

IB TOK ESSAY SAMPLE



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TITLE

SHOULD KNOWLEDGE IN AN AREA OF KNOWLEDGE
BE PURSUED FOR ITS OWN SAKE RATHER THAN ITS
POTENTIAL APPLICATION?

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Should knowledge in an area of knowledge be pursued for its own sake rather than its potential application? Discuss with reference to mathematics and art.

Why solve an equation that has no apparent practical uses and take years to work on, or paint something that will never go on a canvas in a gallery?

In most areas of knowledge, in particular in mathematics and art, people seek answers to knowledge with no other aim than simple curiosity or self-expression. It begs the question of whether the indicative use of knowledge has to be demonstrated in every instance in terms of its utility in this world. In a world in which things are coming to matter more and more based on findings and quantifiable data, it is tempting to think that knowing more without necessarily knowing something predictable is a waste of resources. Historically, however, we understand that some of the most significant insights humans have ever had were brought about by those who chased a question down purely because it was worth asking, or who painted a picture purely because it was worth seeing.

In the field of mathematics, abstract theories formulated centuries ago have since given way to revolutionary inventions. In art, many movements, such as Cubism and Surrealism, were commercially useless when they emerged, yet they profoundly changed the way people understood the world. These examples suggest that the usefulness of knowledge does not need to be proven to be meaningful. Instead, it can be travelled by the passion, wonder, and the human desire to know or mean.

The essay argues that knowledge, as an end in itself, is vital in furthering knowledge, opening avenues to innovation, and enhancing human experience, which is often unpredictable in its very beginning. Frequently, the thematic discoveries of most excellent power start merely with the desire to learn something--with the delight in the very act of learning.

Mathematics:

In mathematics, knowledge sought for its own sake often yields profound insights and structures that can subsequently impact the real world, even if they may not seem immediately helpful. Math is abstract, so it does not always serve utility as its primary purpose, but rather knowledge. In the Theory of Knowledge (TOK), this highlights the elements of reason and intellectual curiosity as a strong way of knowing, which propels the field beyond the transactional.

The development of number theory¹ is a good example. Examples: G.H. Hardy boasted in the 19th century of pursuing mathematics with the exclamation that he did not need it. His interests were in pure mathematics (or more specifically, number theory), which he felt was useless. His assistance on prime numbers, however, was used many decades later, forming the basis of RSA encryption. This system is utilized in online communications, including banking and messaging applications. The impractical work of Hardy now forms the foundation of modern-day cybersecurity systems. It is a prime example of the blatant separation of knowledge based on its understanding, simply because there are instrumental results of such now-famous research that persist long after the research itself is completed. The use was not an artifact of purpose, but instead of the open-endedness and imaginativeness of mathematical inquiry. It explains why the intrinsic valuation of knowledge, particularly in one specific field of math, could be the key to sustained innovation.

Contrastingly, other people hold that unless one pays attention to the practical aspect, mathematical knowledge can even be irrelevant to society. Although pure exploration is intellectually virtuous, pure intellectual cannot be an end in itself without imposing any limitations on knowledge and applying it to practical life, which makes its value and intention lower in the context of collective human experience. An essential and critical point in TOK in the assessment of the ethics and role of knowledge. A case in point is the current discussion regarding grand

¹ Silverman, J. H. (n.d.) Chapters 1–6. A Friendly Introduction to Number Theory. Brown University. Available at: <https://www.math.brown.edu/johsilve/frintch1ch6.pdf> (Accessed: 18 June 2025).

investments in mathematical research that cannot be applied, such as research in topology in higher dimensions².

On the one hand, these fields can be interesting and beautiful in their complexity; on the other hand, they can involve considerable government investments without direct benefits to society in terms of medical, technological, or economic advancements. The critics respond that, in particular, in a world with urgent issues to address, such as climate change or a health crisis, knowledge with obvious applications is more responsible. For example, during the COVID-19 pandemic, applied mathematicians played a crucial role in modeling the spread of the virus, optimizing resource allocation, and predicting peak infections. The work was based on practical results and demonstrated the immediate and life-saving benefits of mathematically oriented decisions. In this case, there was no purely intellectual interest, and the knowledge was better applied in the real world, demonstrating that mathematics, grounded in reality, could produce the most immediate and effective outcomes.

The conflict between practicing mathematics for its own sake and for the sake of the mathematical object itself is a central idea in the structure of knowledge, particularly in setting boundaries and determining the worth of knowledge. Pure mathematics need not have any immediate practical use. Still, it is generally the predecessor to applied mathematics, so there is never a rigid distinction between the theoretical and the practical. Both parties resort to reason, intuition, and faith as forms of knowing, either through believing in abstract logic. There are specific innovations that occur at the crossroads where abstract concepts clash with practical requirements.

Art:

² Babcock, M. (2025) 'What's the shape of the universe? Mathematicians use topology to study the shape of the world and everything in it', Georgia Institute of Technology News, 28 February. Available at: <https://www.gatech.edu/news/2025/02/28/whats-shape-universe-mathematicians-use-topology-study-shape-world-and-everything> (Accessed: 18 June 2025).

In art, the pursuit of knowledge as an end in itself provides an alternative avenue of personal discovery, cultural reflection, and affective truth that can be difficult to achieve with purely instrumental motivations. TOK regards such an emphasis on emotion, imagination, and aesthetic experience as of paramount importance as a form of knowledge. Art not directly related to an application can take artists into the depths of the human condition, and in doing so, can generate knowledge that is not only likely to be universal but also transformative, even when it is not directly useful.

One of the most admirable works is that of the South African visual artist William Kentridge³. His animated film cycle, *Drawings for Projection*, was not meant to educate or offer political solutions, but to explore the emotional and historical heritage of his nation through the fragments of imagery and the fluidity of point of view. The learning generated by Kentridge's work is that it can be viewed as an account of collective memory and ethical ambiguity. To this effect, his art enriches our understanding by providing a subjective platform through which sensitive realities can be viewed. The quest to know in the given context leads to emotional and moral intuition in a way that no Excel sheet or policy can yield.

But art with a practical intention, either political, didactic, or therapeutic, makes powerfully necessary knowledge, too. The actual social, psychological, and communicative benefits arise from applying artistic expertise. In this case, concepts such as ethics, language, and sense perception, as explored in TOK, will help determine the role of art in the real world.

Consider the case of the Inside Out Project, first started by the French street artist JR⁴. It is a worldwide participatory initiative that offers people all over the planet the opportunity to

³ Marian Goodman Gallery. (n.d.) William Kentridge. Available at: <https://www.mariangoodman.com/artists/49-william-kentridge/> (Accessed: 18 June 2025).

⁴ Urban Nation. (2022) Inside Out Photobooth Project. 8 September. Available at: <https://urban-nation.com/2022/09/inside-out-photobooth-project/> (Accessed: 18 June 2025).

contribute their stories, which have never been told in black-and-white portraits pasted in the streets.

Whether informing people about refugees in Tunisia, advocating for education rights in Pakistan, or addressing gender inequality in India, the project combines art with activism. JR did not create his work to explore his mind but to reach out to society and share neglected realities using words and images, as well as spark a discussion. Knowledge produced here is, indeed, intentional in its aims: to remake popular discourses, raise question marks to stereotypes, and give rise to a sense of empathy. The value of art does not lie in contemplation in this instance, but in being able to inform, persuade, and bring people together through social and cultural boundaries.

Conclusion:

The utility of learning in the pursuit of knowledge as such is instrumental in the arts because it is the source of disclosure of non-utilitarian truth, for the discovery of the most deep-rooted, sentimental, and philosophical truth in almost complete neglect of utility. Such an exploration allows artists not to feel enslaved to forces they do not understand, giving them freedom to experiment, reflect, and hold specific ideas that may not necessarily apply but transcend time and cultures. Meanwhile, a meaningful artistic output can lead to positive transformation in the real world, inspire social change, and foster connections across barriers through dialogue and compassion. Each of these two schools exemplifies the way of knowing in the arts, encompassing emotion, imagination, language, and sense perception.

The line between knowledge per se and applied knowledge is not always so clear-cut within the arts. The strongest pieces are created when intention, or at least a sense of purpose, meets intuition in a place where an artist acts upon curiosity and, as it turns out, makes a piece that touches other people meaningfully and unexpectedly, that has nothing to do with the intentions the artist had in mind. In any case, knowledge in art must not be restricted by a law of utility. The

possible value of it is its capacity to contradict, criticize, and recreate the surrounding world. That will be a purpose enough in itself, whether it does or not fulfill a specific role.

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