

ICEE: Online Ethical Scenarios with Interactive Surveys and Real-time Demographics

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An earlier version of this paper will appear in the proceedings of ETHICOMP98.

Abstract

In an effort to enlarge moral reference communities to include netizens of the world, the author constructed a web application called the Interactive Computer Ethics Explorer (ICEE). ICEE presents scenario-based interactive survey questions over the Web, tallies responses in real-time, and then delivers updated results almost immediately, complete with demographic breakdowns. This paper motivates the design for ICEE, gives a quick visual tour, explains how developers create ICEE content, responds to some design limitations, and previews the next version of ICEE.

Introduction

Moral Reference Communities

For almost all of recorded history, ethical issues have been decided according to neighborhood, community or national norms. These have been our “moral reference communities.” Though not morally pure themselves, these communities did at least frame our moral judgments and provide a basis for dialogue. Today the Internet stretches these old geographic boundaries and forces us, for perhaps the first time, to deal with information ethics on a global scale. Community standards still prevail; the difference is that the “community” is becoming the world. Two consequences follow, one negative and one positive.

On the negative side, we have reached a point in history when hate groups and axe murderers can conceivably use the Web to build a support group to nurture persons like themselves. In the past, they would have been repeatedly challenged, perhaps even informed, by the fact that their behavior ran counter to school-yard, neighborhood or community norms. Today, they can easily form homogeneous cult-like electronic communities where their ethical positions will only be sustained and reinforced. *On the positive side*, we have also reached a point in history when persons can use the Internet to escape from provincial ethical thinking, can learn to embrace diversity, and can begin constructing a “global ethic” based on moral principles held to be valid across cultures.

A New Global Ethic?

Attempts to build a global ethic have failed in the past and may fail again, but something new is in the air at the dawn of this millennium. For the first time, millions of the

world's citizens share an enabling technology that allows them to do on a global scale what formerly they could do only with nearby neighbors and friends: engage each other directly, meaningfully, and in real-time. For the first time, millions will be able to experience unabated culture shock without the necessity of becoming international exchange students. And, for the first time, millions will be coming to terms with roughly the same set of ethical issues, those comprising the emerging field of computer ethics.

A New Tool

Given these new realities, netizens may wish to explore ethical issues within a framework that will allow them to learn immediately how their own opinions compare to those of people from all over the world. This is the concept behind the Interactive Computer Ethics Explorer (ICEE). It was ICEE's ability to "shrink the world" that made it one of the more popular displays at IBM's Small Planet [virtual] Pavilion during the 1996 Olympic games. The most recent test version of ICEE ("**xx**icee") can be found at <http://web.cs.bgsu.edu/maner/xxicee/html/welcome.htm> . The previous version ("**x**icee") still resides at <http://web.cs.bgsu.edu/maner/xicee/html/welcome.htm> . If these links are out of date, please send email to maner@cs.bgsu.edu.

The Design Assumptions Grounding ICEE

***Assumption 1:** Because moral growth necessarily has a social dimension, it is constructive to explore ethical issues in real-time, with other thoughtful persons.*

Although productive ethical reflections may sometimes be conducted in solitary, ethical *engagement* is necessary to validate, refine and mature these reflections. This is true not only in the sociological sense that norms are created "in community," but also in the philosophical sense that enlightenment is created in dialogue. The otherwise sterile elements of ethical codes may suddenly become infused with life when there is sufficient ethical engagement among a diverse group of inquiring persons.

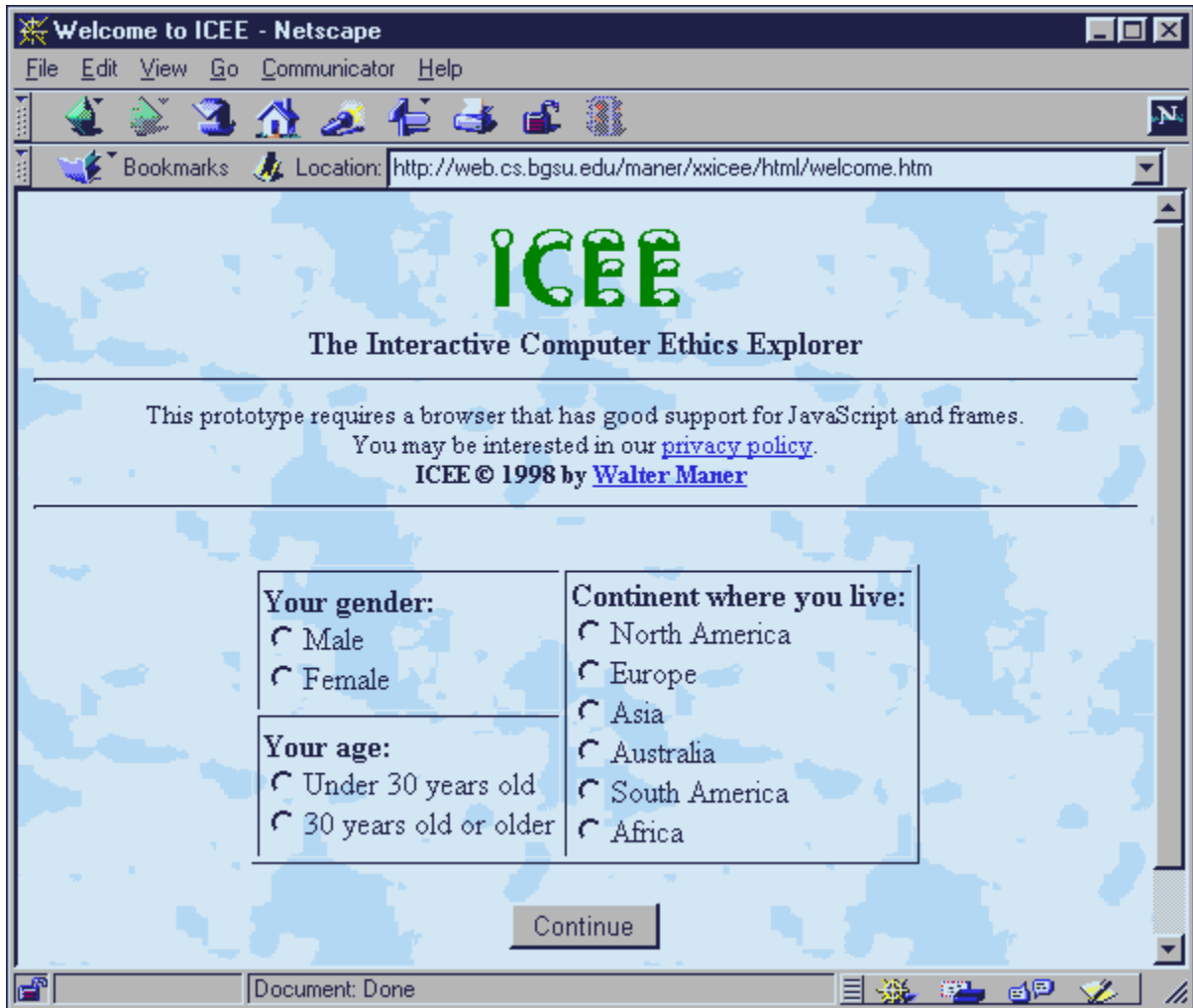
***Assumption 2:** Reflective moral self-development can be stimulated by comparing one's opinions on ethical issues with a wide audience of persons, both like and unlike oneself.*

Ultimately, of course, we want to know whether our ethical positions are sufficiently grounded in principle, in reason. In the beginning, driven mainly by curiosity, we merely wish to know how conforming or non-conforming our opinions are. Simple comparison can, however, be a powerful tool for detecting bias. If I hold a moral position that is shared by most men but rejected by most women, this discrepancy alone should cause me to give the matter further scrutiny.

ICEE, in accord with both of these assumptions, presents scenario-based interactive survey questions over the worldwide web, tallies responses in real time, and then delivers updated results almost immediately, complete with demographic breakdowns.

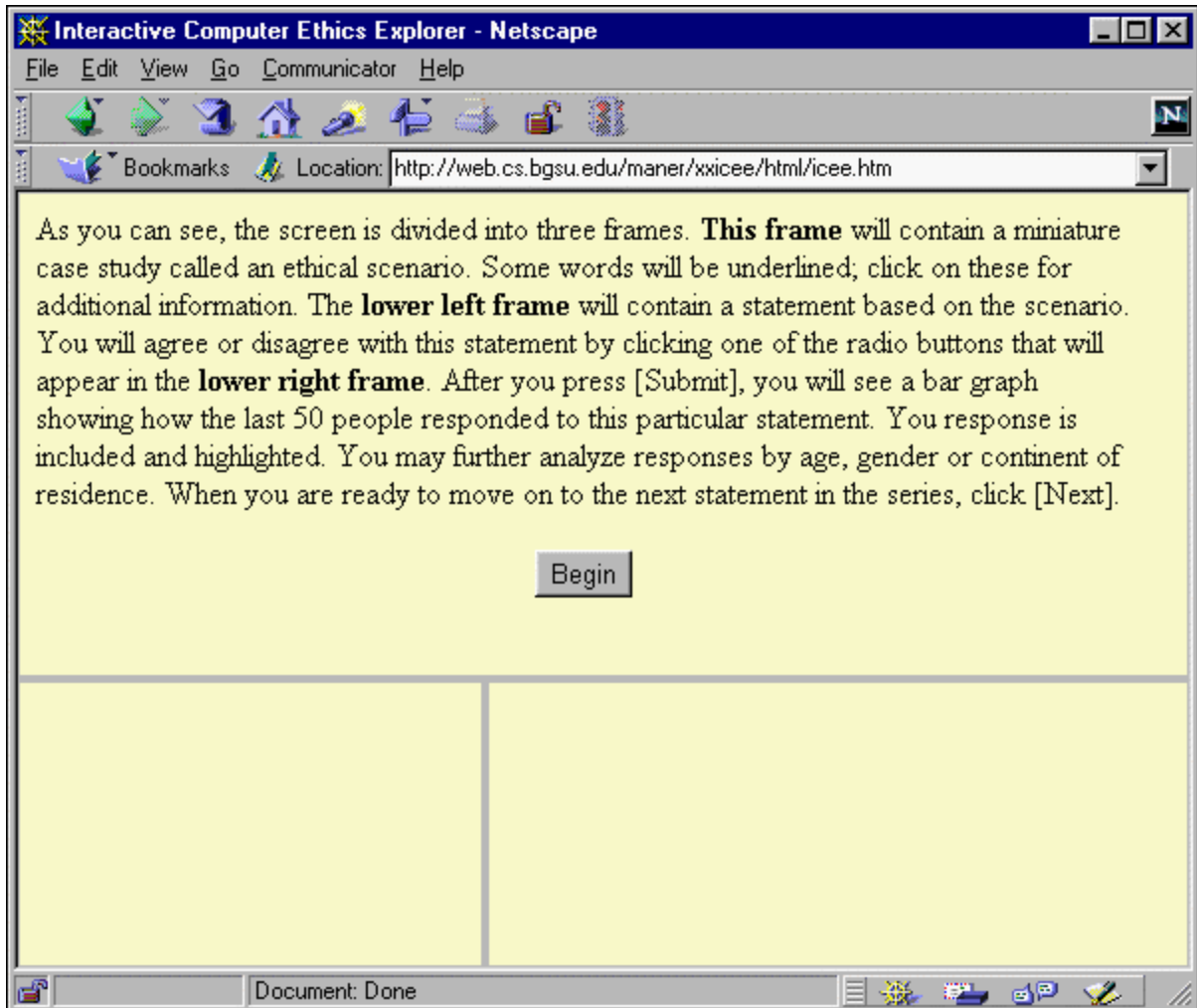
A Quick Tour of ICEE

ICEE makes appropriate use of color but, for maximum clarity, the color has been removed from the screen snapshots shown in this section.



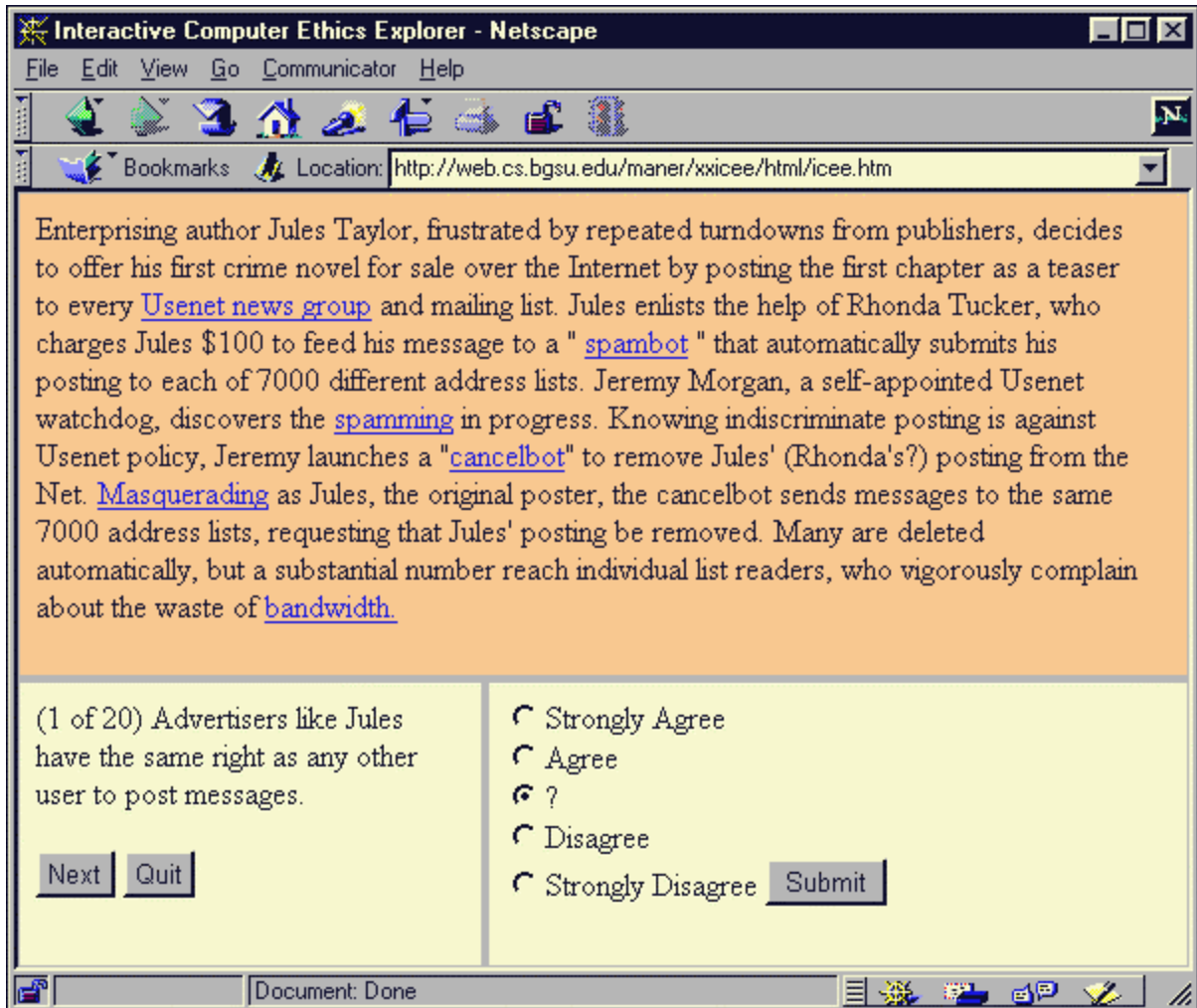
The Welcome Screen

The welcome screen links our privacy policy and captures basic demographics from those who wish to volunteer this information.



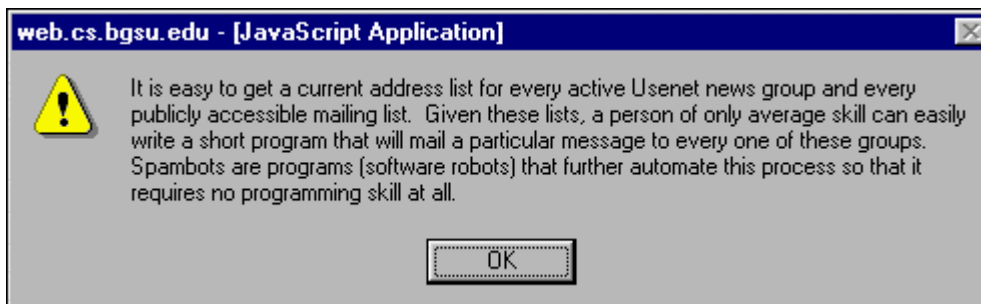
The Help Frame

The help frame explains how the ICEE user interface works.



The Scenario Screen

Most of the interaction users have with ICEE occurs within the scenario screen, which is divided into three panels or frames.



Information

Boxes

Various words and phrases contained in the scenario are hot-linked to popup boxes containing additional explanatory information for those who need it. In this case, help is given for the term “spambot.”

Interactive Computer Ethics Explorer - Netscape

File Edit View Go Communicator Help

Location: <http://web.cs.bgsu.edu/maner/xxicee/html/icee.htm>

Enterprising author Jules Taylor, frustrated by repeated turndowns from publishers, decides to offer his first crime novel for sale over the Internet by posting the first chapter as a teaser to every [Usenet news group](#) and mailing list. Jules enlists the help of Rhonda Tucker, who charges Jules \$100 to feed his message to a " [spambot](#) " that automatically submits his posting to each of 7000 different address lists. Jeremy Morgan, a self-appointed Usenet watchdog, discovers the [spamming](#) in progress. Knowing indiscriminate posting is against Usenet policy, Jeremy launches a " [cancelbot](#) " to remove Jules' (Rhonda's?) posting from the Net. [Masquerading](#) as Jules, the original poster, the cancelbot sends messages to the same 7000 address lists, requesting that Jules' posting be removed. Many are deleted automatically, but a substantial number reach individual list readers, who vigorously complain about the waste of [bandwidth](#).

(1 of 20) Advertisers like Jules have the same right as any other user to post messages.

Next Quit

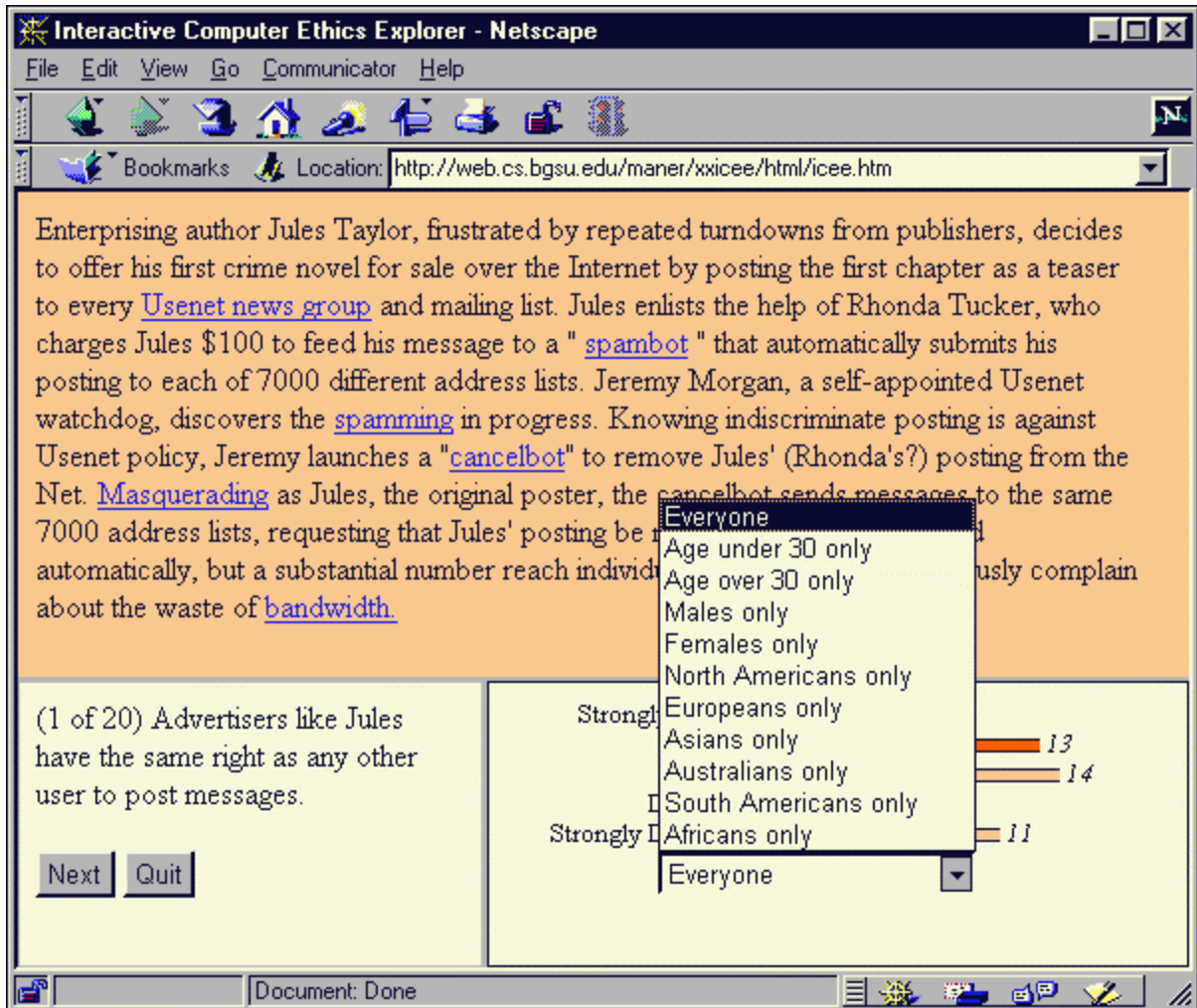
Strongly Agree 1 : 5
 Agree 2 : 13
 ? 3 : 14
 Disagree 4 : 6
 Strongly Disagree 5 : 11

Everyone

Document: Done

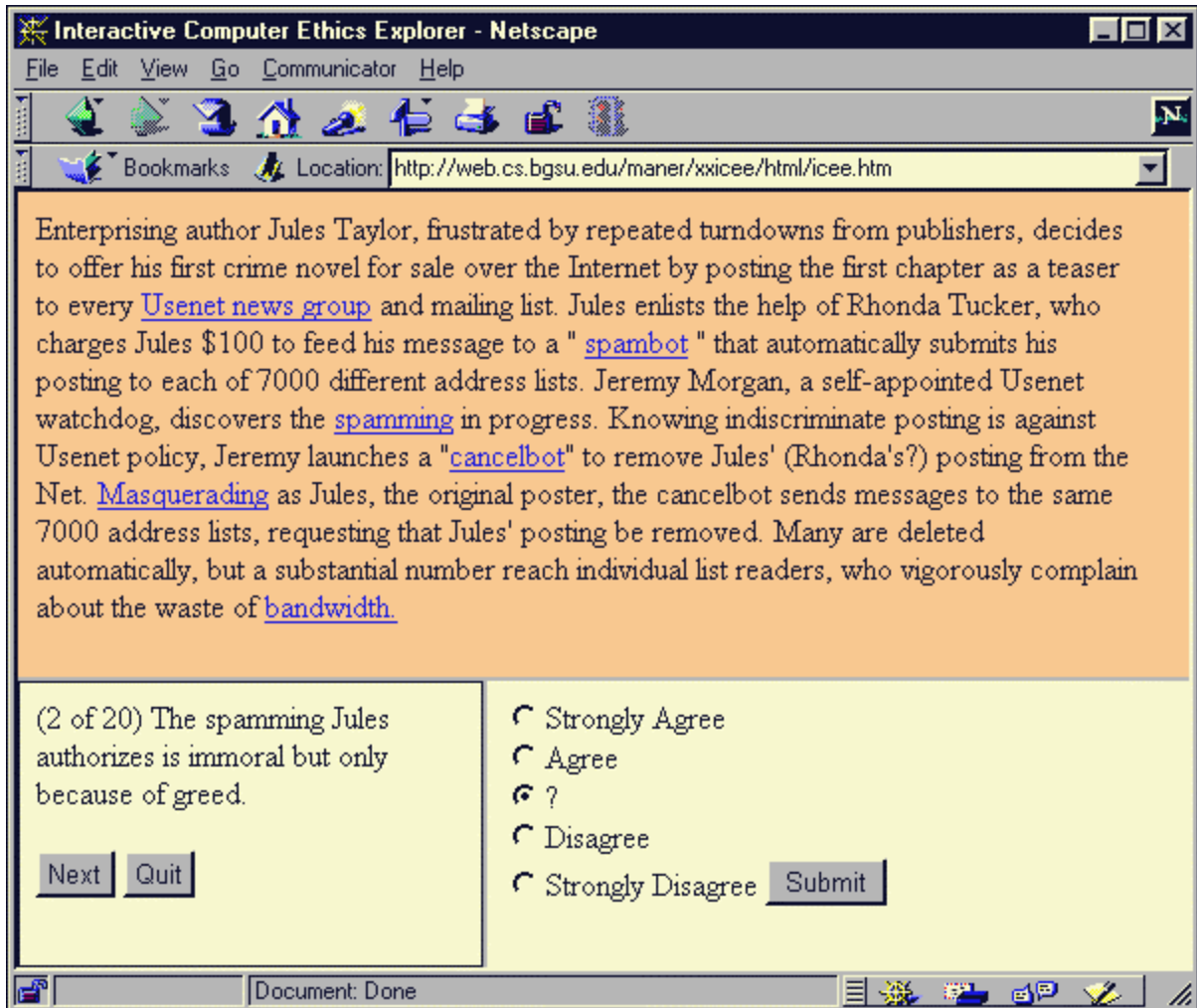
User Response and Bar Graph Frame

The user agrees or disagrees with the statement in the lower left frame by clicking one of the five radio buttons in the third frame, displayed on the lower right. After users click the [Submit] button, they see how the last 50 people responded to this particular statement, themselves included. Tallies are presented as a bar graph with a color highlight for the bar corresponding to the user's previous choice.



Demographic Graphs

Various demographic breakdowns become available for selection at this point. A new bar graph is drawn representing the selected demographic. Finally, the user moves on to the next statement in the case study by clicking [Next].



Creating Content for ICEE

Developing content for ICEE is an iterative four-step process.

First, the developer creates a scenario of appropriate length. Privacy seems to be an important cross-cultural topic, so a developer might build a scenario on the subject of employer surveillance:

SoftSupport, Inc. gives its employees convenient Internet access because they conduct normal business with clients over the Internet. At the same time, to control suspected non-business use of the net, the company installed a secret monitoring program on their enterprise network server, configuring it to continuously track the Internet activities of all employees. NetMonitor reports that one employee, Ryan Crawford, is using the company Internet gateway to do genealogical research on the Crawford family tree. Further analysis reveals his personal research is done only while connected to the gateway from his home, on

his own time, using his own computer. Still, his unauthorized activities are sufficient to increase the company's overall Internet usage by about 5% on an average day. When supervisors ask him to stop, Ryan accuses the company of invading his privacy but the company claims it is within its rights.

Second, because scenarios are “thin cases,” developers hot-link key terms to explanatory information if that information is morally relevant. For example, a developer might hot-link the scenario phrase “unauthorized activities” to the following text:

Ryan uses the standard web index engines to locate personal ancestral files, then does keyword searches on variants of the surname “Crawford.” Ryan also spends considerable time reading genealogical news groups, exchanging mail with other Crawfords, browsing online telephone directories, and searching old census records. Sometimes he spends hours downloading multi-megabyte GEDCOM genealogical databases.

For the same reason, a developer might hot-link the scenario phrase “continuously track” to the following text:

NetMonitor records the URLs for Web, FTP and news resources visited by employees, the amount of time spent linked to these URLs, and the type and amount of activity generated. URLs are broadly classified according to whether they represent legitimate business use, sports, entertainment, job search, illegal activities, contacts with potential competitors, or just a general waste of time.

Third, the developer creates a series of agree-disagree statements intended to transform the scenario into an ethical case study. About twenty carefully crafted focusing statements are needed to give depth to the typical case. For this particular scenario, the following statements seem initially promising:

- (1) If it isn't wrong for landlords to monitor their tenants, then it can't be wrong for employers to monitor their employees.
- (2) The management of SoftSupport was wrong not to tell employees in advance that they were being monitored.
- (3) Anyone who contracts for work as a supervised employee surrenders some personal privacy.
- (4) Ryan is stealing resources from the company, pure and simple.
- (5) Under the circumstances, Ryan has a reasonable expectation of privacy.
- (6) Messages Ryan sent from his home computer over the company network belong to him, not the company.
- (7) Continuous monitoring of employees is wrong but occasional, random monitoring is morally acceptable.
- (8) Close employee monitoring is wrong but only because it increases stress and lowers morale.

- (9) What NetMonitor does is morally acceptable only if it records the number and length of messages, treating content as private.
- (10) Management may have a right to monitor the workplace but it has no right to monitor activities initiated in Crawford's home.
- (11) What Ryan did is no different from dialing into a company switchboard after hours, then using it to place long distance calls at company expense.
- (12) What Ryan did was wrong, but management's use of secret surveillance was even more objectionable.
- (13) It makes a moral difference that Ryan's activities were conducted off SoftSupport premises.
- (14) It makes a moral difference that Ryan's activities were initiated from his own computer.
- (15) What makes computer surveillance morally offensive is that programs like NetMonitor track, record, quantify and analyze every little detail.
- (16) It makes a moral difference that Ryan did his genealogical research on his own time.
- (17) Ryan's activities are morally acceptable but only because they occur at a time of day when company network traffic is at its lowest.
- (18) What Ryan did is excused (morally offset) by the fact that he is more than willing to use his home computer for company work.
- (19) If SoftSupport's monitoring had not been secret, it would have been morally acceptable.
- (20) Employees who have nothing to hide have nothing to fear from NetMonitor.

Finally, the developer conducts usability tests with human volunteers, gathers feedback, and revises the content as necessary.

Possible Objections to the Design

Objection 1: Moral problems cannot be resolved through polling.

Apart from situations where polling might help utilitarians discover whether a good consequence has benefitted the greatest number, surveys are admittedly of little use in deciding ethical questions. This fact should not detract from their very important uses as stimuli for reflection and catalysts for moral engagement.

Objection 2: Comparing ethical positions across cultures may foster moral relativism.

Historically, the exploration of new cultures and societies has indeed fueled relativism. Different, in this day and age, is the realization that we sit on a fragile planet connected by interdependent economies, all with a common interest in the future of information technology. Given this small but growing reservoir of shared values, relativism may no

longer be the predictable and automatic response to the initial experience of cultural diversity.

Objection 3: Interactive web surveys may be bad science.

Web survey methodology is known to be problematic, perhaps even unscientific. It relies on self-selection. Logging techniques are unreliable. Sampling is not random. Additional distortions occur owing to the uneven quality of Internet infrastructure. For all these reasons, it is risky to project web survey findings onto the general population. Web survey methodology may well become more scientific over time but, even if it remains as it is, surveys will continue to provoke valuable moral reflection and self-examination.

Objection 4: It may be impossible to construct ethical scenarios that work cross-culturally.

Certainly it is difficult even to find personal names that work from one culture to the next. This is no small problem because the people who analyze ethical scenarios want to identify with at least some the characters, but this works well only if that character has a familiar name. In the United States, names like Rebecca, James, Emily, Daniel and Ryan work fine. But not in Russia. In Russia, we need names like Olga, Vladimir, Nikolay and Alexander. Fortunately, persons who have surfed the Web for a few years have a core of common interests (e.g., accessibility, privacy, intellectual property) and a core of common problems (e.g., spam, pornography, piracy). So, despite a problem with personal names, it is not impossible to construct scenarios that work passably well across many different cultures.

Objection 5: Survey participants may surrender some personal information.

Since ICEE collects personal demographic data without performing any user authentication, there is at present no significant privacy issue. We do have a privacy policy, however: "ICEE keeps no identifiable personal information. The client-side 'cookies' set by ICEE expire as soon as you quit the browser." In the future, to discourage certain forms of hacking, ICEE may resort to some form of user authentication.

Preview of the Next ICEE

Various alternative versions of ICEE are under development. Changes under consideration include the following.

- After the welcome screen, we may allow the user to pick a case study from a searchable master index that includes scenarios and various resources to accompany them.
- We may analyze a user's pattern of responses to determine which ethical theory they are attempting to apply (rule utilitarian, act utilitarian, rights-based, or justice-based), then offer to tell the user more about their favored theory at the end of the scenario.
- Besides age, gender and continent of residence, we may collect and use other demographic data: religion (whether or not one's moral beliefs are influenced by religion), primary language (English or other), voting status (registered or not), and years on the Internet (less than 5 versus 5 or more). As always, the issue for us is whether the new breakdowns will help stimulate productive thinking on ethical issues.
- We may build a form-based content-creation "wizard." This separate web application would make it easy to generate all the files required by each ICEE case study. Developers will simply open a web form and supply textual information like that given in "Creating Content for ICEE," above.
- To cope with ICEE's general lack of philosophical depth, we may link scenarios to threaded discussion lists, expert analyses, and other web-accessible resources. For the most popular scenarios, we may offer live Java-based chat rooms where users can deepen their understanding by acting out roles present in the scenarios.

Finally, we see ICEE evolving into a new paradigm for conducting interactive surveys on the Web. Instead of an ethical case study, one might substitute the text of proposed legislation, a work of art, or a design proposal. Its domain could be extended to include any idea that becomes more meaningful when those exploring it are confronted by the opinions of others.

Computer Ethics Interactive Scenario Archive

The author hopes to collect and make available many hundreds of interactive ethical scenarios beginning with cases in the general area of software engineering ethics. User-contributed scenarios are especially welcome and, if they fit the goals of the archive, they will be converted into interactive form at no charge and made available to the public.

Technical Details

ICEE is implemented on the client side in HTML 3.2 and JavaScript 1.1, so it runs on third- and fourth-generation browsers. For server-side CGI, it uses Perl 5 and standard Unix DBM files. The main CGI file (updateDB.pl) contains about 600 lines of Perl code. Each main scenario file contains about 500 lines of JavaScript code. In the previous

iteration, each scenario required 245 separate files. In the current version, each scenario requires only 3 files.

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