



Romel Cabling ▾



[Home](#)

[Home](#) > [My courses](#) > [Social And Professional Issues](#) > [02 Overview Of Computer Ethics](#) > [Lesson Proper for Week 2](#)

Lesson Proper for Week 2

WHAT IS ETHICS?

Ethics is rather an abstract concept and is often considered to be a 'fuzzy' area of discussion. Most people have some idea of what is 'ethical' and what is 'unethical', but are not generally confident about articulating why this should be so. An important part of this chapter concerns the ability to recognize what is actually an ethical issue, rather than just a decision between taking one action or another. We shall therefore spend some time on recognizing an ethical issue, identifying stakeholders (those affected), and the winners and losers in a given situation.

Even if we understand the issue, it can be difficult to know what the right course of action might be. We will present two of the major ethical theories that are useful in decision making, and discuss the role of professional codes of conduct in the decision-making process.

Finally, we bring together ethical theory, social norms (approved conduct that is laid down by society), the law, and professional codes of conduct as guiding principles for forming an opinion, and making an informed and rational judgement that can be understood by others.

When faced with a difficult ethical dilemma, professionals should know why they have pursued a particular course of action, and they should be able to justify their actions and decisions to others.

OVERVIEW OF COMPUTER ETHICS

Computer systems perform tasks and the way they perform tasks has moral consequences, consequences that affect human interests.



As a field of academic research, computer ethics had its beginnings in the early 1980s, and was defined by James Moor in a paper published in 1985: *What is Computer Ethics?*

Computer ethics represents:

The analysis of the nature and the social impact of computer technology and the corresponding formulation and justification of policies for the ethical use of such technology.

Moor argues that computer ethics is unique because computers have certain properties that raise unique issues and, according to Moor, there are three properties that make computers a special case:

- **Logical malleability**
- **Impact on society**
- **Invisibility factor**

These are summarized in Figure 1.1 and are briefly outlined on the following pages.

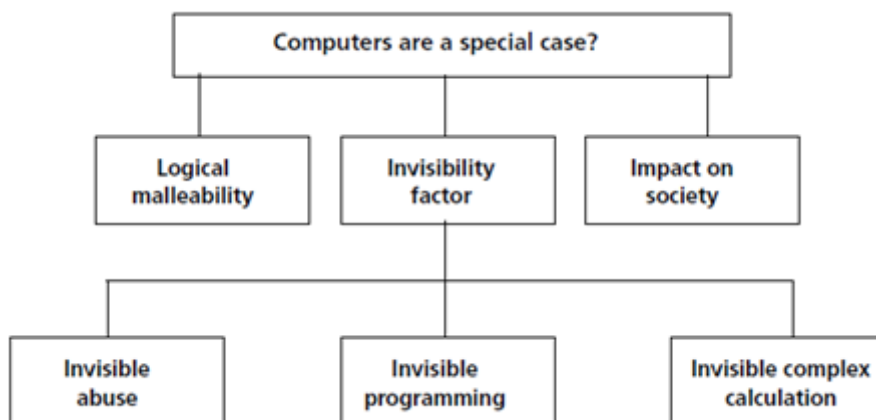


Figure 1.1: Moor makes the case that characteristics of computer-based technologies are such that they raise ethical issues that are somewhat unique. Others have suggested that computer ethics is no different from any other branch of professional ethics.

Logical malleability

What Moor means by 'logical malleability' is that computers can be shaped and molded to perform any activity that can be characterized in terms of inputs, outputs and connecting logical operations. This is in contrast to the majority of manufactured products. For example, a car, television or refrigerator has well-defined, and quite specific, functions.

The logic of computers, however, can be shaped in infinite ways through changes in hardware and software and in terms of their usage. This enables computer-based technologies to exhibit tremendous flexibility. Moor writes:

Just as the power of a steam engine was the raw resource of the Industrial Revolution so the logic of a computer is a



just as the power of a steam engine was the raw resource of the industrial revolution so the logic of a computer is a raw resource of the Information Revolution. Because the logic applies everywhere, the potential applications of computer technology appear limitless. The computer is the nearest thing we have to a universal tool. Indeed, the limits of computers are largely the limits of our own creativity.

Impact on society

The extensive impact of computerization on society is clear. Naturally, in 1985, when Moor wrote his paper, relatively few could foresee the extent of that impact, nor did anyone envisage the Internet and the World Wide Web. Moor did, however, foresee the changing workplace, and the nature of work:

Computers have been used for years by businesses to expedite routine work, such as calculating payrolls. However, as personal computers become widespread and allow executives to work at home, as robots do more and more factory work, the emerging question will not be merely *How well do computers help us work?* But *what is the nature of this work?*

Invisibility factor

An important fact about computers is that most of the time, and under most conditions, computer operations are invisible. Moor identifies three kinds of invisibility that can have ethical significance:

- Invisible **abuse**
- Invisible **programming**
- Invisible **complex calculation**

Invisible abuse

Moor describes this as: 'the intentional use of the invisible operations of a computer to engage in unethical conduct'. He cites the example of the programmer who realized he could steal excess interest from a bank:

When interest on a bank account is calculated, there is often a fraction of a cent left over after rounding off. This programmer instructed a computer to deposit these fractions of a cent to his own account.

Another example of invisible abuse is the invasion of the property and privacy of others – for example, computers can be programmed to surreptitiously remove or alter confidential information.

Invisible programming values

These are values which, according to Moor, are embedded into a computer program:

A programmer makes some value judgements about what is important and what is not. These values become embedded in the final product and may be invisible to someone who runs the program.



Invisible complex calculation

In this context, Moor writes:

Computers today are capable of enormous calculations beyond human comprehension. Even if a program is understood, it does not follow that the respective calculations are understood. Computers today perform ... calculations which are too complex for human inspection and understanding.

He argues that the issue is how much we should trust a computer's invisible calculation. This becomes a significant issue as the consequences grow in importance. For example:

Computers are used by the military in making decisions about launching nuclear weapons. On the one hand, computers are fallible and there may not be time to confirm their assessment of the situation. On the other hand, making decisions about launching nuclear weapons without using computers may be even more fallible and more dangerous. What should be our policy about trusting invisible calculations?

There are those who disagree with James Moor and say that computer ethics is no different from any other branch of professional ethics such as legal ethics and medical ethics (for example, Gotterbarn, writing in Johnson & Nissenbaum (1995). Spinello (1995) warns against thinking in terms of uniqueness, and advises that the digital environment simply requires a different approach to resolving problems such as, for example, privacy.

Whether we favor the arguments put by Moor, or Gotterbarn and Spinello, there is no disagreement that information communication technology (ICT) has an impact on our lives in good and bad ways, and certain rights, such as privacy, are increasingly threatened by digital technologies. As new developments in technology emerge it is clear that the issues within the field of computer ethics require constant review and consideration.

ETHICS AND THE LAW

We could ask why we need ethical principles to guide our decisions when we have the law to turn to. Laws, should (at least in principle) tell us when it is right or wrong to do something.

However, laws are not always ethical – they are created by governments and may be introduced to further ethical or not-so-ethical aims. For example, laws can promote equal rights (such as the Disability Discrimination Act in the UK), or reduce rights (such as the US Patriot Act).

As far as law and ethics are concerned, we can have laws that are ethical, and laws that are unethical. When we pursue a course of action it can be:

- Legal and ethical
- Not legal but ethical
- Not ethical but legal
- Not ethical and not legal



ETHICAL THEORIES

Theories are commonly used to explain natural phenomena and so provide us with an understanding of the world in which we live. Theories are put forward, assessed and discussed – and either generally accepted, revised, or discarded. There is also usually more than one theory put forward on a specific topic, and some people will be convinced by one theory and not by another.

In all of these respects, ethical theory follows the same pattern. Ethical theories attempt to explain human morality, and why we think some actions are good, while other actions are bad. Ethics falls within the domain of philosophy and, as with other theories, different philosophers have come up with different ethical theories. Coverage of a broad range of types of theory is beyond the scope of this book.

Here, we briefly refer to two influential western ethical theories. These theories can be useful in ethical decision making, and they are also helpful in providing a basis for critical thinking. Taking different perspectives on an issue provokes thinking, and helps to form opinion.

Aspects of two theories are outlined below. These are:

- **Kantianism** (a theory provided by Immanuel Kant)
- **Consequentialism** (sometimes called utilitarianism).

Kantianism

The German philosopher Immanuel Kant (1724-1804) believed that how we behave ethically comes from within us, and the things that we decide are 'good' or 'bad' are based on whether we could imagine everyone doing them.

He embodies this idea within a 'categorical imperative' (that is to say, a moral rule that is absolute and which therefore has no conditions attached to it):

Act only according to that maxim by which you can at the same time will that it should become a universal law.

Thus, we could simply say that we must not lie – and according to Kant, there are no circumstances in which a lie could be justified. The point to note is that if we believe that it is *acceptable* to lie, then in accordance with the above categorical imperative, we must then accept that telling lies should become the norm – everybody can lie. As a result, truth and honesty would become things of the past – in an extreme case, they would no longer exist.



By way of a further example, consider the breaking of promises. It would be logically inconsistent to say that breaking a promise is good – because if everyone broke their promises there would be a loss of trust in promises, and the whole nature of a promise would be lost. Therefore, he says, certain things cannot be ‘universalized’ (that is, they would not work if everyone did them), and these things are wrong. Examples include: killing, lying, stealing, and breaking promises. Moreover, in Kant’s view, things that we view as wrong are ‘essentially wrong’ – that is, they are always wrong and there is never any circumstance where they would be right. This conflicts directly with the theory of consequentialism (see below).

It is interesting to note that Kant’s categorical imperative, as outlined above, is in essence equivalent to the Christian teaching ‘do unto others as you would have done unto yourself’. In short, the concept of right or wrong and the entire ethical ethos comes from within ourselves; furthermore, Kant believed that it is the underlying motives that lie behind our actions that determine how good or bad they in fact are. However, Kant’s model is inflexible as we illustrate in the simple cartoon presented in Figure 1.3.

Here, two friends – Alice and Bob are talking. Bob wishes to share a confidence with Alice but first seeks a promise that the conversation will be treated as being strictly confidential. Alice promises confidentiality and has every intention of keeping the promise. The great secret is revealed – Bob is having an affair! Sometime later Bob’s astute (suspicious) wife approaches Alice and asks her whether or not she has any idea as to whether or not Bob is having an affair. On the basis of Kant’s model, Alice is now in a very difficult (impossible) situation.

If she tells Bob’s wife the truth, then she will be breaking her promise to Bob. On the other hand, if she lies to Bob’s wife then she is accepting that lies can be the norm. Unfortunately the inflexible nature of Kant’s theory does not accommodate such a situation!



Figure 1.3: Kant’s model is inflexible – Alice must either break her promise to Bob (by telling the truth to Bob’s wife), or keep her promise to Bob and lie to Bob’s wife. Neither of these possibilities fit with the objectives of Kant’s ‘categorical imperative’.

Consequentialism

Consequentialism, as its name suggests, deals with consequences of actions rather than the actions themselves (in contrast to Kant’s theory). So, for example, it could be argued that stealing could sometimes be the right action to take, provided the outcome is for the ‘good’. What ‘good’ is has always been a matter for extensive discussion among philosophers, but for our purposes we use the definition provided by utilitarianism (which is a type of



among philosophers, but for our purposes we use the definition provided by utilitarianism (which is a type of consequentialism). *Utilitarian theory* says that a good outcome is that which brings 'the greatest benefit to the greatest number of people'. Therefore stealing, for example, is a morally permissible act if it brings greater benefit to the greatest number. Consider, for instance, that a dictator has a warehouse full of food while most of the people in the country are starving. In this instance, stealing the food to distribute it to the starving people would be considered the 'right' thing to do.

Discussion of the theories

Both of the above theories have strengths and weaknesses.

- In favor of Kant's theory is that it assumes *equality*. It is based on logic and rationality (on the premise that human beings are rational agents). Therefore, if something is good enough for one person, logically it must be good enough for another person. Arguments against this theory are that it does not take into account conflicting priorities, or special circumstances, such as those given in the example regarding the stealing of food. To claim that stealing food from someone who has more than enough is wrong, seems to go against human intuition.
- Consequentialism, on the other hand, takes into account different circumstances and can (as the example of stealing shows) accommodate conflicting priorities. A major argument made against this type of theory is that it does not take into account the individual, or accommodate minority groups. This theory, as we have said, looks for the greatest benefit for the greatest number of people.

The approach would therefore ignore minority groups such as the disabled. The theory would, therefore, make it morally acceptable to produce computers that some people with disabilities cannot use, thus denying them access to information technology and the ensuing benefits. It is also important to remember that, although this theory supposes that a certain action is good if the *consequences* are good, it is often impossible to predict the consequences at the time of an action being taken. By way of an example consider the simple scenario depicted in the cartoon presented in Figure 1.4. Here, a president wishes to rid a country of a corrupt and homicidal dictator. He decides the best approach is by military invasion. If we accept his motives at face value, then it follows that, at the time of making the decision, he is acting for the good of the majority (the population of the country). However, it is impossible for him to predict with certainty the ultimate consequences of his actions. In short he opens up a Pandora's Box – and others use the chaos of invasion for their own ends. Here, we note that although the basic objective (regime change) may, under the circumstances, have been ethical, the way in which this objective was implemented (invasion) is likely to have influenced an undesirable outcome. Thus we must view consequentialism not in terms of a single decision but rather as it applies to a series or set of decisions.

In summary, both of these theories have something to offer but are far from ideal. However, they do provide an interesting framework for debate.





Figure 1.4: Unforeseen consequences

Consider a president, who wishes to remove a dictator from power and chooses to do so by military force. It is possible that his objective is ethical – he may be trying to rid the country of a despot and have the good of the country's citizens in mind. However, he cannot predict with certainty the ultimate consequences of his actions. Others may use the chaos brought about by invasion for their own purposes – it is possible that the president has inadvisably poked a stick at a hornets' nest! Generally, consequentialism should be viewed not in terms of its application to a single isolated decision, but rather as it applies to a series or set of related decisions. These trigger a train of events and make it extremely difficult to accurately predict consequences.

PROFESSIONAL CODES OF CONDUCT

Most professional bodies have codes of conduct, or codes of ethics (for our purposes the precise title is unimportant). Their purpose is to offer guidance to members, and set standards for the professional body. The British Computer Society Code of Conduct, 2001 sets standards for computing professionals in the UK and lays out a number of principles.

Under the heading 'The Public Interest', the Code states:

In your professional role you shall have regard for the public health, safety and environment.

Therefore, in any situation where public health, safety or the environment is affected, members of the British Computer Society must always make sure these aspects are not threatened. Not only do codes of conduct offer guidance; they are also useful as a defense. If, for instance, an employee were asked by their organization to carry out some action that they considered unethical, the employee could point out that their own code of conduct did not allow such action to be taken.

FRAMEWORK FOR ETHICAL DECISION MAKING



many ethical issues are complex, deciding on the best course of action can be difficult. We have briefly outlined aspects of the relationship between ethics and the law, the role of codes of conduct, and have introduced two ethical theories. These ideas, coupled with social norms and that remarkable human attribute ‘common sense’, can help us to develop a rational approach to making an ethical choice.

Ethical choices are not made with absolute certainty; they are not deductive, in the same way as mathematical problems and solutions. Ethical decisions are made through judgement and by validation through a rational appeal to a number of principles (see, for example, Table 1.1). There is often no unique correct solution to a moral dilemma. However, in assessing moral positions, a person can rationally examine alternative options and choose the correct one for themselves. This does not mean others will necessarily agree with them but, by rationalizing their point of view, individuals can be confident that they have thought thoroughly about the issue, and are not simply ‘following the crowd’.

Guiding principles Questions to consider	
Law	Is there a law applicable to this issue? What does it say? Is it a good law?
Codes of conduct	Do professional codes of conduct have anything to offer on this issue?
Ethical theories	What solution does a Kantian approach offer? What solution does a consequentialist approach offer? Are their conclusions the same? If not, which provides the most convincing argument?
Social norms and other arguments	What do social norms say about this? Are the arguments valid? Are there other arguments that might help – for example, economics?

Table 1.1 A framework for understanding ethical issues, and making informed decisions

◀ Preliminary Activity for Week 2

Jump to... ▼

Analysis, Application, and Exploration for Week 2 ▶

Multimedia

Ojt/Practicum 1

Social And Professional Issues

Participants


General

01 Law And Government

02 Overview Of Computer Ethics

 Preliminary Activity for Week 2

 **Lesson Proper for Week 2**

 Analysis, Application, and Exploration for Week 2

 Generalization for Week 2

 Evaluation for Week 2

 Assignment for Week 2

System Integration And Architecture 2

Courses

Fair Warning

NOTICE: Please be reminded that it has come to the attention of the Publishing Team of eLearning Commons that learning materials published and intended for ***free use only by students and faculty members within the eLearning Commons network were UNLAWFULLY uploaded in other sites without due and proper permission.***

PROSECUTION: Under Philippine law (Republic Act No. 8293), copyright infringement is punishable by the following: Imprisonment of between 1 to 3 years and a fine of between 50,000 to 150,000 pesos for the first offense. Imprisonment of 3 years and 1 day to six years plus a fine of between 150,000 to 500,000 pesos for the second offense.

COURSE OF ACTION: Whoever has maliciously uploaded these concerned materials are hereby given an ultimatum to take it down within 24-hours. Beyond the 24-hour grace period, our Legal Department shall initiate the proceedings in coordination with the National Bureau of Investigation for IP Address tracking, account owner identification, and filing of cases for prosecution.

Activities

 Assignments

 Forums

 Quizzes

 Resources



Bestlink College of the Philippines
College Department

Powered by [eLearning Commons](#)

