

Internationalization of the Curriculum

Report of a Project Within Computer Science

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Abstract

In the Fall of 1999 the Center for Excellence in Undergraduate Teaching (CEUT) and the International Office at Virginia Tech provided a small grant to support the incorporation of international aspects into the Computer Science curriculum. The "Professionalism in Computing" course was chosen as the vehicle for this activity on the grounds that (a) it is a required course of all majors, and (b) the topics within the course were best amenable to international extensions. Through the efforts of the students in the Spring 2000 offering of the course, together with a number of international students, lesson plans for the comparison of non-US aspects of three topics were developed. The topics were Privacy, Freedom of Speech, and Censorship, and the countries covered included Germany, South Korea, China, and Turkey.

Background

"Professionalism in Computing" is a junior level course for Computer Science majors that fulfills the Computer Sciences Accreditation Commission requirement to cover computer ethics and the social impact of computers. When established in 1984, the original proposal to the College of Arts and Sciences Curriculum Committee the course title was "Computer Ethics". The Department of Philosophy objected to both the title and the content and thus the proposal was taken back and revised to emphasize the social aspects with a new title "The Social Impact of the Computer". This too was not satisfactory to the committee and thus in a third revision the course was reworked under the rubric of "Professionalism". Over the past 16 years this title has allowed us to continually develop the course and extend its coverage to not only computer ethics and the social impact of the computer, but also to include consideration of the career of computing and studies of such topics as "Safety Critical Systems", "Whistle Blowing", and "Computer Security".

In 1993 a National Science Educational Infrastructure grant enabled this course to be transformed to a web-supported system, though much of the original work concentrated on placing the class overheads on the web site. Over the past eight years this web site has continued to grow and now contains over 3000 local pages covering twenty-eight topics with links to over 4000 other sites around the world. The directory on World Codes is not only used in the course but is also the repository of the collection of codes for the International Federation for Information Processing Technical Committee 9 (IFIP TC-9 Social Impact of the Computer).

Through another National Science Foundation grant for the Faculty Enhancement in the area of computer ethics at the University of South Florida (USF), led by Dr. Kevin Bowyer, this site is now also the support system for a number of similar computer science courses around the country. At least fourteen other institutions have "registered" to utilize the web site in their course, and e-mail correspondence reveals that many other faculty make use of these facilities.

"Internationalization" of the curriculum follows behind several other initiatives to broaden the undergraduate experience across the university. Within Computer Science (and perhaps other technical topics) the modification of courses to accommodate these endeavors has been difficult, and thus most have been relegated to the Professionalism course. Consequently this course is also the "Writing Intensive" course, the "Oral Communications" course, the "Diversity Sensitive" course, and the "History Awareness" course within the Computer Science curriculum. The universality of the computer and the Internet imply that the computer professional must be aware their impact on other cultures and the differences in cultural acceptability. Just as the industry is becoming more sensitive to the differences in suitability of software applications to women and children, so through new graduates must it become more sensitive to the compatibility of the computer with different countries, cultures, and legal systems. This author was unable to locate any prior work on this topic and thus there is a paucity of references in this paper. The latest version of Curriculum 2001 [Steelman, 2001]

includes "International issues" as a subject within core topic SP2. Social context of computing.

The Project

Throughout the development of this course, even before the time when it was placed on-line, it was a policy to utilize the work of students in the course to provide resources for subsequent offerings. Since the movement to the World Wide Web, it has been a common practice to use at least one class assignment for the development of new topics (such as "Green machines"), or the upgrading of some elements (by providing up-to-date surveys of the current status), and thereby to create a feeling of possessiveness among the participants. This same approach was used in the development of an international aspect of the course.

Reviewing the topics within the course (see <http://courses.cs.vt.edu/professionalism>), it was decided that three were most susceptible to internationalization - Privacy, Freedom of Speech, and Censorship. These are three topics that are clearly approached differently in different countries. Three elements need to be considered in each study - how these matters are influenced by the laws of the country, precedents in the justice system (or governmental action), and the local culture. In the case of Freedom of Speech, for example, many countries have included a relevant clause in their Constitution, but several have an addendum that overrides this by stating (in a sense) "unless modified by law". Privacy is treated differently, primarily being dependent on the cultural acceptance of the "public right to know" doctrine. Censorship is regarded by some peoples as the means by which their national culture or religion is protected through the accommodating auspices of the government.

The last two assignments in the Spring 2000 offering of the Professionalism course were designed to provide student created resources on international aspects on the topics of Privacy, Freedom of Speech, and Censorship. Each of the assignments was chosen to be group projects, and in this case involved 46 students, resulting in 16 distinct activities. The first assignment required the group to study one of the three topics as shown in Exhibit 1.

While it is possible that each of the three chosen topics could be studied in the general context, it was important in this project to concentrate on those aspects that were related to the computer. To accomplish this it was suggested to the participants that they choose one (or more) of the scenarios that are provided on the web site at <http://courses.cs.vt.edu/~cs3604/support/Debates/Scenarios.html>. For example, the 1994 case of the restriction of access to sexually oriented newsgroups by Carnegie Mellon University, the subsequent student protests, and the subsequent relaxation of the institution's "appropriate use" policy provided an excellent vehicle for the comparison of approaches to

censorship in different countries. The choice of scenario was potentially influenced by the expectation of a differing response in another country.

This is a two-part assignment. The first part will accentuate the US attitudes, laws, and cultural approaches to Privacy, Freedom of Speech, and Censorship. The second part will compare these findings with similar findings from another country. The final outcome will be a two-part classroom lesson plan for use by future classes in "Professionalism".

Groups will be assigned a concentration on one of the concerns above and asked to develop a new lesson plan for the study of that topic in the context of their own country. Thus the first step in the development of this project must be the identification of the laws, significant legal cases, and customs that influence and direct the application of the concern. The groups may utilize the collected materials in the current course web site.

Each lesson plan for the first part should include pre-class activities, such as readings, web searches, or surveys. The in-class plan then should build on these activities to expand the understanding of the national approaches. In-class activities may include a presentation portion. If so, then it is necessary that the appropriate class notes and graphics be provided for the instructor. Following any presentation, the in-class activity should involve students in a discussion, based on a scenario that will bring out the important aspects of the topic. Examples of scenarios are available on-line. The instructor's outline for the discussion portion should follow the lines of the critical thinking template. By this means the instructor will have a listing of the basic points that need to be brought out during the in-class discussion. This is perhaps the most important element of this assignment.

The post-class activity for the first part should integrate with the pre-class activity for the second part; that is, a study of the resources from other countries.

Exhibit 1: First Assignment

While the concept of a "lesson plan" may be generally hidden from students, the template used in the USF project was used as the guide for the assignments. Examples of plans were also available on-line for their assistance at

<http://courses.cs.vtedul~cs3604/1ib/projects.html>

It was important to grade the first US-centric assignment quickly and to return the comments and suggestions to the groups. This way they could adjust their approach to the second assignment.

The statement of the second assignment was similar (Exhibit 2).

An important part of this assignment, and the one which most influenced the country chosen for study, was the identification and location of an international student to cooperate. Two groups had the advantage of having a team member who was an exchange student; the other groups had to go outside to choose a participant. In most cases the chosen consultant was a student in another class or a resident in the same apartment block as one of the members. In one case a group located a consultant online in another country and conducted their interactions through e-mail.

This is the second part of a two-part assignment. The first part accentuated the US attitudes, laws, and cultural approaches to Privacy, Freedom of Speech, and Censorship. The second part will compare these findings with similar findings from another country. The final product is to be a two-part classroom lesson plan for use by future classes in "Professionalism".

Each group has been given responsibility in the prior assignment for developing lesson plan for the study of a particular concept within the domain of their own country. The task of this second part of the assignment is to develop a second lesson plan that will accentuate a different cultural approach to the same problem.

Each group must locate a person from another country who will be willing to respond to the scenario used in the previous assignment in terms of the laws, precedents, and customs of their home country. The person may be chosen from anywhere on campus, and, to encourage others to participate the project, will provide a monetary bonus to the foreign participants. The possibility exists of locating person over the Internet that can be interviewed by e-mail or in a chat room. The group will be responsible for interviewing their selected person to undertake four tasks:

1. To give their response to the scenario, and the rationale behind their answer(s),
2. To provide a brief overview of the appropriate laws in their country
3. To suggest any examples of "precedents" that would influence their response (i.e. anecdotes, stories), and

4. To discuss the culture and customs of their homeland that would influence their response.
(continued)

It is suggested that candidates be sought within the class itself, among the graduate students in the CS department, from the University international center (The Cranwell House), among ethnic groups on campus, over the Internet, or elsewhere.

In the lesson plan that you develop, the pre-class activities for this lesson are also the post-class activities for the previous assignment. The new lesson plan should build on the results of the previous assignment, and primarily direct students to study the differences between the US-centered laws and customs and those of another country. The in-class plan then should build on these activities to expand the understanding of the different approaches. In-class activities may include presentation portion, most probably a presentation of the laws and customs of the other country. If so, then it is necessary that the appropriate class notes and graphics be provided for the instructor. Following any presentation, the in-class activity should involve students in a discussion, based on the chosen scenario that will bring out the different aspects of the topic. The instructor's outline for the discussion portion should follow the lines of the critical thinking template. By this means the instructor will have a listing of the basic points that need to be brought out during the in-class discussion. It is extremely important in this comparison not to judge the laws and customs of the other country, but rather to understand the differences and the background to those differences.

The post-class activity for this second part should be an activity that will permit the student to reflect on the differences in approaches to these problems, and perhaps (given sufficient resources) to explore the laws and customs from a second country.

Exhibit 2: Second Assignment

Of fifteen student groups¹, three believed that they could not separate the three topics and chose to develop lesson plans that combined the topics. The other groups followed

¹ One group failed to locate an international student and tried to complete the assignment alone. The result was unsatisfactory, validating that the involvement of an international student was essential.

the specifications of the assignment. The resulting collection contained the findings shown in Table 1.

Following the semester, the submissions were edited and amended to achieve several goals:

1. To add to each lesson plan common background links providing (a) background information about the country (particularly the political setting), (b) the country's constitution, and (c) the flag of the country;
2. To attempt to create a common style of presentation and format; and
3. To make corrections where identifiable.

A sample is shown in Figure 1.

Topic	Country
Censorship	Egypt
	Germany
	Turkey
Privacy	Argentina
	China
	South Korea
	Russia
	France
Freedom of Speech	South Korea
	Kuwait
	China
All three topics	India
	New Zealand

Table 1: Topics and Countries in Spring 2000

In Spring 2001, this assignment was repeated with the modification that while the students were encouraged to use the resources from the previous year and but using different scenarios. This had the advantage that they could draw on the basic cultural concepts from the previous work, but expanded the coverage of considerations. This had the advantage of “validating” the results of the prior project.

Conclusions

As would be expected, the quality of the groups' submissions varied and not all groups fulfilled all the goals. Several groups created a lesson plan that effectively suggested that the class should study the laws of the US and another country, pick a scenario, and then discuss the differences in class. From experience of working with faculty who are either team teaching the course with this author, or in reactions from other faculty who have tried to use previous lesson plan, a complete lesson plan must include ALL the necessary information and one cannot expect them to go searching for the necessary materials, or generating the appropriate answers to case studies or scenario questions.

During the in-class discussions that preceded the completion of the last assignment it was clear that many students were somewhat xenophobic, being completely unable to accept that any other response than that appropriate to the US had any validity. To accept that anyone “in their right mind” would be willing to accept censorship of the Internet was foreign to several students. Other discussions revealed that perhaps the greatest benefit that these participants got from the exercise was the interaction with the international student who was the group's chosen consultant. The necessity to discuss the scenario, fairly openly, without arguing against their consultant's responses had been discussed in class and while many students felt that it was their responsibility to tell their consultants what they were missing by not following the US line, this was not part of the activity. In fact we have found in the past that one of the lessons to be learned early in the course is not to make premature decisions or judgments. It is not clear in this exercise that the participants really were convinced that there are legitimate alternatives to a US-centered approach to these three topics.

In future offerings of this course it is probably likely that we will use the resources collected in this project as background material for a role playing exercise. Here, students having studied the US approach to one of the three topics and then reviewed the laws and culture of another country, will be expected to role play that country's response to a scenario. Having completed that exercise in class, a homework assignment similar that used in the project can then assist in expanding our resources.

While the concept of internationalism occurs in only one place in Curriculum 2001, it should not be overlooked. This presents an opportunity for molding student attitudes to resist xenophobia and to be tolerant of differing points of view both overseas and at home. Many of our graduates will eventually work in a foreign country; we need to prepare them to act responsibly and to respect the laws, customs, and cultural aspects of their hosts.

References:

The results of this project are to be found on-line at: <http://courses.cs.vt.edu/professionalism/international.html>

Steelman Draft, Curriculum 2001, 1 August 2001, <http://www.acm.org/sigcse/cc2001/steelman/>


Critical thinking Outline, <http://courses.cs.vt.edu/~cs3604/support/Debates/Table.html>

Netscape: Freedom of Speech - International Views

Location: <http://courses.cs.vt.edu/professionalism/Freedom.of.Speech/International.html>

RealPlayer

Freedom of Speech - International Views



Article 19. Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.

UNIVERSAL DECLARATION OF HUMAN RIGHTS, United Nations, December 10, 1948.

Abstract

As the world grows smaller both through the computer and by improved transportation methods, it is more than likely that students of computer science will find themselves in situation where the "US-centered" approach to "Freedom of Speech" is not necessarily the vogue of application.

Objectives

To study the different attitudes and approaches towards the concept of freedom of speech in different countries;
 To recognize that the US-centered view of freedom of speech is not necessarily that of other countries or professionals from those countries; and
 To be able to compromise between personal views and those of others in an international setting.

International Laws and Constitutions

[Law Sites](#)
[International Constitutional Law](#)

International Views

			
India	South Korea	People's Republic of China	Kuwait

Figure 1: Freedom of Speech International Views