

Bioethics as a science of survivalship: an analysis of knowledge abuse

Rafaela Rossi¹, Manoela Duarte Selbach¹, Euler Westphal¹

1. Universidade da Região de Joinville, Joinville/SC, Brasil.

Abstract

Given the current reality of excessive exploitation of natural resources, bioethics promotes an important interdisciplinary debate encompassing ethical and scientific branches. For many years, a significant industrialization process has increased the production of consumer goods and generated a consumerist mentality. The valuation of profitability and consumerism has highlighted the impacts of dangerous knowledge, such as the indiscriminate use of pesticides and genetic engineering tests. In this context, the population had access to an extraordinary amount of information, despite not knowing how to properly use it, a fact that highlights the importance of bioethics to mediate conflicts, promoting a discussion between experts and the population. Finally, the need to make people aware of the environmental impacts of their activities is stressed, aiming to change attitudes towards the environment and enabling a more harmonious coexistence between human beings and the different animal and plant species.

Keywords: Bioethics. Survivalship. Knowledge.

Resumo

Bioética como ciência da sobrevivência: análise do abuso do conhecimento

Perante a realidade atual de exploração excessiva dos recursos naturais, a bioética promove um importante debate interdisciplinar abrangendo ramos éticos e científicos. Por muitos anos, um processo de industrialização expressivo aumentou a produção de bens de consumo e gerou uma mentalidade consumista. A valorização da lucratividade e do consumismo evidenciaram os impactos do conhecimento perigoso, a exemplo do uso indiscriminado de agrotóxicos e de testes de engenharia genética. Nesse contexto, a população teve acesso a uma quantidade extraordinária de informações, embora não soubesse como utilizá-las de maneira adequada, fato que salienta a importância da bioética para mediar conflitos, promovendo uma discussão entre especialistas e a população. Por fim, ressalta-se a necessidade de conscientizar as pessoas quanto aos impactos ambientais de suas atividades, objetivando mudar atitudes em relação ao ambiente e possibilitar um convívio mais harmônico entre os seres humanos e as diferentes espécies animais e vegetais.

Palavras-chave: Bioética. Sobrevivência. Conhecimento.

Resumen

Bioética como ciencia de la supervivencia: análisis del abuso del conocimiento

En el contexto actual de excesiva explotación de los recursos naturales, la bioética impulsa un importante debate interdisciplinar que abarca ramas éticas y científicas. Durante mucho tiempo, el proceso de industrialización incrementó la producción de bienes de consumo y generó una actitud consumista. La valorización de la rentabilidad y el consumismo puso en evidencia los impactos de conocimientos peligrosos, como el uso indiscriminado de plaguicidas y las pruebas de ingeniería genética. En este contexto, la población tuvo acceso a mucha información, aunque no sabía utilizarla adecuadamente, lo que destaca la importancia de la bioética para mediar en los conflictos, impulsando un debate entre los expertos y la población. Además, hay la necesidad de concienciar a las personas sobre los impactos ambientales de sus actividades para cambiar las actitudes hacia el medio ambiente y permitir una convivencia más armoniosa entre los seres humanos y las diferentes especies animales y vegetales.

Palabras clave: Bioética. Supervivencia. Conocimiento.

The authors declare no conflict of interest.

The context of excessive exploitation of natural resources observed in modern society invokes the concept of “dangerous knowledge,” which has been explored since the publication of the book *Bioethics: bridge to the future*, by Van Rensselaer Potter¹, a US biochemist and important researcher in the field of oncology who proposed an interdisciplinary analysis of ethics and science.

Originating in the US, bioethics only began to be discussed in Brazil in the last decade of the 20th century. It started to reflect on the limitations of universalist knowledge for collective macro-problems, thus expressing concerns about topics that impact the harmony and coexistence of society, as well as about environmental issues².

Those concerns included the need to address sociocultural themes from different perspectives, analyzing the impact of human actions on the survival and maintenance capacity of species¹. An example of this type of action is the massive use of pesticides in agriculture, which, it should be noted, resulted in an increase in agricultural productivity. However, this increase was accompanied by environmental impacts that modify the natural habitat of species, alter the local microbiota and contaminate river and sea waters, in addition to having significant impacts on human health³.

This highlights the importance of studying the relationship between the significant increase in knowledge and the best method to use it from an interdisciplinary perspective, always aiming to ensure the maintenance of species and to improve the quality of life of the population as a whole. In this sense, the fusion of biological knowledge and human values is essential to guide the field of public policies and direct human practices towards a more harmonious coexistence between species and the environment.

Therefore, this study proposes to undertake an analysis grounded in the current reality of society, reflecting on the impact of continuous human attitudes guided by limited knowledge and scarce reflections. It emphasizes important aspects of “Potterian” bioethics and its potential to impact the development of societies, with human actions guided by ethical values and biological facts.

Thus, the aim is to evaluate certain aspects of the contemporary world from the perspective of Potter’s thought. In this sense, the importance of reflecting on human attitudes and preserving the continuity of life stands out, as this is often overlooked.

Method

The analysis was based on scientific information that sheds light on ecological impacts in different regions of Brazil, considering that such data currently contributes to generating extreme concern about the continuity of species and the harmony of life on the planet.

The study started out from the definition of the following research question: “How has dangerous knowledge affected ecosystems and human coexistence?” Once the research question had been established, the keywords for the search in journals were defined: “bioethics,” “sustainability,” “survival” and “knowledge,” in English and Portuguese.

The eligibility of the researched information was based on specific criteria, such as: having been published no longer than 10 years ago, having no conflicts of interest, relating directly to the object of study and guiding question and being available in Portuguese and/or English. The book *Bioethics: bridge to the future*, by Van Rensselaer Potter¹, was used as a theoretical framework for the research. The search was then followed by a comparative analysis of the collected data and the reading of the selected papers.

Results and discussion

Survival guided by bioethical knowledge

Considering the biological and cultural uniqueness of human individuals, an ethical system is required to ensure their survival in a harmonious and sustainable civilization. At present one observes a process of decision fatigue in which the quality of the choices made is lost as people are exposed to a huge number of alternatives.

Such alternatives are not only presented in large quantities, but also have numerous external influences. As noted by Potter¹, this brings to mind the work of the anthropologist Clifford Geertz, for whom the survival of humans as individuals depends on culture and society, which are important factors guiding their beliefs and, consequently, their attitudes.

Hence, the reality of advances in communication and hyperconnectivity may be harmful to the mental health of the population, causing information overload and increased social pressure in every individual activity. It is a fact that technology is currently a very useful tool; however, it has increased the influence of different ideas and opinions on people and brought about changes in their behavior⁴.

In this regard, Potter¹ states that as a result of scientific progress—and, consequently, of the advent of dangerous knowledge—people have spent more time worrying about productivity and lost the ability to interact socially, which is extremely harmful to social life.

This emphasizes the importance of shaping human actions according to biological values and facts, which requires the mediation of ethics to guide attitudes in moral and social standards. This relates to the bridges that underpin Potterian bioethics: between the present and the future, between science and values, between nature and culture, and between humans and nature⁵. Therefore, this line of reasoning seeks long-term interests in an interdisciplinary manner, in favor of the evolutionary process, with the main goal of ensuring the survival and quality of life of the species¹.

It is thus noted that humanity needs wisdom to guide the exponential increase in information available to the population⁶. To this end, it is necessary to connect technical knowledge with the life wisdom required to use this knowledge, considering the relationship between biological aspects—related to ecology, genetics and chemical nature—and offering a subjective perspective of cultural aspects and moral values. Moreover, it is essential to take into account integration, preservation and extension of the field of information¹.

Given this concern, bioethics proposes a realistic understanding of biological knowledge and its limitations, aiming to guide the field of public policies toward more harmonious coexistence⁷.

Pathway to the current reality

Scientific-philosophical concept of progress

In this regard, it is important to highlight the scientific-philosophical concept of progress proposed by Potter¹, which defines knowledge as infinite and never absolute, thus requiring continuous expansion of learning in order to avoid dangerous knowledge. The author states that no individual is capable of mastering all existing knowledge and that it should be spread to everyone.

In this sense, it is possible to differentiate this idea from the notion of wisdom, represented by moral knowledge. Thus, wisdom is understood to be necessary to guide society toward a utopian context of harmony, which the author called “science of survival”¹.

In view of the above, it was believed that progress was culminating in a context of extreme reason and exponential increase in the amount of information available to the population. However, the reality achieved is worrying, marked by dangerous knowledge with various consequences for the planet and nature, generating disorder in the environment, such as biological warfare and increased studies in the field of molecular biology¹.

Advances in science and technology have led to an increase in the production and availability of food, which is essential for the growth and maintenance of life in societies. However, pesticides and herbicides, which were considered significant advances, came to be seen as great enemies of human health¹.

Given this observation, it is clear that advances, not only in science but in all fields, stem from individual ideas, experiments and inventions, such that the ideas of a single individual may be very useful for human development. On the other hand, the same useful inventions and discoveries may be harmful to people’s survival, as occurred with the experiments carried out by the Nazi

regime. In other words, an idea is not necessarily valid just because it seems correct to its creator, since it depends on motivation, interests and the use of dangerous reasoning.¹

Concept of dangerous reasoning

From the beginning, humans have been greatly dependent on their immediate environment. However, faced with the limitation of nature's resources, they gradually exploited those available to the point of reducing the variety of species, since they increased the availability of those that most suited their needs, like food, livestock and consumable products.¹

This reality suggests an analogy like the one proposed by Norman Berrill⁸, a 20th-century English biologist. According to him, humans are to the environment as cancer is to the body, multiplying excessively and demanding resources indiscriminately, thus jeopardizing the continuity of the system in which they are embedded.

The situation is further worsened by the fact that dangerous knowledge is not recognized as such at the time of its discovery, but only after it has produced harmful consequences. This was the case with the adoption of pesticides and herbicides, atomic bombs, VX nerve agent, as well as pharmaceuticals and other chemicals that cause significant addiction.

Thus, the advancement of scientific and technological knowledge was characterized by an exponential growth in the amount of relevant information. Consequently, scientists began to specialize more and more and became unable to organize individually their specialized knowledge in the broader context of science and society. That is why Potter emphasized the need for an interdisciplinary debate, as noted by Furnari⁹.

This shows the difficulty of dealing with dangerous knowledge, as people seek deeper understanding despite being aware that the world's ecological context has possibly reached levels of no return, in a reality of public emergency, characterized by problems such as water scarcity, lack of basic sanitation and "atmospheric inversion" in many places¹.

Therefore, it becomes important to propose a more intelligent, conservative and responsible kind of interaction with the environment in order

to correct past errors and achieve a reality that currently seems utopian. This should be guided by a system of common values that represents an obligation to future generations¹.

Medical ethics

The current conflicting reality highlights the importance of the Code of Medical Ethics to regulate complex decisions that cannot be left to the simple conception and point of view of physicians¹⁰. There are several situations in which medical practice may have undesirable consequences for individual health and values. This occurs, for example, in cases of treating patients with chronic pain, genetic engineering, extreme advanced life support measures and procedures such as abortion.

In this regard, in a context in which preventive medicine is often disregarded, society places its faith and expectations in treatment rather than prevention. Moreover, people engage in harmful behavior, such as inadequate and excessive eating, lack of exercise and neglect of mental health, and are exposed to pollutants and toxins¹¹.

Some harmful behaviors resulting from changes in habits adopted by most of the population also exist, as evidenced by the epidemiological transition, with a drop in fertility rates and increase in life expectancy. Modern medicine increased the population's ability to have children, even in cases of old age. However, medicine has also enabled effective birth control and in many countries, including Brazil, the birth rate has dropped dramatically. Moreover, major catastrophes, such as wars, famines and the COVID-19 pandemic, had an impact on the exponential increase in the population—resulting from interference in the population's birth and mortality rates—and culminated in government measures being applied to control the demographic explosion.

Reflecting on factors such as acceptable limits for intervention in these parameters and how harmful this high number of people can be to the planet is necessary. It should be noted that, for Potter¹, demographic explosion is currently one of the major problems with consequences. In addition, this reflection must be extended beyond the medical factors mentioned, considering also the influence of technological and scientific

development, plus cultural evolution combined with behavioral changes.

Unconscious consumption: current context of globalization

In a cultural context, ideas can be understood as basic units of information capable of interpretation, mutation, recombination and expression when passing from one individual to another. This is key process in cultural evolution, as it can change the way many individuals think. In modern society, this happened through the subversion of values combined with the globalization process.

This process developed together with excessive urbanization at any cost, characterized by an exponential increase in the availability of information and greater industrial productivity. From this perspective, people adopted a consumer mentality never seen before, focusing on progress in relation to material goods and technological advancement, while overlooking the need to care for nature, on which we depend for survival. Thus, there was gradual adherence to a materialistic mindset in which more is better and to excessive productivity, not measuring the consequences for long-term survival¹.

The role of bioethics: the importance of sustainability

Humanity lives in an ever-changing environment, surviving thanks to its ability to adapt—and only if it truly adapts. Adapting means learning and adopting a new way of life, directed towards a common goal for the entire population: the survival of species and quality of life for future generations. This opens possibilities for a new sustainability model, grounded in essentialism and the preservation of resources¹.

It is also necessary to consider the reality and the type of environment in which one wishes to live, as if such a choice existed. Once this is clear, efforts can be made to understand which choices direct reality towards the environment that is considered ideal for humanity and to implement such attitudes in order to achieve what has been envisioned.

Knowledge leads to power, producing new dimensions of order and disorder (which are essential for human minds, which constantly organize facts and collect new combinations of information), altering the environment and generating practical consequences in peoples' lives. Given the information presented, the role of science is to promote debate and exchange of knowledge, always aiming for better prospects for societies, in order to guide the population towards a context of greater clarity and harmony.

Final considerations

The importance of combining science and ethics and applying these concepts in the daily lives of individuals is evident, bearing in mind the process undergone by civilizations to reach today's reality of technological advancement and materialism. This context is characterized by dangerous knowledge, which has devastating consequences for ecosystems.


Finally, with the survival and maintenance of species as main goals, wisdom can be sought to use knowledge appropriately, focusing on delaying the damage caused to nature and adapting people's consumption and care mentality. Thus, humanity would gradually come closer to the utopia of guaranteed survival, with quality of life for the population and sustainability of natural resources.

References

1. Potter VR. Bioética: ponte para o futuro. São Paulo: Loyola; 2016.
2. Drane J, Pessini L. Bioética, medicina e tecnologia: desafios éticos na fronteira do conhecimento humano. São Paulo: Centro Universitário São Camilo; 2005.
3. Lopes CVA, Albuquerque GSC. Agrotóxicos e seus impactos na saúde humana e ambiental: uma revisão sistemática. Saúde Debate [Internet]. 2018 [acesso 9 jan 2024];42(117):518-34. DOI: 10.1590/0103-1104201811714

4. Varsori E, Pereira S. Vida digital: relações entre jovens e tecnologias. *Texto Digital* [Internet]. 2020 [acesso 9 jan 2024];16(2):113-39. DOI: 10.5007/1807-9288.2020v16n2p113
5. Pessini L. Bioética: das origens à prospecção de alguns desafios contemporâneos. *Mundo Saúde* [Internet]. 2005 [acesso 9 jan 2024];29(3):305-23. Disponível: <https://bit.ly/3SBtggO>
6. Zanella DC. Humanidades e ciência: uma leitura a partir da bioética de Van Rensselaer (V. R.) Potter. *Interface Comun Saúde Educ* [Internet]. 2018 [acesso 9 jan 2024];22(65):473-80. DOI: 10.1590/1807-57622016.0914
7. Cunha T, Lorenzo C. Bioética global na perspectiva da bioética crítica. *Rev. bioét. (Impr.)* [Internet]. 2014 [acesso 9 jan 2024];22(1):116-25. Disponível: <https://bit.ly/499LFbx>
8. Valera L. *Ecología humana: los desafíos éticos de la relación entre ser humano y medio ambiente*. Valencia: Tirant lo Blanch; 2022.
9. Furnari MG. The scientist demanding wisdom: the “Bridge to the future” by Van Rensselaer Potter. *Perspect Biol Med* [Internet]. 2002 [acesso 9 jan 2024];45(1):31-42. DOI: 10.1353/pbm.2002.0007
10. Almeida AM, Bitencourt AGV, Neves NMBC, Neves FNCS, Lordelo MR, Lemos KM *et al*. Conhecimento e interesse em ética médica e bioética na graduação médica. *Rev Bras Educ Méd* [Internet]. 2008 [acesso 9 jan 2024];32(4):437-44. DOI: 10.1590/S0100-55022008000400005
11. Alho CJR. Importância da biodiversidade para a saúde humana: uma perspectiva ecológica. *Estud Av* [Internet]. 2012 [acesso 9 jan 2024];26(74):151-66. DOI: 10.1590/S0103-40142012000100011


Rafaela Rossi – Undergraduate student – rafaelanrossi@gmail.com

 0000-0003-0435-3033

Manoela Duarte Selbach – Undergraduate student – manoadselbach@gmail.com

 0000-0001-6593-4734

Euler Westphal – PhD – eulerwestphal@gmail.com

 0000-0002-4891-8692

Corresponding author

Rafaela Rossi – Rua General Osório, 150, América CEP 89204-320. Joinville/SC, Brasil.

Participation of the authors

Rafaela Rossi contributed to the study design, database research, selection and analysis of articles. Manoela Duarte Selbach contributed to the development of the discussion and reviewed the content. Euler Renato Westphal supervised the project and helped with reviewing and content adjustments. All authors approved the final version for publication.

Received: 7.3.2021

Revised: 10.20.2023

Approved: 1.9.2023