Karl Popper on the Unknown Logic of Artistic Production and Creative Discovery

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Abstract

In the field of artistic research there has recently been a resurgence of interest in Karl Popper’s thought on scientific methodology. However, the current literature on artistic research has tended to reduce his methodological thought to the arguments in his book *The Logic of Scientific Discovery* (1959). Although greatly influential, this book does not represent Popper’s “mature” or later arguments. This article provides an alternative view of Popper better suited to debates on creativity and discovery. Contrary to his popularity in political and scientific circles, the relation of Popper’s arguments to the arts is less well known and has not seriously been studied, despite his profound influence on the art historian Ernst Gombrich. This article points out ways in which Popper’s thought can continue to contribute to the current debates on artistic research and creative production. It does this by disclosing the way in which his later writings on evolutionary epistemology and theory of objective knowledge, otherwise called the “World 3 Thesis,” can contribute to the field of artistic research.

Keywords

Popper – Gombrich – creativity – discovery – artistic research
I think that scientists, however skeptical, are bound to admit that universe, or nature, or whatever we will call it is creative, for it has produced creative men, it has produced Shakespeare and Michelangelo and Mozart and thus, indirectly their works.

Karl R. Popper

Introduction

In the field of artistic research there has recently been a resurgence of interest in Karl Popper’s thought on scientific methodology. However, the current literature on artistic research has tended to reduce his methodological thought to the arguments in his book The Logic of Scientific Discovery (1959). Although greatly influential, this book does not represent Popper’s “mature” or later arguments. This article provides an alternative view of Popper better suited to debates on creativity and discovery. Contrary to his popularity in political and scientific circles, the purchase of Popper’s arguments to the arts is less well known and has not seriously been studied. This remains the case despite his profound influence on the art historian Ernst Gombrich. This article points out ways in which Popper’s thought can continue to contribute to the current debates on artistic research and creative production. It does this by disclosing

1 Extract from a lecture delivered at Darwin College, Cambridge, November 8, 1977 titled “Natural Selection and the Emergence of Mind.”
2 The most significant example here is: Michael Schwab, ed., Experimental Systems Future Knowledge in Artistic Research (Orpheus Institute, Belgium: Leuven University Press, 2013).
3 I have previously presented a revised account of Popper’s philosophy that foregrounds his late metaphysics and evolutionary naturalism, which has been published in the following publications: Alexander Naraniecki, Returning to Karl Popper: A Reassessment of his Politics and Philosophy (Amsterdam: Brill 2014).
5 Gramelsberger repeats often made criticisms of Popper’s ideal scientific method as not reflecting actual laboratory practices in: Schwab, ed., Experimental Systems Future Knowledge in Artistic Research, 102-112. This was a common criticism of Popper’s Logic, which does not engage with the purchase of his broader theories of cognition for research.
the way in which his later writings on evolutionary epistemology and theory of objective knowledge, otherwise called the “World 3 Thesis,” can contribute to the field of artistic research.

With the notable exception of Gombrich’s adoption of Popperian epistemological arguments, such as his rejection of essentialism in the definition of art, Popper’s thought has had little direct impact upon aesthetics scholarship. Nor has his thought gained any traction among artistic circles. This article responds to this by arguing that the arts can also greatly benefit from Popper’s “objectivist” philosophy as it provides an anthropological account of learning, discovery and creativity. For Popper, although there is no knowable “logic” for discovery, the methods for training the cognitive traits necessary for making creative discoveries can be taught to a large extent. Popper believed that there was no reason why such methodological insights could not inform actual pedagogic practices. Creativity is a natural disposition for all humans and can be accentuated with the right cognitive formational practices. Indeed, his though is filtering through into the educationist scholarship, however has largely been limited to his earlier methodological thought and has not yet contributed to arts education.6 While this article does not provide a blueprint for such a pedagogy for arts education, it does, in Section Two highlight some key aspects of Popper’s thought, particularly those ideas that conflict with conventional wisdom as well as those which may be useful in orientating future practices. What Popper brings to the discussion of artistic production and the teaching of creativity as discussed in Section Three, is a novel “objectivist” perspective which aims to counter the subjectivist “myth of expression” yet does not reduce the objective method to mechanistic accounts of artistic research and technical proficiency as avenues to creative production. Rather by objective, Popper means the structured way in which the learner logically engages with mental objects in the act of learning or making discoveries, as discovery for Popper was logically indistinct from the act of learning. The final section of this article, briefly relates the above aesthetic insights to Popper’s broader agenda of cultural reform, which sees a constant need to reappraise the developmental impact of our cultural environment on individuals and society, particularly in light of technological and scientific innovation.

Trial and Error and the Unknown Logic of Production

Much of his earlier work aiming to “demarcate” science from non-science by objective standards of criteria, such as falsifiability lost much of its force in Popper’s later writings and he permitted himself to hypothesizing in domains that, strictly speaking, could never meet his earlier scientific stringencies for testing. The problem of creativity comes under this problematic, which is something Popper was aware of early on Logik der Forschung where he wrote of the unknowability of the logic of discovery, which was deceptively concealed by the title of the English translation of his book The Logic of Scientific Discovery. Within the methodological confines of Kantian epistemology proper, such acts of creative discovery cannot be adequately discussed. Later Popper’s writings moved in a metaphysical direction that aimed to account for the non-epistemic, noetic character of creative production and discovery. Firstly availed in Objective Knowledge: An Evolutionary Approach (1972) an “objective” account of the interconnected process of learning, creativity and discovery is systematized into a non-empirical schema, which he referred to as the World 3 Thesis. It is not “objective” in the scientific sense, rather the objectivity refers to the objective reality of autonomous thought products subsisting in a modally non-physical realm called World 3. World 3, or an objective yet non-empirical realm of ideas in themselves, is a real evolutionary feature of the human animal and provides an account of the interactive relation between the thinking subject and the thoughts that are produced or discovered. I argue that the implications of such a view raises new possibilities for how human artistic and creative practices and created products are evaluated. By this I hope to make the case that scholarship in the area of artistic research can

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7 For recent literature on art practice as theory see: Graeme Sullivan, Art Practice as Research: Inquiry in Visual Arts (London: Sage, 2010), 44. Here, Sullivan argues that: “Other foundational principles are not limited to use only in the sciences. For instance, although Popper’s concept of falsifiability…is used to find evidence to confirm that an expected outcome is wrong, rather than right, it would be wrong to assume that there are not traditions or practices in the arts whereby conjectures are not subject to empirical risk.” However, even here a discussion of Popper is restricted to his discussion of falsifiability in the Logic and does not account for Popper’s move away from strict falsificationism, to include a broader requirement of “arguability” for problems that cannot be subjected to empirical refutation. As this was developed after the Logic it is suggested that Popper’s later writing may have more traction for artistic research, particularly in view of the literature on artistic practice and research. An artistic product may be subjected to intensive scrutiny according to other indicators of reasonableness, rather than according to the strict criterion of falsification of his earlier thought.
benefit from a richer account of Popper’s work than the standard presentations of his arguments often suggest.

Popper’s fame during his life was a result of his tireless work in political and scientific philosophy, however, a central concern which runs through all of his work is that of creativity. Artistic creation, particularly musicology was also a major interest of his and one which greatly informed his scientific studies. Bryan Magee stated in Popper that, “If Popper is right, there are not two cultures – one scientific and the other aesthetic, or one rational and the other irrational – but one.”8 This article supports Magee’s observation by drawing out the common arguments concerning the process of creative discovery that run through his scientific and lesser known aesthetics. This unity was owing to an underlying anthropology that he referred to as “evolutionary epistemology.” Central to this for Popper was the view that a defining evolutionary characteristic of life was that it searches, and does so adventurously. This is also the case for humans even if we are not always conscious of this. Hence, when Popper talked of a “search for a better world,” the searcher’s (Sucher) worldview is skepsis. Life, including human life, is characterised by a never-ceasing series of trials and error correction initiated by hope-driven work: Das Leben ist skeptisch.9

To appreciate the strength of Popper’s various “metaphysical research programs” for artistic research, the Logic of Scientific Discovery provides a useful place to start. However, what is of importance in The Logic of Scientific Discovery for artistic research, and one of his most important insights, has been largely overlooked. That is, the argument that there is no known or knowable “logic” underpinning how discoveries are made even though there are procedures for improving technical proficiency in a discipline. As Popper argued in his Logic of Scientific Discovery:

It so happens that my arguments in this book are quite independent of this problem. However, my view of the matter, for what it is worth, is that there is no such thing as a logical method of having new ideas, or a logical reconstruction of this process. My view may be expressed by saying that every discovery contains ‘an irrational element’, or ‘a creative intuition’, in Bergson’s sense. In a similar way Einstein speaks of the ‘search for those highly universal laws…from which a picture of the world can be obtained by pure deduction. There is no logical path’, he says, ‘leading to

8 Brian Magee, Popper (London: Collins, 1973), 68.
9 Karl Popper, Alle Menschen sind Philosophen (Munich: Piper Verlag, 2006), 28-32.
these . . . laws. They can only be reached by intuition, based upon something like an intellectual love (‘Einfühlung’) of the object of experience.\textsuperscript{10}

The English title to this work is partly to blame for the way this book has been received as “Forschung” is best construed as “research” rather than “discovery”. There is no known logic for discovery not because our “subjective” or psychological limitations in knowing this, rather this is a result of his anti-deterministic view of the world, in which the emergent products of the human mind themselves constitute radical novelty, creating new possibilities that were hitherto non-existent and therefore non-discoverable.\textsuperscript{11} The radically novel emergence in the universe of the human mind as an evolutionary product of intersubjective communication made possible the creating and then discovering of arguments, theories, values, norms, conventions and standards:

With the emergence of man, the creativity of the universe has, I think, become obvious. For man has created a new objective world, the world of the products of the human mind; a world of myths, of fairy tales and scientific theories, of poetry and art and music.\textsuperscript{12}

For Popper, as we are free to create works of art and science which utilise such conventions, decisions, norms, values and standards, we are also responsible for them:

Nature consists of facts and of regularities, and is in itself neither moral nor immoral. It is we who impose our standards upon nature, and who in this way introduce morals into the natural world, in spite of the fact that we are part of this world. We are products of nature, but nature has made us together with our power of altering the world, of foreseeing and of planning for the future, and of making far-reaching decisions for which

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  \item \textsuperscript{11} For Popper’s theory of objective probability or “numerical propensities” see: Karl Popper, \textit{A World of Propensities} (Bristol: Thoemmes, 1990).
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we are morally responsible. Yet responsibility, decisions, enter the world of nature only with us.\footnote{Karl Popper, \textit{The Open Society and Its Enemies, Volume. 1, The Spell of Plato}, (London and New York: Routledge, 1962 \[1945\]), 61. For a discussion on the similarity of Popper’s view here with Schelling’s naturalism see: Naraniecki, “Popper’s view of modern science: in the footsteps of Schelling,” 197-215. This interdependence of freedom and responsibility was reflected in his strong moral argument for the transformative capacity of art, which raises important social and political questions. Social and political renewal and transformation were crucial life long concerns of Popper’s. Popper’s formative training involved study in developmental psychology at the Pedagogic Institute in Vienna, as well as time spent as a school teacher and social worker. This practical experience reinforced his concern with the way the cultural and institutional environment informs the development of individuals and subsequently the civilizational character at large. His famed political tract \textit{The Open Society and Its Enemies} is as much a treaties on pedagogy as it is political philosophy.}{13}

Thus constant revaluation and modification of the conflicting and normative values and standards is required. Popper’s comparison between the Amoeba and Einstein also analogously applies to values in artistic standards and research:

The difference between the amoeba and Einstein is that although both make use of the method of trial and error elimination, the amoeba dislikes to err while Einstein is intrigued by it: he consciously searches for his errors in the hope of learning by discovery and elimination.\footnote{Karl Popper, \textit{Objective Knowledge: An Evolutionary Approach} (Oxford: Oxford University Press, 1972), 70.}{14}

In this way we can see the purchase of Popper’s theory of trial and error or conjectures and refutation, that is, his view that hypothetical-deductive cognition provides the basic mechanism by which we seeks out solutions to our problems, and that we learn from this deductive process of error elimination. The method of trial and error that seeks to actively eliminate errors and tentatively promote new solutions functions as the ladder by which we climb to technical mastery, but in itself cannot explain or guarantee discovery. Such a deductivism is insufficient to explain both the exceptional instances of creation and discovery as well as transformative effect that such discovered products and creations have upon our psychic development. Thus, it was not so much a resurgent inductivism that challenged Popper’s deductivism later in life, but the persistent problem of a cognitive function traditionally associated with the term “intellectual intuition.” Out of the array of potential conjectural
hypotheses that we are capable of proposing for a given problem situation, how can we be assured that we are economical in our choices? In other words, how can we discern the best solution to the most relevant problem in order that we can make a creative leap forward, rather than being caught up in a potentially lifelong series of inadequate conjectural hypothetical solutions to poorly chosen problems? In Popper’s terms, how do we “select” an appropriate theory for criticism out of the small number of theories that we can only ever place consciously before our mind at any time? Not to mention the fact that most of our knowledge consists of dispositions, expectations and theories that we are never conscious of yet may be crucial to the particular creative task at hand. The great creative minds according to Popper, appear to have an informed capacity for such discerned selection, hence their capacity to pull away from and stand above their contemporaries.

This discernment involves a kind of intellectual intuition of what problems to select as well as what conjectural solutions to propose. Such intuition is associated with a kind of inner vision independent of any rational attempt at sequential reasoning, so much so, that such a vision may be understood by the musician or artist not to be a product of the artist’s thinking but to have been pulled out of the deep reservoir of their unconscious knowledge resources rather than deliberated from the reasoned choices immediately at hand at each decision making step of the creative process. Thus, great art involves something transcending conscious and sequential rationality in its creation, and bestows a moral benefit via the transcendental experience of interior creativity. For Popper, this experience of a transcendental intuition of the artistic creator has been widely noted. For example Popper states that, “Bach forgets himself in his work, he is a servant of his work”, and in relation to Beethoven that, “The work must be everything to him, it must transcend his personality.” Of his own personal experiences of this as a musician, Popper stated: “I can lose myself in my music which for me is an objective experience through which I try to improve myself”. Further in his autobiography he gives an account of the mysterious, unknown logos behind creativity:

17 Ibid., 62.
Indeed, a great work of music (like a great scientific theory) is a cosmos imposed upon chaos – in its tensions and harmonies inexhaustible even for its creator. This was described with marvellous insight by Kepler in a passage devoted to the music of the heavens:

Thus the heavenly motions are nothing but a kind of perennial concert, rational rather than audible or vocal. They move through the tension of dissonances which are like syncopations or suspensions with their resolutions (by which men imitate the corresponding dissonances of nature), reaching secure and predetermined closures, each containing six terms like a chord consisting of six voices. And by these marks they distinguish and articulate the immensity of time. Thus there is no marvel greater or more sublime than the rules of singing in harmony together in several parts, unknown to the ancients but at last discovered by man, the ape of his Creator; so that, through the skilful symphony of many voices, he should actually conjure up in a short part of an hour the vision of the world’s total perpetuity in time; and that, in the sweetest sense of bliss enjoyed through Music, the echo of God, he should almost reach the contentment which God the Maker has in His Own works.19

The fact that Popper did not write more explicitly on art and aesthetics is surprising considering his highly cultured upbringing. The arts, sciences and political theories of society were intimately linked to the ethical idea of Bildung or “formation.” The origins of this notion in German romanticism referred to a process of developing the soul through creative, particularly aesthetic activities. Bildung was a return to the ancient Greek notion of poiesis related to the idea of imaginative expansion, education and enrichment of one’s self underpinned by the Greek notion of paideia.20 Crucially, this was the view that the arts are not something simply to be consumed or enjoyed, rather their primary function is in their capacity for moral transformation. Popper’s life’s work as a Bildungsweg sought an inward integration of art, science and ethics directed toward self-cultivation and all of his writings from the most symbolic works of his logic to his exegesis of Presocratic poetry need to be viewed in this context. This ideal of the élite die Wissenden that prevailed in Popper’s milieu was exemplified in his formative years by the word Bildung, which is a term that is historically particular to its German context and has no real cultural parallel in English. Cultivation does not seem to capture the cult-like devotion to art and

19 Popper, Unended Quest, 59.
a religious and fervent belief in its transformative capacities that enraptured
the German bourgeois.\textsuperscript{21}

It remains the case that a Popperian or “critical rationalist” aesthetics, is not
known to be a source of inspiration to artists, musicians, dramatists or writers.
Although Popper was personally well integrated into high artistic, particularly
musical circles during his formative years, this was a more private association
that he did not publically promote. Further, for Popper artistic production had
a civilizational transformative function, aesthetics was seen as a moral meta-
physics (\textit{Bildung}) not limited to what we now refer to as the cultural or creative
industries. It was the aforementioned idea of \textit{Bildung} that underpinned this
existential view of the \textit{mysterium} behind production that seemingly surpass
what one might expect from hypothetical-deductive problem solving. Trial
and error, criticism and conjecture are fundamental to the process of creation,
but they do not \textit{explain}, the nature of the objects created, as such objects have
a degree of \textit{autonomy} from the artist. Because the created objects of art are not
reducible to the personal psychology of the artist, they can impact upon the
viewer or listener in an active way, thereby informing character development
in a positive or negative direction. The external inactivity of contemplation by
the viewer or listener, enables an interior or nouminal creativity or movement
to occur while interacting with an artistic product.

In this way his aesthetics were closer to Rudolf Steiner’s, which viewed
aesthetics as not about putting better paintings in galleries, but about activat-
ing the body in a plastic universe using organizational forms. Popper devoted
much effort later in life in his various writings to the argument that the uni-
verse was “open” materially or physically as well as mathematically in terms
of its objective probabilities. Further the universe was comprised of likewise
open or “plastic” systems and humans are emblematic of such an open plast-
tically controlled system, in which the mind or “self” pilots the interaction
between the physical body including the brain functioning with a non-physical
realm of ideas (a kind of transcendental mind or subject that Popper called
\textit{World 3}). Thus, humans are not hermetically sealed autonomous individuals,
but rather physical systems that have a non-physical opening to an ideational
realm. While Popper understood that this was hardly a “realistic” in the sense
of “common sense” view of humans as understood by the empirical sciences,
it does explain actual human functioning capable of making predications

\textsuperscript{21} However, \textit{Bildung} also resulted in crass populist versions associated with social climbing,
that Popper found distasteful. \textit{Bildung} readily became a “term denoting the acquired high
culture which accorded a mark of social substance if not social grace to its possessor.” See:
of human behaviour and learning patterns better than a closed reductionist anthropology which may well be more truthful to common sense reality. For Popper, the goal of explaining the lived and experienced world of common sense often requires non-empirical modeling rejecting a common sense theory of knowledge. For Popper, the culture that we produce informs the moral character of society. Understanding the processes of artistic production is not just about listening to better music or having something in the gallery worth paying repeated visits to; it is about preventing social degeneration and raising the cultural sphere to the same level of achievement as the scientific and technological sphere. This comes with a responsibility to reflect upon and change our traditions and standards as the nature of our cultural outputs themselves change. Popper held a view of freedom and thus, free creativity that was intrinsically related to moral responsibility.22

The Anti-Expressivist Theory of Artistic Creativity

This section argues that for Popper it was not technical proficiency, nor self-expression that is responsible for great artistic creations, rather it is the result of an intellective or intuitionist engagement with the ideas of the genre. Popper emphasised the objective quality and perfection of a work of art as the product of mastery of the art, of dedication and the capacity for creative self-critique. Popper said in his autobiography “The prime aim of the true artist is perfection of the oeuvre as such.”23 However, perfection is not reducible to technical proficiency, it also involves an intimate and intuitive engagement with the ideas, in a Platonic sense, of the genre through what he regarded as love or joy in work (Freude an der Arbeit). The same sense of Einfühlung or intellectual love that Popper wrote of in the Logic is true for art, while hard work, dedication, technical proficiency, the correct self-critical attitude, exposure to fortuitous influences are necessary, are not sufficient for the production of great art. Such products are also the result of a kind of intellecction beyond what can be explained according to the above conditions:

22 In a letter to Isaiah Berlin, Popper defined his view of liberty or freedom as a positive one in which personal moral improvement of the kind associated with a transcending of physical desires was supported. See Popper to Berlin, 17 February 1959, Karl-Popper-Sammlung, Box 276-10.

23 Popper, *Unended Quest*, 62.
In reality the great artist is a keen learner who keeps an open mind so that he can learn not only from the work of others but also from his own labours, including his failings. Almost all great artists have been highly self-critical, and they looked at their work as something objective. Haydn, on hearing the first performance of his *Creation* in the Aula of the old University of Vienna, broke into tears saying ‘It is not I who wrote this’.24

The process of experiencing or engaging with a creative product is of decisive value to the viewing subject, which I argue may have just as great a value for the viewer or consumer as for the artist or creator themselves. Such a view gains merit in light of the arguments of E. H. Gombrich, who also shared the “anti-essentialist” view of his close friend Popper. For Gombrich following Popper,25 asking a “what is” question attempting to yield a definitive, dogmatic and authoritarian answer: Thus Gombrich argued that,

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\text{... the nominalist idea that art is a category that we create, and that there are different meanings attached to the word “art.” In the past, in the Renaissance, arte or ‘art’ meant craft, skill, technical ability. It did not mean what we mean by ‘art’.}^26
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Gombrich took this to an extreme when he famously claimed in *The Story of Art* (1950) that there is no such thing as Art, there are only artists.27 Popper, however did not go this far, as a moderate Platonist, the products of the human mind whether great or otherwise have actual existence. Even potential, not-yet actualized products may, according to Popper’s theory of objective probabilities, be said to share “a measure” of reality.28

For Popper, there may not be “artists” in any conventional modern sense of the term, but there are creating and exceptionally creative subjects, a cohort of people who whether in the hard sciences or the arts are capable of losing themselves in their work. This may appear to the outside observer as a madness of the kind identified by Plato in the *Phaedrus* (244a) as divine mania or inspiration. Popper however, explained a process akin to this in *Knowledge and the Mind-Body Problem: In Defence of Interaction* (1994) whereby the “self”

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navigating through the unknown, yet logically ordered contents of the mind or world.\(^{29}\) Here, Popper was in tune with the Greek understanding of *poieisis* as creativity reflective of technical prowess. Popper here is reiterating the argument of Socrates in the *Phaedrus* (245a) that “if any man come to the gates of poetry without the madness of the Muses, persuaded that skill alone will make him a good poet, then shall he and his works of sanity with him be brought to naught.” However, for Popper it was not a “madness” that has become popularly misconstrued as the belief that artistic creativity is directly correlated with the expressivity of an eccentric personality, but a kind of active intellection associated with a self-transcending joy in our work. We can extrapolate that, what is important is not expression, but the experience of the engagement with an artistic product. The difference between the experience of a great masterpiece or a newly painted fence is not reducible to the virtuosity of the brushstrokes in the former (also this is often also a prerequisite), rather it is in the experience of an *idea*. The content of this idea is capable of similarly affecting artist and audience alike. This raises some fundamental questions about the autonomy of the created product in its relational capacity both to the artist as well as audience. Firstly, how is it that a created product can be *at work* on us? Also, how is it possible that we are able to experience the transcendental and transformative content of the work that often shocks the artist or musician to such an extent that he is forced to exclaim with Hayden: “It is not I who wrote this?” There are no easy theoretical answers to such questions, however Popper’s later metaphysics of objective knowledge attempt to provide some explanation for such experiences.

Popper presents his anti-expressivist theory of art in a discussion comparing the popular views on the mode of creativity associated with Beethoven and Bach. For Popper, Beethoven “made music an instrument of self-expression”. This was in no way a slight on Beethoven, it is just that this attitude towards music may not be a very accurate reflection on the actual cognitive processes that belie actual artistic creation. Beethoven was an exception:

> There is no more moving work than *Fidelio*; no more moving expression of a man’s faith, and his hopes, and his secret dreams, and his heroic fight against despair. Yet his purity of heart, his dramatic powers, his unique creative gifts allowed him to work in a way which, I felt, was not permissible for others.\(^{30}\)


\(^{30}\) Popper, *Unended Quest*, 61.
Popper felt that there could be no greater danger to music than an attempt to make Beethoven’s ways an ideal or model. While self-expression was integral to Beethoven’s process of composition, this is only part of the story, and not the part of the story that is useful for us “mortals”. For Popper, the theory of expression holds for:

... the way a man or a lion may look at you, or ignore you. It holds for the ways a bird builds its nest, a spider constructs its web, and a man builds his house. In other words it is not a characteristic of art. For the same reason expressionist or emotive theories of language are trivial, uninformative, and useless.31

What Popper was arguing against was what he regarded as the widely accepted theory of art that art is self-expression, or the expression of the artist’s personality and/or his emotions. The arguments for this are related back to his “anti-essentialism” which is a central theme in all his writings. For Popper, we cannot “express” our way to great art, rather the production of art of any laudable quality is the result of a host of other psychological and cognitional traits: creative imagination, playfulness, taste and above all the ability to solve problems. More of which will be discussed later. Also, “of some significance” “utter devotion to his work. The work must be everything to him, it must transcend his personality.”32 Ernst Gombrich reiterates Popper’s anti-expressivism in his approach to art criticism:

At his best [Kokoschka], he is wonderful, but like so many modern artists he was not very self-critical. He thought: If I do it, it must be good. That is this false theory of art, the theory of self-expression. He was immensely talented and some of his landscapes are wonderful. But he could also be rather careless because he believed in spontaneity. I do not believe at all in spontaneity. But he did. And therefore I don’t think that every one of his works is very good.33

This anti-subjectivist or anti-psychologistic view of the arts can also be seen in Popper’s views on music. Popper states in his auto-biography Unended Quest (1974) that his attitude towards music resembles the theories of Eduard

31 Ibid., 62.
32 Ibid., 61-62.
33 Eribon, E. H. Gombrich: A Lifelong Interest, 117.
Hanslick, the influential music critic of Vienna at the turn of the century. Popper’s thought here resembles Hanslick’s argument that music should not serve the transmittal of whatever kind of personal experience or expression of feelings, but the object of pure music should be a musical idea, meaning a theme or several themes and the logic of harmonious tonal movements and variations. This view of their being “objects” of pure music, that is, musical ideas closely resembles the reactionary views of the intuitionist mathematics of the time which is not surprising given the intrinsic and historical relationship between music and mathematics. It was L. E. J. Brouwer the famous intuitionist mathematician, who was also a life long friend of Popper’s, who emphasized the separation of mathematics from mathematical language and hence from the phenomena of language described by theoretical logic. Brouwer argued that intuitionistic mathematics is an essentially language-less activity of the mind that has its origin in the perception of a move of time. An analogous distinction can be made between a musical idea and the various notational devices and conventions for representing the idea that never completely captures the intention of the original composer.

The central focus of this process of creation is the autonomous work or object, separate from the artist. It is not difficult to draw a direct line from Popper’s objective attitude that characterises his theory of art, to his cognitive theory of objectivism and his latter “World 3 thesis”. Popper’s “World 3 Thesis” is his immanent metaphysical research program which delineates three realms of information transference. This explanatory model differentiates between the physical world (World 1), our individual subjective cognition (World 2) and the moderate or evolutionary Platonism of the autonomous realm of ideas, theories, arguments and thought products (World 3). This metaphysical system functions as a heuristic for explaining the semi-autonomous nature of the products of our cognitive activities and how these products “feed-back” into Worlds 2 and 1. A painting for instance, belongs both to World 3 and world 1, as it is a product of the mind as well as a physical product. Due to its explanatory power, this scheme of the three worlds needs to be taken just as seriously as Popper’s earlier better known theories. Further, its pedagogical purchase in

34 Popper, Unended Quest, n80.
37 For a detailed discussion on Popper’s World 3 thesis see: Naraniecki, Returning to Karl Popper, Chapter 6.
conveying to art students essential yet difficult ideas concerning the process of discovery and creativity may indeed warrant greater attention by professional educationists.

Towards an Artistic Culture and Attitude for a Scientific Age

The manner by which we progress to our creative goal, Popper argued, is the same for both the sciences and the arts, even though both have developed area specific methods. In the creative arts the method of proposing conjectures and subjecting them to harsh attempts at refutation, otherwise called by Popper, the method of trial and error elimination is as much the key to proficiency and discovery as it is for the sciences. As the scientist can conduct tests through experimentation, the artist conducts tests every time his or her brush strokes the canvas, which is itself a conjecture, as are the mathematical considerations behind the sequencing of a musical score. What is characteristic of success in both domains for Popper was a certain attitude, which he referred to as the critical rationalist attitude. This attitude is succinctly expressed in volume two of The Open Society:

\[\ldots\text{it may be better to explain rationalism in terms of practical attitudes or behaviour. We could then say that rationalism is an attitude of readiness to listen to critical arguments and to learn from experience. It is fundamentally an attitude of admitting that ‘I may be wrong and you may be right, and by an effort, we may get nearer to the truth’}\ldots\text{In short, the rationalist attitude, or, as I may perhaps label it, the ‘attitude of reasonableness’, is very similar to the scientific attitude, to the belief that in the search for truth we need co-operation, and that, with the help of argument, we can attain something like objectivity.}\]

For Popper, it is not how one expresses one’s personality that is crucial for creativity, rather it is what personality traits one cultivates that is decisive. Traits associated with humility, humbleness, generosity, consideration, openness and tolerance are conducive to the process of trial and error elimination as one who possesses such personality traits is more likely to change their approach and to make improvements. Such individuals become effective life-long learners. Popper’s emphasis upon attitude and emotional traits as fundamental

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to the methods of learning anticipated more recent trends associated with the idea of “emotional intelligence” as a crucial indicator of performance success.

However, it is crucial to note where the differences in method between the arts and sciences do need to be seriously considered. One of the crucial differences is that in the arts new approaches, techniques or ideas in a given artistic medium, do not seem to “falsify,” in the sense of making redundant or “overthrowing” as superseded what came before. The replacement of one artistic trend, technique or practice does not render what came earlier somehow inferior. The instrumental purchase of falsificationism is lost when one attempts to apply it beyond the domain of controlled scientific testing. Popper, became aware of this in his youth through his own experimentations with the latest developments in musical trends in Vienna. For a time he was a member of the Society for Private Performances (Verein für musikalische Privataufführungen) presided over by Arnold Schönberg, which was dedicated to performing compositions by Schöneberg, Alban Berg, Anton von Webern, Ravel, Bartók and Stravinsky. He even became a pupil of Erwin Stein, who was a pupil of Schönberg. This experience increasingly disenchanted him with contemporary music. Rejecting the discursive and rational developments in music he then enrolled in the department of Church music in the Vienna Konservatorium at the Academy of Music and continued to compose music in the style of Bach.

Music was far from a pastime for Popper, indeed he stated in his autobiography Unended Quest that music was a “dominant theme” in his life. Indeed four chapters of his autobiography are dedicated to music and from 1920 until 1922 he even considered becoming a musician.

Popper’s engagement with music provided him with an experience of mastery and efficacy in a domain of human intellectual activity that radically conflicted with his later writings as a scientific methodologist. From Popper’s perspective, while the science of his youth was radically progressing in an exciting way, the artistic culture by a similar rational decision to reject what came before in favour of new ideas and technical innovations was experiencing a steep decline. Ideas, beliefs and techniques as an indication or requirement for progress cannot be so easily rejected in the artistic domain as in the scientific domain. Attempting to model an artistic culture upon the culture of modern science was something that Popper in his actual lived engagement with the arts understood was not feasible. While Western civilization has developed immensely due to its scientific and technological innovation, culturally it has undergone a period of decline and degeneracy which Popper later in life believed was accelerated by the popular entertainment being produced by the new mass media, particularly television.
We can contend that Popper’s writings on science do not stand in opposition to a discussion on aesthetics or artistic creativity, rather the two are intricately interconnected even though the modes of historical development and evolutionary function appear to differ. Even though Popper wrote little on artistic or literary culture, he did not ignore aesthetics in his written work. One such example appears perhaps in an unexpected discussion in one of his most scientifically orientated works Realism and the Aim of Science (1983) which was published as a “postscript” to the Logic of Scientific Discovery. Here Popper tackled a central question for aesthetics the question of beauty, and treated it as an objective standard that is intuitively discerned by the scientist or mathematician in their research. This view is increasingly supported by contemporary neuroscience. An increasing body of literature is corroborating the idea that the psychological experience of mathematical beauty is comparable to experience derived from contemplating art and can now be explained in biological terms. Semir Zeki has shown that the experience of beauty derived from such a highly intellectual and abstract source as mathematics correlates with activity in the same part of the brain as utilised when one contemplates music or art.39

In Realism and the Aim of Science, Popper argued that:

Science is not only, like art and literature, an adventure of the human spirit, but it is among the creative arts perhaps the most human: full of human failings and shortsightedness, it shows those flashes of insight which open our eyes to the wonders of the world and of the human spirit. Science is the direct result of that most human of all human endeavours—to liberate ourselves.40

For Popper, the most beautiful work of art in the twentieth century was science. The products of the human mind associated with science are not only

39 For example see: Semir Zeki, John Paul Romaya, Dionigi Benincasa, and Michael Atiyah, “The experience of mathematical beauty and its neural correlates,” Frontiers in Human Neuroscience 8, 68 (2014): 1-29. To determine these results the researchers used functional magnetic resonance imaging (fMRI) to image the activity in the brains of 15 mathematicians when they viewed mathematical formulae which they had individually rates as beautiful, indifferent or ugly. Results showed that the experience of mathematical beauty correlates parametrically with activity in the same part of the emotional brain, namely field A1 of the medical orbito-frontal cortex (mOFC), as the experience of beauty derived from other sources.

interesting; they are beautiful. Superseded theories in science were worth studying and appreciating as objects of creation. Engaging with problems and theories provide an opportunity for transcendental experiences through which transformative self-improvement can be made. Contemplating beautiful solutions or indeed even beautiful problems is cognitively akin to contemplation derived from listening to music or looking at a painting. Although theories or hypotheses are the basic world 3 objects, paintings are also the product of the sedimentation of world 3 contents, as they are comprised of hypothetical conjectures that are “tentatively tested” by each brush stroke. A self-transcending processes is crucial to both the contemplation as well as creative engagement with a symphony or painting in the same manner as engaging with a scientific problem of great interest. Indeed, as Popper’s theory of the self as being characterised by activity, contemplation is not a “passive” state, rather it is associated with the experience of the self having ascended to world 3 and having momentarily left the physical world. As stated above this activity of poieisis (or making) was described by Popper as the joy of losing himself in his scientific problems or music, in order that he may improve himself. What Popper was doing here was reiterating Plato’s description of creative intellectual activity in the Phaedrus as a “god-given” state of “being-beside-oneself.” This is where moral metaphysics becomes fundamental to Popper’s theories of research. For Popper, in the domain of aesthetics, twentieth century science and mathematics had usurped Western creative arts in capacity to depict the beautiful. The artistic culture of the West had failed to produce a culture capable of navigating the development of individuals through an age of such rapid scientific and technological advancement. In an interview of Popper in 1993 titled Television corrupts mankind. It is like war, Popper argued that the medium of television exemplified the way a mass media made possible by technological advancement was viewed by Popper to be largely “propaganda for violence.”

I do not like to say it, precisely because I am a liberal. I am not in favour of censorship. But freedom depends on responsibility. If everyone were responsible and considered the effect on children of what is shown, then we wouldn't need censorship. But unfortunately that is not the case, and meanwhile things have become worse and worse. People want more violence, to see more violence on television. The situation can't go on like this.41

For Popper, arts education was not restricted to the production of “high” or “popular” cultural artifacts, rather it was concerned with the dissemination of ideas through any medium, and the impact this has upon human development, which is a concern for the kind of society we want to create. The message from this is that it is crucial that we attempt to understand the way we engage with and experience ideas and how they transform us, particularly in our formative years. The kind of world 3 products that we create according to Popper invariably interacts and informs the kind of people we become and the society we live in. In this way Popper’s famed notion of the open society was not agnostic or relativist in terms of what constituted the public cultural agenda.

Biography

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