

**“Knowledge is nothing more than the systematic organization of facts.”
Discuss this statement in relation to two areas of knowledge.**

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Understanding and thinking are highly subjective aspects that depend on the individual. Some are mathematically inclined, and prefer lists and organized forms that detail information. Others are artistically inclined, and prefer to decipher knowledge from a jumble of information that might seem useless to the untrained eye. Analogously, even facts and knowledge are subjective. Information that is widely accepted by some as facts, is dismissed by others, but nonetheless, may lead to the creation of knowledge. So to what extent does knowledge need to stem from facts that are systematically organized, when both are subjective to the creator? This leads us to the question of whether fact is a necessary component in the creation of knowledge. A further quandary arises as to whether these facts need to be systematically organized.

Knowledge in its essence is defined by differentiating it from information and *facts*. Fact itself is defined as an intangible concept that is *considered* true, since truth is relativistic and absolute truth cannot be evaluated. John Locke defines knowledge as nothing more than ideas and conveys that knowledge is the perception of the connection, agreement, disagreement or repugnancy of ideas.¹ Hence, knowledge is not simply ideas or facts, but a connection between the many facts and ideas to a useful result.

The natural sciences specialize in using reasoning and sense perception to produce knowledge. The scientific method involves making predictions based on observations, coloured by our sense perception, and then using reasoning to form relations between already established facts leading to certainty coherence. Hence, knowledge is created as relations are formed from ideas, and could be useful in other applications. We notice that this creation of knowledge is heavily dependent on established facts to form inferences, supported by

¹ "John Locke (1632-1704)." *Http://www.iep.utm.edu*. Internet Encyclopedia of Philosophy, n.d. Web. 19 Nov. 2013. <[http:// www.iep.utm.edu/locke/](http://www.iep.utm.edu/locke/)>.

empiricism. Mass spectrometry is an important process in chemistry that determines the masses of atomic particles comprising a sample and was used in 1976 to prove that there was no organic material and hence no life on Mars. This process was conceptualized in account of other established facts, including Rutherford's model of the atom and Wilhelm Wien's experiments on charge-to-mass ratio. This example exemplifies how facts are imperative in devising experiments and the entire basis of reasoning depends on other arguments and how it relates to our own sense perceptions, by visual grouping, and hence imperative in producing knowledge.

This argument, however, is flawed in that sense perception is subjective. What we observe is not scientific realism. Hence, one's reasoning might lead to different conclusions than someone else's. Additionally, reasoning fails at its most basic, as it relies on the assumption that the premises used, are in fact facts, in an infinite regress. If any of these facts are later proved untrue, the reasoned arguments will also be rendered untrue. However this should still be considered knowledge, analogous to Thomas Edison's famous quote, "I have not failed. I have found 10,000 ways that don't work"². Even if the knowledge inferred is rendered untrue, it is still considered knowledge as it represents what is untrue and hence not a possibility, also known as *Argument ad Ignorantiam*. As an evidence, the knowledge that the universe was not static, allowed scientists to assume that it was expanding, since that was the only other logical possibility and was a sufficient condition. Parallel to the paradox of cartography, it implies that despite ideas being "imperfect" and based on fiction, knowledge is still created.

² "Thomas Edison." *Wikiquote*. Wikimedia, n.d. Web. 15 Oct. 2013. <http://en.wikiquote.org/wiki/Thomas_Edison>.

This leads us to the question whether the creation of knowledge requires information to be systematically organized. The process of reasoning involves corroborating statements with other statements. This process implies that systematically organized information would be beneficial. The periodic table is a prime example of knowledge generated by simply organizing facts. Meyer and Mendeleev independently arranged the elements based on their atomic weight and atomic numbers. They used previously known facts and added nothing of their own except organization. Mendeleev predicted elements found decades later, based simply on his organization. In biology, the famed *classification* uses the same principle. Biologists are able to discover and classify new organisms largely because this classification is systematically organized. One can but imagine a jumble of information of the millions of organisms already classified. It would be a herculean task for scientists to use those facts. Thereby, we infer that knowledge was produced due to the vistas created by systematically organized information.

However, the organization of facts is fraught with fallacies as it could be argued that people perceive “organization” differently. The Periodic Table was originally organized in many ways including Dobereiner’s triads, and Newlands’s octaves. Scientists decided on a certain organization to facilitate discussion and understanding. Nonetheless, it could also be argued that different organizations would lead to a variation in perceptive and lateral thinking, and perhaps increase knowledge potential. Additionally, as seen by the transformation of the periodic, the most logical of these revisions and organizations were adapted. If a more logical revision were developed, that would be adapted. This argument, though not refuting the benefits of systematic organization, proves how various organizations of the same information is knowledge. It also establishes that “systematic” organization is subjective.

The Natural Science benefits from systematically organized facts, yet is not limited by them, as its basis stands in gathering knowledge through reasoning and sense perception. However, as a contrast, The Arts often benefit from unorganized fiction.

The Arts is used to refer to the creative productions of mankind. It uses emotion and language as its currency to encompass and share personal knowledge, to create a base of shared knowledge. This is not to say that reasoning and sense perception are completely independent from this process, but rather they are neither a necessity nor an imperative aspect as it would have been for the natural sciences.

Most artwork today is not rooted in facts, whether literary or visual. Fictitious novels of witchcraft and wizardry, and skewed drawings of parallel universes are considered artwork, as are not-fiction memoirs and pictures depicting real events in the human timeline. What becomes clearly evident, however, is that the distinction between fact and fiction does not diminish the ability of artwork to convey and add to the knowledge of the perceiver.

In some areas, non-factual artwork could be more productive in conveying emotion and language. Fairy tales encompass a literary genre that is unlikely to ever fade away, because of its profound affect on children. Fairy tales affect children on an emotional level, revealing social and cultural experiences and thick concepts that would otherwise prove difficult. It has been argued that these fairy tales are more effective than non-fiction or factual accounts that would reveal the same, as they appeal to children's imagination and wonder. It has been accepted, that fairy tales are responsible for emotional colouring that aid children in learning and remembering.

Despite the lack of factual information in written texts, I learnt an insurmountable amount. Albert Einstein said, “Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.”³ As a Hindu, there are three primary scriptures in my religion, among which are “The Ramayana” and “The Mahabharata”. Though considered legends, the stories enamoured me as a youth and cultivated my religious and philosophical beliefs. Amongst other things, it made me believe in the concept of karma and it revealed previously unknown knowledge. Even if considered by some as an urban legend, the simple fact that it provides second-hand knowledge, proves that it itself is knowledge. It is undoubted that fictitious artwork involves creating connections and relations between ideas that lead to useful output, and hence by definition is knowledge.

The creative expression is not only mostly fictitious, but also rarely organized. Few artwork could be considered to be “systematically organized”, whether literary or visual. Novels are often, purposely “jumbled” and not in chronological order in order to affect our perception of reality. The Sapir-Worf hypothesis states that language and emotion define our experience of reality. In a novel that I read, “Sorrow of War”, Bao Ninh, the writer, moves to different time periods and settings with apparent randomness, often confusing the reader. However, this confusion aids in highlighting the chaos of war. Similarly, visual art cannot be defined to have “systematic organization”. Would it perhaps refer to the organization of objects in terms of sizes, importance or logic? It is held that the beauty in paintings is its ability to provoke different emotions and perceptions from different people, and hence appeal to their knowledge base. Hence, an attempt to systematically organize a painting, however absurd and implausible that sounds, would not only detract the creator’s original purpose but would

³ 2009, “Einstein on Cosmic Religion and Other Opinions and Aphorisms” by Albert Einstein, Quote Page 97, Dover Publication, Mineola, New York. (This Dover edition is an unabridged republication of “Cosmic Religion and Other Opinions and Aphorisms”, originally published in 1931 by Covici-Friede, Inc., New York) (Google Books Preview)

also lead to a diminished knowledge potential. In the arts, fact and organization might not only be immaterial but might also be damaging.

If knowledge is considered to be the simple relation between ideas, to some useful extent, then knowledge cannot be restricted to be generated from systematically organized facts. Paranormal phenomena and creative works that lack both fact and organization can constitute an equal potential for the production of knowledge, especially when both are also primary knowledge. Though in some scenario's, systematically organized facts may aid in the pursuit for knowledge, in others it may not only prove fruitless, but would also hinder the pursuit of knowledge. The sources of knowledge are not limited, and non-factual, disorganized information cannot be discounted. Systematic organization maybe a stepping-stone to knowledge, however, this does not apply to all disciplines. Knowledge is extremely comprehensive to be confined by this subjective parameter. Chaos and imagination have been instrumental in leading to order and knowledge innumerable times, to be disregarded.

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References and Works Cited

1. "Areas of Knowledge." *Theory of Knowledge Guide*. The International Baccalaureate, n.d. Web. 02 Jan. 2014.
<http://ibpublishing.ibo.org/exist/rest/app/tsm.xml?doc=d_0_tok_gui_1304_1_e&part=2&chapter=4>.
2. "Chemistry Resources at BPC: History of the Development of the Periodic Table of Elements." *BPC.com*. Brewton-Parker College, n.d. Web. 5 Nov. 2013.
<http://www.bpc.edu/mathscience/chemistry/history_of_the_periodic_table.html>.
3. *The Cultural Evolution of Storytelling and Fairy Tales: Human Communication and Memetics*. N.p.: Princeton Press, n.d. PDF.
<http://press.princeton.edu/chapters/s9676.pdf>
4. "History of Mass Spectrometry." *Wikipedia*. Wikimedia Foundation, 15 Oct. 2013. Web. 19 Oct. 2013. <http://en.wikipedia.org/wiki/History_of_mass_spectrometry>.
5. "How Fast Is the Universe Expanding?" *WMAP- Expansion of the Universe*. NASA, n.d. Web. 18 Oct. 2013. <http://map.gsfc.nasa.gov/universe/uni_expansion.html>. Parts of this page were adapted from the article "The age of the universe", D.N. Spergel, M. Bolte (UC, Santa Cruz) and W. Freedman (Carnegie Observatories). *Proc. Natl. Acad. Sci. USA*, Vol. 94, pp. 6579-6584, June 1997.
6. "John Locke (1632-1704)." *Http://www.iep.utm.edu*. Internet Encyclopedia of Philosophy, n.d. Web. 19 Nov. 2013. <<http://www.iep.utm.edu/locke/>>.
7. Sanger, Larry. "How the Internet Is Changing What We (Think We) Know." *Larrysanger.com*. N.p., 23 Jan. 2008. Web. 14 Oct. 2013.
<<http://www.larrysanger.org/hownetchangesknowledge.html>>.
8. "Thomas Edison." *Wikiquote*. Wikimedia, n.d. Web. 15 Oct. 2013.
<http://en.wikiquote.org/wiki/Thomas_Edison>.

9. Zipes, Jack. "Why Fairy Tales Are Immortal." *The Globe and Mail*, n.d. Web. 5 Nov. 2013. <<http://www.theglobeandmail.com/arts/books-and-media/why-fairy-tales-are-immortal/article1314662/>>.

10. 2009, "Einstein on Cosmic Religion and Other Opinions and Aphorisms" by Albert Einstein, Quote Page 97, Dover Publication, Mineola, New York. (This Dover edition is an unabridged republication of "Cosmic Religion and Other Opinions and Aphorisms", originally published in 1931 by Covici-Friede, Inc., New York) (Google Books Preview)