



Ethical Considerations of Influencing Behavior Using Computer Technology

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Abstract

Introduction: Computer technology and cyberspace have become an inseparable part of human life today and have affected all aspects of individual and social life. Today, the use of various psychological techniques in the design of products and services based on computer technology is being pursued seriously to gradually and unconsciously influence the behavior and mind of users, and frameworks have been developed in this direction to achieve this goal. This method of developing and designing technical artifacts based on computer technology will entail significant ethical considerations that require in-depth examination and analysis, which is addressed in the present article.

Material and Methods: The method of this research is a philosophical analysis based on the use of common theories of moral philosophy and philosophy of technology.

Conclusion: The unconscious influence on behavior using computer technology can be criticized from both the perspective of deontology and virtue-based moral perspectives. Even when the purpose of this influence is positive, the damage that is done to the user's autonomy makes these technologies morally reprehensible. In addition, the artifacts produced in this way are not value-neutral and are value-laden. Considering the inclusion of computer technology-based products and services in people's lives and the extent of the use of techniques for influencing behavior, it is necessary to take measures to combat the morally harmful effects of such artifacts. Improving the general literacy of users and also policy-making and regulation in the production of such products are suggested in this regard.

Keywords: *Ethical considerations, Computer technology, Virtue-oriented, Deontology*

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INTRODUCTION

Today, computer technology and its products and services have become an integral part of human life. Therefore, it is not surprising that the ethical challenges of computer-based technologies are also being widely discussed and investigated. Fields such as ICT ethics, computer ethics, and information ethics today focus on ethical issues and challenges surrounding computer technology. Issues such as privacy,

intellectual property, and the digital divide are among the most important issues in the field of computer technology ethics. In this article, we intend to introduce one of the lesser-known ethical challenges of computer technology and analyze and philosophically examine it. This challenge is the unconscious influence on the behavior and mind of the user through computer technology and its conflict with the ethical value of human autonomy.

Computer technology has characteristics that distinguish it from other types of known technologies. Van den Hoeven enumerates the distinguishing features of computer technology, two of which are relevant to our discussion: 1) computer technology is ubiquitous and 2) computer technology is universal due to its logical flexibility, meaning that its applications cannot be limited or predicted in advance [1]. These same features have led to the relationship between human users and computer-based products and services becoming a close interaction and opportunities for influencing the minds and behavior of users using computer technology. Captology, or computers as persuasive technology, is a psychological framework that attempts to apply psychological techniques of influencing behavior and the mind to the design and construction of computer-based products in order to create and institutionalize certain behaviors and attitudes in users [2-4]. Since its introduction by Benjamin Fogg, an experimental psychologist at Stanford University, in the 1990s, the framework has been used in the development of many products and services [3]. The production of attractive products that engage users more and more, and the production of products that promote health and positive habits and reduce harmful and dangerous behaviors are noteworthy in this context. Given the limitless scope of computer technology in human life, the applications of captology are also generally limitless. The general idea behind the captology framework is a model of human behavior according to which a behavior is most likely to occur when the product of three factors of ability, motivation, and drive is greater than a certain threshold, and therefore when the product of these three factors is less than a certain limit, the behavior is least likely to occur by the person. Providing conditions in which the factors that generate behavior are strong enough causes certain behaviors to be created and repeated or

other behaviors to be suppressed [2]. The flexible nature of computer technology and the user's close and extensive interaction with them in all aspects and moments of life have made the application of this behavioral model a great help in establishing new behaviors or eliminating certain behaviors in users. An important point here is that the persuasion used in the framework of captology differs from the conventional meaning of this word. In the conventional understanding, persuasion means presenting evidence, arguments, and arguments to a person so that the person, by consciously considering them, adopts a specific approach and behavior. However, here, the person's behavioral and psychological tendencies are exploited in a generally unconscious process, and a specific behavior is gradually established and institutionalized in him. In fact, some believe that the importance of this method of persuasion lies precisely in the fact that, due to the person's ignorance of the existence of such a persuasive process, the likelihood of the person's conscious opposition and resistance to them is lower, and therefore the behavior of a larger circle of people changes under this method of persuasion [5].

Today, this psychological framework is widely used in the production of computer-based products. Computer games that are designed to facilitate a specific behavior, create different incentives and various triggers to engage people more [6], social media (such as Facebook and Instagram) that try to engage people more with motivational factors (number of followers and likes) and various triggers (such as notifications), etc. [7], correcting bad eating habits and also establishing a thrifty approach to consumption [3] have been among the successful applications of captology in the production of computer technologies. It is now clear that some applications of captology seem ethically challenging. The production of products that lead to behavioral dependence and even digital

addiction⁴ in order to maximize profits for the manufacturers clearly brings to mind a form of user abuse. These issues have caused the ethical challenges of this framework to occupy the minds of activists since its introduction [8-10]. The current formulation of this challenge is that the design and production of such technologies that seek to create behavioral dependence in the user undermines the value of human autonomy and directs them like puppets in the interests of others, not their own. In addition, since respect for human autonomy is one of the central moral values, especially in the deontology ethics system, the production of such technologies is reprehensible in terms of value. Also, neglect of the unintended consequences of such behavioral interventions is among the challenges that have entered the captology within the framework of consequentialist ethics [11-14].

This article attempts to extend this line of thought and argues that 1) the captology framework is morally evaluable not only from the perspective of deontology and consequence-based ethics, but also from the perspective of virtue-based ethics. 2) Since these psychological techniques have been used in the construction and production phase of technologies, these technologies cannot be considered from a value-neutral perspective and they are a clear example of what in the philosophy of technology is called the value-bearing of technical artifacts. 3) Even in cases where the direction of behavior is in the person's best interests, informed permission is required, and if the direction of behavior is against the person's best interests, even obtaining permission will not make the product moral. Finally, two solutions available in the literature to deal with the morally harmful effects of such technologies are briefly introduced and analyzed.

MATERIAL AND METHODS

The method of this research is a philosophical analysis based on the use of common theories of moral philosophy and philosophy of technology.

DISCUSSION

Are technologies morally charged or neutral?

According to the technological neutrality thesis, technical artifacts are inherently value-neutral and it is the way in which users use them that is evaluable. In a common example, a knife is neither good nor bad in itself, and it is the user who can use it for a good purpose (the surgeon saving a human life) or an evil purpose (the murderer killing an innocent human being). Similarly, social media, which allows for the widespread dissemination and access to information for all, is merely a neutral tool that can be used by some for bad purposes (such as spreading false information) or good purposes (such as spreading true information). On the other hand, proponents of the technological value thesis argue that, at least in some cases, it can be argued that the technical artifact itself is morally evaluable, independent of the way in which the user uses it [15]. The general claim is that the structure of technical artifacts and their design can be such that they can disseminate or suppress a particular value, independent of the specific way in which they are used by the user. The existing discussion in the philosophy of technology about the value-bearing or value-neutrality of technical artifacts is mainly focused on finding examples that can demonstrate the value-bearing of technologies [15]. Here it can be argued that technologies in the production of which the framework of captology has been used are examples of value-bearing technologies. The reason for this is that these technologies unconsciously, by bypassing the awareness and choice of the person and by taking advantage of the psychological mechanisms and tendencies of creating behavior, place him in a process that

gradually establishes the emergence of a certain behavior in his interaction with technology. This means suppressing and undermining the value of human autonomy, according to which humans should control their decisions and behavior and also be responsible for them. Since these psychological techniques are used to produce technical artifacts, this value distortion exists in these artifacts, regardless of the user's intention. Therefore, such technologies can be considered examples of value-laden technologies.

The perspective of ethical theories in the field of computer technology

The most important and well-known ethical systems used in the ethics of science and technology are consequentialist ethics, deontological ethics, and virtue ethics. In consequentialist ethics, it is the outcome of positive and negative consequences of actions that is the criterion of moral good and bad. According to deontological ethics, it is the intention of a person to follow moral duties that makes an action moral or immoral, and finally, in virtue-based ethics, it is the moral virtues and vices of a person that make actions moral or immoral; that is, a moral action is an action that a virtuous subject manifests in an appropriate situation. In other words, while consequentialist ethics looks at the result of the action, deontological ethics looks at the action itself, and virtue-based ethics looks at the character and character that leads to the action.

The Deontological Perspective

Kant's deontological ethics is the clearest system with which to address the moral critique of persuasive computer technology. In this system, something is moral when the result of acting on it is a deontology (independent of the consequences or other factors), and something that is in conflict with the deontology is immoral. The moral imperative expresses a deontology, one of the

main formulations of which is that a human being should never be treated merely as a means and should always be considered as an end [16]. Under this ethical framework, the problem of persuasive computer technologies can be well formulated. In fact, the way in which persuasive computer technology works is in such a way that the autonomy of the user is circumvented and, by using his unconscious psychological and behavioral tendencies, he is led to perform and repeat a certain behavior. In many cases, the intended behavior is in line with the greater profit of the manufacturing company. For example, spending more time in a game or software brings more profit to the product owners. However, even when the product in question is beneficial and beneficial to the person (for example, correcting a bad habit), stepping on the person's autonomy can still be assessed negatively from the perspective of the Kantian deontological framework, and it is necessary to inform the user of the existence of such a mechanism in the product and obtain his permission. In fact, a distinction should be made between two levels of ethical assessment of persuasive computer technology. At the first level, these technologies resort to a method of behavior change that undermines the person's autonomy by bypassing the person's awareness and decision-making. Informing the person of the existence of such mechanisms and obtaining his permission can resolve the ethical problem at this level. At a higher level, the specific change that the product is supposed to bring about is subject to ethical assessment. Naturally, if a product is produced with an immoral purpose (for example, to create an unpleasant habit such as digital addiction), it is morally reprehensible. Here, even if a person uses the product with awareness of such a purpose, the moral problem is not resolved. For example, suppose a product is produced that, by taking advantage of the psychological tendencies of the individual, creates a strong behavioral

dependence on itself. When installing this product, the existence of such features is noted in the product design structure and the user's permission is denied. Is there no problem here from the point of view of functional ethics? The answer is no, because the impairment of autonomy by using this product at a higher level still exists.

Virtue-based perspective

It can be shown that virtue-based ethics also has considerable potential in analyzing such technologies. Shannon Vallor [14] has attempted to introduce the framework of virtue-based ethics into discussions of the philosophy of technology, and in particular computer technologies. In his view, the user's interaction with technologies can lead to the creation and consolidation of certain vices and virtues in him, and this can provide grounds for the moral evaluation of technology that are neglected in the consequentialist or deontological perspective. For example, consider very violent computer games. Since no one actually suffers physical harm in playing these games, it is difficult to morally criticize these games from the perspective of consequentialist or deontological ethics. But as Van den Hoeben argues well, playing these games can create vices such as callousness and cruelty in the player, and from this perspective, such games can be morally criticized [1]. In a similar way, Weller morally evaluates social networks in terms of their impact on the virtues and vices of communication under the framework of virtue ethics [13]. A similar model can be applied to persuasive computer technologies. The production and use of such technical artifacts in which a person's behavior and mentality are gradually changed and directed without his awareness and decision is in fact a step towards weakening the virtue of human self-control. The image of someone passively caught up in their surroundings and wandering aimlessly brings to mind a vice, while the image

of someone thoughtfully and consciously making decisions for their life and taking responsibility for them brings to mind a virtue. Therefore, daily interaction with dozens of computer technologies that are designed to lead the user towards certain behaviors without their knowledge is in fact taking steps towards perpetuating a vice or undermining a virtue.

Consequentialist perspective

In consequentialist ethics, it is the outcome of beneficial and harmful outcomes that makes a thing morally good or bad. From this perspective, persuasive technologies are moral when they lead to positive outcomes. Even when a persuasive technology favors the interests of the manufacturing company over the interests of the user, one must still consider the resulting benefits and harms, which are not always negative; users who devote a great deal of their lives to various technological products, in addition to bringing substantial profits to the manufacturers, indirectly facilitate the development and production of more of these products. However, it can be argued that even from a consequentialist perspective, this assessment is premature. As Nystrom and Stibe rightly point out, behavioral interventions often have unintended consequences and adverse side effects that are often overlooked in the cost-benefit analysis [9]. In addition, people's awareness of the existence of persuasive technologies and their unconscious influence on their minds and behavior may lead to a sense of distrust and frustration that will manifest itself in the form of psychological resistance and resistance, and will cause the benefits of persuasive technologies to no longer be as strong as they were initially. These cases show that even within the framework of consequentialist ethics, the morality of persuasive technologies cannot be clearly established.

CONCLUSION

Computer technology has become an inseparable part of human life, and the growth of this technology and its applications promises a future in which the individual and social lives of humans are even more intertwined with these technologies than they are now. The use of psychological and behavioral techniques in the design of computer-based products and services, of which Captology was one of the most famous frameworks in this regard, will continue in the future as it does today. Many people are unaware of the existence of such psychological mechanisms in the design and construction of technical artifacts. From the perspective of these people, there is no fault in the technical artifacts themselves in the changes that have occurred in human behavior and lifestyles caused by computer products, the most obvious example of which is the creation of behavioral dependence and digital addiction, and it is only the users who can be evaluated in this regard. The fact that people spend many hours a day engaged in a particular social media, a particular computer game, or a particular software, without it having any significant benefit for them, is due to their own decision. But the discussion of the value-bearing/neutrality of technical artifacts and the value-moral analysis of technical artifacts produced on the basis of unconscious psychological mechanisms of behavior orientation presents a different picture in this regard. Computer technologies are persuasive value-bearing because they are designed to undermine and suppress the value of human autonomy.

The production of such products is morally questionable from both the perspective of deontological ethics and virtue ethics, and is morally challenging, both because of the impact they have on virtues and vices and because they infringe on the autonomy of the user. Moreover, even within the framework of consequentialist

ethics, there are complexities about these technologies that make it difficult to defend their moral dignity. Although the most problematic aspects of these technologies relate to when their use is in the interests of the producers, even when the interests and well-being of the individual are considered, the intrusion on his autonomy without permission is morally questionable. With these points in mind, we can now turn to the most important solutions to this moral problem. Regulation and legislation are the first solutions that come to mind in this context. Requiring computer product manufacturers to disclose the psychological mechanisms used in the design of a product, as well as to explicitly inform the user and obtain his permission, is a measure that can be considered in this regard. Similar to other regulatory systems for computer-based products (for example, an age rating system for computer games with a requirement to be included on the product), such a measure can be considered an effective response from a governance perspective. In some cases, this solution will be the only solution available. For example, consider a computer product that is unrivaled due to its wide coverage and efficiency. Now suppose that the manufacturers of this product use persuasive technology techniques in the design to create as much behavioral dependence as possible. Here, even if the user is informed of the truth and his permission is obtained, he has no other choice but to use this product. In such cases, regulation and legislation are the only tools with which to resolve this ethical problem. However, as Soraker points out, the use of psychological techniques in product design has subtleties and complexities that make it difficult to discover and attribute conscious intent to the designer. In other words, it can be very difficult to determine whether a product is intentionally or accidentally addictive [6]. This is why Soraker proposes an alternative solution to this approach. Metacognition refers to

individuals' awareness of their own psychological and behavioral mechanisms. A person who has metacognition knows their behavioral and mental tendencies and knows how their behavior can be directed. Metacognition training is therefore like media literacy training and can help individuals to approach technologies from a critical perspective and understand how they may be influencing their behavior. Empirical studies show that individuals with metacognition have greater control over preventing influences that conflict with their conscious decisions and approaches [6]. Therefore, it seems that a defensible approach to such an ethical challenge in computer technologies is a combined approach that includes a range of measures from increasing individuals' awareness of metacognition to appropriate regulation of companies that produce computer products. Therefore, contrary to popular belief, technologies are not value-neutral and can, by design and construction, either promote or suppress certain values. This study argues that the framework of persuasive technology, which uses psychological techniques to produce computer products and services that influence the behavior and mindset of the user, is a clear example of value-laden technology that can be evaluated in terms of undermining the value of human autonomy. It was also shown that the moral status of these technologies is critical from both the perspective of Kantian deontological ethics and virtue ethics, and they cannot be clearly defended even in consequentialist ethics. Given the astonishing prevalence of computer technology in contemporary human life and the ethical problems of using psychological techniques to change behavior and mindset, passivity in this regard is not permissible and steps must be taken to improve the situation. Improving public literacy about the techniques used in these technologies, which can reduce their harmful effects by strengthening

metacognition, is recommended, as well as regulation and policy-making to minimize unethical aspects in this field.

ETHICAL CONSIDERATIONS

Ethical issues (such as plagiarism, conscious satisfaction, misleading, making and or forging data, publishing or sending to two places, redundancy and etc.) have been fully considered by the writers.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interests.

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