

## 15C THE CONSCIENCE AND ETHICS

(Based on the paper "The Relationship of the Conscience to the Teaching of Engineering Ethics," by Paul Leiffer, Bill Graff, and Wayne Helmer, ASEE Conference 1995)

### INTRODUCTION

In the fall of 1984, an Avianca Airline passenger plane crashed soon after takeoff. [1] Examination of the flight recorder from the wreckage revealed a chilling documentary. Shortly after takeoff, a computer-synthesized voice from the plane's automatic warning system told the pilot to "Pull up! Pull up!" The pilot responded by yelling, "Shut up!", as he turned off the warning system. Moments later, the airplane crashed into a mountain, killing all passengers. Our conscience may be like this automatic warning system, alerting us of impending moral problems. Unfortunately, our society, like that pilot, often ignores the conscience and its warning signal. The following paper will discuss (1) the place of the conscience in engineering ethics, (2) various attempts to model the conscience, (3) the relationship between conscience and worldview, and (4) some ways to cultivate the conscience in our students.

### THE CONSCIENCE AND ENGINEERING ETHICS

The place of the conscience in engineering ethics has been mentioned by several authors. Martin and Schinzinger make the case that a basic right of engineers is the right of exercising "professional conscience," that is, of using technical judgement and reasoned moral convictions. The argument is that engineers should not have to apply their skills to actions which violate their "personal or professional ethical standards." [2] Closely linked to this concept is the right of "conscientious refusal," a refusal to engage in what an engineer believes is unethical behavior, "solely because one views it as unethical." [3] The whistleblower, likewise, must act on personal convictions against the practice of the organization for the general health or safety of the public.

After defining ethics in terms of a series of decision trees applicable to value-laden problems, Vesalind suggests that after we have calculated the "ought to do" of our actions, "we have to ask if, all things considered, it feels right." [4] Ultimately, the ethical choice rests with the individual.

We find, then, that there are two aspects to moral behavior: (1) the external ethical system (those values, absolute standards, cultural mores, and codes which tend to define the right and the wrong), and the internalization of that system, the personal allegiance, ownership, or commitment to those actions. The latter is strongly related to conscience.

That this internalization is critical is demonstrated in the Biblical Book of Jeremiah. The ancient nation of Israel, in spite of having been given a practical set of laws, and having been tutored in its use by prophets and by God Himself, continually drifted toward moral depravity. The Hebrew prophet, Jeremiah, prophesied to the Israelites "... and I will put the law into your heart..." Without this internalized set of values--without "a law in their hearts," or a conscience, the Israelites were governed only by physical force.

If concepts of right and wrong are not internalized, then the only way to prevent total lawlessness is by physical force. In such a society, one could not depend on any person to "do right" in secret. There could

be no dependence on the truthfulness of any statement made by an individual or an organization. The ensuing society would be rife with suspicion, and such a society could not last long.

## The Concept of Conscience

The word "conscience" derives from the Latin "knowledge with." It is closely related to "consciousness," but adds to the awareness of self an awareness of the moral worth or value of actions. Aristotle's Ethics stressed a concept of "prudence", related to the rational nature of ethical behavior.[5] Cicero discussed conscience as an internal moral authority and lawgiver, a better guide than public opinion.[6] Immanuel Kant described ethical actions in terms of the "categorical imperative" or sense of duty--which was, for him, a rational function and "not a product of experience." [7] Joseph Butler, in 1726, used the term "conscience" in its present form, to describe the "faculty of mind that enables us to distinguish right from wrong." [8]

Conscience seems to be associated with self-awareness, memory, reason, and emotion. It is the inner guide which determines morality; a sense of "right" or "wrong," either inherent or developed, in the individual. If a group has a sense of right or wrong, it may be called "group conscience." Some would say the conscience is inherent in an individual at birth; others, that it is "built in" by early training or environmental conditions.

In his book on engineering ethics, Mantell writes:

"What we consider right or wrong is largely dependent upon what one is used to, becoming in essence conditioned reflexes which may be called the conscience...It develops from prior experiences with the laws, customs, ideals, religion, and the total of society and environment. As each new situation is different from those prior, it is relatively easy to rationalize away the conscience. It could be said that the conscience causes a man to follow, as a man follows the automobile he drives. The conscience tends to be primarily negative in telling what is wrong, but not what is right. We hear and speak of people who have no conscience; but, more correctly, it should be said that their conscience is different. It is to be expected that if the past environment is different and wrong, then the conscience may develop to be different and wrong. Thus, each man needs some outside standard by means of which he can check the fallibility of his conscience" [9]

From Walt Disney's Jiminy Cricket to Freud's "super ego," the conscience is undeniably a part of our human existence. According to MacArthur, the conscience is the highest moral standard that a person knows. [10] It is the innate human capacity to make moral judgments. Like the lawyers in a court of law, it is either the accuser or the defender of our actions. It is also the witness that brings to mind all of the facts of the moral situation, and the jury that evaluates the evidence and pronounces "guilty" or "not guilty." When a person violates the conscience, the resulting feeling is usually shame, remorse, sadness and sorrow. The conscience is like the automatic warning system, helping us to stay out of trouble lest we morally "crash and burn." Unfortunately, an increasing number of individuals in our society seems to be trying to ignore their consciences rather than realistically deal with the report it is providing.

The conscience is neither divine, nor infallible. The conscience can respond to information to improve its moral standard. For example, when a student is informed of the content of a professional code of ethics (IEEE, ABET, ASME, ASCE, etc.), the student becomes educated, and the conscience may then "hold him accountable" for subsequent actions and thoughts.

## Models of the Conscience

At this point, it may be profitable to develop some models for the functioning of conscience. The conscience is seen to be a combination of the internalized set of values which tend to govern one's ethical behavior, in conjunction with some mechanism for internally enforcing those values.

The following four (very) preliminary models are suggested by the authors:

Some data suggest that the conscience is a built-in part of all human beings, but it must be trained.

Criminologist James Q. Wilson, in *The Moral Sense*, argues that each person is born with a basic moral sense, a natural tendency to judge right and wrong. Like the basic capacity for speech, it must be trained and cultivated or it will be dormant. [11] A model here might be a PROM, a programmable read-only memory.

2. Other considerations would imply that the conscience is programmable and selectively reprogrammable. Those values and principles entered into our conscience in early years affect our choices for future years. A good model here might be an EPROM, an electrically alterable programmable read-only memory. It is possible to reprogram a conscience in such a way as to consider that which is truly ethical to be unethical, and vice versa.

3. The conscience kicks in like a feedback mechanism or autopilot when we begin to act counter to our internalized standards. The result of violating those standards is a sense of "guilt".

4. The conscience, though complex, may also be likened to a starter-motor gear; when intact, it helps to start the motor properly, and will still function, to some extent, with a few teeth broken off. Thus, an individual may be able to function ethically in some areas of his life, even though he has become unethical or immoral in another area; however, the unethical areas tend to grow at the expense of the ethical areas, just as a broken gear tooth facilitates the damage of the adjacent one, until all the teeth are broken, and the motor cannot be started. This analogy applies both to individuals and to societies as a whole.

The first two of these models deal with the sources of the information in the conscience, and how that information is modified with time; the second two models are concerned with how our conscience directs us.

One *should* feel bad if one steals, lies, or murders someone; but sometimes we get our priorities reversed. The conscience may be programmed counter to universally accepted moral principles, or may be "reprogrammed" to accept atrocities. We have these two categories of examples: (1) tribes of people which have been hidden from outside cultures for many generations, and whose members therefore have had no exposure to the western concepts of ethics from birth; and (2) people-groups whose members were brought up in a type III worldview (see below), whose consciences have been "reprogrammed." An unethical act would seem less justifiable in the second category of people than in the first.

Examples of the first category are The Mountain People of Africa [12] and the Sawis of New Guinea [13]. The anthropologist Colin Turnbull, who lived among the Mountain People, reported that they have a depressing culture: they steal from one another routinely, eke out a bare existence by gathering in the forest, and find pleasure in teasing starving elderly people by offering them food and then snatching it back and eating it. These people think it silly to tell the truth, and kill one another offhand. The parents expel the children from the house as soon as they are able to run in herds with other children, to fend for themselves. This account has done much to dispel the theory of the "Noble Savage."

The Sawis' culture is reported by missionaries who have lived with them. One of their outstanding characteristics is the high value they place on betrayal. In this culture, it is a highly respected practice to cultivate a friendship with a member of another tribe, sometimes over years, and then kill the person in the midst of a feast in his honor. The missionary realized the magnitude of this problem when he found that the Sawis respected Judas Iscariot as the highest example of one to be honored, for his betrayal of Jesus Christ.

Examples of the second category are found in the Nazi Gestapo, the Soviet Secret Police (KGB), and William Calley (the lieutenant who ordered the My Lai massacre in Viet Nam in response to the urging of his "conscience"). The three cultures from which these three groups emerged were all based on theistic worldviews, so that their consciences must have been "reprogrammed" in order for the individuals to have been able to perform the atrocities which they did.

### Disregarding the Conscience

No matter how well-formulated a system of ethics may be, if a majority refuse to uphold or obey it, the formulation is a waste of time. We often ignore our consciences through such mechanisms as blame, ridicule, and redefinition. We may blame others for our moral failures, as in claiming an addiction to gambling as the reason behind embezzlement for debt. Thus we are not only "not responsible," but actually deserving of treatment for our disability. We may ridicule true guilt. Certain "talk shows" go so far as to applaud people who claim outrageous personal behavior. We may redefine moral failure as a result of somehow being a "victim" of society (the "Twinkie defense" in criminal law, resulted from a murderer's claim of diminished mental capacity due to ingesting large quantities of junk food.)

A sensitive conscience really should be viewed as an asset, not a liability. Our nervous system tells us physically, through pain, when something is not right. If we put our hand on a hot stove, our senses notify us that we need to move quickly to protect our finger from harm. Our conscience performs the same function in the moral realm. We need to understand that the "pain" (guilt, remorse) of our conscience is needed so that we do not "crash and burn" by continuing our current path. Without our internal warning device, moral disaster would result. Our conscience, in fact, needs to be nurtured for our own protection.

Society is made up of individuals. We want to develop moral character in our students, and this is tied to conscience. How might we do this?

## Cultivating the Conscience

Covey lists five ways to "educate," or nurture, the conscience [15]:

1. Reading and pondering the wisdom literature of the ages to broaden our awareness of the principles that run as common themes throughout time.
2. Standing apart from and learning from our experience.
3. Carefully observing the experience of others.
4. Taking time to be still and listen to the "inner voice" (of the conscience).
5. Responding to that voice.

The following techniques have been used, in conjunction with a course in engineering ethics (taught by one of the authors), to promote a sensitive conscience on the part of students.

1. Students are encouraged to cultivate their value standard for right or wrong. One method through which this can be promoted is through examination of a basic set of virtues, such as the classical "Seven Deadly Sins," which were: pride/arrogance, greed, sexual lust, anger, envy, gluttony, and laziness. [16] Students can be asked to define these terms and cite examples from contemporary society. The seven deadly sins can then be contrasted with their virtuous counterparts--the "Seven Cardinal Virtues": faith, hope, love/compassion, justice, prudence, temperance, and persistence.

Motivational examples can be presented. Books and magazines can be consulted to disclose men and women of virtue. William Bennett, former Secretary of the Department of Education, has compiled numerous examples and stories presenting examples of virtue in his recent book.[17] Examples of great women and men from history (such as Mother Teresa, William Wilberforce, etc.) can be cited.[18] We might draw from the heroes in our own experience and our own families. Students may view such films as Schindler's List and discuss the virtues and vices illustrated.

2. In one particularly successful class exercise, students list six of the main virtues (character qualities) that they would want their children to have. The instructor may list some possibilities on the blackboard. Then the instructor asks them why they think the exercise was done. Eventually someone realizes that if one wants his children to have these virtues, then one should be cultivating these same character traits in one's own life.

## SUMMARY

The conscience is seen to be a combination of the internalized set of values which tend to govern one's ethical behavior, in conjunction with some mechanism for internally enforcing those values. Four preliminary models of conscience are proposed, but these models are developed without reference to the specific content of the conscience. The content of the conscience will tend to be different depending upon which of the three Basic Worldview Categories is its source.

The recent trend of minimizing the importance of the conscience, by the downplaying of the concepts of guilt, sin, and individual responsibility, is seen to be counterproductive to the cultivation of ethical behavior. Some suggestions have been proposed for cultivating the conscience, such as the examination of basic virtues, presentation of motivational examples, and class interactions.

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