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Trustworthiness and Integrity: Cardinal Virtues for Engineers

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Abstract

Traditionally, the public attributes certain characteristics to professions, including: (1) the profession must serve the needs of society rather than the interests of a special interest group, usually for the benefit of society, with an altruistic goal – as opposed to a materialistic one; (2) the profession should have a group identity and group consciousness that can be recognized by others; (3) the profession should develop and enforce its own code of ethics, standards of practice, and peer review. Underlying these criteria are values that lead to commitment to social goals and to accountability for individual as well as for collective action. This paper aims to elaborate an assertion that we believe to be fundamental: trustworthiness and integrity are cardinal virtues for engineers.

Keywords

Trustworthiness, integrity, honesty, conflict of interest.

1. Introduction

Ethics is generally understood as the discipline or field of study dealing with moral duty or obligation. This typically gives rise to a set of governing principles or values which in turn are used to judge the appropriateness of particular conducts or behaviors.

Any profession worthy of the name ought to be governed by a code of professional ethics that clearly identifies professional obligations and responsibilities in relation to the rights of stakeholders (Harris et al. 2000).

First, professional codes provide common, stipulatory criteria for professional conduct. Such standards benefit both professionals and the public. The codes can be understood as expressing an implicit agreement among professionals and between professionals and society.

Second, those codes provide a start point for discussion on how professional ethics should be modified, as a result of changing perceptions of professional obligations. For example, a present topic of debate has to do with obligations regarding the environment.

Third, professional codes of ethics "can provide a rationale for professionals to adhere to professional standards even when pressured by other to violate them" (Harris et al. 2000).

However, professional codes of ethics are sometimes so vague and general that that they are of little value, and often they evidence little more than the professional organization's desire for self-promotion. In other cases – for example with attorneys – professional codes can be very specific and detailed. It is difficult to generalize about the content of professional codes of ethics, however, because they frequently involve a mix of purely moral rules (for example, client confidentiality), of professional etiquette (for example, the billing of services to other professionals), and of restrictions intended to benefit the group's economic interests – for example, limitations on price competition (Shaw, 1999).

Given their nature, professional codes of ethics are neither a complete nor a completely reliable guide to one's moral obligations. Not all the rules of a professional code are purely moral in character, and even when they are, the fact that a rule is officially enshrined as part of the code of a profession does not guarantee that it is a sound moral principle. As a professional, you must take seriously the formal commands or admonitions of your profession, but you are not exempted from the obligation to critically assess those rules (Shaw, 1999).

Then, a clear understanding of professional responsibilities begins with an understanding of what it means to be a professional. Professionals have special knowledge and skills that directly influence human well-being and that this brings with it special responsibilities that others may not have. Moreover, because of their influence on human well-being, it is imperative that professionals gain and maintain public trust.

This paper aims to elaborate an assertion that we believe to be fundamental: trustworthiness and integrity are cardinal virtues for engineers.

2. Cardinal Virtues for Engineers

2.1 Trust

Trust is the foundation of individual cooperation and collective action. Robert Greenleaf argues that "trust is the cement that makes possible institutional solidarity, from the family to the world society" (Greenleaf, 1996).

It is difficult to define trust. David Carnevale defines trust as "faith or confidence in the intentions and actions of a person or group to be ethical, fair and non-threatening concerning the rights and interests of others in social exchange relationships" (Carnevale and Weschler, 1992).

Francis Fukuyama defines trust as "the expectation that arises within a community of regular, honest, and cooperative behavior, based on commonly shared norms, on the part of other members of that community" (Fukuyama, 1995). Trust is indispensable for forming "social capital," or ability to collaborate for common purposes. Human nature has a sociable aspect, and societies require pervasive trust and "spontaneous sociability" in order to function.

Trust is based on past experience. Trust is not something that you are automatically given. It must be earned, carefully and over time. Trust must be built on and protected. Trust implies fair dealing. Trust implies no hidden agendas. Above all, trust implies truth.

Trust is increasingly being recognized as indispensable for social relations and the functioning of institutions. Now, having trust in someone is one side of the coin, being trustworthy to someone is the other side.

2.2 Trustworthiness

Whilst responsibility for one's actions is a very general virtue, trustworthiness is a very specific one. According to Günter Ropohl, responsibility is "often discussed…without stating more precisely the moral rules or social values on account of which certain consequences of action are to be supported and others are to be avoided." Trustworthiness literally means being worthy of trust (Rophol, 2001). A trustworthy professional:

- is honest: does not deceive, cheat or steal;
- is reliable: do what he/she says he/she will do;
- has the courage to do the right thing;
- builds a good reputation;
- is loyal: stand by his/her family, colleagues, friends and country;
- is competent: has the range of knowledge and skills necessary to deliver optimum results.

For instance, as an engineer you are expected to be honest in all your dealings with clients, colleagues, the public; not telling half truths or misleading clients or others. Secondly, you are expected to keep promises. Therefore, if you offer to do something or find out information for someone, then this offer is a promise and, as a professional, it is essential that you keep that promise. If you cannot do it, then you will need to find some way to avoid making them without discrediting yourself and the profession. Thirdly, you should not betray confidences. You must honor consistently your engagements. Finally, you are expected to master your area of expertise.

Character traits such as trustworthiness are called 'virtues' in the language of ethics. Virtues are habits that are viewed as morally good because they predispose one to do what is right. Maybe it is not too adventurous to say that being professional means being trustworthy.

2.3 Honesty

Honesty, as we have already expressed, entails a refusal to lie, steal, or deceive in any way. Honesty is characterized by truth and sincerity. This character trait was unconditionally praised by Emmanuel Kant. In his book *Doctrine of Virtue*, he has expressed, "By a lie a man throws away and…annihilates his dignity as a man." According to him, it is our duty to be truthful in all situations (Kant, 1996).

Honesty suggests "an active or anxious regard for the standards of one's profession, calling, or position" (Encyclopædia Britannica, 2004). Engineers are expected to act as faithful agents or trustees of their clients and employers with objectivity, fairness and justice to all parties. With respect to the handling of confidential or proprietary information, engineers are expected not to reveal relevant facts, data or information without the prior consent of its owner. The only exception to this is when the public interest is at risk. The use of any proprietary information of a former employer, without his consent, is also considered dishonest and can be legally prosecuted.

Engineers are often hired in legal cases requiring technical knowledge (i.e., accidents, structural defects, patent infringements, defective products). As an expert witness, an engineer is expected to testify honestly, to be objective and unbiased.

Nowadays academic scientists are judged, to a large extent, on quality research publications. There is an enormous temptation to cook, trim and forge results in order to present a more interesting work for publication.[1] The use of these stratagems by the few, damages the credibility of the many honest scientists. Besides, it undermines the advancement of science. There are a number of qualities that are required to make a good research scientist but the most important one is intellectual honesty.

Plagiarism is another pernicious kind of scientific and academic misconduct. Disgracefully, this is a recurrent, serious academic offence (Paynter, 2004):

> *Plagiarism is the inclusion of someone else's product, words, ideas, or data as one's own work. When a student submits work for credit that includes the product, words, ideas, or data of others, the source must be acknowledged by the use of complete, accurate, and specific references, such as footnotes.*

What is wrong with plagiarism? First, it is a form of theft. It is the use of another's intellectual property without permission or credit. Second, within the academic context, if a student passes a work or part of it as his/her own, he/she is not making the expected effort and then the academic purpose of the assignment is sabotaged. Thus, a clear sense of honesty and responsibility is fundamental to good work for students, engineers, and scientists.

2.4 Integrity

Integrity is essential for maintaining engineering practice excellence and for keeping the public's trust. Integrity characterizes both individuals and the institutions in which they work. The concept of integrity cannot, however, be reduced to a simple definition.

When used as a virtue term, 'integrity' refers to a quality of a person's character. Integrity literally means moral 'wholeness,' a single sense of self across a wide range of circumstances. What is it to be a person of integrity? It is a person whose heart is in harmony with his/her head; thought and speech are in concordance; and this inner integration manifests itself in right outward actions, in high standards of morality.

Integrity refers to our sense of moral 'cohesion.' Integrity is the result of harmoniously merging the various aspects of our life. Integrity is not stubbornness or inflexibility. The person of integrity has convictions and commitments, but they aren't so absolute that he or she won't listen to others. Integrity is sometimes identified as 'honesty,' but it is more than that (Millie, 2004):

> *People who lack integrity may be 'hypocrites' (fail to practice what they believe – no wholeness of self), 'opportunists' (use others as means – no coherence and respect for others; personal goals without principles), or 'chameleons' (fit in and do whatever seems to please others – i.e., no principles, no goals.*

John Ladd views moral integrity as a central aspect of a person's well being (Ladd, 1979). In his view, everyone in society has a duty, individually and collectively, to defend, support, and nourish the maintenance of moral integrity, including the fulfillment of moral responsibility both in oneself and in others.

For engineers, integrity embodies above all the individual's commitment to intellectual honesty and personal responsibility. It is an aspect of moral character and experience. For an institution, it is a

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[1] Cooking refers to "the retention only those results that fit the theory and discarding other." Trimming refers to the "smoothing of irregularities to make the data look extremely accurate and precise." Forging is "inventing some or all of the research data that are reported, and even reporting experiments to obtain those data that were never performed." See: (Harris et al., 2000).

commitment to creating an environment that promotes responsible conduct by adopting high standards of excellence and trustworthiness.

Professional responsibility cannot be divorced from personal integrity. "I was just following orders" is no defense because there is a direct link between professional behavior and personal integrity. Virtues provide a bridge between private and professional lives. Moral integrity is maintained when virtues are manifested in both, personal and professional life. An engineer is not simply a 'cog in a machine'. Being human carries the special obligation to be responsible.[2] Similar statements like: "If I don't do it, someone else will" or, "I might as well do it, everyone else does" are indefensible. Moral behavior does not depend on what others do – or don't do. Persons who claim these excuses are failing to take responsibility for their actions. Engineers must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct (NSPE, 2004).

Overall moral integrity involves a continuous and sometimes strenuous effort to see professional and private life as a whole. Due to their interactions, their integration is a requirement for responsible moral reasoning. What is needed "is not absolute ranking of priorities, but the ability to reconcile competing legitimate demands" (Martin, 2000).

3. Conclusions

Virtue ethicists emphasize the priority of character in discussions of ethics. Applying this standpoint to engineering ethics, we can make the claim that the most reliable defense of the safety, health and welfare of the public in technological affairs, is a trustworthy, careful, responsible engineer, rather than one who applies rules and legal regulations. It is true that ethics theories provide a means of resolving moral problems in an objective manner. Properly used, these theories can help us determine how to act. But they really don't tell us how to be. Virtue ethics has a broader range. Engineering ethics as defined by virtues – and vices – emphasize motives, character traits, and ideals – in addition to defining right and wrong conduct.

Now, in order for the engineer to function fully as a professional rather than a "cog in a machine", his/her work environment must be transformed. This implies that (Unger, 1973):

> *...the engineer must be free to discuss work goals with management, to exercise much greater discretion to implementing these goals, and to decline assignments on ethical grounds. Where his professional judgment is overruled in serious matters involving the public welfare, and where protests of management are no avail, the engineer should be free to take his case to professional societies, governmental bodies, or any other appropriate forum.*

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[2] According to Jean-Paul Sartre, only the person who chooses to assume responsibility of acting in a particular situation, makes effective use of his/her freedom.

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