Russian winter. The invasion ended up being a failure for Hitler. This same invasion was attempted by Napoleon in 1812, a century before Hitler.[[9]](#footnote-9) Hitler was ignorant of what happened in the past, and he paid for it by failing in the same manner. The knowledge here was the harsh winter that Russia has. The lack of understanding such knowledge was shown in Hitler’s action and failure. Thus, one should use history to pick out examples and patterns to gain knowledge and understanding.

Perception, reason, and emotions are ways to come to general patterns and specific examples to gain knowledge and understanding in different ways. Language helps clear clarity when one is looking for patterns and examples. Many areas of knowledge have come to exist from the basis of finding patterns and examples for knowledge and understanding. Knowledge is justified true belief, which is a belief that has been proven by evidence. Understanding is knowledge that can be explained and applied.

Word Count: 1600

**Citations:**

**[1]** Overbaugh, Richard. *Bloom's Taxonomy*. n.d. 7 October 2012. <http://ww2.odu.edu/educ/roverbau/Bloom/blooms\_taxonomy.htm>.

**[2]** Bilash, Olenka. *Inductive and Deductive Learning*. January 2011. 22 September 2012. <http://www2.education.ualberta.ca/staff/olenka.Bilash/best%20of%20bilash/inductivedeductive.html>.

**[3]** Lagemaat, Richard van de. *Theory of Knowledge for the IB Diploma*. Cambridge University Press, 2006. 15 September 2012.

**[4]** Campbell, Niel A. *AP Edition Biology Eighth Edition*. San Francisco: Pearson Education, 2008. 22 September 2012.

**[5]** Woolman, Michael. *Ways of Knowing: An Introduction to Theory of Knowledge*. IBID Press, 2000. 22 September 2012.

**[6]** History Learning Site. *The Treaty of Versailles*. n.d. 14 October 2012. <http://www.historylearningsite.co.uk/treaty\_of\_versailles.htm>.

 **[7]** Office of the Historian. *The Yalta Conference*. n.d. 14 October 2012. <http://history.state.gov/milestones/1937-1945/YaltaConf>.

 **[8]** Best of Russia. *War With Napoleon*. n.d. 14 October 2012. <http://www.tristarmedia.com/bestofrussia/napoleon.html>.

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9. Best of Russia. *War With Napoleon.* n.d. 10 October 2012. <http://www.tristarmedia.com/bestofrussia/napoleon.html>. [↑](#footnote-ref-9)