

ETHICAL ISSUES IN THE USE AND DEVELOPMENT OF GIS

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ABSTRACT

Users of geographic information are faced with ethical dilemmas on a daily basis. Choosing between "right behavior" and "wrong behavior" doesn't typically create a dilemma for us. We know which action to take. Ethical dilemmas are created when we must choose between actions that are both arguably correct actions but any action we take will cause harm to someone. This is sometimes referred to as the "right" versus "right" dilemma. We might want to "do the right thing" but we are uncertain of what is the right thing to do. For using detailed geographic databases for marketing purposes is good for society because it allows a more efficient marketplace and large segments of society benefit by having a more efficient marketplace. Yet using detailed geographic datasets in conjunction with other data for profiling consumer preferences is found by many individuals in society to be overly intrusive on their personal privacy and damaging to the long term interests of society because the ability to construct computerized dossiers on individuals will eventually restrict the freedom of individuals to think and act in contradiction of societal norms. By which course of action does the geographic information system user "do the right thing"? The geographic information scientist is faced with similar dilemmas. Should researchers put their time and effort into expanding the knowledge base that will help advance systems for allowing stricter control over digital information or should scientists put their efforts into expanding the knowledge base for systems that will allow greater access to information by larger segments of society? Moral stances may be taken in support of either of these as well as many other propositions. How may these ethical dilemmas be resolved?

THE SCIENCE OF ETHICS

The science of ethics helps us sort out which moral arguments have greater validity than others. In determining whether a proposed action is ethical or unethical one might first resort to philosophical theories as set forth in several hundred years of philosophy literature. In fact, ethicists would argue that this is indeed where the quest should begin. They would argue that ethical rules or codes of conduct should not be developed by taking opinion polls of the profession or of a community. Their position is that ethical theory or moral insights should be the primary basis upon which solutions to ethical dilemmas should be resolved.

Within the philosophy community “behavior” is often defined as activities in which people engage whereas “conduct” is a subset of behavior in which persons make voluntary choices between courses of action. Although the lines are fuzzy, traditionally social scientists were said to study “behavior” (how people act) while ethicists studied “conduct” (how people ought to act). Within this community, “morals” is often intended to refer to conduct or volitional behavior in practice while “ethics” often refers to the theory of conduct. In every day language, the terms ethics and morals are often used interchangeably. For instance, the term “professional ethics” really refers to conduct in practice, not theory.

Distinguishing between morals and ethics provides us with another definition of ethics. Ethics is sometimes said to be the theoretical examination of morals. The study of ethics has had two primary traditions: deontological theories (concerning duty) and teleological theories (concerning ends). Unfortunately, the shortfall of the vast theoretical work in these areas is that no universal theory has emerged to provide us with clear cut guides for our actions in resolving ethical dilemmas. That is, in making the tough choices between “right” versus “right”, the various theories offered often break down or conflict with each other. On the positive side, the primary lines of ethical thought have many areas of agreement and these areas of agreement have value in assessing behavior in the GIS community. Some of the areas of agreement relate to principles involving autonomy of the person, beneficence and nonmaleficence, rights of individuals, and some aspects of paternalism.

RESEARCH IN THE GIS COMMUNITY

So how do we relate this material to the GIS community? Most of the critiques of GIS uses or developments that we have seen to date have been by moralists. The moral reformer is dedicated to a cause and takes strong actions in furtherance of that cause. Some of the causes we have seen in the literature include: one should use maps over GIS because maps are more humanistic (Harley 1990), don't lie with maps (Monmoier 1991), oppose use of GIS in war (Smith 1992), use GIS to create stronger national security and defense, use GIS to increase access to marketplace goods, oppose use of GIS for surveillance, and use GIS to protect the environment. Conceivably there may be someone in the community arguing that GIS should be used to protect the interests of adult Caucasian males and traditional family values. Note that all of these are moral stances and that many conflict with each other when applied to specific circumstances. The science of ethics helps us sort out which moral arguments have greater validity.

In resolving ethical dilemmas in the GIS community, one problem in beginning with ethical theory as a starting point is that we don't have any bright lines to follow as our guide. A further problem is that we don't have much data concerning the ethical dilemmas that are actually arising in practice. Thus another starting point or concurrent starting point would be to begin gathering information from the community on the dilemmas they are facing and gathering information on beliefs regarding unethical conduct. Opinions should be gathered not only from members of the discipline but also from data subjects and other members of the general public. We believe the gathering of community beliefs has value because we hypothesize from anecdotal evidence that a significant number of GIS developers and practitioners have notions of acceptable conduct that are strongly at odds with the ethical notions of the rest of the professional community and the general public. We

also hypothesize that what is agreed to be "smart business practices" by a large majority of practicing professionals may be considered highly unethical by data subjects or by consumers of GIS products and services. Testing of these two hypotheses through the gathering of community beliefs would have value in initiating the study of ethical behavior in the GIS community. Whatever the notions of the community might be in resolving specific ethical dilemmas, those beliefs must ultimately be tested against how the rules developed by philosophers would resolve the same dilemmas and how the rules developed by practical ethicists would resolve the same dilemmas. If there are substantial variations in practice from theory, this might suggest the need for professional codes of conduct for GIS practice.

SUMMARY

The ethicist and moralist argue that the methods for resolving ethical dilemmas should not be determined through the taking of opinion polls. However, in the GIS community some initial opinion taking is probably warranted since currently we know little about effects of our information practices on society and we typically don't know whether some or many of our proposed uses or developments would be considered unethical, unfair, or unjust by large segments of society

Thus, data on the social effects of GIS technologies and data on moral consensus should be gathered and any derived codes and practices should be evaluated and honed by assessing their conformance with theory.

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