

REFLECTIONS ON EXPERIENCES TEACHING GIS PROFESSIONAL ETHICS

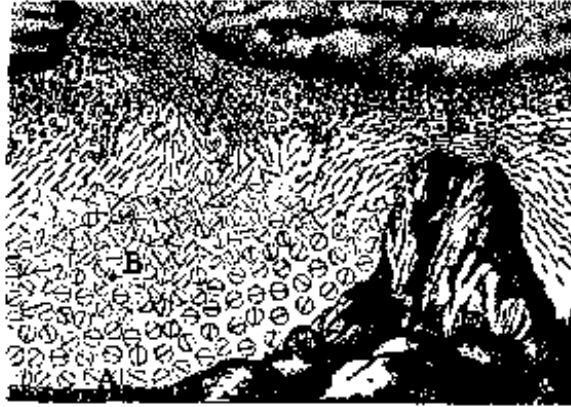
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OUTLINE

- BACKGROUND TO FALL 2009 SEMINAR OFFERING
- SYLLABUS AND KEY PEDAGOGICAL ACTIVITIES
- CONCEPTS
- DISCUSSIONS
- REFLECTIONS:
 - WHY DOES PROFESSIONAL ETHICS MATTER FOR STUDENTS?
 - APPLIED ETHICS TAKES UP THE PRACTICAL DIMENSIONS OF PROFESSIONAL GIS
 - CLOSE WITH QUOTE FROM KWAME APPIAH

Emphasis is on presenting key pedagogical aspects of a seminar offered last fall and reflecting on those issues. I will add some reflections as time permits.

Landschaft in pyrischer Ebene, nach dem Meeres



BACKGROUND

PART OF A RESEARCH PROJECT

- COLLABORATIVE PROJECT WITH DAWN WRIGHT (OSU) AND DAVID DIBIASE (PSU)
- GOALS
 - "OVERARCHING GOAL OF ETHICS EDUCATION SHOULD BE TO ADVANCE STUDENTS' MORAL DEVELOPMENT AND REASONING"
 - DEVELOP MODEL CURRICULUM
 - CREATE COURSEWARE
 - OFFER RECURRING ETHICS SEMINARS

Dawn and David are also offering courses, David just finished his course, which was part of PSU world campus

GIS PROFESSION: A NASCENT FIELD

- U.S. DEPARTMENT OF LABOR HIGHLIGHTS "GEOGRAPHIC TECHNOLOGY" AS A KEY HIGH GROWTH JOB FIELD FOR THE 21ST CENTURY
- \$3.3 BILLION MARKET WORLDWIDE (DARATECH, 2006)
- ETHICAL ISSUES LOOM LARGE IN THE PUBLIC PERCEPTION OF THE FIELD
 - SURVEILLANCE
 - POLICY
 - SOCIAL INEQUALITIES
- NEED TO PREPARE GIS PROFESSIONALS FOR THESE CHALLENGES

TEACHING GIS PROFESSIONAL ETHICS

- ETHICS IS A RECOMMENDED COMPONENT OF UNDERGRADUATE, GRADUATE, AND PROFESSIONAL CURRICULA IN GIS&T.
- GIS&T BODY OF KNOWLEDGE (BOK) INCLUDES ETHICAL ISSUES: PRIVACY, ACCESS, INTELLECTUAL PROPERTY, AND OTHERS, AMONG THE 329 TOPICS THAT DEFINE THE GIS&T KNOWLEDGE DOMAIN.
- "ETHICAL ASPECTS" OF GIS&T IS INCLUDED AMONG THE "CORE" UNITS

PEDAGOGICAL CONCEPTS

- PHILOSOPHICAL FOUNDATIONS
- TECHNIQUES OF MORAL REASONING
- FOCUS ON GIS&T ETHICAL ISSUES
- EMPHASIZE INTERACTIONS AMONG GRAD. STUDENTS AND PRACTICING GIS&T PROFESSIONALS
- STUDENT INTERVIEWS OF PRACTICING GIS&T PROFESSIONALS

These are underlying concepts for teaching ethics, broadly defined.

Important in translating issue for professional ethics, from the following pages, into pedagogy. These are drawn from seminal work from computer science ethics education, Huff and Martin, 1995, 81

SELECTED ISSUES

- **INDIVIDUAL AND PROFESSIONAL RESPONSIBILITY**
 - **CRUCIAL FOR STUDENTS TO EXAMINE THEIR OWN IDEAS OF INDIVIDUAL AND PROFESSIONAL RESPONSIBILITY; PROFESSIONAL RESPONSIBILITY FROM THE CODE OF ETHICS (ACM/GISCI)**
- **QUALITY OF LIFE**
 - **CONSIDER CLAIMS FOR IMPROVEMENT TO QUALITY OF LIFE AND THE POSSIBILITIES OF UNDESIRABLE EFFECTS**
- **RISKS AND RELIABILITY**
 - **ERROR-FREE DESIGN IS IMPOSSIBLE AND THE CHOICES AND TRADEOFFS OF DESIGN AND IMPLEMENTATION NEED TO BE ANALYZED.**

SELECTED ISSUES

- **USE OF POWER**

- **KNOWLEDGE GIVES POWER; DESIGN DECISIONS ARE WAYS IN WHICH COMPUTER PROFESSIONALS EXERT POWER. GROUPS AND ORGANIZATIONS IN TURN HAVE POWER OVER COMPUTER PROFESSIONALS. APPLYING AND CREATING DECISIONS ON BEHALF OF OTHER INVOLVES ETHICAL DILEMMAS. BALANCING RESPONSIBILITIES CAN PRODUCE EXCRUCIATING CONFLICTS.**

SELECTED ISSUES

- PROPERTY RIGHTS
 - INFORMATION CAN BE INFINITELY REPRODUCED WITH A LOSS AND LEGAL AND ETHICAL RESPONSES ARE EVOLVING TO FIND A BALANCE WITH EXISTING COPYRIGHT AND PROPERTY LAWS
- PRIVACY
 - LEGAL AND ETHICAL ISSUES ARISE IN THE DESIGN AND USE OF SYSTEMS THAT COLLECT, STORE, AND TRANSMIT DATA ABOUT PEOPLE. PRIVACY EXPECTATIONS VARY. POTENTIAL USES AND ABUSES ARE RELEVANT.

SELECTED ISSUES

- EQUITY AND ACCESS
 - MEASURES OF INEQUITIES ARE INSUFFICIENT FOR CONSIDERING THE COMPLEX IMPACTS TECHNOLOGY CAN HAVE ON SOCIETAL ACCESS AND POWER RELATIONSHIPS.
- HONESTY AND DECEPTION
 - FOR THE PUBLIC HONEST, CLEAR AND COMPREHENSIVE APPRAISALS OF TECHNOLOGY'S RISKS AND BENEFITS NEEDS TO BE CONSIDERED WITH SPECIAL ATTENTION ON HOW COMPETING INTERESTS BALANCE EACH OTHER.

Finally,

IMPORTANT POINTS

- FOCUS IS ON PROFESSIONAL ETHICS
 - AAAS PROFESSIONAL ETHICS PROJECT
 - MORALLY GOOD CONDUCT IN THE WORKPLACE
 - MORAL ECOLOGIES
 - COMMITMENT
 - RESPONSIBILITY
 - ACCURACY



SYLLABUS

Will be made available along with other materials on the project web site

GEOG 829I FALL 2009

- COVER BACKGROUND AND DEVELOP PRACTITIONER INTERVIEWS
- 4 PARTS
 - BACKGROUND
 - INTERVIEWS
 - GIS ETHICS
 - PRESENTATIONS
- ASSIGNMENTS
 - INTERVIEWS
 - POSITION PAPER

Fall 2008 GEOG829I 5

GEOG 829I Seminar on GIS and Society Fall 2008
Meets Tuesdays 9/2 - 12/9, 1:20 - 3:30 PM

Course Topic

GIS Ethics: Accuracy and Responsibility

Instructor
Jesse Harvey
Social Sciences
625-2586
jvh@umn.edu

Course hours Fall 2008: Tuesday 11AM - 1PM and Wednesday 4PM - 5PM

Overview
Ethical questions related to the use of GIS have been an area of importance for many years. The use of GIS for military and surveillance purposes along with concerns about impacts GIS has on NGOs and the environment have been challenging issues and a main topic of deep concern for people. Professionals working with GIS should possess a sound grasp of these issues and a thorough comprehension of the concerns affecting the use and development of GIS. However, while most people agree that ethical matters for GIS professionals, we often have great trouble putting ethical issues into practical action. This seminar sets out to bridge this gap and provide a sound basis for the ethical consideration of accuracy and responsibility issues.

This seminar, as part of a project supported by the National Science Foundation (NSF) in collaboration with activities at Oregon State University and Pennsylvania State University, primarily engages students with a pragmatic approach to examining GIS ethics within the context of GIS professional work. It draws on the work of applied ethicists to address practical questions of GIS ethics. This will be done through a series of interviews with

SYLLABUS

- 3 CREDIT GRADUATE SEMINAR
- OFFERED ONCE A WEEK
- INITIAL OFFERING, ONLY 5 STUDENTS ENROLLED
- MODEL FOR FUTURE OFFERINGS

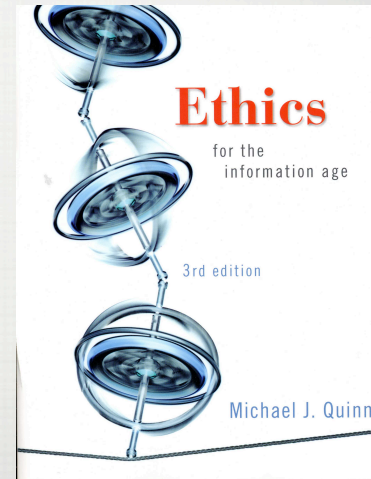


KEY ACTIVITIES

- CRITICAL READING REVIEWS
- ETHICS/SOCIAL INTERACTIONS
- CODES OF ETHICS DISCUSSION
- INTERVIEW TRAINING AND ANALYSIS
- PREPARING CASES

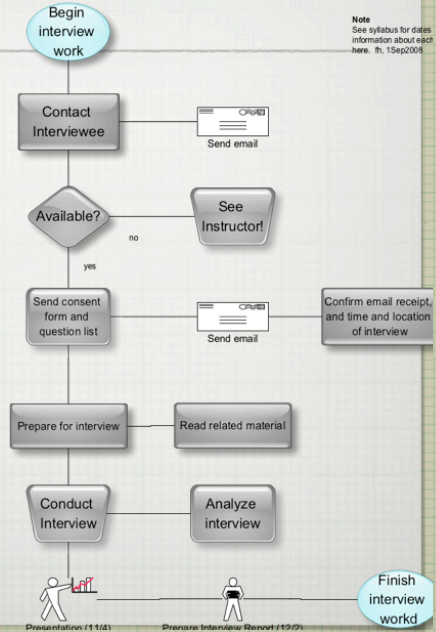
DISCUSSIONS

- STARTED WITH READINGS FROM QUINN'S WIDELY USED BOOK
- NOT INTENTIONALLY PROVOCATIVE, BUT "BALLOON" ANALOGY WAS
- STILL, GOOD COMMON STARTING POINT



INTERVIEWS

- MEANT A GREAT DEAL OF PREPARATION
- ONE INTERVIEW CONDUCTED BY EACH STUDENT
- ANALYSIS WAS STRAIGHTFORWARD
- DEVELOPING CASES WAS MORE COMPLICATED



CASES

- INTERVIEWS DESIGNED TO HELP IDENTIFY CASES
- STUDENTS RECEIVED GUIDELINES AND DEVELOPED CASES
- NOT CONNECTED TO CODES OF ETHICS (MORE LATER)
- COMPLEX WRITING ISSUES THAT REQUIRED MUCH CLASSROOM AND ONE-ON-ONE TIME

consider in preparing cases draws on ideas expressed on the literature of computing education. As a starting point, I take the ideas of Huff and Martin (1995) that the ethical issues in computing are those of the computing professional instead of the general public. Further, successful classroom engagement with ethical issues requires a combination of social analysis and by accounting for technical, social, and ethical issues in practice. Under ethical issues, Huff and Martin (1995) distinguish between responsibility and then a larger assemblage of topics for ethical analysis: risks and reliability, property rights, privacy, equity and access, honesty, and the multidimensionality of the issues, they should be carefully presented in their implications for ethical computing. A table intersecting two ways to approach the issue and points to issues that must at least point out to be a simple problem. Several *differences* are relevant to consider: dimensions of ethical issues that impact the design and use of technology:

physical and physiological differences
concerns of groups impact the design and use of technology
differing points of view in an organization on the use, regulation, production and design
consider:
- organizational structure and culture
- workplace procedure
- members' power and areas of interest
- members' position in the corporate hierarchy

gender, race, economic class, reference group, national culture impact different interests, preferences, approaches, and assumptions (gov/professionals/education)
diffusion globally of technology means local decisions can have global impacts

BIG ISSUES

- AUDIENCE
- PEDAGOGY
- CULTURE (S)



Cases connect the abstraction of the classroom with the messiness and bustle of professional life. In the teaching of practical ethics, it is important to allow the expression of ethical opinions.

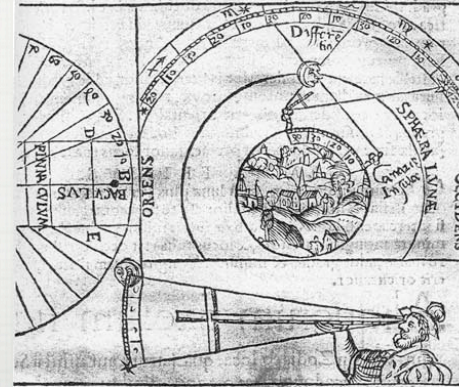
MATTERS TO CONSIDER IN ETHICAL DISCUSSION/ANALYSIS

- INDIVIDUAL AND PROFESSIONAL RESPONSIBILITY
 - QUALITY OF LIFE
 - USE OF POWER, RISKS AND RELIABILITY
 - PROPERTY RIGHTS
 - PRIVACY
 - EQUITY AND ACCESS
 - HONESTY AND DECEPTION

multidimensionality of the issues

A LARGER LIST

- INDIVIDUAL
- GROUPS
- ORGANIZATIONS
- CULTURES
- INSTITUTIONS
- GLOBAL/LOCAL



From Huff/Martin 1995

Several differences are relevant to consider when considering the social dimensions of ethical issues that impact the design and use of technology

Cases can address some: should not focus on all!

TEACHING APPLIED ETHICS

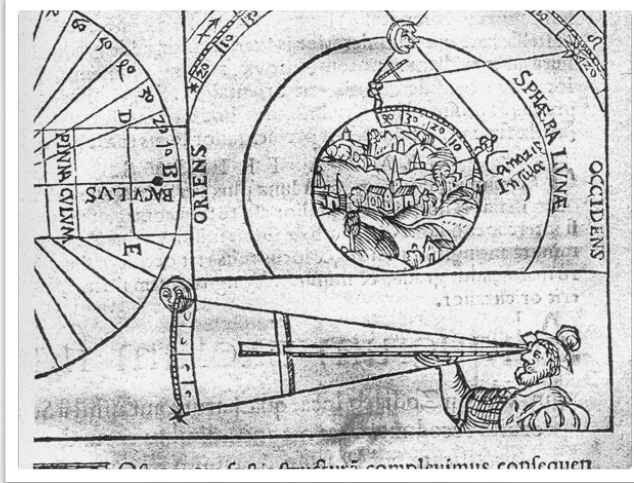
- CASE METHODS INVOLVE
 - IDENTIFYING ETHICAL ISSUES
 - CONSIDER PRACTICAL COMPLEXITIES WHEN MAKING DECISIONS
 - DEVELOPING JUSTIFICATIONS THAT CONVINC OTHERS

Michael Davis 2000
Ethics and the University

POINTS FOR CASE DEVELOPMENT AND USE

- THE CASES ARE SHORT AND PRESENTED AS PROBLEMS
- THE FACTS OF THE CASE ARE TERSE; POINTERS TO ADDITIONAL RESOURCES ARE PROVIDED
- THE CASES INVOLVE MULTIPLE PERSPECTIVES ALTHOUGH ONE PERSPECTIVE MAY DOMINATE IN THE PRESENTATION
- THE CASES ARE WRITTEN IN A SINGLE VOICE, PRESENT TENSE
- THE READER READS THE CASE AS AN OBSERVER; DISCUSSION SHOULD RAISE ISSUES OF WHAT THE INDIVIDUAL READER SHOULD HAVE DONE
- THE CASES ARE ABOUT WHAT SHOULD BE DONE
- THE CASES ARE ABOUT BOTH UPPER-LEVEL AND LOWER-LEVEL ACTIVITIES AND DECISIONS
- THE CASES, AS PROBLEMS, LEAVE OPEN THE DOOR TO ASK ABOUT SUCCESSFUL OR FAILED APPROACHES
- THE CASES FOCUS ON A SINGLE ISSUE; SPIN-OFFS INTO MULTIPLE ISSUES ARE POSSIBLE IN THE CLASSROOM
- THE CASES ARE PRESENTED AS SINGLE STAGE SITUATIONS; MULTI-STAGE PROBLEM DEVELOPMENT IS POSSIBLE IN THE CLASSROOM
- THE CASE IS WRITTEN IN A LANGUAGE FOR GRADUATE LEVEL GIS STUDENTS
- THE CASE IS ABOUT POLICY ISSUES; PERSONAL MORALS CAN BE CONSIDERED IN THE CLASSROOM
- THE CASE CAN BE FROZEN, THE EVENTS ARE NOT IN PROGRESS

This will be part of resources the project will make available through open-source courseware



CONCEPTS

CONCEPTS

- CODES OF ETHICS HAVE LITTLE RELEVANCE
- GREAT CRITICISM OF THEIR VAGUENESS AND IRRELEVANCE
- CASES ARE GOOD, BUT LEARNING THE WRITING IS COMPLICATED AND AN OUTCOME BY ITSELF
- INTERVIEWS ARE MOST IMPORTANT
 - GREAT DISCUSSIONS AFTERWARDS

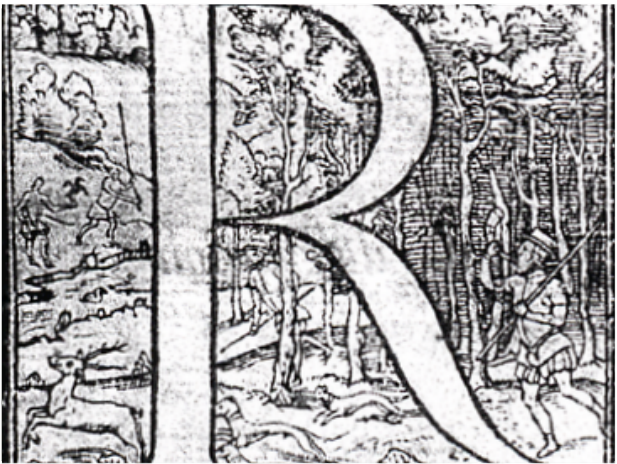


DISCUSSIONS

ISSUES

- INTERVIEWS CONNECT STUDENTS TO PROFESSIONAL PRACTICES
- CASES AND TEXTS WERE ABSTRACT
- BRINGING IN VISITORS WOULD HAVE BEEN HELPFUL





REFLECTIONS

PEDAGOGICAL CONSIDERATIONS

- BRING IN GUEST SPEAKERS
- SPEND TIME ON CASES
- LEAVE OUT POSITION PAPER
- BRING IN SPEAKERS TO TALK ABOUT CODES OF ETHICS
- INSTEAD OF "WHY DOES PROFESSIONAL ETHICS MATTER FOR STUDENTS? FOCUS ON "HOW DOES PROFESSIONAL ETHICS MATTER TO STUDENTS?"
- MORALITY FOR INDIVIDUALS AND GROUP (IN PRACTICE)

Since I'll do this again...

CONCLUSION

- TEACHING HOW ETHICS MATTERS
- APPLIED ETHICS (APPIAH (2008), HAUSER (2007), PROCTOR (1998) ET AL)
 - APPLICATION OF THEORETICAL ETHICS
 - CASE-BASED REASONING IN WRITING AND TEACHING
 - FOCUS ON FACTS -- NOT ON THEORIES

LAST THOUGHTS

MORALITY IS PRACTICAL. IN THE END IT IS ABOUT WHAT TO DO AND WHAT TO FEEL; HOW TO RESPOND TO OUR OWN AND WORLD'S DEMANDS. AND TO APPLY NORMS, WE MUST UNDERSTAND THE EMPIRICAL CONTEXTS IN WHICH WE ARE APPLYING THEM. NO ONE DENIES THAT, IN APPLYING NORMS, YOU WILL NEED TO KNOW WHAT, AS AN EMPIRICAL MATTER, THE EFFECTS OF WHAT YOU DO WILL BE ON OTHERS

(K. APPIAH, EXPERIMENTS IN ETHICS, 2008, QUOTE FROM PAGE 22)