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Artistic Education in Jerzy Vetulani's Perspective: A Comparative Analysis With Irena Wojnar's Polish Concept of Aesthetic Education

Postulat kształcenia artystycznego w poglądach Jerzego Vetulaniego w kontekście polskiej koncepcji wychowania estetycznego Ireny Wojnar

ABSTRACT

RESEARCH OBJECTIVE: This article aims to present the anthropological, aesthetic, and pedagogical foundations of Jerzy Vetulani's postulate of artistic education and compare it with Irena Wojnar's concept of aesthetic education.

THE RESEARCH PROBLEM AND METHODS: The research questions are: What are the anthropological, aesthetic, and pedagogical foundations of Vetulani's postulate of artistic education? Is there a similarity between Vetulani's postulate and Wojnar's proposal of education through art? To achieve these objectives, the content analysis method based on Karolina Szczepaniak's model was used.

THE PROCESS OF ARGUMENTATION: Starting with Vetulani's neurobiological views, the article first presents art as a defining characteristic of homo sapiens and a key activator of the human brain, especially its cognitive functions. It then discusses the pedagogical assumptions of Vetulani's postulate. The comparison between Vetulani's and Wojnar's concepts is made by examining their anthropological assumptions and the role of art in human development.

RESEARCH RESULTS: According to Vetulani, the relationship between humans and art is biologically determined, with art being essential for achieving full humanity. Both Vetulani and Wojnar view humans as inherently open to art, which plays a significant role in the upbringing process.

CONCLUSIONS, RECOMMENDATIONS, AND APPLICABLE VALUE OF RESEARCH: Vetulani and Wojnar both emphasize the importance of art in human education. Brain imaging technology can enhance traditional aesthetic education. Activating the brain's cognitive functions through art, particularly cognitive attention as highlighted by Vetulani, can be beneficial in treating common concentration disorders in children and adolescents.

→ **KEYWORDS:** **EVOLUTION, BRAIN, HOMO SAPIENS, ART, AESTHETIC EDUCATION**

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STRESZCZENIE

CEL NAUKOWY: Celem artykułu jest prezentacja założeń antropologicznych, estetycznych i pedagogicznych postulatu kształcenia artystycznego oraz porównanie go z koncepcją wychowania estetycznego Ireny Wojnar.

PROBLEM I METODY BADAWCZE: Pytania problemowe sformułowano następująco: Jakie są założenia antropologiczne, estetyczne i pedagogiczne postulatu kształcenia artystycznego J. Vetulaniego? Czy występuje podobieństwo między postulatem kształcenia artystycznego J. Vetulaniego a propozycją wychowania przez sztukę I. Wojnar? Do realizacji celu naukowego wykorzystano metodę analizy treści w modelu Karoliny Szczepaniak.

PROCES WYWODU: Na podstawie poglądów neurobiologicznych J. Vetulaniego najpierw sztuka została ukazana jako cecha wyróżniająca *homo sapiens*, a następnie jako czynnik najpełniej aktywizujący ludzki mózg, zwłaszcza jego funkcje poznawcze. W tej perspektywie omówiono założenia pedagogiczne postulatu Vetulaniego. Następnie porównano koncepcję Vetulaniego i Wojnar pod kątem założeń antropologicznych oraz znaczenia sztuki w procesie wychowania człowieka.

WYNIKI ANALIZY NAUKOWEJ: Według Vetulaniego związek człowieka ze sztuką jest uwarunkowany biologicznie. Sztuka jest czynnikiem koniecznym, aby osiągnąć pełnię człowieczeństwa. Zarówno Vetulani, jak I. Wojnar traktują człowieka jako istotę z natury otwartą na sztukę, która pełni funkcję antropotwórczą w procesie wychowania.

WNIOSKI, REKOMENDACJE I APLIKACYJNE ZNACZENIE WPŁYWU BADAŃ: Sztuka odgrywa istotną rolę w procesie kształcenia człowieka w poglądach Vetulaniego i Wojnar. Technika obrazowania mózgu może wzbogacić tradycyjne wychowanie estetyczne. Wyakcentowana przez Vetulaniego aktywizacja funkcji poznawczych mózgu dzięki sztuce, zwłaszcza uwagi poznawczej, może być wykorzystana w leczeniu powszechnych zaburzeń koncentracji dzieci i młodzieży.

→ **SŁOWA KLUCZOWE:** **EWOLUCJA, MÓZG, HOMO SAPIENS, SZTUKA, WYCHOWANIE ESTETYCZNE**

Introduction

The relationship between humankind and art has been a subject of reflection in European culture since ancient Greece. The Pythagoreans were the first to suggest the psychagogical function of music (from Greek, ψυχαγωγία, or guidance of the soul). They found that it can influence the human soul, as music affects both the feelings of its performer and its audience.

The Pythagoreans were aware that various educational goals could be realized by means of various sounds. As Umberto Eco says

> Boethius […] observes that the Pythagoreans knew that the various musical modes have a different effect on the psychology of individuals, and that they spoke of hard and temperate rhythms, suitable for the education of youths, as well as suave, lascivious rhythms (Eco, 2005, p. 63).

The Pythagoreans would ease their daily worries by falling asleep to certain songs and then shake off sleep numbness with different melodies upon waking up.

The Pythagoreans undoubtedly laid the groundwork for the tradition of aesthetic education, which the Polish concept of aesthetic education is part of. According to Irena Wojnar, a pioneer of this pedagogical model,

> Aesthetic education, through modern and dynamic content, aims to integrate the individual with both the ever-changing external world and the diverse aspects of human activity. This process involves connecting with the constantly changing realms of science, technology, and art, while also blending creative work with educational leisure (Wojnar, 1966, p. 246).

We should remember that every theory of education arises from a particular worldview and understanding of nature. Wojnar, embracing ontological mobilism, (in a recourse to Anaximander and Heraclitus) recognizes that the essence of reality is movement, change, and indeterminacy. This perspective leads her to emphasize the dynamic nature of contemporary reality in all its aspects. She argues that the only way to navigate the complexity of reality is to incorporate the value of art into human development. Wojnar believes that, because people are inherently creative beings connected to the biological and natural environment, they are naturally open to art. She stresses that her pedagogical model transcends traditional education, which focuses primarily on intellectual development. A holistic approach to education, she asserts, involves integrating art, making it an interdisciplinary field that draws on philosophy, aesthetics, art history, psychology, and sociology.

Interestingly, the concept of art education can also be explored from perspectives beyond aesthetic education. For example, the prominent Polish neurobiologist Jerzy Vetulani argues that art is a defining feature of Homo sapiens, which most fully activates the brain, including its intellectual capabilities. Vetulani notes that, although humans are not as well adapted to the external environment as Neanderthals, they can handle life-threatening situations due to their advanced rationality. In this context, he advocates for universal artistic education for children and young people.

The goal of this article is to explore the anthropological, aesthetic, and pedagogical foundations of Vetulani's concept of artistic education and to compare it with Wojnar's concept of aesthetic education. This analysis follows the content analysis method outlined by Karolina Szczepaniak (2012). The steps in this method include selecting research material, repeatedly reading the texts, creating a categorization key, defining key categories, and constructing tables with quotations (Szczepaniak, 2012, p. 100). The categorization key represents the specific outcomes of the study, and its categories encompass the various themes or sub-themes identified in the analyzed texts (Szczepaniak, 2012, p. 98).

Based on this method, the article defines the following categorization keys: the anthropological, aesthetic, and pedagogical principles of Jerzy Vetulani's concept of artistic education, and the similarities between Vetulani's and Wojnar's approaches to aesthetic education.

Art as a Distinctive Feature of Homo Sapiens

Vetulani reflects on humanity within the context of evolutionary biology. According to the New Universal Encyclopedia of the Polish Scientific Publishers (PWN), evolution is defined as "the developmental process of progressing to increasingly complex and varied forms, to higher and more refined stages" (Encyklopedia PWN, 2004, p. 15). The author suggests that life on Earth began around 3 billion years ago, but for much of that time, it evolved quietly. It was not until about 550 million years ago that life began to flourish, and the first forms of life emerged. Initially, these organisms were quite simple, both externally and internally, but over time, increasingly complex structures evolved.

Homo sapiens, or modern humans, are estimated to have appeared between 30,000 and 40,000 years ago. Their predecessors included Homo habilis, Homo erectus, and Homo neanderthalensis. Homo erectus survived a volcanic disaster about 70,000 years ago and gave rise to two species: Homo neanderthalensis and early Homo sapiens. Neanderthals coexisted with early humans for at least 100,000 years. There is speculation that Homo sapiens may have seen Neanderthals as distinct from themselves, leading to their eventual extinction. Some classifications consider Neanderthals a subspecies of modern humans, while others view them as a separate species.

As Vetulani points out, around 40,000 years ago, creativity began to develop in the Homo sapiens lineage due to the evolving brain of the Homo genus. This period marked the emergence of the contemporary form of Homo sapiens. Vetulani defines creativity as "the ability to create new ideas and concepts or new associations between already existing ideas" (Vetulani, 2010, p. 9). He argues that creativity is essential for the creation of art, which he considers the most defining feature of human nature. Unlike speech, empathy, or consciousness, which are also found in the animal world, art is unique to humans (Vetulani & Mazurek, 2015). Vetulani believes that it is through art that Homo sapiens gained dominance over other animals:

> In my opinion, it [art] is what made us win the battle for hegemony in the world against the stronger, more resilient, and probably smarter Neanderthals, who had bigger brains. This is our greatest advantage over other animals (Vetulani & Mazurek, 2015, p. 133).

According to Vetulani, humans are unique in their conscious ability to create, evaluate, and derive pleasure from art. The appearance of art at this stage of evolution suggests it is a necessary activity for our species. Art is a characteristic of Homo sapiens as a whole, not just something reserved for artists. While there have been instances of Congo monkeys painting abstract pictures that resemble the works of Jackson Pollock, a renowned abstract expressionist, this cannot be considered true art as artists can distinguish between the abstractions created by monkeys and those by humans, a difference that may not be evident to the average viewer.

Vetulani claims that the ability to experience beauty emerged in evolution about 40,000 years ago, around the same time as creativity. He explores the question of whether

beauty is a subjective or objective quality by referencing two historical perspectives: Plato, who believed that beauty is an inherent feature of things (aesthetic objectivism), and Immanuel Kant, who argued that beauty lies in the eye of the beholder (aesthetic subjectivism). Neuroscientific research supports Kant's view, suggesting that beauty is primarily perceived in the brain of the evaluator. According to Vetulani, humans have an innate sense of beauty embedded in the neuronal networks of the cortex. Neuroimaging techniques can pinpoint the areas of the cortex that activate during an aesthetic experience, revealing increased activity in the orbitofrontal cortex – a part of the brain unique to humans.

Ultimately, Vetulani combines aesthetic subjectivism and objectivism, as he notes a universal preference for certain proportions throughout history. As Vetulani states,

> People have for centuries preferred, for example, architecture based on the so-called golden ratio. We are more fond of buildings with the right proportions, not too wide, not too narrow. Similarly, although the canon of human beauty has changed over the centuries, we have never liked people who are disproportionate, with deformities (Vetulani & Mazurek, 2015, p. 136).

Art as a Factor in Activating the Human Brain

Humans, as vertebrates, belong to a subphylum of chordates characterized by distinct morphological features. The emergence of the brain in the animal kingdom, with its cognitive functions, is closely linked to the need to survive in a hostile world. The evolution of the brain – from sharks to humans – spanned approximately 400 million years, and involved an increase in brain volume and the development of the frontal area (the forebrain). A significant leap in brain development occurred in the direct ancestors of modern humans, during which the brain size quadrupled, largely due to the growth of the neocortex.

According to Vetulani:

> Our forebrain can be functionally divided into the primitive, emotional, and rational departments. The primitive department, the archipalium, includes the thalamic formations and basal ganglia and can be considered the "survival brain." It controls aggression, thermoregulation, reproduction, and locomotion. The evolutionarily younger paleopalium contains subcortical structures like the hippocampus, amygdala nuclei, and hypothalamus. This area is responsible for emotions, pleasure, moods, and motivation. The youngest part of the brain, the neopalium, is the cerebral cortex, with the prefrontal cortex being highly developed in humans. This is the rational brain, responsible for thinking, anticipation, and intellect (2010, p. 23).

The human brain stands out from those of other animals, including mammals, due to several unique features. One key characteristic is the cerebral ratio, which refers to the ratio of brain mass to body mass. Additionally, the human brain has a highly undulating surface. Its capabilities stem from the vast number of neurons and the complex

connections between them (Vetulani, 2010). With brain development comes consciousness, which neurobiologists consider the final stage of the evolution of matter on Earth. Advanced consciousness, specific to humans, is defined as "the ability to recognize oneself" (Vetulani, 2010, p. 21). This consciousness is closely linked to intelligence, described as "the ability to actively process information to better adapt to a changing environment, measurable by specific tests" (Vetulani, 2010, p. 72). The proper functioning of the brain is dependent on the overall health of the body. As Vetulani, Mazurek and Wierzchowski state, "For the brain to be healthy, the body should be healthy. We should especially take care of the body when we are developing and when we are aging" (Vetulani et al., 2017, p. 67).

The brain's most important feature is its plasticity, which is "the ability to modify its neuronal connections in response to stimuli" (Vetulani, 2010, p. 87). This means the brain, and consequently human behavior, can change based on external circumstances. Neuronal plasticity is at its peak during early childhood, when new neural connections are rapidly forming. If a child lacks sufficient stimuli during this critical period, neuronal development can be impaired.

According to Vetulani, art plays a significant role in activating the entire human brain. However, the author focuses primarily on the activation of higher intellectual abilities, particularly attention and cognitive control, and the ability to flexibly acquire and locate information in order to effectively manage one's life. These cognitive functions are closely linked to the activity of the brain's rational networks. Vetulani defines cognitive attention as "the ability to selectively focus on certain intellectual stimuli long enough for them to be encoded and stored in working memory" (Vetulani & Mazurek, 2015, p. 137). With cognitive attention, a person can create and appreciate art. Neurobiologists agree that this ability can be developed and trained, especially in children, as it is crucial for regulating behavior, thoughts, and emotions. Neglecting to develop this skill in childhood can have noticeable effects in adulthood.

Research using brain imaging techniques and genetic mapping has shown that cognitive attention is genetically controlled and linked to the activity of the dopaminergic system (Vetulani, 2011). Several genes have been discovered that can impact aesthetic perception by influencing cognitive attention. These genes are related to the regulation of dopamine, a neurotransmitter involved in various mental functions such as pleasure, attention, memory, and motivation.

> Pleasant sensations, and even more so the anticipation of pleasant sensations, stimulate the dopamine system, which triggers a sense of pleasure. To neuroscientists, the pleasure we derive from beauty is strongly tied to the activation of the dopaminergic system by cognitive attention stimulated by aesthetic sensations (Vetulani, 2010, p. 13).

Artistic Education as a Method to Support Human Brain Development

Vetulani, holding the view that the evolution of the human brain is continuous, advocates artistic education as a method that can help activate and develop the brain. While not everyone possesses innate creative talents, everyone can engage with art. Vetulani suggests incorporating art subjects into school curricula or offering additional art classes. He believes educational institutions should support this model because it effectively enhances societal intelligence and promotes overall development.

The author identifies art specifically with the concept of fine arts, excluding craftsmanship, which involves the manufacture of tools, weapons, or utensils typical of earlier human species. His aesthetic views do not differentiate between classical and modern art. He supports aesthetic emotionalism, which holds that art conveys feelings. Leo Tolstoy once noted:

> Art is a human activity consisting in this that one man consciously, by means of certain external signs, hands on to others feelings he has lived through, and that others are infected by these feelings and also experience them (Vetulani & Mazurek, 2015, pp. 133–134).

Citing the research of neuroaestheticians Semir Zeki and Hideaki Kawabata, Vetulani highlights the innate human appreciation for beauty. When people viewed ugly works of art and a beautiful piece appeared among them, there was noticeable activity in the orbitofrontal cortex, a part of the brain unique to humans. Conversely, the temporal cortex showed increased activity when an ugly work suddenly appeared among beautiful pictures (Vetulani & Mazurek, 2015).

According to Vetulani, every type of art is valuable in education because it activates different areas of the brain: "Dance primarily develops the motor part, music stimulates the auditory part, and poetry engages the frontal thinking part as well as the auditory part" (Vetulani & Mazurek, 2015, p. 137). Both passive and active engagement with art contribute to the development of human cognitive functions.

Although parents often prefer a pragmatic approach to their children's education, and favor English classes over art classes, Vetulani argues that art classes provide unique brain development benefits that language classes do not. He states,

> People think they are wasting their own and their child's time by teaching them to play an instrument or sending them to dance lessons. They think: he won't be a professional musician anyway. But it is not wasted time. Their child will later learn languages and mathematics better, think faster, more efficiently, and more logically. And they will gain something that proves our humanity like nothing else – sensitivity to beauty" (Vetulani & Mazurek, 2015, p. 139).

Vetulani emphasizes the crucial role of the teacher in artistic education and asserts that they should have a genuine love for art (Vetulani & Mazurek, 2015). Beyond suggesting creative activities in the classroom, art teachers are encouraged to organize outings to various cultural institutions. Rather than imposing their own interpretations of

art on students, they should create opportunities for exposure to art and provide space for self-expression. Vetulani strongly believes in the value and influence of art, stating that it brings out the individual and creative aspects of a person:

> […] in sympathy with the dominant traits of his disposition and temperament, each individual will, as a result of his educated awareness, or insight, find a different pattern in his experience. He will accordingly construct his individual view of world, the Weltanschauung of his personality type (Read, 1976, p. 349).

The author suggests that art education can be integrated into extracurricular activities or, if feasible, included in regular school classes. He endorses the Artful Learning educational model developed by Leonard Bernstein, a renowned American conductor, composer, and pianist. This model, which emphasizes the positive impact of art on intellectual development, is promoted by the Leonard Bernstein Center for Artful Learning at Gettysburg College and is being implemented in many American schools due to its educational effectiveness[1].

In this learning approach, a specific work of art serves as the starting point for exploring a theoretical issue. For example, a photograph of a skyscraper might spark group discussions and intellectual exploration. The teacher begins by explaining the architectural design of the building and the motivations of its creator. Students then compare this skyscraper with others from around the world, noting the differences. The discussion extends to the building's design in the context of history, society, and culture. Finally, each student designs their own skyscraper, which is then showcased in a school exhibition (Vetulani & Mazurek, 2015).

Findings and Conclusions

Based on a thorough scientific analysis grounded in specific research criteria and procedures, it can be concluded that, from Vetulani's neurobiological perspective, the human relationship with art is biologically determined. Homo sapiens represents an evolutionary stage marked by the advanced development of the brain, particularly the cerebral cortex and its unique prefrontal cortex. This evolutionary principle suggests that as the brain becomes more developed, cognitive functions become more sophisticated, influencing human behavior. Consequently, creativity, which is central to art, emerged only at the stage of homo sapiens, allowing humans to achieve their fullest potential. Although evolution implies determinism, the brain's plasticity enables individuals to choose their way of life. Given this understanding, Vetulani advocates for universal artistic education for the younger generation.

[1] For more details on Leonard Bernstein's Artful Learning model, you can visit Leonard Bernstein's Artful Learning (https://leonardbernstein.com/artful-learning).

Although Vetulani and Wojnar's anthropological views are based on different theoretical foundations, they arrive at similar conclusions about anthropology and education. According to their views, humans are *homo aestheticus* and *homo creator*, and need art to fulfill their humanity. Vetulani's perspective is rooted in evolution, while Wojnar's is shaped by ontological mobilism. Both see the world dynamically, though they attribute change to different sources. This dynamic vision suggests that individuals are always evolving in their being through art. Vetulani believes that art fully engages the human brain, particularly by stimulating cognitive functions like attention, which are crucial for learning. In contrast, Wojnar emphasizes the holistic development of a person through art, concentrating on both emotional and intellectual growth. She notes that art activates creativity, imagination, and emotions, ultimately cultivating an "open-minded" attitude, which is a blend of four elements: perception, experience, learning through art (or concrete knowledge), and self-expression (Wojnar, 1970).

The role of the aesthetic educator is to expose students to art without imposing interpretations, focusing instead on developing formal skills that help young people navigate a changing world. Both Vetulani and Wojnar view art as having an anthropogenic function, closely associated with cognitive development. Thus, art enables independent thinking, which is essential for living in a complex and often challenging reality.

The contemporary advancements in neuroscience can enhance our understanding of the relationship between humans and art within the context of traditional aesthetic education. With brain imaging techniques, we now know how different areas of the brain respond to various forms of art. Depending on the educational goals, we can employ specific forms of artistic creativity. Vetulani's idea of activating cognitive functions through art, especially cognitive attention, could be valuable in addressing the widespread issue of attention deficit disorder in children and adolescents (Nęcka et al., 2020). Therefore, it is worth considering the promotion of Leonard Bernstein's Artful Learning model in Poland, which suggests that the creative process can stimulate and deepen learning.

However, Vetulani overlooked the fact that engaging with art also involves receiving sensory, kinetic, and emotional stimuli (Gerber & Myers-Coffman, 2018). Maria Gołaszewska identifies other functions of art, including communicative, integrative, ideological, adaptive, stereotype-breaking, therapeutic, cathartic, humanizing, and expressive (Gołaszewska, 1986). Therefore, it is necessary to analyze whether the neurobiological perspective can encompass these various roles of art in human development.

Vetulani's advocacy for art education and Wojnar's concept of aesthetic education fall within the field of Arts-Based Research, particularly a/r/tography, which explores the role of art in educational processes (Leavy, 2018).

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