

WITHOUT APPLICATION IN THE WORLD THE VALUE OF KNOWLEDGE IS GREATLY DIMINISHED

George's A Essay

The knowledge claim “(w)ithout application in the world, the value of knowledge is greatly diminished” is problematic for a number of reasons. Firstly, to effectively evaluate this knowledge claim, the type of knowledge that is applied and what is meant by application must be specified. Therefore, this essay will focus on shared knowledge that is put to use within Mathematics and the Human Sciences. Secondly, we must specify who judges whether the knowledge has value. Such judgment depends on the knower who interprets the knowledge, since the value linked to shared knowledge is different between the academic world and non-expert communities. Thirdly, it is questionable whether the knowledge claim's assumption, that the absence of application in the real world causes a devaluation of the initial form of that knowledge, is valid. Indeed, the value ascribed to knowledge by its users is not limited solely by its application. It can be reasoned that the inherent value ascribed to knowledge by scholars is independent from application and is related to how closely the knowledge conforms to the methodology that is valued in a particular field at a particular time. Whereas non-expert knowers, who are less likely to have the pre-existing knowledge to appreciate the knowledge's inherent value, base their judgment regarding the value on their demand for it at that particular time. Nevertheless, it would be wrong to assume that knowledge is either completely or not at all applicable; a continuum from high to low degrees of applicability exists within the nature of applied knowledge. That being said, it is certainly true that reasons why failure of application can diminish the value of knowledge may include when the applied knowledge fails to be used as the basis for the foundation of future shared knowledge, fails to resemble a model for the comparison of what an ideal world circumstance would be and fails to provide any benefits to its users.

Mathematical knowledge, regardless of its application, has inherent value by itself. However, the ability to identify and appreciate this inherent value depends on the type of knower. In set-theoretic geometry there exists the example of the Banach-Tarski paradox, which claims that a sphere can be dissembled into a finite number of parts and when reassembled in a specific way, two spheres identical to the first can be formed¹. Within the academic world, such knowledge has tremendous value for mathematicians as they have mathematical proof that matter can be duplicated. Despite being completely theoretical, mathematicians rely on their pre-existing personal knowledge to appreciate the inherent value of a theorem extracted with the mathematical method. However, the possibility for mathematicians to use their mathematical intuition and imagination in an attempt to find an answer as to why the law of mass-energy conservation is violated, allows them to apply the knowledge in their world (i.e. their work environment). Such opportunities for application of mathematical knowledge – as the basis for future shared knowledge – further elevates its value from the perspective of mathematicians. Therefore, in the scholarly world, applicability of mathematical knowledge adds to the inherent value. Regardless of its position on the applicability continuum, the inherent value of shared mathematical knowledge will remain the same, unless the validity of its extraction method is problematic.

However, it's not uncommon for non-experts to interpret the value of the theoretical mathematical knowledge differently. For example, for non-experts, the inexistence of base-10 Lychrel numbers (natural numbers whose reversed-digit summation does not

¹ "Banach–Tarski Paradox." *Wikipedia*. Wikimedia Foundation, n.d., https://en.wikipedia.org/wiki/Banach%E2%80%93Tarski_paradox (Web. 13 Feb. 2016).

form a palindrome)² theorem is non-applicable as they do not have the personal mathematical background knowledge to attach this new knowledge to. They lack the mathematical imagination and intuition to try and discover the reason for this inconsistency within Lychrel numbers, which as a result limits application opportunities and the ability to appreciate the inherent value. Therefore, the value of such theoretical Mathematical knowledge is greatly diminished.

Nonetheless, practical mathematical knowledge may not only have application, and hence value, to the specialist mathematician. Gottman, Swanson and Murray managed to integrate mathematics into marriage by creating a model that predicted whether newlyweds would still be together six years after their marriage.³ Unlike the previous examples, such newlywed-ethno-mathematics applies directly to a fundamental aspect of people's lives, marriage. Therefore, this knowledge lies on the upper part of the applicability continuum: non-experts are able to comprehend and appreciate the inherent value of the model as they can relate mathematics associated with marriage to their lives, hence having the personal knowledge to assess such information. However, regardless of the applicability, what resulted in non-experts greatly valuing the newlywed model was their demand for it at that particular time instance. Having existed since 1999, if the mathematical knowledge had tremendous value because of its application and inherent value, then non-experts would have always greatly valued it. Though, before getting married, or before worrying about their marriage, non-

² "196 AND OTHER LYCHREL NUMBERS." *196 and Other Lychrel Numbers*. N.p., n.d. <http://www.p196.org/> (Web. 13 Feb. 2016).

³ Gottman, John, Catherine Swanson, and James Murray. "The Mathematics of Marital Conflict: Dynamic Mathematical Nonlinear Modeling of Newlywed Marital Interaction." *Journal of Family Psychology* 13.1 (1999): 3-19. <http://www.johngottman.net/wp-content/uploads/2011/05/The-Mathematics-of-Marital-Conflict-Dynamic-Mathematical-Nonlinear-Modeling-of-Newlywed-Marital-Interaction.pdf> (Web. 13 Feb. 2016).

experts were not interested in such a model. Yet, once it became of use to them and they demanded the knowledge, the value of the mathematical knowledge increased, despite its inherent value and high applicability. Thus, in the non-expert world, even if the knowledge is at the lower end of the applicability continuum, if there is demand for that knowledge, then it will be greatly valued by the knower.

Conversely, if we turn our attention now to the Human Sciences, we find that high degrees of applicability of shared theoretical psychological knowledge in the academic world can give value to the knowledge, despite the knowledge itself having a low inherent value. In terms of the psychological method, psychological knowledge has inherent value only when it can be scientifically tested and there are quantitative empirical data values. If the psychological theory cannot be scientifically tested then it is not possible to generalize the acquired theoretical psychological knowledge into shared practical knowledge. The Oedipus complex, describing a sexual desire for the parent of the opposite sex and a sense of competition with the parent of the same sex,⁴ has a very low inherent value in the scholarly world as no quantitative results are extracted, since the subconscious is an area that cannot be tested nor measured.

However, in the discipline of Psychology, it can be argued that the value that a scholar attributes to a particular type of knowledge can increase depending on whether it can act as the basis for future shared psychological knowledge. If the psychological knowledge can help in the advancement of psychology then it must have tremendous value. Sigmund Freud's psychological field of psychoanalysis, stimulated an emotive response from the group of psychologists known as the

⁴ "Major Psychological Schools of Thought." *Whatispsychology*. N.p., n.d..
http://psychology.about.com/od/oindex/g/def_oedipuscomp.htm (Web. 13 Feb. 2016).

Behaviorists. Behaviorism, stimulated by emotion and pursued by reason, opposed non-applicable psychological knowledge and created a paradigm shift in Psychology⁵.

In Freud's case, psychological knowledge with a low inherent value was applied in the psychological field and stimulated progress in the science, thus giving the knowledge immense value. Therefore, in the academic world, knowledge positioned at the lower end of the application continuum cannot decrease the value of knowledge beyond the inherent value, whereas high degrees of application can increment the value of the knowledge tremendously. In the contrary, non-experts are unable to apply the Oedipus complex in their world, causing demand for such knowledge to decrease, but are also deprived of the personal psychological pre-existing knowledge to understand its inherent value. Thus, in the non-expert world, the value of theoretical psychological knowledge located at the lower end of the application continuum is greatly diminished, beyond its inherent value.

Similarly to Psychology, regardless of the inherent value, lack of application or lack of demand for economic knowledge in the non-expert world can diminish its value. When investigating my extended essay (titled "Is fast food an inferior good in Greece?") my research concluded that non-income determinants of demand combined with extremely low incomes might have caused the observed decrease in demand for fast-food. Although the economic theory of inferior goods could not explain my results, I was able to extract such a conclusion from my assignment by using the economic theory as a comparison of what results I should have obtained. Therefore, such application incremented the value I ascribed to the economic knowledge. Moreover, with respect to my economic outcomes, although they were inapplicable in

⁵ "Major Psychological Schools of Thought." *What Is Psychology*. N.p., n.d.
<http://www.whatispsychology.biz/major-psychological-schools-thought>. (Web. 13 Feb. 2016).

other economies, I still valued the knowledge because it was what I demanded for my assignment. This demand caused the knowledge, even if inapplicable, to be of value to me. Therefore, it can be deduced that for non-experts, if economic knowledge lies on the lower end of the applicability continuum or if it is not demanded, its value will be greatly diminished.

To conclude, the position of shared knowledge on the application continuum and the world in which it is applied, have a crucial impact on its value. In the academic world of mathematics and psychology, the position of knowledge at the lower end of the applicability continuum will not greatly diminish the knowledge's value, as mathematicians and psychologists are aware of the inherent value that knowledge possesses which is extracted by rigorous methods conforming to the mathematical and psychological methodology. Whilst, in the non-expert world of mathematics, psychology and economics, knowledge users do not have the personal mathematical or scientific background to appreciate the inherent value of the knowledge. Therefore, knowledge located at the lower end of the applicability continuum, which fails to be used as the basis for the future foundation of knowledge, to provide any benefits to the user and to be used as a comparison of an ideal circumstance, is considered to be of low value by non-experts, unless the knowledge is demanded by the non-expert knower at that particular time.

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