



There's No Such Thing as Engineering Ethics

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ABSTRACT: Why do engineers focus with such zeal on “engineering ethics?” Ethics are ethics. Have we, by creating a set of ethics for our professional lives as engineers, made the concept of ethical behavior so complex and confusing that we fail to act in ways consistent with moral principles when faced with an ethical dilemma? Studies shows that there is a set of guiding universal principles that if properly applied would provide guidance for dealing with ethical dilemmas. In theory, the study of engineering ethics should not be necessary if engineers were well founded in the application of these principles. Because of the complexities involved in ethical dilemmas, engineers must develop their ability to apply moral intelligence (knowledge of what is right) when we are under pressure in real-life situations. The way we learn to apply this moral intelligence is by studying ethics so that when we are faced with an ethical dilemma we can reply in a manner that is consistent with these universal principles.

In his book *Ethics 101*, John Maxwell (2003) explains that in the summer of 2002 he was approached by the chairman and CEO of the AOL-Time Warner book group to write a book on business ethics. Maxwell responded: “There’s no such thing as business ethics—there’s only ethics. People try to use one set of ethics for their professional life, another for their spiritual life and still another at home with their families. That’s where they get into trouble. Ethics is ethics. If you desire to be ethical, you live by one standard across the board.” Maxwell goes on to state that educators, philosophers, theologians, and lawyers have taken a simple matter and made it confusing. While living an ethical life is not always easy, it need not be complicated. Intrigued by this concept, I began to question why we, as engineers, focus with such zeal on “engineering ethics.” Have we, by creating a set of ethics for our professional lives as engineers, made the concept of ethical behavior so complex and confusing that we fail to act in ways consistent with moral principles when faced with an ethical dilemma? If “ethics is ethics,” why don’t we teach people how

to apply Maxwell’s one standard? What is that one standard and will it hold up when applied to real life ethical dilemmas? If it will hold up on engineering ethics issues, why not eliminate training in engineering ethics and focus on teaching the principles and application of that one standard that can apply to our professional, spiritual, and personal lives, regardless of our profession?

THE STANDARD

James R. Nichols, P.E., is the current chair of the Texas Board of Professional Engineers. In his presentations on engineering ethics, he states that ethics really boils down to the idea of living by the Golden Rule. That same concept is embraced by John Maxwell. But is this concept, which is common to many religions and philosophies, applicable to everyone? Doug Lennick and Fred Kiel (2005) proposed that everyone is born with a moral compass, the innate ability to distinguish right from wrong. They point to the work of anthropologists (Brown 1991) and others that have determined that the moral codes of all cultures include recogni-

tion of responsibility, reciprocity, and ability to empathize. Other researchers (Kinnier *et al.* 2000) have identified a list of “universal principles” by analyzing earlier lists and examining the official tenets of major world religions. The premise is that principles, held in common by major world religions, are the ones most likely to be universal and enduring. These same principles are also espoused by secular organizations, including American Atheist, Inc., the American Humanist Association, and the United Nations Declaration of Rights. These principles are:

- Commitment to something greater than oneself
- Self-respect, but with humility, self-discipline, and the acceptance of personal responsibility
- Respect and caring for others
- Caring for other living things and the environment

While the genuine differences in our cultures may distract us from observing the common moral principles, the concept of “do unto others as you would have them do unto you” is a universal principle that can be applied regardless of religious or cultural background. The question remaining is if the Golden Rule can be used to guide ethical decision making by itself, or if it must be supported by the other principles or by professional codes of ethics.

The National Society of Professional Engineers (NSPE), the American Society of Civil Engineers (ASCE), and most other engineering professional societies have a published code of ethics designed to help their members practice engineering ethically. One approach to determining the adequacy of the Golden Rule as a guide for making ethical decisions is to compare it to the principles in these established codes of ethics. Since these codes of conduct are designed to help their members practice ethically, the Golden Rule should be an adequate substitute for the fundamental canons contained in these codes of conduct. ASCE’s *Standards of Professional Conduct* (2000) include the society’s “Code of Conduct,” which was adopted originally in 1914 and was most recently amended in 1996. The “Code of Conduct” contains seven fundamental canons:

1. Engineers shall hold paramount the safety, health, and welfare of the public and shall strive to comply with the principles of sustainable development in the performance of their professional duties.
2. Engineers shall perform services only in areas of their competence.
3. Engineers shall issue public statements only in an objective and truthful manner.
4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
5. Engineers shall build their professional reputation on

the merit of their services and shall not compete unfairly with others.

6. Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession.
7. Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.

The six fundamental canons of the “Code of Ethics for Engineers” of the National Society of Professional Engineers (NSPE 2003) are very similar to those of ASCE’s “Code of Conduct.” Studies of engineering ethics compare test cases against these codes of ethics. If you read case studies in NSPE’s *Board of Ethical Review* they will often list those paragraphs of the NSPE code of ethics that are used as the standards by which the subject behavior is determined to be ethical.

Applying the Golden Rule, ask “How would I want to be treated by engineers if I were on the ‘receiving end’ of each of these canons?” Take canon 1 regarding health and safety of the public, for instance. As a member of the public, would you not want engineers to hold your safety as a primary responsibility? Do you not trust them to practice only in their area of expertise so they don’t place your life in jeopardy just so they can collect a fee as stated in canon 2? How would you feel if they betrayed the trust you have placed in them as professionals? A similar application can be made to each of these fundamental canons with similar results.

GETTING INTO TROUBLE

If it is that simple, and we have all of these documents to guide the way, then why do we get into trouble? Ethics in the business world has been thrust into the public eye by the well-publicized breaches of ethics by CEOs and other corporate leaders in cases like the Enron scandal, WorldCom, and others. People are horrified and disgusted by the lack of ethical behavior in the business community and are looking hard for those they can trust. Engineering is not without its own high-profile cases. The Space Shuttle Challenger accident, the Ford Pinto, the Kansas City Hyatt Regency disaster, and other moral breaches have become case studies in engineering ethics (Fleddermann 2004).

Maxwell believes that when people get into an ethical dilemma and make unethical choices, they do so for one of three reasons:

1. They do what is most convenient.
2. They do what they think they must do to win.
3. They rationalize their choices with relativism.

When forced to choose between doing what is right versus doing what is convenient, convenience often wins. Some-

times it is just easier to allow an unethical situation to exist than to take steps to remedy the situation. Most people fall into the “I am mostly ethical” category because it is inconvenient to practice the discipline of always doing what is right, because conflict is inconvenient, and because paying the high price for success is inconvenient. These issues tend to be “small” issues that, if not taken seriously, undermine our discipline to always do what is right.

People are under tremendous pressure to win, and believe that doing what is ethical limits their options, opportunities, and ability to succeed. No one sets out to be unethical, but no one wants to lose either. The irony is that when we win by acting unethically, we have already lost. Short-term wins turn into long-term losses for everyone when the results of the unethical action come to light. Jon Huntsman (2005) writes:

“Financial ends never justify unethical means. Success comes to those who possess skill, courage, integrity, decency, and generosity. Men and women who maintain their universally shared values tend to achieve their goals, know happiness in home and work, and find greater purpose in their lives than simply accumulating wealth. Nice guys really can and do finish first in life.”

The theory of “situation ethics” (Fletcher 1966) espoused in the 1960s became the norm for social behavior. Everyone was encouraged to have his or her own standards, which could change from situation to situation. Using relativism, it is easy to rationalize unethical choices. People’s inclination to be easy on themselves has led to chaos. As Maxwell writes, “Where once our decisions were based on ethics, now ethics are based on our decisions.” Even our engineering codes of ethics may fall victim to relativism. The foreword to the NSPE *Ethics Reference Guide* (2005) states: “A code of ethics is not a static document; its purpose is to live and breathe with the profession it serves. Experience and changed circumstance will require continual review and revision of this Code of Ethics to reflect the growing understanding of engineering professionalism in public service.” We must trust those who maintain that code of ethics to keep those changes consistent with the universal principles that guide ethical behavior so this document can continue to be a faithful guide.

One of the factors that often complicates making ethical decisions is that issues are rarely clear-cut cases of good versus evil. In most cases, we are asked to make decisions on multiple shades of grey that have a tendency to change depending on the viewpoint taken. Jimmy Smith (2004) states: “Choosing between good and evil is easy, according to some. They say the real difficulty comes when choosing between competing goods.... Like design, situations involving ethical questions do not always have unique answers.”

Many times the ethical problems encountered in engineering practice are very complex and involve conflicting

canons in the code. As pointed out earlier, the paragraphs in codes of ethics are often used as the basis for resolving ethical issues and even these can conflict under certain circumstances (Fleddermann 2004). Many engineers are not involved in professional societies and many who are haven’t read the code of ethics for their professional organizations. They rely on an undeveloped moral competence when faced with an ethical dilemma.

DEVELOPING MORAL COMPETENCE

Most people are familiar with the concepts of cognitive intelligence (IQ), which is the ability to learn, and technical intelligence, which is expertise in a particular business or technical area. Goleman *et al.* (2002) brought the concept of emotional intelligence out of academia and demonstrated how these principles could be applied to leadership. Lennick and Kiel (2005) developed the concept of moral intelligence as a companion to emotional intelligence. Moral intelligence is defined as our mental capacity to determine how universal human principles—like those embodied in the Golden Rule—should be applied to our actions. They focus on four principles that are vital for sustained personal and organizational success:

1. Integrity: when we act with integrity, we are acting in harmony with universal human principles.
2. Responsibility: only a person willing to take responsibility for their actions, and the resulting consequences, will be able to ensure that their actions conform to universal human principles.
3. Compassion: this is vital because caring about others communicates respect and creates a climate where compassion can be reciprocated.
4. Forgiveness: without tolerance for mistakes and knowledge of our own imperfections, we are likely to become rigid and unable to work with others in a way that promotes mutual good.

These four principles, which together are used in the application of the Golden Rule, shape our moral compass. Since we are all born with a moral compass, and these are all based on the same universal principles, we simply need to learn how to act in concert with these moral principles. Moral incompetence and unethical behavior occur when actions on personal or business goals conflict with core values. The way to avoid unethical behavior is to develop our moral competence.

While moral intelligence involves knowing what to do, moral competence is the skill of actually doing the right thing. Moral competence helps us apply moral intelligence (knowledge of what is right) when we are under the pressure of an ethical dilemma. Moral competency is developed by accepting the universal principles, identifying our personal

values and beliefs, making sure they are consistent with the universal principles, and learning how to apply these principles when faced with an ethical dilemma.

The way we learn to apply this moral competence is by studying ethics so that when we are faced with a real world ethical dilemma we can reply in a manner that is consistent with the universal principles.

THE NEED TO STUDY ENGINEERING ETHICS

Failures in engineering ethics like the Challenger accident make engineers more aware of their responsibilities as engineers and the price of moral failure that is paid by themselves and others. The study of ethics gains new import when engineers understand how their technical work and management decisions have far-reaching impact on society. The work of engineers can affect public health and safety and can influence business practices and even politics.

The goal of studies on engineering ethics is to sensitize engineers to important ethical issues before they are confronted with them. A formal study of engineering ethics will help you learn techniques for analyzing and resolving ethical issues when they arise. Fleddermann's (2004) goal is to foster "moral autonomy," the ability to think critically and independently about moral issues, and to apply moral thinking to situations that arise in the practice of engineering. This goal is to be accomplished not by teaching you the right thing to do, but rather to train you how to analyze complex issues and learn to resolve them in the most ethical manner.

Ethical problem solving shares attributes with engineering design. Although there will be no unique correct solutions to most of the problems in engineering ethics, there will be a range of solutions that are clearly right, some of which are better than others, and some that are clearly wrong.

Engineering ethics have been defined as the rules and standards governing the conduct of engineers in their roles as professionals. Codified rules and regulations have limits—they have been shown to have internal conflicts in certain situations, and they have also become dated. They often are not enforceable, since not all engineers are licensed or members of professional societies that can censure unethical behavior. Engineering ethics should be more than just a set of hard rules. They must be considered to be a body of philosophy indicating the ways that engineers should conduct themselves in their professional capacity (Fleddermann 2004). This philosophy must be based on more than simply working within the codes of ethics and include the ability to make decisions based on values and beliefs that are founded on the universal principles. The study of ethics as related to the practice of engineering helps us develop moral competence when applied to our profession. That is why it is important to develop moral competence in engineering issues.

You can develop and improve your moral competence. Even though we are born with a moral compass, it takes study and practice to become proficient in recognizing and dealing with a moral dilemma. There are a multitude of resources available for the study of engineering ethics. Think through the training exercises, read books, but most of all, practice, practice, practice. Develop your own set of moral values that you can apply when the opportunity or moral dilemma arises.

CONCLUSION

Ethics are ethics. If we as engineers want to lead ethical lives, we must practice ethical behavior based on the Golden Rule or one of the similar guiding principles. However, because engineering is a complex profession that encompasses not only technical, business, and social aspects, we must also study and learn about how to apply these ethical principles to the practice of engineering. This study and exercise helps us develop our moral competence, especially when related to the practice of engineering, which can have such a great impact on the lives of others.

We must be careful, however, not to compartmentalize our ethics, but strive to use one standard in all aspects of our lives. The Golden Rule is compatible with engineering ethics, and can be shown to be applicable to all aspects of engineering ethics as established by the various codes of ethics promoted by professional societies. Because it is all encompassing, the application of the Golden Rule is a good starting point and can fill the gaps left by the various codes of ethics and provide the consistency and link between engineering ethics and the other aspects of our lives.

Each engineer decides the ethical standards by which he or she lives and by which he or she practices his or her profession. Ethics are self-imposed standards. There are only two important points when it comes to ethics: the first is to have a standard to follow; the second is the will to follow it.

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