The Role Science and Technology for the Character Development of Young Generation in Indonesia: An Ethical Review

Sri Sudarsih[1]

[1]Master Program in History, Faculty of Humanities. Universitas Diponegoro, Indonesia.

Abstract. This research focuses on the role of science and information and communication technology for the development of the character of the younger generation in Indonesia from an ethical point of view. The purpose of this research is regarding the important role of ethics in the development of science and technology in Indonesia so that it is beneficial for the younger generation, especially in relation to character development. This research is a qualitative research in the field of philosophy, with the basis of ethical theory and the object of study of science and technology. The methods used by researchers in data analysis are description, interpretation, and analysis-synthesis. Results achieved: the development of science and technology is very beneficial for human life. Science and technology in its development must be based on ethical values. Ethics makes science and technology able to achieve its goals, namely to prosper, educate, and human dignity. Ethics is needed by the young generation in this global era in responding to the development of science and technology which is getting faster and more sophisticated so as to produce a young generation that is strong and has character.

Introduction

[1] Corresponding author: srisudarsih012005@yahoo.com

The era of globalization, one of which is marked by the development of information technology and telecommunications, plays a major role in the success of national development. Many benefits are obtained from this progress, but on the other hand technological developments have a negative impact. The development of science which brings logical consequences to the development of technology, both have a reciprocal effect. In reality, the negative influence of technological developments has entered every line of life in society. Technological developments that are increasingly practical encourage human attitudes to be more pragmatic. This pragmatic attitude sometimes actually encourages an attitude of ignoring the idealistic values implicit in ethical values that teach morals. Conditions like this sometimes encourage the young generation who are all practical to tend to reveal an instant generation, a generation that ignores a process to achieve a goal (final result).

The development of science and technology should be aimed at humanitarian purposes, but the reality is often contradictory to what it should be. Advances in internet technology that can be accessed all day long without any limits can have a negative effect on the younger generation, most of the time being dominated by technology. Therefore, the study of the ethical side in the development of science and technology is very important which can then contribute to the development and strengthening of the character of the young generation in Indonesia.

2. Methods

2.1 Research Stages

This research is literature research in the field of philosophy with a theoretical basis of ethics and the object of study of the development of science and technology in Indonesia.
Research stages:
- Exploration of library sources. At this stage the researcher determines the location of the data sources, including libraries and online journals.
- Collection of library data in the form of books and other literature related to the theoretical basis and object of research studies.
- Data processing by conducting inventory, systematization, and data classification.
- Data analysis. Data relating to ethics; science and technology; The character concepts that have been inventoried and

systematized are then analyzed using methods and several methodical elements.
- Compilation of research results.

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2.2 Data Analysis

The methods used by researchers in data analysis are description, interpretation, and analysis-synthesis.

Result and Discussion

3.1 Understanding of Ethics

Ethics is a branch of axiology that examines the issue of right and wrong values in the sense of morality (moral) and immorality (immoral). Ethics in special discussion examines the characteristics that cause a person to be called moral or virtuous [1]. The word ethics comes from Ancient Greek. The word ethos in Greek has many meanings, in the singular: the usual place of residence; Meadow; custom, custom; attitude; the way of thinking; morals; character. The plural form (ta etha) has the meaning of custom. Ethics is a branch of philosophy that focuses on human studies as far as morality is concerned [2].

Ethics is a systematic thought in relation to morality which is produced directly as a more basic and critical understanding. Ethics observes moral reality critically through the stages of logical and systematic thinking. Ethics examines customs, values, norms, and moral views critically. Ethics demands responsibility [3]. Ethics relates to a way of life that is good for individual or community life. Ethics is understood as a teaching that contains rules regarding how humans live in a good way. Ethics also contains orders and prohibitions regarding good or bad human behavior. Ethics is very important for humans in understanding as a critical reflection in relation to choices, attitudes, and acting correctly. This critical reflection is related to the norms and values given by ethics, the special situations faced with their uniqueness and complexity, and various understandings held by humans and community groups [4].

Ethics is divided into two, namely descriptive and normative ethics. Descriptive ethics describe the predicates and responses of decency that have been accepted and applied, while normative ethics are related to decency measures [1].

3.2 Understanding of Science and Technology

According to some experts, the definition of science and technology is as follows.

  a. UNESCO
    All knowledge related to technology and science, as well as its benefits in an effort to meet human needs and to improve their living conditions.
  b. Iskandar Alisyahbana
    Technology is knowledge about ways of doing things.
  c. Hermawan Kresno Dipojono
    Science focuses on the realization of scientific principles in the development of technology and its practical application for the benefit of humanity.
  d. John D.Bernal
    Human activities that have the goal of improving the quality of life and socio-economic progress by utilizing knowledge and technology.
  e. Read Bains
    In essence, science and technology includes all tools, machines, tools, equipment, weapons, housing, clothing, means of transportation and communication, as well as the skills that enable humans to produce them.
  f. Jaques Ellul
    Science and technology is a collection of methods that are rationally directed and have efficiency in increasing added value in every area of human life (https://bnp.jambiprov.go.id/iptek-Jadi-pengertian-ciri-untung-dan-exemplary/) [5].

Technology according to Bagus, technology is the ability to produce goods and works of art. Technology is also interpreted as the methodical use of natural resources and forces based on natural knowledge in an effort to meet increasingly complex human needs [6].

Science and technology are actually human activities that do not recognize stopping points as an effort to find and determine the truth. Science must be examined as a whole, namely in the dimensions as: a). Society shows as an academic community that always explores and develops knowledge; b. As a process, describing an activity of the scientific community always trying to find the truth through the activities of abstraction, speculation, imagination, reflection, observation, experimentation, comparison and exploration; c). As a product, it is the

result of a process, in the form of scientific works in the form of physical and non-physical [7].

3.3 Understanding of Character

The values of character education according to the National Education Office (https://rumahinspirasi.com/18-values-in-education-character-bangsa/): a. Religious values, reflected in obedient attitudes and behavior in carrying out religious teachings, tolerance, and living in harmony with adherents of other religions; b. Honesty, reflects a person who can always be trusted in words and actions; c. Tolerance, reflected in attitudes and actions that respect differences; d. Discipline, actions that show orderly behavior and comply with various regulations; e. Hard work is an act of never giving up; f. Creative, is thinking and doing something to produce something new; g. Independent, is an attitude and behavior that is not easy to depend on others; h. Democratic is a way of thinking and acting that values the rights and obligations of both himself and others; i. Curiosity is an attitude and action that always seeks to know more deeply and broadly than something; j. The spirit of nationalism and love for the motherland is a way of thinking that places the interests of the nation and state above personal and group interests; k. Appreciating achievement is an attitude and action that encourages him to produce something useful for society and appreciate the success of others. l. Friendly is an attitude and action that encourages him to always make friends with other individuals; m. Caring for the environment is an attitude and action that seeks to prevent damage to the natural environment; n. Responsibility is a person's attitude and behavior to carry out his duties and obligations for himself, society, the environment (natural, social and cultural), the state, and God Almighty [8].

3.4 Ethics, Science and Technology, and Character

Several reasons regarding the important role of ethics in this era of globalization: First, the development of human life is getting faster and more pluralistic, therefore critical reflection is needed from various fields of human life. Second, the flow of globalization that enters every line of human life so that people's way of thinking also changes. Humans are required to be able to take attitudes that can be accounted for. Ethics is able to eliminate the influences of these ideologies [3].

The development of science and technology in Indonesia is aimed at the interests of humanity, namely welfare. Various advances should aim

at the welfare of mankind; educating both intellectual, emotional, and spiritual intelligence; and uphold human dignity. Therefore, the development of science and technology in Indonesia must be based on ethics. As Indonesians, we must apply ethics in our daily lives, be wise in using technology. Be a smart society that is able to use technology for good. These ethical values direct as well as the basis for attitudes in the development of science and technology. Values in moral teaching as the direction of various developments. There is a saying that with religion life becomes orderly, with science and technology life becomes easy and with art life feels more beautiful.

Increasingly sophisticated technology as a logical consequence of advances in science can be used as a means to learn various things. Ethics is needed by the younger generation in the global era in responding to the development of science and technology. The era of globalization is characterized by rapid developments in the field of information and communication. Most of the younger generation can access the internet at any time without space and time restrictions. As a logical consequence, the younger generation can access the culture of various nations around the world. Therefore, ethics is embraced as a foundation in this increasingly advanced and complex life, especially in warding off outside cultures that are inconsistent with the ethical values espoused by the Indonesian nation. The younger generation is the nation's future generation who are expected to bring progress and glory to Indonesia in the future.

An ethical attitude towards the development of science and technology makes the younger generation appreciate a process to achieve an end result, namely the younger generation who have the character of being religious, honest, tolerant, disciplined, have a high work ethic, are creative and innovative, independent, democratic, has a nationalist attitude, achieves, cares for the environment, has empathy, and is responsible for God, oneself, society, the environment (nature, social and culture), and the country. Character development for the younger generation is an important factor in relation to national development. The success of national development is determined by strong and character human resources. The younger generation who master science and technology wisely, put forward ethical values. The next generation of young people is an asset that must be maintained and nurtured so that

they become a generation of young people with character. The character that gave birth to a formidable young generation.

4 Conclusion

The development of science and technology is indispensable for the progress of the Indonesian Nation.

The development of science and technology must be based on ethics as an effort to achieve human goals, human intelligence, and raise human dignity.

Moral responsibility is very much needed in the development of increasingly sophisticated science and technology so as to be able to contribute to character development for the younger generation.

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