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GAMES

The long history of humans playing games to amuse or challenge themselves has been fundamentally transformed by science and technology. Science has studied in detail how games work, and technology has created whole new forms of computer and video games. Computer and video games exhibit two types of relationships to ethics: one concerns the ethics of the games themselves, another the possibility of using games to teach ethics.

ETHICS OF GAMES

With advances in video game technology, which allow games to seem more real, concern over the content of games—especially violent, sexual, or politically controversial content—has grown. The root of this concern over controversial content is that those who play such games will not be able to separate fantasy from reality. In other words, there is concern that behaviors encouraged as part of a game may transfer to nonvirtual environments.

A possible response is to argue that such games, despite their increasing realism, are *merely games*. This argument suggests a separation between games—as mere fantasy or play—and reality. However, this argument runs counter to the belief that games can both reveal and develop character. Moreover, the idea that games have no connection with reality undermines the view of games as part of ethics education.

GAMES FOR TEACHING ETHICS

Since the 1970s, there has been a growing emphasis on including ethics in the formal education of scientists and engineers. This was sparked in part by high-profile engineering disasters and research misconduct cases that undermined the assumption that standards of responsible practice were being adequately passed on to new researchers in the normal training process.

This concern led to the development of requirements for formal ethics education for scientists and engineers. In 1985 the Accreditation Board for Engineering and Technology (ABET, Inc.) required engineering programs to provide students with ethics education. In the early

1990s, the US National Institutes of Health (NIH) developed requirements that all institutions applying for NIH funds implement formal training in the responsible conduct of research (RCR) for both graduate students and postdoctoral researchers. In 2009 the US National Science Foundation (NSF) implemented a similar requirement for RCR training. Other countries have their own approaches to research ethics (discussed in the entry “Research Ethics: Overview”).

Most such requirements leave unspecified the way in which ethics should be taught and incorporated into the training of scientists and engineers (see Steneck and Bulger 2007). This lack of specificity has generated ongoing debates about and innovations in pedagogical approaches to RCR and engineering ethics education (see Hollander 2009). Popular approaches include online tutorials and case studies. An emerging approach uses games to teach ethics to scientists and engineers.

One example of an RCR game is *Gaming against Plagiarism*, created at the University of Florida and funded by NSF. This online role-playing game is designed to help graduate students recognize and avoid plagiarism. This game is obviously targeted at one particular aspect of RCR. Another NSF-funded ethics education game, created at the University of North Texas, aims at sensitizing graduate students to the pressures of research, including competition with others and the temptation to cut corners. This game, *Grants and Researchers*, immerses students in situations where they must manage grants using limited reputation chips—risking reputation if they get caught making unethical moves, being rewarded with reputation if they either choose to act ethically or escape detection of their unethical moves—in order to win.

The gaming approach to ethics education is part of a larger trend toward exploring and developing the pedagogical potentials of games (which is itself a species of “serious games,” or games that are designed for a primary purpose other than entertainment). The connection between games and education is deeply rooted: humans, like many animals, learn vital life lessons through play. In *The Republic*, Plato (c. 428–347 BCE) states, “No compulsory learning can remain in the soul. In teaching children, train them by a kind of game, and you will be able to see more clearly the natural bent of each” (Bk. VII).

The educational potential of computer games was first explored by the psychologist Thomas Malone. In 1981 he asked: What makes computer games so captivating and how can those features be used to make learning more enjoyable? With subsequent increases in computing power, gaming pedagogy has flourished. Several universities host labs, such as Michigan State University’s Games for Entertainment and Learning (GEL) Lab, and game designers and educational researchers have promoted the

notion that games can enhance education (despite their popular reputation as being detrimental to education) (see, for example, Prensky 2001).

Much of the pedagogical benefit of games centers on their potential to develop skills. James Paul Gee (2007), for example, argues that games not only can be used to deliver instructional content, but also, and more importantly, their architecture and the experience of gaming actually foster the cognitive skills necessary for improved learning. Similarly, the final report from the Summit on Educational Games (FAS 2006) concluded that educational games may be effective in developing higher-order skills, such as problem solving and decision making.

This emphasis on skill-development is significant for the subset of pedagogical games focused on ethics education (including RCR and engineering ethics education). According to the normative theory of virtue ethics, one becomes ethical through habituation, the immersion in situations that force one to practice judgment, courage, and other relevant skills or habits of character. Games can provide just these kinds of immersive experiences. Gaming RCR education recasts it as less a matter of memorizing rules through content-delivery systems (such as online RCR tutorials) and more a matter of practicing virtuous behavior in lifelike environments that simulate the incentives, pressures, and other aspects of the decision contexts faced by scientists and engineers in the real world.

As Henry Beecher argued in a whistle-blowing article about scientific misconduct, merely implementing codes and rules is not enough to ensure responsible behavior. Scientists must be “intelligent, informed, conscientious, compassionate, [and] responsible” (1966, 1360). RCR requires scientists and engineers to possess these *virtues*. It can never be merely a matter of delivering a predefined bundle of content in the form of principles, codes, or formulas. Using games as part of ethics education holds the potential to develop these virtues by immersing students in lifelike scenarios where they can practice skills of judgment and decision making.

Games are akin to the case-study approach to RCR and engineering ethics education in that they ground ethical inquiry in the details of a particular scenario. But they go beyond case studies by putting students in the center of the action, giving them a stake in the activities, compelling them to make their own decisions in open-ended situations that will evolve in response to their decisions, and creating interpersonal dynamics of competition and cooperation (Sadowski et al. 2012). The interactivity of games, their potential for encouraging students to take risks, and their ability to tap into deeper levels of cognition, emotion, and reflection have all been advanced as reasons to further develop applied ethics games (McDaniel and Fiore 2010).

CRITICAL ISSUES

These attributes make the use of games for ethics education worth further pursuit. But several hurdles and questions remain. There is the fundamental challenge of any form of “edutainment,” namely, balancing learning with fun. If the balance tips too far one way, students are merely playing; but if it tips too far the other way, the uniquely captivating quality of games is lost. Designing a good game—one that is both educational and fun—takes significant investment and skill.

Further challenges include potential gender biases, mismatches between games and typical classroom settings, questions about how to integrate games with other classroom activities, and lack of teacher training in the effective use of games (see Francis 2006). Assessing the impact of ethics education games is another crucial challenge. Do they lead to better ethical decision making? This hinges in part on the transferability of learning from virtual to real environments (see Turkle 2009; Puech 2013).

Other issues concern the design of games. Should ethics games seek to instill the right ethical behaviors (such as “do not plagiarize”)? Perhaps students should win a game only if they make the ethically right decisions. Or perhaps ethics games should simply present opportunities for decision making in morally fraught and ambiguous scenarios. Yet if students can win such a game by making ethically questionable moves, does that send the wrong message? These questions return us to the issue of how to assess ethics education in general.

Finally, the very idea of games poses problems for their use in ethics education. For some, it is difficult to take games seriously. Games, on such a view, involve only playing, never serious reflection. When combined with an idea of ethics education that reduces it to an issue of mere compliance with predetermined ethical standards, the notion that games might be used in ethics education may strike some as laughable. This attitude places added pressure on those developing games for ethics education to demonstrate the effectiveness of games used for the purpose of enhancing serious ethical reflection.

SEE ALSO *Defining Issues Test; Research Ethics: Overview; Responsible Conduct of Research; Simulation; Teaching Ethics; Video Games.*

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GANDHI, MOHANDAS

Mohandas Karamchand Gandhi (1869–1948) was born in Porbandar, Gujarat, India, on October 2, and led India to independence from Great Britain on August 15, 1947, by preaching and practicing nonviolent resistance. After studying jurisprudence at University College, London, Gandhi began practicing law in Durban, South Africa, in 1893. It was here that he started his political career by fighting discrimination against Indians. Following World War I he returned to India and became involved with the Indian National Congress and the movement for national independence. He was repeatedly imprisoned for his use of civil disobedience, fasting, and boycotts as methods of

social reform. In addition to his nonviolent opposition to Western colonialism and capitalism, Gandhi advocated the reformation of the caste system and the harmonious coexistence of Muslims and Hindus in a unified India. His critiques of modern technoscience also influenced later theoretical developments and social movements. Gandhi was assassinated by a Hindu radical in New Delhi on January 30, 1948.

NONVIOLENCE AND WESTERNIZATION

Gandhi initially defined his method of social action as *passive resistance*, but later refined and strengthened his ideals into a principle called Satyagraha. The term is derived from two Sanskrit words highlighting his central beliefs: *satya*, truth, and *agraha*, firmness—but practiced with *ahimsa*, noninjury to living things. As a method of direct social action, Satyagraha is a nonviolent insistence on truth in the political realm. Gandhi employed this principle with its offshoots, noncooperation and civil disobedience, in order to vindicate the truth by inflicting self-suffering rather than forcing his opponents to suffer. His persistence provoked anger in the British, including Winston Churchill, who called Gandhi “a malignant subversive fanatic” (Hardiman 2004, 238). The political success of this social reform method demonstrated the efficacy of nonviolence to the world and inspired other peace activists such as Nelson Mandela (1918–2013) and Martin Luther King Jr. (1929–1968).

Gandhi’s experiments with Satyagraha made him aware of the economic, social, and political exploitation of people around the world, especially the uneducated and impoverished in South Africa and India. He believed that the root of this oppression and poverty was the culture of violence that resulted from Western materialist values, and he maintained that adopting the culture of nonviolence is the only way to attain truth, peace, and harmony. Thus Gandhi’s nonviolent social reform was directly targeted against the globalization of Western values and material culture in the form of capitalism and imperialism.

He described the culture of violence in terms of the *seven social sins* of the world: wealth without work; pleasure without conscience; knowledge without character; commerce without morality; science without humanity; worship without sacrifice; and politics without principles. Gandhi’s philosophy of nonviolence requires one to live life as an eternal quest for truth. It is often interpreted dogmatically or rejected as impractical, although it is founded upon the positive and near-universal values of love, respect, understanding, acceptance, and appreciation.

Gandhi believed that the westernization of India would destroy its culture and result in an unequal distribution of wealth and resources. Unlike his political