
Importance of Pythagoras' Theorem in Gaining Knowledge

People learn in different ways all the time. From the simplest of things like riding a bike to the complexity of creating new mathematical equations uses a different way of knowing than constructing furniture. The strive for knowledge using different networks lead to significant discoveries. This essay will discuss how Mathematics, Arts and Human Sciences uses Reasons, Imaginations, Sense perception and/or language is used to gain new knowledge. However, many thinkers state that different methods of gaining have different levels of importance meaning some are critical when gaining knowledge. This asks to what extent does one way of gaining knowledge lead to new knowledge

Mathematics is a classic example of how people constantly use new ways to discover knowledge. For example, in 18th century France when Math was incredibly important during the age of enlightenment to make Europe an centre for education and studies. Maths was seen as a way to strengthen the reasons of someone, meaning that reason was seen as the only way to access and learn Maths. However, on contrary to what was previously thought using auditory and visual perceptions and one's imagination are equally important when acquiring new mathematical knowledge. Newer mathematic discoveries have been based on an accepted truth. These accepted truths allow for there to be a starting point for reasoning and developing new mathematical theories. An example of this is the Pythagoras' theorem. Developed by Pythagoras, it states that in any right triangle, the hypotenuse's square is equal to the sum of the squares of the other two sides. As all of the other ancient proofs, the theorem had to be geometrical proven in nature. Pythagoras used the pyramids of Egypt after years of observations to prove his theorem. As he observed the pyramids it is safe to assume that sense perception is a massive factor to its discovery but a question that must be raised is why wasn't this theorem discovered before or at least to this extent? Pythagoras was known to be a "Man of imagination", meaning it was his imagination that got him to establish a mental image before he used sense perception and reasoning to prove the theorem. Therefore, while Perception and reasoning were important, Imagination was the most important role in discovering the theorem, if not the sole reason it was. Another example lies in the fields of art which is based on imagination, language, and emotion. These ways of knowing can work collaboratively each other and individually. Emotion is one of the key elements of Art or probably the most important one in art. Art is a language of expressing emotion and exploring imagination. Through art one can express their emotions by using ones subconscious by the language imposing and the imagination. An example can be when one looks upon an art piece in a museum and sees Red and Yellow patterns and feels that it represents fire, as an expression for the emotion of rage, but others may associate it with passion. This is how that art uses a series of different ways of knowing through person's eyes, each way of knowledge influence by the other. They become stronger and more effective when linked together, such is most concepts in Art. However, Empiricism gives a different perspective on this topic. Empiricists view that it is only one possible way (sense perception) to gain knowledge. Empiricists argued that all the knowledge we acquire, including the Historical knowledge, comes from observation of what surround us. For instance, when Ancient Greek historian Herodotus began to record the rise of the Persian empire the events and causes of the Greco-Persian Wars between the Achaemenid Empire and the Greek City States in the 5th century BC. He did so by witnessing and recording the events of his travels over the years so he may be able to "prevent the traces of human events from

being erased by time, and to preserve the fame of the important and remarkable achievements produced by both Greeks and non-Greeks; among the matters covered is, in particular, the cause of the hostilities between Greeks and non-Greeks". When only one particular way of knowing is used in gaining such knowledge, as was the case with Herodotus and sense perception, Recording the events unfolding infant of him. On the other hand, for acquiring and understanding more complex historical concepts (such as the cryptic Phaistos disk or understanding the First world war) a network of ways of knowing is required. Throughout history our knowledge has changed and developed. Establishing New Concepts leading to new perspectives and eventually to new knowledge.

However, there is a question to what the role of each of the different ways of knowing were and to how far can networks of knowledge affect, distort and change existing knowledge to produce new knowledge. Human Sciences aim to discover more and more of humans and their nature, investigate it and to analyse the society around them. Human scientists establish patterns in human behaviour; make predictions about possible crises that societies may face in the future. Human Scientists base these patterns and predictions on their observations of humans, experiments, interpretation and analysis of past and current states and events. A network of ways knowledge could be used to produce new knowledge that can change or distort the already existing knowledge. One of the most famous examples of this in the topic of Human Sciences took place in 1798, with the Malthus Population Growth Theory by Reverend Thomas Robert Malthus FRS. Malthus stated that population growth had a strong correlation with the food production. He believed that the population grows at an exponential/geometric rate and that in some point in the future that growth is going to outpace the food production which is growing. Malthus mainly used reasoning and understanding the statistical information about the past in order to establish this pattern and justify his theory with the geographic and sociological communities. This means that he used the already existent statistical knowledge of food production and population, and he also observed the climate of the population situation at that time and used reason and imagination to develop and create new knowledge and language to present it. In the case of Malthus, He used a network of reason, sense perception, imagination and language to serve as a translator of the already existing knowledge, in this case the statistical information about the population and food production growth, through which new knowledge like Malthus' projection is produced. Many think that to approach the truth of knowledge, one must approach it analytically. But this isn't always the case when analysing certain things, events and situations that may give new knowledge or a way of interpretation. An example was last year in which some classmates and I conducted fieldwork investigation as a part of a geographic field trip to Spain. We used different indexes, tools, measurements and made calculations in order to examine Barcelona's Geography in a river, mountain site and city. Our research consisted of observing the city, public transport, River valley and mountainous areas, therefore using sense perception and calculating certain indexes based on statistic information we have by using reasoning to develop and calculate them. The investigation didn't give us new information as all the information was already known and well established, just not to us. Geographic feature of all areas analysed were known to residents of Barcelona. So we didn't conclude with new knowledge but a new way to interpret it.

In conclusion, to rely on only one way of knowing can lead to acquiring new knowledge. However, the knowledge gained in this way is may not always reliable as it is obtained using only one way of knowing and hasn't been rechecked because in many situations has one way hasn't covered all the possible aspects and therefore it's subjective, scantily and limited. On the other hand, using a network of multiple ways of knowing can lead to knowledge that is certainly

more reliable and applicable in the real life.

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