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TOK Essay

To what extent may the subjective nature of perception be regarded as an advantage for artists, but an obstacle to be overcome for scientists?

On the surface, it seems that art and the subjective nature of perception go hand in hand. Yet if one were to mention science, it seems to be associated with objectivity. Science is all about the objective truth, while art is about articulating subjective truths. However, the advantages of subjectivity for artists has its limits, specifically when it comes to judging artwork. Likewise, subjectivity is not always an obstacle for scientists, especially in the field of research.

The subjective nature of perception is advantageous to artists because it allows for expression of their own experiences. Artists can express through their work whatever they see and feel, allowing the artwork to be labeled as "unique". Thus, because artwork is simply a canvas for the artist's feelings, the work can never be proved right or wrong. For example, artists will never discover that Leonardo Da Vinci's "Last Supper" needed a bit more red, or that Mahler's Eighth Symphony needed a few more rests. Moreover, art intends to evoke subjective states, making it even more difficult to prove a piece of art correct or incorrect. As Victor Shklovsky stated, "The purpose of art is to impart the sensation of things as they are perceived, and not as they are known."

Also, artists are not limited to focusing on the external world, but can explore other realms, such as emotions, myths, dreams, and the spirit as well. Subjects that artists explore in their work can be tangible or non-tangible, objects of the imagination or objects we encounter in everyday life.

But despite the numerous advantages subjectivity allows artists to have, the subjective nature of human perception can be a disadvantage. Subjective perception allows an artist's audience to project themselves more easily onto a work of art, to draw some personal emotion or meaning from the piece which the artist might otherwise be unable to convey to a large audience. This could also be seen as a disadvantage for the artist because it reduces their ability to control the reaction of their audience, and may lead to undesired reactions, or even apathy. Furthermore, human perception is so subjective that the "beautiful" piece of artwork to one person may be horrid to others.

The problem of the subjective nature of perception is ever present in the scientific world. Scientists intend to discard all subjectivity in favor of objectivity, which ultimately paves the road to knowledge. However, scientists often encounter subjectivity in their work, and the fact remains that, while its use may be justified on the grounds of expediency, the exercise of personal judgment, no matter how "professional", is subjective and has inherent dangers. In examining the log books of Robert Milikan during his experiment with the electron, the physicist and historian Gerald Holton discovered that some of Milikan's criteria was subjective, as revealed by comments such as, "Very low-something wrong," and, "This is almost exactly right." Throughout, Milikan appears to have been driven partly by a desire to get results that were self-consistent, broadly in agreement with other methods, and consistent with his personal view that the electron is

the fundamental and indivisible unit of electric charge. While these criteria seem reasonable enough, they carry inherent dangers. Even today, a fundamental explanation of the precise numerical value of the charge on the electron remains deficient. Previous results may have been fundamentally flawed, while the demand for self consistent results may mask the existence of subtle but genuine properties of the electron. Milikan could have also been proven wrong in his belief that the electron was the fundamental component of an atom.

Instances in which scientists implement subjectivity as a tool can serve as an obstacle by delaying the scientist's progress, or delaying progress in the scientific field. For example, when George Zweig, a young American theorist, emphasized the physical reality of quarks, his papers were rejected and his appointment to a position at a major university was blocked, labeled by the head of department as a "charlatan." Similarly, the astronomical community refused to accept reports of "stones falling from the sky," as had been long reported by ordinary people, until investigations by Biot in the early 19th century. This refusal seems to have stemmed from a prejudice against the notion that the Earth could be subject to potentially serious bombardment.

Additionally, scientists must overcome the subjective nature of perception in almost every area of their field. Subjectivity is present when dealing with measurements: who defines what a meter is and what makes it so special? Also, subjectivity can be viewed as a problem in experimentation. For example, the observer could influence the outcome of a certain experiment; other factors beyond the scientist's immediate observation could play a role in the experiment; and, scientists must base their findings on what they have observed using their sensory input (sight, hearing, etc.), which could be defective, thus skewing the results of an experiment. What proves to be an even more considerable obstacle is the subjectivity of communication. Is there a proper way for a scientist to convey an abstract idea to another scientist? Even more, a scientist cannot be certain that another scientist is viewing the concept in the same way that they are.

In their quest to overcome subjectivity, many scientists institute an extreme form of objectivity that does not produce beneficial results. First, while proclaiming that no one can have true knowledge of the universe, many scientists proclaim that scientific constructivism (belief that reality is a construction, an interpretation) is the only legitimate way of creating valid ways of understanding nature. This belief forbids all other ways of knowing, which in turn undermines all religions, philosophies, and theories of morality. Moreover, subjectivity is only considered to be worthwhile when it leads to a validated, scientific theory. Once a scientist has the validated theory, they should ignore their subjective insights or pay attention only to those insights that allow them to apply the theory to concrete situations.

Although the subjective nature of perception is a bane to a scientist, it is also helpful in developing new theories regarding reality. Theories are essentially educated guesses, some of which are loosely based on some known, observable phenomena, but are very much open ended until the details can be filled in, done so by the scientist's subjective perception. For example, there are scientists who have proposed what were considered radical ideas at the time, but were later widely supported theories within their

field. Many of these scientists claimed to have a "gut feeling" that the theory was right, or that the theory was "too beautiful to be wrong."

Subjective methods have a vital role to play in everyday research as well. All working scientists are bombarded with new research findings and theoretical claims, put forward in seminars, journals, and books. Many of these new claims appear to differ from current belief. Scientists need a way of judging which claims to take seriously and pursue, and in the absence of any hard evidence, they resort to a range of criteria which is infiltrated with subjectivity. This subjectivity ranges from personal experience and knowledge about the plausibility of the claim to criteria such as the reputation of the researchers making the claims, their academic affiliation, and the quality of the journal in which their claims appear.

The subjective nature of perception has both advantages and disadvantages for the artist as well as the scientist, having a larger disadvantage for the scientist trying to work in a world of objectivity. Yet despite the disadvantages for the artist and the scientist, the subjective nature of perception is what gives life to the art we encounter and gives us the benefits to scientific discoveries made every day.

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