Chapter 8
Technoethics:
An Analysis of Tech Assessment and Design Efficacy

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ABSTRACT

Technoethics is a discipline that seeks to analyze technology's effect on society. This is accomplished by evaluating each proposal from two perspectives: holistic impact and practical application. The first approach looks at how the tool will benefit society and any potential risks from its introduction. The second review evaluates the design used to create the product to understand if this is the best possible construct or whether an alternative would reduce potential harm. The history of technoethics in this setting and the efficacy of educational guidance toward better outcomes are examined and evaluated. Included are recommendations about how institutions could enhance their curriculum to better promote societal well-being.

INTRODUCTION

English poet Alexander Pope (1711) once stated that "to err is human, but to forgive is divine." This statement has been studied and analyzed by thousands of psychologists, sociologists, and theologians over the years, each seeking to explain its meaning towards human behavior, values and moral agency. The basic premise is that the human state is imperfect and fragile and, as a result, will make errors and need correction to establish, assimilate and function within society. Historical research and trend analysis (Gregersen, n.d.) support these perspectives as early drawings and records of technological advancement indicate that fire, wheel, air travel, and space technology all chronicle a series of failures and successes in goal attainment. However, what happens when people continuously repeat their errors in judgment or disregard the past learnings?

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Pavlov taught that most mammals would conform to conditions when seeking to achieve a goal; this is called respondent conditioning (McLeod, 2021). Social system theory (Gibson, n.d.) taught that interrelationship between people, their beliefs, and society contribute to the ability to adapt to in the environment. Therefore, the presence or absence of some critical factors in neural psyche could contribute to undesired outcomes in the technology journey that create more harm than good. For example, over 3.3 million years ago, cave dwellers developed the first set of technological tools using unshaped stones, hammers, and anvils (Gregersen, n.d.). Now, crewless space ships travel to and from the earth, delivering supplies and collecting samples from other planets. However, that same level of intellectual depth and savvy produces challenges like issues with misuse of technology biomedical fraud (Wells & Farthing, 2009), unethical cloning (Tannert, 2006), cybercrime ("U.S. Consumers," 2022), etc.) and psychological distance with moral agency such as robotic cars with cinema features (Tucker, 2021), space debris cluttering the orbit or space technology falling into the ocean compromising marine life (Hutagalung et al., 2020), or the creation of a massive sub-standard dam in areas where human life can be loss ("Survivors of Laos' Worst Dam," 2020). There was an insufficient amount of concern for potential threats, possible flaws in design elements, and a lack of substantive interest in protecting human life. These incidents occur worldwide, and unfortunately, the frequency seems to be increasing.

One of the most notable Harvard Business Review case studies is the Challenger Space Shuttle Disaster (Prusak, 2011). It humbly reminds society of what can happen when people become too immersed in external factors and forget to provide the fundamental element of care in technological advances. Ethics is the branch of knowledge that governs a person's behavior towards an activity-based upon their values, integrity, choice, conscience, sense of fairness, and accountability. Historians found that these core principles had significant relevance in undergraduate studies but were rarely taught in areas of need (i.e. medicine, law, science, etc.). Douglas Sloan (1979) reported his findings in "The Teaching of Ethics in the American Undergraduate Curriculum, 1876-1976," and Beever et al. (2021) continued this research in their study "Where ethics is taught: an institutional epidemiology," which chronicles 1980 forward. The absence of ethical principles in key areas of technology has serious consequences within society because thoughtful technology assessment (TA) and technoethical design (TED) are not being performed, which could deter the creation of harmful products or services for others or reduce the opportunity for others to create harm to themselves.

BACKGROUND

The term technoethics was developed by Mario Bunge in his 1977 publication "Towards a technoethics." Here, Bunge expounds that the old monarchy structure used to govern society no longer exists and those individuals that are most capable of erecting change and growth within society also bear the responsibility of ensuring its protection, stating,

Nobody recognizes rights without duties, privileges without responsibility…everyone is rightly held responsible for what he does and even for what he fails to do when he ought to act…and the outcome of their labors is well-known: a new kind of society, one that may carry mankind either to a higher evolutionary level or to a quick extinction. (Bunge, 1977, pp. 96-97)