Abstracts of the First INTERNATIONAL CONFERENCE of the AUSTRALIAN INSTITUTE OF COMPUTER ETHICS (AiCE)

ALE99050

The Commodification Of Academic Knowledge and The Internet

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The growth of the internet has opened up the possibility of a vastly increased flow of information around the globe. At the same time, universities, as 'knowledge mongers', have tended to see the internet as providing an enormously enlarged potential audience, to whom they can peddle their wares. There appear to be two conditions necessary for universities to be able to do so profitably: the transformation of traditional modes of teaching and learning, with the detachment of knowledge from the person of the teacher, and producing it in forms which are endlessly replicable; and the perpetuation and protection of traditional intellectual property rights such as copyright and patents. This paper considers what can be said for and against both of these conditions, and more generally the issue of information as a commodity, and considers possible alternative arrangments for the production and distribution of academic knowledge.

ANY99038

Virtual Community Virtual Ethics: Society on a Crossroad

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I would start by trying to look at computer technology from two perspectives: as a tool and as a community or an alternate society. Our inability to distinguish between these two sides to the technology has led to contradictions and/or confusion in our application of ethical and legal statutes. In Cyberspace: The Human Dimension, David Whittle started his Chapter Three with a quote by Hervey Allen (1889-1949) which says that "every new generation is a fresh invasion of savages". If we analyse this statement in the context of today's political correctness certain ethical issues may arise:

- the invasion of savages connotes a colonising power of one over another
- the term savages infers a mental superiority of one over another (savages in this context also transcend colonial stereotypes of East-West conflict and yet appropriates its semantic extensions into a modern technocratic society where a once modern civilised society is now defined by its definitional Otherness)

- the domination of the old by the new infers a Heraclitan flux or a radical change which we sometimes call 'progress'.

If we decide to invert Allen's statement to conform to today's political correctness it could read that 'every savage is a creation of a new invader'. By doing this we have violated the historical correctness of Allen's work in order to conform to the ideals of the present. The moral and ethical questions confronting us are, should we live with the mistakes of the past in order to maintain historical accuracy or do we have the right to change the constructs of the past with the ideals of the present? Under what conditions can we breach the ethical code of historical correctness in order to restore political correctness?

The technology of the Internet has created a new social sphere. We have embraced the new medium with open arms yet little other than procrastination has been made of the sociocultural effects of this "alternate world syndrome". Erick and Lynda Von Schweber in Hi-Tech Hate, Cyberville-Informaniac (Motion Picture, Channel 4) assert that technology is not being used to enhance an individual, but to break down the wall between an individual and enhance our status as colonial organism. In our bid to achieve the dynamic good we have neglected what can be seen as the static and finite good. Within our Cyborg enterprise we have hailed the enemy with one hand and chastised it with another. We lay off workers in the name of development but frown at pornography and piracy on the Internet. In 1997, the ANZ bank shed most of its customer service staff and diverted customers to use ATMs (Automatic Telemachines). Customers were forced to interact with machines. We saw no ethical or moral justification to question such changes but we question why families are breaking down and social relations are becoming trivialised. As an alternative we are greeted with television programs aimed at improving our relationship (Sex Life) and designer drugs aimed at enhancing our performance (Viagra).

Despite Descartes' scepticism noted in Anscombe and Geach, (1971: 41-44) machines have become more human while humans have become more mechanical. The danger according to Woolley (1992: 2) is that the perfection of the artificial over the natural leads to a neglect of the natural. Such a society finds it difficult to distinguish between reality and illusion. While we are busy humanising technology, technology is also busy mechanising us. This symbiosis of Cyborg hybridity has given birth to a radical society called virtual community. This community inhabits the computer network. It is a postmodern society, which sees the physical world as the world of savages (flesh eating bureaucrats). Inhabitants of this community despise the governance of the physical world. Nevertheless we still aim at controlling the activities of this virtual community in order to make them conform to our expectations of an ideal society.

Whittle thinks that the virtual community belongs to and is subject to physical laws and ethics hence his statement that "the emergence of new technologies in societies can force dynamic changes that culture, ethics, and law must accommodate - and that accommodation should be made without sacrificing static quality and good (1997:88)". What if the virtual communities do not want to be accommodated in this physical community? How can we apply a law or moral obligation of a culturally different community on another? This paper is aimed at arguing the following:

- that the virtual environment is a valid community with its own laws and ethical codes
- that our physical laws and ethical codes may bear no relevance to the members of that community
- that we have to define our territorial boundary between mundane ethical codes and virtual community ethics.

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ARD99058

The Uses of Casuistry: Ethical Decision Making

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Introduction

The word "casuistry" has almost come to suggest the abuse of reason in moral decision making: the using of the letter to subvert the spirit of moral or legal norms. But its true nature as "the method of object, end and circumstance" is not to be confused with such tactics. Pascal's blistering satirical attacks were properly directed at the abuse of casuistry, and doubtless these continue apace in tax avoidance schemes. But it is a mistake to discard the instrument because it can be abused.

Despite its near total displacement in the ethical literature by proposals involving universalisability (Kantian formalism), or consequentalism (Utilitarianism), Casuistry is a rational broadly teleological method of decision making which appeals to our intuitions about human wellbeing, invoking a handful of general principles like " do not harm others", "act justly' and the golden rule and capable of issuing in both defeasible specific precepts and particular prescriptions or judgments of conscience. It can morally grade both types (kinds) and tokens (instances) of action with different degrees of finality, generating judgments of different moral "species" or modality, from "X is ideal, praiseworthy, right, obligatory," through "X is alright and permissible," to "X is wrong, prohibited, or unspeakable." It has the added capacity to explicate the place of equity, excuses, and extenuation

The paper describes the basic four step process of Casuistry. It moves from location of the natural good/evil of abstractly characterised possible act-types, of which a token act is an instance to its eventual moral classification. Some of its its background presuppositions about wellbeing and practical reason as these emerge in some of its original ancient (Aristotle) and medieval Virtue Ethics settings (Aquinas); and their relation to recent writers like Kovesi are touched on.

BAR99049

How To Teach Computer Ethics

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The purpose of this paper is to suggest some ways to introduce the teaching of Ethics into the Computer Science Curriculum.

To assume efficacious results in integrating a computer ethics unit into a course, it is best to first establish instructional goals. These can range from very specific tangible objectives - for example, to inform students of the school's software copying policy or to relate them the consequences of illegal database entry into confidential computer files - to broad intangible goals, such as getting students to recognize that computer-using behaviors have an effect on others which can be beneficial or harmful, and to encourage them to establish criteria enabling them to distinguish among uses.

I should like to develop the following points: teaching objectives, content and methodology of computer ethics lectures, software piracy, privacy and computer monitoring, use of personal data, teaching strategies, movies and practical cases.

The need for teaching Ethics as an integral part of Computer Science is as strong today as ever. We need to assume the responsibility of becoming familiar with ethical theories and an appropriate framework within which to apply them. We need to transfer that knowledge to our students and point out issues in Computer Science in which ethical concerns arise. This is not to be done in a special Ethics course. We need to maintain the highest ethical standards in our computer course and in our personal lives. Only then can we hope to instill in our students an ability to recognize ethical issues and to make morally correct decisions.

BEH99032

The Use and Abuse of Ethics

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There is a revival of interest in corporate governance along with renewed calls for protection of privacy. Every respectable organisation now has a values statement, with truly excellent wordsmithing and indisputably worthy goals, framed to match the Mission statement and displayed in public. But, do corporate codes of conduct and excellent values statements translate into more ethical workplaces? When ethical codes and corporate success are apparently on a collision course, what are the odds that the dollars win out over the values?

Many ethics courses and books use scenarios that the average practitioner will rarely, probably never, find themselves part of - they look at the big issues in ethics. Yet, the daily working life of all practitioners is full of small incidents that appear so commonplace that ethical considerations are given scant, if any, attention. These issues also need to be discussed as part of a professional's preparation for the workplace.

This session will be group-based and interactive. You will play the role of members of an ethical taskforce. You will be given the background to each of the following three scenarios and be asked to recommend action. The scenarios will cover:

1. Use of an ethical code as a management tool

2. Commercial data trading organisation disguised as a public authority

3. Consulting organisations and commercial conflicts of interest.

BEN99027

Are Internet Political Votes Ethically Justifiable?

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Introduction

Going upon the upcoming Austrian national assembly elections, we conducted an empirical investigation/study. This had two parts. In the first part, a questionnaire was made available through the internet. The questionnaire was posted on several sites on the WWW, and listed in Austrian search engines. The questionnaire was also promoted through banner exchange. The process was therefore fully electronic, and the results were sent back to us at an anonymous email contact.

In the second part, a proportional spot check which showed the age and gender structure of the internet users was conducted. This survey was conducted in written form by means of a questionnaire, henceforth referred to as the ballot.

Our statistical analyses deal with the following questions, whether:

- the individual replies by internet and by ballot vary
- the determined differences can be accounted for by ethical reasons

Research design

Since we were required to utilize a brief questionnaire, we had only six questions. These dealt with the following questions

- demography (gender and age)
- main questions:

    1. Which party would you vote for if elections were to be held this Sunday?
    2. Please say, which federal councilor should head the government after the elections.

- Supplementary questions:

Whether the two opposition parties which always barely make it to the national assembly should participate this time too.

The internet survey was conducted in the period between September 3 1998 and January 3 1999. We had a respondent pool of 31 from this survey. Of the 31, we could only use 26 for our statistical

analysis, because replies to either age, gender or the main questions were not filled in. From November 3 1998 until December 3 1998, we carried out our representative survey according to the following guidelines:

Age distribution: Gender distribution:

Age in Year Percentage Gender Percentage

20 and below 9.7% Male 68%

21 to 40 55.0% Female 32%

41 and over 35.3%

The results were obtained from a telephone survey by the Essen Research Institute, through whom 2,600 households were surveyed in 1997.

The representative survey had a respondent pool of 50, all of who had replied in the affirmative to the question about internet usage.

Results

1. Through the Internet

   The gender distribution was 88% male and 12% female. The age distribution is as follows:

   Age in Year Percentage

   20 and below 3.8%

   21 to 40 80.8%

   41 and over 15.4%

   The overall results show the Greens and LIF leading with 27%, followed by FPÖ with 23%. Trailing behind are SPÖ (11%), ÖVP(7%) and other parties. No women chose the FPÖ or Jörg Haider (FPÖ) for federal councillor.

   In response to the question about councillor, a clear majority (42%) was for Viktor Klima (SPÖ). Green voters chose any person other than Madeleine Petrovic as their desired candidate. Jörg Haider (FPÖ), Heide Schmidt (LIF) and Wolfgang Schüssel (ÖVP) soon hang up one after the other. Interesting too is that Viktor Klima (SPÖ) garnered the majority of Green votes, which leaves it unclear as to whom the leading personality among the Greens is. All ÖVP voters voted Wolfgang Schüssel (ÖVP) for federal councillor too.

   In response to the two last questions, the respondents were greatly inclined to leave the two smallest parties in parliament out. This left the Greens and LIF standing almost on the same level of 80%.

2. By Ballot

   The overall results indicate a relative majority for the Greens (32%), followed by SPÖ (22%), ÖVP (18%), FPÖ (14%) and LIF (12%) and the other parties. Also striking is the fact that no

women chose the FPÖ or Jörg Haider (FPÖ) as federal councilor. However, he managed to receive 21 percent of the male vote, with his increasing acceptance among the older people.

In response to the question about councillor, a clear majority of 40% was for Viktor Klima (SPÖ). Green voters often chose other persons as their desired candidate instead of Madeleine Petrovic (The Greens). Jörg Haider (FPÖ) and Heide Schmidt (LIF) each received 14% of the vote. Striking is the low percentage (4%) for Wolfgang Schüssel (ÖVP), who was often even unable to convince ÖVP voters. Also, no woman wanted to see Wolfgang Schüssel (ÖVP) as the federal councillor.

In response to the two last questions, the respondents spoke mostly for the retention of the two smallest parties in parliament. The greatest approval was 86% for the Greens. LIF received a 74% approval.

3. Comparison

Through the internet, there was an overwhelming imbalance of men and the age group between 21 and 40 years. This can be traced back to the fact that many internet users often alter their identities, especially during personal surveys where the uninhibited alteration of age and gender is much more.

Great differences also occurred among the parties. Although the Greens were always in the lead, the bigger parties were beaten on the internet. This can be attributed to the almost revolutionary ideas of the internet. Many people are discontent with their present situation, and as internet voters, so are they protest voters. More so than with conventional methods.

BRA99017

Privacy Issues in Knowledge Discovery and Data Mining

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Recent developments in information technology have enabled collection and processing of vast amounts of personal data, such as criminal records, shopping habits, credit and medical history, and driving records. This information is undoubtedly very useful in many areas, including medical research, law enforcement and national security. However, there is an increasing public concern about the individuals' privacy. Privacy is commonly seen as the right of individuals to control information about themselves. We address some general privacy issues.

Secondary use of the personal information

Recent surveys on privacy show a great concern about the use of personal data for purposes other than the one for which data has been collected. In 1989, the Department of Motor Vehicles in California revised its policy about selling personal records after Robert Brado used their services to obtain the address of actress Rebecca Schaeffer and later killed her in her apartment.

Handling misinformation

Misinformation can cause serious and long-term damage, so individuals should be able challenge the correctness of data about themselves. For example, District Cablevision in Washington fired James Russell Wiggings, on the basis of information obtained from Equifax, Atlanta, about Wiggings' conviction for cocaine possession; the information was actually about James Ray Wiggings, and the case ended up in court.

Granulated access to personal information

The access to personal data should be on a need-to-know basis, and limited to relevant information only. For example, employers are obliged to perform a background check when hiring a worker but it is widely accepted that information about diet and exercise habits should not affect hiring decisions.

The above issues demonstrate that existing privacy laws and policies are well behind the developments in technology, and no longer offer adequate protection.

We discuss new privacy threats posed by Knowledge Discovery and Data Mining (KDDM), which includes massive data collection, data warehouses, statistical analysis and deductive learning techniques. KDDM uses vast amounts of data to generate hypotheses and discover general patterns. Beside the above issues, KDDM poses the following new challenges to privacy.

Stereotypes

General patterns may be used for guessing confidential properties. Also, they may lead to stereotypes and prejudices. If the patterns are based on properties such as race, sex or nationality, this issue can be very sensitive and controversial.

Guarding personal data from KDDM researchers

Researchers that apply KDDM tools to datasets containing personal information should not be given access to individual data. However, such a restricted access can make KDDM tasks very difficult, or even impossible. Thus an appropriate balance between a need for privacy and a need for knowledge discovery should be found.

Individuals from training sets

The classification task in KDDM takes as an input a set of cases and their classes (training set); the output is a classifier, that is, an operator which assigns classes to new, unclassified cases. For example, the cases may correspond to patients and classes to diagnoses. The classifiers are typically very accurate when applied to cases from the training set. Thus a classifier and knowledge that case A is in the training set reveals the class of case A. In this paper we argue that a classifier should be modified in such a way so as to have similar accuracy when applied to the cases from the training set, as when applied to the new cases.

Combination of patterns

Combining two or more general patterns may lead to a disclosure of individual information, either with certainty, or with a high probability.

The last three privacy threats listed above are the focus of this paper. We discuss the possible solutions and their impact on the quality of discovered patterns.

Integrating Ethics into the IT Curriculum:

Experiences with a Partly Online Database Course

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The teaching and learning environment of the modern university is undergoing a significant revolution with recent advances in telecommunications technology. Though the move to online education is widespread, it is arguably nowhere more important than in the area of IT education. Learning in the very environment they will create for others upon graduation can give IT students a better appreciation of the needs of the end user. In this instance students are themselves the end user, as clients of the university.

Most online learning takes place in a database context. The tracking of student performance utilises database technology. Automatic test bank generation of online assessment tasks is another example of database technology at work. Even the pervasive use of "cookies" used by virtually all online companies (educators included) is using database technology: in this case, through the capture of personal preferences. Thus online database students are in the unique position of learning online about the very tools they are employing in that learning process. It is then a unique means of imparting an appreciation of databases, a teaching and learning environment where the very tool of teaching is also a means by which the student can learn.

As part of the teaching of the technology, the authors believe that educators should also encourage students to assume social responsibility. At very least there is a need to make students aware of possible societal impacts of the technology. In database teaching at Swinburne University of Technology this has been incorporated into the very teaching of the subject itself.

In the past, ethical teaching, like educational support teaching, has been separated from mainstream IT education. But just as with educational support it was found to be most effective if incorporated into the curricula (Ramsden, 1992) and taught by the very academics who are involved with the rest of the curricula (Patterson, Burmeister & Evans, 1995), so too with ethics. Donald de Raadt (1997), whilst visiting Swinburne, encouraged in his seminars the incorporation of ethics into the curricula. At that time computer ethics was only taught as a separate subject. Frances and Stephen Gronzinsky (1998), who ran seminars at Swinburne, together with the work of Simpson & Burmeister, (1998) has given further impetus to the development of integrated ethical study.

The paper presents the case for the injection of ethics into a database subject, which has been partly delivered online. Particular issues explored with students include cross-matching, data integrity and database administration. For example, cross-matching various databases deals with the management of personal data without sacrificing an individual's right to privacy (Kusserov, 1998). It also raises issues of responsibility (Hart, 1998) who poses questions as to whether a database designer has at least a "vicarious responsibility" in the way in which cross-matched data is used. This concept is explored by students through grappling with the various issues of personal privacy involved with cross-matching of database information.

More than one third of the database subject under discussion is taught online and it is in this segment that these issues are discussed, in an electronic forum. This online part of the subject begins by drawing on a work of Frances Grodzinsky (1998) in which she raises some of the real concerns society has about database abuses. Some unmoderated student viewpoints are collected electronically from these discussions and the paper reports the trends evident in this pilot project.

BUR99019

No Title

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With the escalation of computer use throughout society, a whole new range of problems has been brought on through unethical and illegal use of the computer, including invasion of privacy, creation of computer viruses, software and intellectual theft, and hacking. With computer and Internet changes occurring and problems being identified on almost a daily basis, there seems to be a prevailing mood of uncertainty regarding how to respond and confusion in trying to apply current rules and standards to ever-changing, unique situations (Landon, 1995). For example, there is confusion regarding what can be legitimately copied from the Internet, since information is available through the public domain and there is ambiguity regarding what has been copywritten, since most of the laws do not yet pertain to the "liquid intangibles of the virtual world" (Barlow, 1995). Many adults vary in their responses to the ethical issues, often relying on either their personal values, or rules set forth by management (Kreie and Cronan, 1998).

These issues have also begun to appear in classrooms, as computers play an increasingly prominent role in children¹s education. Without clarification as to what the rules are regarding computer use, abuse of the technology, including acts of visiting sexually explicit web sites, plagiarism, theft, virus spreading, invasion of others¹ privacy, writing offensive material, or intentionally deleting other¹s files can occur (Resta, 1994). In an interview study, I examined how 48 children (24 boys and 24 girls) between the ages 8 and 11 years navigated the unchartered waters of ethical issues surrounding Internet and computer use by presenting them with scenarios followed by a number of open-ended questions to elicit in depth responses from the students. One scenario focussed on what the children felt were proper uses of the Internet, especially in relation to class rules. The second scenario focussed on the students¹ beliefs regarding copying off the Internet, along with their understandings of current copyright laws.

In my presentation, I plan to discuss specific trends of children's ethical reasoning regarding use of the computer. My results indicate that most of the children demonstrated a more mature sense of moral reasoning when responding to questions regarding their everyday lives than when dealing with issues involving the computer and Internet. While they would be able to demonstrate ethically responsible behavior in discussing everyday situations, many of the students gave ambivalent answers regarding their use of the Internet in the classroom. This was especially true in relation to copying from the computer and perusing Internet sites when the teacher was either not present or not paying attention. Many of the younger children relied upon authority of the teacher and school rules in responding to both the computer-related scenarios, while the older students demonstrated a more diverse range of moral reasoning. Older students often focussed on the computer as a learning rather than play tool in the classroom. Many of the children did not appear to have an understanding of copyright issues, while feeling more freedom in copying was acceptable in the digital domain. While a number of students were amenable to copying from the Internet, many were at the same time adverse to allowing others to copy their own material.

This study will better enable educators and others involved with computers to better understand the ethical attitudes and behavior of children in regards to computer and Internet use. The implications of

the study will be valuable in helping teachers set up training and intervention programs to enhance the moral understandings of their students in regards to computer use, as well as develop rules and policies regarding computer use in the classroom.

CHU99007

To Trade or Not to Trade?:

Thoughts on the Failed Smart Card Based National ID Initiative in Taiwan

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This paper gives an account of our 1998 campaign against the smart card based national ID system project in Taiwan. It elaborates how this kind of projects should be examined and why they have been particularly favored by Asian governments. Several East Asian countries, including Japan, Korean, and Taiwan, have the long tradition of a "resident administration system" maintained by the government to keep track of their peoples' movement and household information. Such a system is avidly kept current by the government. Furthermore, a national ID system has already been in place for several decades. For the past few years, we have witnessed plans initiated to implement full scale smart card based national ID schemes in at least three Asian countries: Korea, Malaysia, and Taiwan. All the three plans have either been put on hold or cancelled. For example, as the Taiwanese plan experience has shown us, a public request for proposals was announced in June 1998, four proposals had been submitted, and one was selected in August to negotiate a contract with the government. It turned out that the deal broke down in late November 1998 amid public protest.

As originally planned, the project, under a governmental contract, was to be led by a consortium joined by private sector enterprises. The Taiwanese government proposed a smart card based "citizen card" plan aiming at the combination of the current national ID and the health insurance card, among other personal data. It has not been clear yet whether the plan will be revitalized. However, some fundamental questions are interesting enough to be answered in the electronic commerce age.

A similar plan was launched in Iceland last year. Both governments do not have to bear the costs of creating the system and its operation. The building and maintaining of the system would be undertaken by the commercial consortium in exchange for exclusive rights of operating the system and the provision of value-added service based on the system. The nature of value-added service would be agreed upon between the government and the consortium: It would be smart card based electronic commerce for the Taiwanese case, and database-derived medical research for the Icelandic case. However, in either case, the exact scope of the license is not clearly specified. In addition, both plans involve commercial uses of personal data that are originally collected and controlled by the public sectors. When compared to the cost of collecting personal data all by themselves, it is much more efficient and effective if commercial companies can gain access to the government's comprehensive database through governmental contracts. Although both the Taiwanese and Icelandic plans have emphasized the necessary computer security mechanism to avoid the abuse of personal data, they still received public criticism for violation of personal privacy and raised the issues of fair competition.

Based upon our experiences of arguing against the smart card based national ID system and the Icelandic one as a comparison, this paper attempts to explore why these Asian governments would choose this bold approach, which has never really been adopted in any other industrialized countries, of creating electronic governments which are expected to improve public services and vitalize smart card industries. We have long wondered whether using smart cards as national ID cards is a solution looking for a problem. We would try to answer this fundamental question for the changing information society and further explore possible alternatives for Asian countries to achieve the above purposes without creating new privacy crises. It also seeks to answer whether this phenomenon is connected to the Asian cultural tradition in which the idea of privacy almost has no role to play at all, or it is solely connected to the hype of information technology, especially the Asian governments' eager to transform themselves into a truly modernized ones. In a word, we hope this paper will help us, as citizens of the global information society, better understand the ethical issues raised by the escalating electronic commerce.

ARM99031

The Relationship between ethical climates and ethical behaviours in organisations

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Ethical climates are a new dimension of business ethics research. Ethical climates are the stable, psychologically meaningful, shared perceptions that employees hold concerning ethical procedures and policies existing in their organisations. Studies into ethical climate suggest that different climates can explain different approaches to decisions making. For example, organisations characterised by either a utilitarian approach (benevolence or caring) or a deontological approach (rules) are more likely to act ethically than an organisation dominated by the ethical construct of egoism. Although there has been considerable research into ethical climates, few have explored the relationship between ethical climates and unethical behaviour by employees towards their own company. The present study sought to determine whether the different ethical climates within business organisation were related to instances of unethical behaviour, illustrated by the reported instances of fraud This information would be useful to organisations that seek to encourage the types of climates, and the moderating factors, that reduce instances of fraud within organisations. The paper describes a survey of three business organisations. In identifying the different types of ethical climates, the study replicated Victor and Cullen’s (1987) research in an Australian context.

COC99053

Friendship and the Net

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It has become quite common for people to develop 'personal' relationships nowadays, exclusively via extensive correspondence in the virtual reality world of the Net. Friendships, even romantic love relationships, are apparently, flourishing. But what kind of relationships really are possible in this way? In this paper, we focus on the case of close friendship. There are various important markers that identify a relationship as one of close friendship. One will have, for instance, strong affection for the other, a disposition to act for their well-being and a desire for shared experiences. Now obviously, while all these features of friendship can gain some expression through extensive correspondence on the Net, such expression is necessarily limited -you cannot, e.g., physically embrace the other, or go on a picnic together. The issue we want to address here however, is whether there might be distinctive and important influences on the structure of interaction undertaken on the Net, that affect the kind of identity 'Net-friends' can develop in relation to one another. In the normal case, one develops a close friendship, and in doing so, one's identity, in part, is shaped by the friendship. To some extent, through extensive shared experience, one comes to see aspects of the world (and of oneself) through the eyes of one's friend and so, in part, one's identity develops in an importantly relational way, i.e., as the product of one's relation with the close friend. Is there, however, on account of the limits of, and/or the kind of, shared contact and experience one can have with another via correspondence on the Net, any distinctive and significant barriers to developing the sort of relational identity that seems a feature of the nature of close friendships?

DOW99015

The manners that maketh man:

Public and private discourse within electronic environments

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The fact that people frequently express themselves 'differently' when interacting electronically is no secret. Reports abound of extreme levels of verbal abuse or 'flaming', of normally quiet and retiring individuals pouring out their hearts online to relative strangers, or of people deliberately adopting personalities far removed from their usual identities and expressing themselves accordingly. The causes of these digressions from customary verbal behaviour are complex, but research suggests that they lie in part in certain intrinsic qualities of computer mediated writing which tend to disrupt the coherence and integrity of the writing persona, and also in the apparently simple fact that the writer is not communicating in a face to face situation.

In face to face situations a multitude of cues and constraints determine the manner in which we speak to one another. These may include the nature of the space in which the interaction takes place, the perceived status or role of the each participant relative to one another, physical appearance including age and gender, the manner of dress and speech of each individual and so on. Within electronic environments, few of these indicators apply. While in one sense we might welcome the liberating and democratising aspects of this situation, there is also some cause for concern in relation both to one's close personal relationships and to the maintenance of that complex network of less intense but

nonetheless important relationships within the community and the workplace which do much to ensure the stability of the 'social fabric' of society.

Reports of the implementation of the Minitel electronic mail system in France in the 1980s, for instance, contain some heartfelt complaints of the disruption afforded to a hitherto rigid social system by the newfound capacity for communication across different strata of society. At around the same time, research undertaken within large organisations which were early adopters of this technology suggests that in some cases the processes of corporate decision making were altered by those qualities of electronically mediated communication which blurred the usual hierarchical distinctions between participants.

An environment of increasing interest today is that of the electronic classroom. Educational institutions for the most part provide a fine example of hierarchical modes of communication. Within the traditional lecture theatre or classroom, for instance, the respective roles of teacher and student have clearly understood implications for the way in which participants address one another. At another level, the perceived attributes of the students within any group soon determine who speaks to whom, whose opinions are valued and so on. These factors are less evident in electronic environments, and the diminution of their influence on the social relationships that mediate formal learning needs to be considered as part of the process of designing online courses.

With an increasing number of our work and leisure related interactions taking place online, the need to gain a better understanding of the vagaries of etiquette or 'manners' in cyberspace becomes more obvious and more urgent as we seek new definitions of seemly and unseemly verbal behaviour within electronic contexts.

DUM99059

Taking Responsibility for Internet Content

(A report of work in progress)

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In 1996 the World Wide Web Consortium released a specification to standardize content rating systems and descriptions based on those systems. This specification was known as PICS or the Platform for Internet Content Selection. PICS is not a rating system, but a formality among objects that interpret descriptions. The Internet Online Summit held in 1998 in the USA defined problems associated with the use of the Internet, in particular the labeling of material. Currently no authoring tools exist to incorporate labels, content description or to facilitate the process of labeling.

This research aims to develop a mechanism to implement content description within HTML documents thereby empowering users to make informed choices regarding internet access. This research is based on the belief that every person has a right to know what content is before one is exposed to that content. This research will develop software that will permit labeling of Web material. This research compliments current technologies, which filter web content in a web browser. These technologies include Microsoft Internet Explorer 3.0 and Netscape Navigator 4.06.

FIE99026

Starting Right: Ethical Education for Information Systems Developers

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Teaching ethical practice in information systems development is a multi-faceted and complex process requiring clear direction, exemplary role-modeling and 'live' systems development. A shift in emphasis to balance a techno-centred approach with a people-oriented approach to information systems development in which interpersonal relations, business transactions, and, collaboration rather than competition has, at its core the many dimensions of ethics.

Baase(1997:332) has described computer as "professional ethics similar to medical, legal and accounting ethics". Baase also describes computer ethics as ethical issues faced by a computer professional as part of the job. While codes of ethics and professional practice have been formulated (IEEE-CS/ACM Joint Task Force on Software Engineering Ethics and Professional Practice,1998) little is espoused directly in the Information Systems literature on the adherence of computer ethics (Cassidy,1998, . . .) rather, it is implied in the way in which strategic directions for information systems development should be aligned with core business strategy. Nicholson(1994) has proposed a four-level framework for conceptualising ethical behaviour within an organisational context.

In this paper Nicholson's(1994) conceptual framework has been applied to acquiring knowledge about professional ethics in information systems development by final-year undergraduate students in a year-long information systems development project. Ethical dilemmas are explored showing how knowledge in this area is acquired, shared and integrated from one year to the next and within any one year of study. A longitudinal study carried out over 10 years in which feedback from students has been obtained at the end of each year suggests that:

1. developing a greater flexibility in thinking styles to include knowledge about ethical issues is a necessary skill for information systems professionals moving into a rapidly changing technical and social working world;
2. a more balanced and mature view of the role of an information systems professional is provided when the appropriate knowledge and skills to deal with ethical issues are acquired along with technical expertise;
3. a deeper understanding of self and others in complex human activity systems occurs;
4. people are placed at the centre of information systems development rather than technology; and
5. a diverse set of professional skills are provided which form the basis of a continuing education, knowledge and wisdom in dealing with ethical dilemmas in a technically-driven world.

A major challenge in raising the level of awareness about professional ethics is in encouraging students to make the upwards shift from only learning and applying technical skills to integrating these technical skills with knowledge about the larger social system in which the technology is being introduced.

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GAM99018

Unethical motives and the management of knowledge

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In this paper we address the issue of how unconsidered information systems developments can contribute to an abuse of human potential and birthright. We draw on insights from systems theory, and political analyses to suggest that the level of analysis for detailing codes of IS ethics is inappropriate, and that a view reflecting a greater consciousness is required to ensure real social responsibility. Our own ethical position is indicated against this, and the burgeoning field of knowledge management is identified as a exemplary motif to highlight the morbid directions we perceive in contemporary IS developments. We go on to suggest that a reconceptualisation of knowledge, and the role of knowledgeable humans is required for IS education and truly ethical practice.

Surveying the codes of ethics for various professional bodies in engineering and computer science indicates a worthy set of values with which surely few individuals would disagree. Taking the ACM professional code as typical (ACM 1992) , the general obligations stress personal integrity and respect for others, including applicable laws. Implicit in such codes are personally identified activities, and a recognition of the impact of information systems on quality of life. These however reflect a localised awareness of the potential impacts of a system development, and seem at odds with the potential of many information systems to be put to purposes other than those intended originally. "If I had known I would have become a watchmaker" was Einstein's rueful reflection on work that led to the atomic bomb - and parallels with the use of recorded data for unforeseen purposes are many.

Examples include the use of Icelandic medical records in genetic research (ref); the detailed insights into personal reading habits and potentially related direct marketing available to amazon.com, and the Safeway club in the USA which gives a discount to those shoppers prepared to have their shopping habits tracked. No law prevents sharing or selling these files, and such information has been subpoenaed by law enforcement bodies. Establishing if a suspected drug dealer has bought an abnormal amount of plastic bags for example, can, with other information snippets, create

evidence for these agencies (ref). These merely highlight the uses to which information systems may be put contrary to the original designer's understanding of the privacy levels involved, and it is certainly questionable as to whether targeted junk mail enhances the quality of life for most.

More than this however, systems theory tells us that emergent properties arise from the interactions of components at a lower level of a system, and these, not being located in any subcomponent, can take on a life of their own. These larger systems can then interact with other existing systems, to become established as viable entities. Other systems may then configure themselves around the new entity, possibly leading to a dependency. Kling's analysis of the car computer analogy is exemplary

here. To recap, a car, considered as an elite system for enhanced personal transportation is emerged from the engineered components of wheels, engine etc. Properties such as social cachet, convenience etc which are desirable to purchasers are now established, and an industry develops, road systems and town planning is organised around the existence of cars, and a dependency on them becomes established, and self perpetuating as many Australian and other cities can testify. Quality of life again is conditioned by such systems. These consequences were not, and perhaps could never have been foreseen by early engineers. Complexity theory, such as the component theory of George Kampis (ref) gives a formal and profound analysis of how such systems occur, and how this is a source of spontaneous creativity in the universe. To the extent that such systems are morally indifferent and indeed literally inhuman, there is no requirement for them to obey any ethical codes other than those afforded by their limitations and the human adoption of such systems.

The larger point is that we are currently witnessing huge, inertial and unmanageable systems closely interacting and doing so in a manner beyond easy (and perhaps any) intervention on a global scale. Debord (1967) in a brilliant analysis predicted this, detailing the workings and character of this phenomenon, which he called the Integrated Spectacle. Debord's original prose is limpid, and paraphrasing seems an injustice, but essentially the Spectacle refers to the economic and political production systems which consume human labour and creativity, and distract with a bewildering variety of consumer options for the so-called leisure time. The Integrated Spectacle is where this joins forces with the systems of technologies and the convergence of these huge systems works to contain human existence and activity within its mechanistic and a-moral motive of self perpetuation. Activity, or oppositions of any sort within the system are irrelevant to it, since it hosts and survives these – being indifferent. Only a wholesale rejection of this false reality can work, which implies an acceptance of a true reality beyond any of the Spectacular forms. We contend that Information systems are caught up in the service of the Spectacle, supporting the preservation of the Integrated Spectacle, and although within that, judgements of locally good or locally bad outcomes can be made for any particular development, in the larger view the quality of human life is significantly compromised.

In the rest of the paper we go on to discuss the activities of knowledge management, and suggest that human creativity, (which can never be fully automated) is being mastered by the indifferent machine of the Integrated Spectacle. A reading of the trends in IS development suggests an increasing appropriation of essential humanity into amoral service, in which humans are conceived as objects in a larger machine, and their working life designed for accordingly. A reconsideration of knowledge, and the information systems that attempt to deal in it from the ethical viewpoint of a human being as an end rather than a means is offered.

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ACM 1992 http://www.acm.org/constitution/code.html#CONTENTS

GOU99003

Maintaining Trust in Computer-Mediated Communities: Some Reflections

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Trust is an essential substrate of social activity, and linked with the sustenance of most other ethical values. Trust among people, the linked capacities to trust and be trustworthy, is an important but underrated substrate to all social comportment. Moral theorists have paid relatively little attention to the nature of trusting relationships, with greater attention being given to contractual relationships. Whilst contractual agreement based upon rational self interest is an appropriate model for the public and commercial worlds, other communities can be better understood as based on trusting relationships where cooperation rather than self interest is the unifying factor. This paper will explore the nature of trust in on-line communities.

Perhaps the most thorough exploration of the nature of trust in recent philosophical literature is that of Baier (*Moral Prejudices*). Her model of trusting relationships is one where person A entrusts person B with care for valued thing X, where B has some discretionary power in the care of X. She notes that in contrast to contract, trust can occur between strangers as well as those who are known to us. The creation of a suitable climate of trust, based upon awareness of what is customary and past experience, will affect the willingness to trust.

In the context of computer-mediated communication (or CMC), the issue of trust has a particular sharpness. Limitation of interaction to textual exchanges, and, in some cases, no prior knowledge whatsoever of others' lives, add extra variables to the simple question "can I trust this person" or "can I entrust my X to this person?" In some cases we have no way of knowing with whom we are speaking. Corporeal absence, the infamous ease of impersonation in text, and the lack of any social web of relations by reference to which we can come to understand the character and temperament of another person, or even be assured of their identity, conspire to endanger our easy judgements of whether and with what to trust others.

In other cases we may know another person or people quite well, but find ourselves grappling when we come to express ourselves to them in print. The difficulty of writing one's thoughts down should give most of us pause before we assert that writing to someone is exactly like speaking with them at a distance. That our gestures usually complement and elaborate the force of what we are saying in conversation, but are absent in all sorts of text, should give us further pause. The importance of the human face, of comportment, pace and expression, as indicators of character, can be taken to illustrate that the grounds on which we trust others in CMC will be rather different from those we use in social interactions more generally. In the quasi-institutional settings of the electronic classroom or the academic discussion group, for example, the first of these problems is eased, but the second is not. In the less "grounded" context of an interest-based world-wide discussion group with no obvious connections to social institutions, both problems flare.

Baiers' account of trust treats trust as a positive version of reliance. This positiveness is essential to the differentiation of trust from reliance. When I trust someone I grant them discretion to act in my interest, where I believe well that they will do so. If I merely rely on someone, I do not trust them to act in my interest, but reckon on them acting in a certain way. The difference between trust and reliance is captured in Baier's expressibility thesis of trust. "Trust is morally bad to the extent that either party relies on qualities in the other which would be weakened by the knowledge that the other relies on them." We face, not the personal danger of "getting found out", but the ethical problems of replacement of trust by reliance in particular relations, of trusting inappropriately, and the broader risk of institutionalised distrust as a way of life. This paper will analyse several cases of on line trusting relationships in an attempt to meet the challenge of finding the institutional conditions that can lead to the establishment and maintenance of trust.

HAR99033

Ethics, Economics and IT

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Central to this conference's topic is the question of technological determination: that is, should the availability of technology determine the type of society we have? Or should technology have to fit in with the type of society we want? Some would say that I.T. is determining the character of modern society, and that it ought to be the other way round.

Note however that most economists do not share this concern. They believe in the theory of consumer sovereignty, which is that we buy and use only what we want. We must want I.T. with all its consequences, otherwise we would not buy it. Clearly, there are some flaws in this theory. (For example what if you have no choice: your business will go broke if you do not introduce I.T.) But what is perhaps of even more interest is the role of the economics discipline in legitimising not only I.T. but modern business and for that matter global capitalism.

In the teaching of economics, capitalism is usually accepted as a given. While this is, of course, realistic and pragmatic, it also stifles and limits learning. It is unlikely students will discover how society can be improved if they are not taught that it needs improving. Students are not told for example that Britain's richest ten people have as much wealth as 23 poor countries with over 174 million people. In deed, typically, income distribution is not part of the syllabus: just production, profit maximisation, and how to keep capitalism stable. Students are not told that half the world's forests have been destroyed since 1950, or that the world is warming and what the consequences might be.

Economists usually argue that if they were to teach what is right and wrong with capitalism or make comparisons with other systems, this would involve making judgements which would draw values, morals and politics into an otherwise objective, neutral discipline. They want it to remain a value-free social science.

In this paper, I will show that economics is already value laden, subjective and politically right wing. For example, capitalist economics is based on markets, which ration production to those who can afford it and exclude those who cannot. (The poorest 20% of the world's population receive about 1.4% of the world's income, while the richest fifth enjoys 85%.) Is this not a moral issue?

Business is a major user of I.T. Many future business leaders are currently undertaking Bachelor of Business and Bachelor of Economics degrees and post-graduate degrees like MBAs. Unless we change the content of those degrees, these students will probably emerge as right wing, conservative technological determinists, ready to accept the world as it is and give us more of the same: more environmental destruction, inequality and commodity fetishism. They are unlikely to have formally contemplated any of the social consequences of I.T. nor of capitalism. They won't even know that there are questions to be asked.

At the least a very different economics needs to be taught to business and I.T. students and perhaps an environmental and ethics unit also.

HAR99039

Socrates in cyberspace: Current issues in teaching ethics on line

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Callahan (1980) defined a goals regime for the teaching of ethics which has been widely accepted and adopted (Loeb 1988, Preston 1992, McDonald 1995, and Leung et al 1992). Those goals were:

- Stimulating moral imagination
- Recognising ethical issues
- Eliciting a sense of moral obligation
- Developing analytical reasoning skills
- Tolerating and reducing disagreement and ambiguity.

Using the traditional Socratic approach to learning as the benchmark, this paper seeks to explore five issues which may inhibit the development of both ethical awareness and moral formation in an online learning context. The issues are:

- Can some approaches to ethics be taught more effectively online that others?
- The three theories most frequently taught in ethics courses are deontology, consequentialism and virtue. Does the online learning environment more easily accommodate the teaching for example, of deontology, as against virtue ethics?
- Does online learning limit choice?

The traditional Socratic approach to learning is about clarifying values and making choices. Given that the essence of ethics as a normative science is also about making choices, particularly choices about what ought to be done, as reflects the normative character of ethics, does computer aided learning actually restrict choice? Staples (1998) for example, has argued that there is an illusion of choice in computer-aided learning.

Does online learning adequately account for gender differences in ethical understanding?

Hepburn (1993) argues that men and women approach ethical understanding differently, especially where the application of technology raised ethical issues. What are the implications of a feminist approach to ethics for online teaching of ethics?

At the current stage of technological development, can the totality of the human communication process be realized in an online learning environment?

This issue extends Hepburn's point about gender differences in ethical understanding to encompass the totality of the human communication process. How are the nuances of human communication: of gesture, expression, intonation and posture which are so much a part of the process of Socratic dialogue, captured in an online learning context? Given that acquiring ethical awareness and the process of ethical formation is about values clarification, to ignore such components is to be left with a text-based reductionism in the human process of communication and interaction.

How can online learning cope with the process of moral formation?

The Socratic mode of learning is also concerned with moral formation as much as ethical awareness, as is Callahan's goals regime. With an increasing amount of professional education, and in particular continuing professional education, being undertaken by flexible learning methods which include on-line learning, how can questions of formation be adequately dealt with? Can the knowledge, attitudes and skills acquired in the virtual world be translated to the actual world?

In conclusion, what hope does the future shape of technology hold for addressing these issues?

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JEF99045

Using email in educational research - ethical issues

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This paper will discuss the conduct of a piece of educational research conducted in the second half of 1998 at Swinburne University of Technology - Lilydale Campus with particular reference to the ethical issues raised by use of email in data collection and all communications with students and staff involved in the study. The author sought approval for the project from the University Research Ethics Committee [of which he is a member] and then surveyed students regarding their attitudes to learning materials authored by academic colleagues and published by the unit managed by the researcher. At the same time the researcher was engaged in a pilot project in which a daily email message was sent to all the students enrolled at Lilydale. Student and staff behaviour resulting from these activities will be discussed with particular reference to ethical issues.

JOH99029 (revised)

Computers and Human Rights:
Toward a UN code of computer ethics

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Information technology disseminates the full range of human thought, helpful and harmful, and speeds the evolution of the world culture out of our various subcultures. The Internet is global – and manageable, if at all, only by global laws. UN Resolutions describe the human ethic and political priorities. UN law on information is thin, but growing; it needs input from computer ethicists.

US hyperbole on civil rights is a virus. But *human* rights enjoy the authority of natural law. This paper considers the rights to free speech, privacy, reputation, and development, and recommends both a world society and a UN code of computer ethics. Computer workers are not yet a profession – with a code of ethics which bites.

The Internet invites a review of legal paradigms on libel. Detractors may have little money or restraint. But victims have redress also against those who recklessly publish defamation; and that stops much libel at its source. Internet Service Providers are not publishers, but innocent carriers like postal and phone services. One is liable for the torts of a servant or agent, but not for those of a client. Justice as between ISP and user would exonerate the ISP.

However, ISPs may still have an ethical duty to set and to police standards for their clients, and to compensate victims of offences committed through their service. Would such non-fault liability spur both editorial and offender-tracing safeguards? Or would the costs of such insurance stifle IT development and disadvantage poor users?

Demoralised moralists conceived The Fall of Man, and may cause The Fall of the Computer; but a UN code of ethics will lift the industry's behaviour and standing.

ARM99030

The Relationship between ethical climates and the quality of working life

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Recent theoretical and empirical developments in the area of organisational climate have shown ethical climate is a multidimensional construct which has been linked to various forms of organisational behaviours. Ethical climates are the stable, psychologically meaningful, shared perceptions that employees hold concerning ethical procedures and policies existing in their organisations. Studies into ethical climate suggest that different climates may be related to various forms of individual behaviour and organisation performance. This paper reports the result of a survey

of academic staff within Victoria University. The study sought to determine whether different ethical climates exist within one organisation and whether the different climates were related to the quality of working life of academic staff. This information would be useful to organisations that seek to encourage the types of climates, and the moderating factors, that enhance the quality of life of their staff. In identifying different types of ethical climates, the study replicated Victor and Cullen's (1987) research in an Australian context.

LAN99002

The Ethics of Legal Expert Systems

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Imagine a society which has a problem with its legal system: the dual problem of cost and delay. The Family Court is the largest and busiest jurisdiction in the country. This court is different because it hears cases between private individuals unlike other courts where the State versus an individual or company. The issue is brought before the Attorney General. All the courts are slow and clogged with cases. The budget of Legal Aid has been overspent leaving many litigants with their cases incomplete. Many litigants abandon their case. Others are forced or choose to continue by representing themselves. The decision made by the latter group impacts on the courts slowing the process, causing further delay and increasing costs.

The Attorney General is presented with a proposal claiming to address the problem. The proposal involves the building of a legal expert system and the setting up of computer terminals in the forecourts of all courts. The public will have twenty-four hour access to these terminals and they will be updated constantly, resulting in free advice available to all litigants. Further, it is estimated that using this expert system, five percent of the current cases could be settled without recourse to the court.

The support for this legal expert system depends on a large data base of cases. There are cost constraints on the task of coding information, so it is being undertaken by undergraduate law students. Clearly their expertise cannot compare with that of a judge or senior counsel but they have the all studied the area of law in which they are coding. A difficult case arises which does not fit any of the coding categories. The law student makes a decision which ensures coding consistency. Similar cases follow so this decision is repeated.

Computing has begun to automate many areas previously subject to transparent and personal interchange. Aspects of law are becoming subject to automated expert systems or other advice giving systems. Offering such systems raises some difficult questions of ethics. Is it ethical to attempt to code and rate judicial decisions so that they can be entered into the data base of legal expert systems? Is it ethical to imply that the advice given by a legal expert system is the most current and pertinent interpretation? Is it ethical to attempt to equate the expertise of judges and senior counsel with law students/

What are the ethical issues for programmers, for accurate data entry, clear and legally reliable interpretations and appropriate updating. The more difficult the area is where interpretation is frequently sought as well as a delineation of the most appropriate legal rule for the case. Much of

legal practice rests on this area, and the intrusion of automated systems into law has greatest ethical and practical impact in such cases where interpretation is essential.

The present paper explores some of these distinctions, and the ethical problems that can arise from advice giving systems, with special reference to family law, a popular area for legal expert system building work.

LAN99028

The introduction of computers into the workplace -An Australian Case Study

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With enormous pressure being placed on industry and services across Australia for increased productivity, the decision-makers of these organisations are looking for solutions from resource management technology available within the computer industry. Australia is experiencing the privatisation or corporatisation of organisations and government departments. This is evident in the power industry, a market that is becoming highly contestable, which government previously regulated.

As a result, the power industry has investigated ways to become more customer focused and increase productivity. A case at point, Energy Australia has reviewed its work practices and the inefficiencies in the manner in which its services are delivered.

The main area of low productivity is the despatching of the work tasks to the field operators, which has been a manual system for many years. A decision has now been made to use computer aided despatch to perform this task. As a result, it is envisaged the timesaving achieved will pay for the system implementation, increase the productivity and improve customer service.

The computer system selected by Energy Australia is the Rapid Response Customer Service System with the use of mobile data terminals for the field staff. It is anticipated that the system will be of benefit in at least two aspects, which are:

- Reduced wasted time in travel from the completed job back to the depot to collect the next task and respond.
- The field operator will be able to complete the paper work on a Mobile Computer Terminal and send the job details back via the Data Network.

This will greatly change the work practices of both the field operators and the administration staff and their social interaction.

One of the major hurdles will be the use of computers by people who have never used any form of high technology.

This paper investigates the effect of the introduction of the Computer Aided Despatch system into the workplace of Energy Australia. By researching the possible effects from both the Field Officer's and

the Employer's perspective, any problems and social effects that computers bring with the introduction of information technology into the workplace will highlighted. Examples of the (possible) problems and social effect are:

- Adults of all educational levels learning new skills and technology
- The fear that if we become more efficient, are our jobs safe?
- The social contact no longer exists (no face to face contact)
- Work level monitoring and surveillance
- Will this actually help the customer?

This paper also discusses possible remedies to these problems and social issues to ensure that the process of change is acceptable to the staff, the employer / management and to the industry customer.

The solutions to the problems and social effects can be managed to ensure a satisfactory outcome to all concerned if the introduction of the new technology includes steps to cater for all the problems found during the specification stage of implementation.

The research on this project has been extensive from the time the contracts were signed to implementation of the system. The research has involved workshops, working in the workplace with the future users of the system and meetings with the management groups.

LEN99048

Will there ever be a universal code of computer ethics?

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According to the controversial principle of linguistic relativity - also known as the Sapir-Whorf hypothesis - natural language influences human thought (Whorf, 1956). Most of the computer code implemented in the world today is written in various dialects of programming languages that are in fact highly restricted forms of English. If one subscribes to the theory of linguistic relativity then computer languages could also be considered capable of influencing human thought, especially in terms of cognitive ergonomics. These computer languages exist within their own idiosyncratic hi-tech cultural milieus. Such competing "technocultures" could also bias thinking in a particular direction. Cultural, as opposed to linguistic, relativity is possibly at work in such a scenario. In one sense, the rampant progress of information technology at a global level is a case of cultural imperialism, imposing Western ideas on the masses. Prior to the advent of Unicode, one could have even adopted the extreme position that information technology was an innately racist discipline, shackled as it was to the limitations of the Western-oriented ASCII code!

If the concept of cultural relativity is a force to be reckoned with in hi-tech cultures then it could also play a role in the development of any code of ethics to regulate practice. In an example from anthropology, Headland(1996) is of the opinion that it may be impossible for academics with a belief in cultural relativity to find a moral anchor for promoting social justice. In other words, scholars whose naturalistic worldviews espouse cultural diversity in effect denounce the near global encroachment of

Western moral and cultural imperialism but in doing so could inadvertently sabotage the quest for a universal set of human rights.

Wright(1994) asks the daunting questions: "If morality is grounded in human biology, how can moral codes differ so widely? Do Arabs and Africans and Englishmen have different "morality genes"?" The new discipline of evolutionary psychology is one discipline attempting to reconcile the cultural diversity in belief systems that create a plethora of moral codes. This paper will outline the dilemma of creating any potential cross-cultural code of computer ethics, reviewing the complex interplay of linguistic and cultural factors as well as other philosophical implications in the debate (such as the role, if any, of Social Darwinism).

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LIN99041

Ethical Values in Internet Commerce - A Business Process Model

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There are many advantages with internet commerce: marketing and commerce are accepted on internet, better customer service, low costs, simple technique, simple and fast updating of products and prices, global exposure, simple search, possibilities for competitor research, easy to test new products, etc. We have now reached a critical mass of buyers and sellers that will make electronic commerce on internet a part of everyday life and many companies have entered or will enter, out of necessity or because of new business ideas, internet commerce to earn profit.

No company will survive in the long run without a reasonable profit. That profit is generated through business processes which are value added processes. The customers are supposed to pay for the added value created by the business process. The total quality that the customer will value consists of the factors right product, right features, right time, right price, right support and personal experience. This paper presents a model that shows how ethical values as part of the customer's personal experience can be included in a business process. The model also evaluates the actions taken to preserve these values. There is also a discussion about the possibilities to make these values important enough for the customer to pay for.

In a business process good communication can create a good relation to the customer. Meaningful communication means that the sender and the receiver must share a mutual opinion of what the message means and be aware of under what conditions the message is valid. Using a new communication channel such as internet means that the vendor must consider the strategic

communication so that he observes his duty never to deceive the buyer, always to give a correct impression of the product and not manipulate the buyer.

Internet commerce will create some ethical problems to be considered by involved parties. The ethical problems found in this paper can be classified into the following categories: social pollution, personal integrity and security. The discussion is built on arguments mainly a deontological point of view. In the category social pollution problems which could influence our social environment are identified. The global exposure means that parts of the distribution chain can be run over and vendors in countries with low costs can take advantage of their situation. Unemployment could be a result and the service to customers in some areas could be endangered. The industrial society also has a special responsibility to consider the effects of internet commerce for the third world countries.

Personal integrity deals with problems related to the fact that it is easy to obtain information about how a surfer behaves on internet together with personal information. Sometimes the surfer is aware of the fact that the information is collected, sometimes he is not. Some customers can therefore be hesitant to use internet for commerce.

Security problems will arise when unauthorized access to the content of internet communication may occur. That could be customer orders or economical transactions. The paper describes SET (Secure Electronic Transaction) as one possible technique to solve that problem.

The problems concerning personal integrity and security must be solved for internet commerce to work in the long run. People will not feel secure in their purchase situation with such problems present. Social pollution influences our social environment in the same way as physical pollution influences our physical environment. This paper also presents arguments for companies to avoid unwanted social pollution caused by internet commerce.

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MCK99037

Child Safety on the Internet: The duty of care of schools in Victoria

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Child safety is the concern of all parents, teachers and care givers. Technological innovations such as the Internet have extended the boundaries and horizons to which guardians must look to prevent physical and mental harm. Modern schools present a unique environment for both criminal opportunities and crime control.

In Victoria in 1998, 91% of schools were connected to the Internet according to the Victorian state government. It is aimed that all schools, teachers and students will become regular users of online information technologies by 2001. Information technology provides obvious benefits to student learning - access to information, resources, and opportunities for global communication and collaborative study. What have been some of the unintended consequences of introducing tools such as student email, web publishing, laptops, and chat in Victorian schools?

This paper will present some findings from a thesis study, which examined issues of criminal opportunities, child safety on the Internet, and crime prevention in Victorian schools and homes. The study involved analyses of 305 websites from schools in Victoria, 15 Acceptable Use policies, and the SchoolsNet Internet Network Administrator (SINA) software package contracted for schools by the Victorian Department of Education. The second phase involved an exploratory self-report survey of the knowledge and experiences of primary and secondary schools, parents, Internet service providers and government agencies.

A number of ethical dilemmas are raised by the study in relation to children using the Internet in schools. What is the extent of a school's duty of care towards students in relation to the Internet? How does surveillance or monitoring measures balance with concerns about invasions of privacy? Does protection mean censorship? Is access for students a right or a privilege? What are the ethical responsibilities of private businesses, that provide software for schools, to build in safety measures? How adequate are current practices to ensure child safety on the Internet in Victoria?

This paper addresses the question of schools' duty of care to students using the Internet at school. Issues in relation to student email, web publishing and the role of permission slips are discussed. The paper concludes by identifying opportunities for collaborative problem solving, and practical measures for situational and social crime prevention.

MIL99052

Internet Privacy

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The coming into being of new communication and computer technologies has generated a host of ethical problems, and some of the more pressing concern the moral notion of privacy. Some of these problems arise from new possibilities of data collections, and software for computer monitoring. For example, computers can now combine and integrate data bases provided by polling and other means to enable highly personalised detailed voter profiles. Another cluster of problems revolves around the threat to privacy posed by the new possibilities of monitoring and surveillance. For example, telephone tapping, interception of electronic mail messages, minute cameras and virtually undetectable listening and recording devices give unprecedented access to private conversations and other private communications and interactions. Possibly the greatest threat to privacy is posed by the possibility of combining these new technologies, and specifically combining the use of monitoring and surveillance devices with certain computer software and computer networks, including the Internet.

Provision of an adequate philosophical account of the notion of privacy is a necessary precursor to setting the proper limits of intrusion by the various new technologies. Such an account of privacy

would assist in defining the limits to be placed on unacceptably intrusive applications of new technologies. Moreover it would do so in such a way as to be sensitive to the forms of public space created by these technologies, and not unreasonably impede those new possibilities of communication and information acquisition which are in fact desirable. As always it is important to balance the rights of individuals against the needs of the community. On the one hand there is a fundamental moral obligation to respect the individual's right to privacy, on the other hand there are the legitimate requirements of, for example, employers to monitor the performances of their employees, and law enforcement agencies to monitor the communications and financial transactions of organised crime. Moreover the working out of these ethical problems is relativised to a particular institutional and technological context. The question as to whether email, for example, ought to be assimilated to ordinary mail depends in part on the nature of the technology in question and the institutional framework in which it is deployed. Perhaps email messages sent on a company owned computer network ought to be regarded as public communications within the organisation however personal their content, since unlike ordinary mail, email messages are always stored somewhere in the backup system owned by the company and are therefore accessible to the dedicated company cybersleuth.

MOR99013

Ethics in Cyberspace

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Internet users and developers need to learn how to act ethically in cyberspace. To promote cooperation, a shared view of this new world of interaction is needed. Popular Internet metaphors provide only part of a satisfactory 'big picture'.

The most pervasive Internet metaphor is 'cyberspace'. It conjures sci-fi images of travel through an outer space. The freedom to go anywhere in next to no time and seek out new worlds of information (à la Startrek) is evident in the mythology of hackers and the explorations of web surfers.

The other main Internet metaphor is the infobahn (information superhighway). Barlow depicts it as the American Wild West - a vast frontier to be pioneered, settled, civilized and colonized. Johnson's Grand Analogy is similar, describing a newly discovered island of unlimited opportunity.

These two metaphors associate with benefits and drawbacks of Internet use. Cyberspace (the term we now use to encompass the rest) is seen as:

* a benign, apolitical, global village whose ethereal inhabitants evolve toward a collective consciousness (the wired mind) and perhaps eventually share Teilhard de Chardin's Omega Point : the culmination of Man's evolutionary ascent, when consciousness converges into the collective organism of Mind.

Cyberspace is also seen as:

* a politically anarchic virtual community of disembodied, alienated netizens (denizens of the Internet) who addictively interact impersonally, via personas with handles (nick-names), in a lawless realm

where censorship (and other legal trappings, such as copyright) are seen as a malfunction and are playfully routed around.

We propose a model of cyberspace (Wonder-Web) that refines the above two metaphors by observing cyberspace as a phenomenon. We approach cyberspace as a newly discovered wonder of the world. Why? There are two ethical reasons:

1) If cyberspace is considered a natural phenomenon, it should be explored respectfully, and the laws that govern it should be discovered, rather than imposed.

2) If cyberspace is seen as a human environment, we are responsible for its (mis-)use and (un)sustainable development.

These points offer conditions of entry into cyberspace. We assert that any proposed regulations should be consistent with any properties of cyberspace that may be discovered.

When observing cyberspace phenomenologically, the most important property that distinguishes it from 'realspace' - i.e. our physical reality - is its detachment from the space-time reference system. We proceed to demonstrate the following contrasts exist:

cyberspace: realspace:
absolute relative
unbounded bounded
intangible material
free governed
dynamic static
homogenous heterogeneous

The effects of these contrasting properties are not considered in the conventional method to decide an ethical issue in cyberspace. Instead, the cyberspace scenario is transplanted into an analogous situation in realspace. We say the cyberspace scenario is externalized by replacing the cyberspace setting with a similar realspace setting. The interpretation of the realspace issue in the external analogy is intended to clarify the cyberspace issue. However, it is often simplistic because contrasts between cyberspace and realspace are omitted.

We propose a cyberspace ethics methodology (Parallel Spaces) that explicitly considers cyberspace and realspace contrasts during analogical thinking. A reciprocal internal (cyberspace) analogy is devised in parallel with an external analogy. This focuses attention on the impact of cyberspace and realspace contrasts and avoids a simplistic external interpretation.

The effectiveness of our methodology is demonstrated in the virtual rape issue. Trials with introductory computer ethics students also showed they formulated more solution options to a given ethical issue than with the conventional method. This can indicate deeper understanding.

Finally, general implications of cyberspace properties for ethical issues are discussed. These generalizations also raise interesting questions, which require further research.

NOW99034

Fair Use: Ethical Guidelines for the Educational Use of Copyrighted Material and the Internet

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The fair use doctrine of the United States has been called "the most significant and perhaps murky of the limitations on the copyright owner's exclusive rights (Intellectual Property in the National Information Infrastructure "The Report of the Working Group on Intellectual Property Rights Bruce A. Lehman, Chair September 1995). This limitation becomes even more murky when applied to the educational use of copyrighted material on the global Internet, either in the form of downloaded material or material that has been "uploaded" for use by others. A study of United States university deans revealed that the deans had a very limited understanding of what the act entailed and the relationship between the law and the guidelines. As a result, American educators tend to err on the side of conservatism, while other countries interpret simple accessability as unlimited license. This paper attempts to provide some clarity in the form of a guideline for ethical use for intellectual property accessed by the internet.

Section 107 of the United States Copyright Act of 1976 provides four statutory factors for the court to consider in determining whether the alleged infringement was "fair use", namely 1) the purpose and character of the use, 2) the nature of the copyrighted work, 3) the amount used and 4) the effect of the use on the potential market. Many courts have attempted to address "fair use", often leaving confusing and sometimes seemingly contradictory decisions for academicians. To compound the matter, other conventions, commissions and agencies have offered their interpretations and guidelines.

The global nature of the Internet has further complicated the issue of fair use of Internet material. Cultural differences and social cohesion are examined as key variables in examining the international implications of copyright. One of the biggest challenges to intellectual property right protection is derived from the global access of the Internet and the varying, culturally based, perceptions of individual or community rights regarding knowledge products. The copyright enforcement policies of countries should be expected to vary and this idea is explored using the values topology created by Hofstede (1984). Specific examples of differences between countries are reviewed to provide insight into how the cultures perceive the protection of intellectual property. For example, does "fair use" apply when working in China or in Russia where copyright laws are not enforced? If not, what should the owner of intellectual property do to limit exposure to loss without penalizing users who would not usurp owners rights?

Educators using the Internet to provide class materials need a clearer understanding of the implications and boundaries of "fair use". What can be downloaded and used? What can be "uploaded" and broadcast? Of equal significance is the utilization of multi-media materials in presentations. How much video and audio can be used from other sources in a presentation. Is it appropriate to use such materials in a presentation for a conference? As the computer, the Internet, and multimedia become more involved in education, teachers need to be aware of the implications and limitations of fair use from both a legal and ethical perspective.

This paper surveys the laws, court decisions, conventions and commissions relating to fair use of material for educational purposes, and specifically with regard to the Internet. Guidelines for educators, based on the current law, are offered. Then, the authors suggest clearer guidelines which should be adopted either by way of international legislation or court decisions. Those guidelines suggest that any conflict between "fair use" as it is now defined and "educational fair use", should be resolved in favor of the educational fair use.

Finally, managerial and organizational inferences are explored and agendas for additional research suggested.

OCO99057

Circumnavigating Utopia: The Role of ‘Cyberspace’ in the Construction of American Internet Jurisprudence

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This paper borrows from J.L. Austin's theory that words have the capacity to create legal obligations and combines it with the more recent observation that virtual reality has the ability to influence our comprehension of real life. With the advent of appellate review concerning the Internet and similar systems of computer-mediated communication, jurists are increasingly called upon to define rights and duties within virtual environments. This task necessarily involves the use of some operative definition of the nature of digital interaction and of relationships to conventional situations.

The term ‘cyberspace’ is often used within judicial decisions to describe virtual activities. Although ubiquitous, the word is not neutral. This paper suggests that within the term are contained a number of definite assumptions regarding the purpose, use and governance of digital networks. This paper explores these concepts and then considers recent American appellate decisions which attempt to describe ‘cyberspace’ and its relationship (or lack thereof) to conventional legal paradigms. It will additionally investigate sources, both academic and popular which are invoked by courts to support their characterisations.

As a result of these endeavours, the paper proposes that because much of what transpires within electronic confines is resistant to direct empirical description, judicial treatment will necessarily be interpretative and heavily- reliant upon rhetorical characterisations. This situation both accentuates the roles of Austin’s theory and those of the "pre-legal", essentially ethical constructs residing within the meaning of ‘cyberspace’.

PHU99008

Ethical Use of Information Technology: The Impact of the Internet

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Ethical considerations in the use of Information Technology (IT) have become a focus point for many practitioners and educators because of the rapid proliferation of this technology. Many issues, however, remain unresolved. For instance, we still don't have a widely accepted code of conduct that

addresses the use of this technology. Information Systems (IS) curricula often fail to include a discussion of ethical considerations, and even when they do, fail to reach the relevant audience. Worse yet, studies have shown remarkably lax ethical standards among IS faculty and students.

The situation has now become immensely more complex. In the very recent past, the capacity to place material on the World Wide Web has been acquired by a very large number of people. As evolving software has gently hidden the complexities and frustrations that were involved in writing HTML in its rawest and most nasty form, more and more web sites are being created by people with a relatively modest amount of computer literacy. At the same time, once the initial reluctance to use the Internet and the World Wide Web for commercial purposes had been overcome, sites devoted to doing business on the Internet mushroomed and e-commerce became a term permanently to be considered part of common usage. Following closely behind were sites that were dedicated to informing the whole or part of the public about various matters, including those which were devoted to many different aspects of education.

The assimilation of a new and sometimes revolutionary technology is almost never entirely smooth sailing. The employment of the Internet and the World Wide Web for the many and diverse purposes that they are used for today is certainly no exception. As the technology begins to grow out of its infancy, a multitude of new issues surface continually, and a large proportion of these issues remain unresolved. Many of these issues contain a strong ethics content. As the ability to reach millions of people instantly and simultaneously has passed into the hands of the average person, the rapid emergence of thorny ethical issues is likely to continue unabated.

There is little argument regarding the power of the Internet to inform. As a media, it has far more potential than radio or television ever did, and both of those have permanently changed the world we live in, although not always for the better. One enormous difference between traditional mass media radio, television, print) and the new media of the Internet is accessibility. The former were domains of the well heeled: a relatively small number of people controlled radio, television, or the print media. On the other hand, almost anyone can place something on the Internet. As the use of web technology accelerates, and I have little doubt that it will, we need a greater awareness of the ethical issues and problems involved in the use of this tremendously powerful media tool.

The purpose of this paper is to examine how Information Technology can and should be used ethically in our new global information society, with a focus on emerging ethical issues regarding the use of the Internet and the World Wide Web.

RAH99011

Software Piracy among Tertiary Students in Brunei Darussalam: an Empirical Study

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Key Words: Software piracy, pirated software, student attitude, educational institute

Software piracy - which refers to the practice of 'pirating' or 'unauthorised copying' of a computer program that is neither site licensed nor in the public domain, has become a serious global problem. Software piracy occurs not only in industry, but it is equally prevalent in educational institutions. Several authors have examined software piracy issues, and found an overwhelming use of pirated software by university students. A majority of these studies are however US-based. Consequently, their findings may not be applicable to an Asian country due to the existence of cultural differences. Against this backdrop, a study was undertaken during the last quarter of 1997 in Brunei Darussalam, a small sultanate located near Singapore and west Malaysia. The study investigated the extent to which students at a technical college used pirated software. A normative model was also developed to identify those factors that are related to students' use of pirated software. The model ties together eight independent variables with the dependent variable - the use of pirated software. These independent variables are grouped into four categories: students' piracy attitude, demographics, computer exposure, and institution parameters. A number of hypotheses based on these factors were also drawn.

The model was tested by administering questionnaires to 160 undergraduate diploma students at a technical college in Brunei Darussalam. The questionnaire was divided into three sections. The first section collected background information of students. The second section investigated the attitude of students towards the use of pirated software. Students were asked to rate each statement, in a series of five statements capturing their opinions and thoughts about the use of pirated software, on a five-point Likert-type scale. The last section asked students to indicate how frequently they had used copies of pirated software during the immediate past one year. Like section two, this section used five-point interval scale to capture the response of students. Prior to administering the questionnaire, several versions were extensively pre-tested using some students in the same college. Their feedback was used to improve the questionnaire's readability and clarity.

Of the 160 questionnaires distributed, 6 were incomplete, and so excluded from further analysis leaving 154 usable questionnaires. Data obtained from the questionnaires were analysed using Mann-Whitney and Kruskal-Wallis tests, as well as multiple regression analysis and correlation coefficients (Pearson and Kendall). The study found several interesting results. First, only one-fourth (26%) of the surveyed students said that they had never used pirated software. This implies that the percent of students using pirated software is higher than those reported in US and Canada, where slightly over 50% of university students admitted to have used pirated software. The possible explanation for this could be due to the fact that the software copyright law was not introduced in Brunei Darussalam at the time of the survey, because as a developing country, Brunei is entitled to delay the date of application of intellectual property rights laws to January 1, 2000. As such, many students in Brunei perhaps did not view copying of original software, and using it as illegal.

Second, the overall mean of five attitude statements (which is 3.35 on a scale of 1 to 5) indicates that students in general favour the use of pirated software. Perhaps students treat software differently from other types of products, as such, students may feel that nobody is hurt and nothing 'tangible' is stolen when a software is copied. Thus, the ill-effects of using pirated software are not perceived by students. Third, the results of the regression analysis identified four variables that affect the use of pirated software. Out of these four, students' piracy attitudes alone explained 25 percent variation in the use of pirated software. This finding is slightly higher than that reported by Peace and Galletta, who found 15.44 percent variation in the use of pirated software due to students' attitude. This study thus implies that those students who viewed that it was inappropriate to make pirated copies of software, indeed reported less use of pirated software. The correlation analysis further confirmed that piracy attitude had a strong relationship with the use of the pirated software.

On the other hand, three other variables like gender, PC experience, and major in which students were enrolled, although were found significant, accounted for only 10 percent variation in the dependent variable. One possible explanation for the impact of gender can be derived from Lobel's research, which suggests that cheating behaviour might be due, in part, to the sex-appropriateness of the task. In other words, males cheat more on 'masculine' than women do on 'feminine' tasks. Since 'computing' is treated as a 'masculine' task, thus male students naturally felt more inclined to resort to software piracy than their female counterparts. Likewise those students who had more PC experience also used pirated software to a greater extent. This is quite expected as these students are likely to have felt the need to use a wide variety of software packages to perform their desired tasks - some of

which were not available, and thus they received pirated copies from other sources. This finding is in line with Wong et al. who reported greater piracy among computer experienced students. Another interesting finding is that as compared to engineering and business students, students from computing major used pirated software to a greater extent. This is also not surprising because computing students are more likely to develop the skills and know-how necessary to pirate software.

In summary, this study has highlighted that the psychological aspect (which is attitude) of students towards software piracy plays more important role than simple demographics, computer exposure or institution parameters. The implication of this finding is that efforts to curb software piracy must address how to build a positive attitude in students - so that they can appreciate the efforts spent in developing a software product. Mere monitoring of software piracy by academic staffs will not help much in the reduction of piracy problem. Academic institutions should undertake more educational efforts to ensure that students openly discuss, analyse and understand the problems of software piracy. It is further suggested that efforts to curb software piracy should be designed in such a way that differences in software piracy due to gender, major of study, and PC experience are adequately addressed.

This study is not free from limitations. The main weakness is the formation of scale to measure students attitudes towards software piracy. In this study, only five statements were used. A greater number of statements is needed to better capture students attitude, which is likely to increase reliability of attitude scale. Moreover, an improved attitude scale is also likely to explain an even greater proportion of variance in the dependent variable. Another weakness is that this study has focused on students in a particular college. As such, this study should be expanded by including students from all technical colleges in Brunei Darussalam. This would increase the ability to generalise results. Lastly, the normative model as developed in this study could be further improved with the inclusion of 'subjective norm', a factor that has been widely researched in psychology literature. Fishbein and Ajzen had proposed a theory known as Theory of Reasoned Action (TRA) which suggests that attitude and subjective norms together can better explain volitional behaviour.

ROB99035

Visual truth in the digital age: Towards a protocol for image ethics

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The old adage ‘seeing is believing’ was most often applied to the reliability of photographic evidence in legal matters and to trust in photojournalism’s reputation for truth and objectivity. But the ability to alter photographs has been present since the origin of the recorded image, as may be seen in such art forms as photomontage where it was often used for caricature or emphasis. Kobre (1995) details the long tradition of doctoring photographs.

However, computer technology in the past twenty years or so has allowed more sophisticated and mostly undetectable alteration of photographs, so that consumers and readers are intentionally deceived. Ritchin (1990), amongst others, points to the increasing tendency of the news media to use the photograph to illustrate preconceived editorial ideas, a development in photojournalism which has seen the profession’s manipulation of photographs move beyond the conventional retouching techniques and simple cropping of extraneous details to the continual revision of photographs so that they more precisely illustrate the point of view expressed in the text. Furthermore, photographs can

be constructed to illustrate **anyone's** point of view in the publishing chain of command. Such practices have led critics to label this change a move from photojournalism to photofiction (Wheeler & Gleason 1995). The revision of photographs may be as subtle as the National Geographic's realignment of the pyramids on a 1980's cover, to the manipulation of images in a Time magazine story of the O J Simpson trial, which led to the Time editor's subsequent apology to readers. The realignment of the photographs of personalities has allowed misperceptions of closeness such as Margaret Thatcher appearing in debate with George Bush by the juxtaposition of their images, The advertising industry has also attracted criticism for misperceptions in consumers such as travel photographs showing non-existing natural features, and Beneton's use of the harrowing picture of a dying AIDS patient to advertise its products. The ethics of visual persuasion in advertising by the manipulation of images have been raised comprehensively by Messaris, 1997.

Further image ethics issues are raised in respect of copyright and ownership of intellectual property. Whereas a book or painting may be seen as a whole, and where the copying of all or part is reasonably detectable, the easy and most often undetectable manipulation of photographs and clip art renders the ownership of this artwork impossible to protect (Mitchell, 1992).

The ethical issues raised by the ease of image manipulation in the digital age require the estabishment of an ethical protocol (Ritchin 1990; Wheeler & Gleason, 1995). Prominent in this protocol should be the definition of photographs under categories in the manner in which text is defined, such as fiction and non-fiction or editorializing and reportage. It may be necessary to employ a specific terminology such as 'photo-illustration' to differentiate physically manipulated photographs from others. Similarly, other kinds of staging such as the use of models as stand-ins should be indicated to readers.

Educators of students in computer subjects where the techniques of image manipulation are taught have a responsibility to establish an image ethics protocol for their students to follow in both their academic work and future professional activities. This paper describes the establishment and application of such a protocol in a higher education graphics course, shows examples of student work and details how student consensus was gained for the establishment of ethical standards in image manipulation.

LEW99040

Design for a Course in I.T. Professional and Ethical Issues

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1.0 Introduction

1.1 Background

In the early 1950s people generally put their trust in science to solve all the major problems faced by society. This was not surprising since the world had just emerged from a war that had essentially been won by the application of new technologies. Society gave scientists and other professionals the freedom to develop new innovation with little or no accountability. For a decade or so, the quality of life steadily increased, people prospered and life was good. However, this period also saw the

beginning of a steady increase in the diffusion of new technological innovation aimed at transforming the business world, with a subsequent impact on society in general. From the 1960s onward, this new innovation increasingly leap-frogged ahead of society's ability to accept and integrate it. The frequency of technologically induced change is now such that society is forced into a state of constant change.

Many of the problems that science promised to solve are still with us. Many new problems actually created by innovation have been added to the list. In our nation, increased access to education and rapidly expanding communication networks mean that most people are well informed. They perceive that many of the problems they now face could have been moderated, or avoided, if technological innovation could have been scrutinised prior to wide spread adoption. Constant change means that it is practically impossible to plan for the future. Many individuals face considerable uncertainty and fear for themselves and their children.

Some feel betrayed, that the interests of business; the pursuit of favourable economic outcomes through technological innovation, has been at the expense of their quality of life. Most people are now unwilling to give scientists and other professionals the same freedoms afforded their predecessors in the 1950s.

During the past five decades, and especially in the last two, much of the technological innovation impacting on society has been computer-based. It is beyond question that computer-based technologies have had a most profound impact on people and society. With the rapid internationalisation of trade, many important industrial and commodity markets have adopted a global focus. The business world has become dependent on computer and telecommunication sciences. The importance of the computing profession has rapidly grown, and competent specialists are in short supply, and high demand, around the world. Society's expectation is that computer professionals will produce systems that will enhance the human experience and not hinder it. They expect that they will not be injured, exploited or ignored.

The purpose of this paper is to explore the expectations of society in respect to the activities of computer professionals. To review the literature and identify professional and ethical issues of importance to society and the individuals within it. Care will be taken to rank these issues in order of significance. These issues will be reviewed against the framework of the various mechanisms through which society can exert an influence on the conduct of computer professionals:

The Law, in its various forms

The activities of the professional associations

The expectations of employers

The expectations of customers

The collective will of society as a whole expressed through accepted practice, social taboos etc.

2.0 Conceptual Approach

One conceptual diagram - based on the various mechanisms by which society can exert an influence on computing professionals: the law in its various forms, the activities of professional associations, expectations of employers, expectation of customers, social norms, taboos etc.

3.0 Approach to the Review

Review of current and historical social literature to identify issues important to (global and national) society, and the mechanisms used to influence professional conduct.

4.0 Details of the Review

The expectations of society are expressed as:

Collective Issues:

Impact on employment

- changes in job function
- impact on job security

Increasingdependence on technology

Environmentalissues

Personal Issues:

Honesty

Competency

- Duty of care
- Up-to-date skills

Confidentiality

The crux of the discussion is essentially that I.T. professionals in many ways enjoy powerful and privileged positions within society, as they are commonly at the forefront of the construction, interpretation and dissemination of knowledge. Because I.T. professionals enjoy the privileges , they should conversely be sensitive to the expectations of broader society, a task which inevitably involves a thorough and critical investigation of how the activities of I.T. professionals impact on the world around them.

5.0 Summary and Implications

In order for I.T. professionals and academics involved in delivering I.T. courses to encourage I.T. students to become more socially responsive, it is important that the utopian view of post industrial society be challenged by a critical, human-centred approach. The focus of this approach should be professional responsibility and accountability, and proactive consideration of important ethical problems.

The results are used to guide the design of a course in I.T. Professional and Ethical Issues that will be delivered to 3rd year students enrolled in Information Technology degrees at Swinburne University, Lilydale campus. The suggested content will be detailed in the final paper. It will be implicit that the generic characteristics of the curriculum design could be extrapolated to the design of similar subjects relative to other business professions.

SCO99051

Interface Design: ethical considerations

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Interface design is an important factor in determining how well a human can interact with a computer system. However the issue of ethics in interface design seems to receive considerably less attention.

Historically off-line processing and trained operators provided an environment where the lack of ethics in design did not cause major problems. The environment of humans interacting with computers is changing rapidly and ethics should become increasingly important. We have moved to real-time online processing with a wide range of users interacting with computer systems. Current interface design most often requires an interface that allows immediate interaction and feedback. Design of the interface can introduce bias and this in turn can disadvantage or offend users because of gender, age, culture and the workplace environment.

The paper reviews the historical background of human computer The paper reviews the historical background of human computer interaction and the increasing relevance of ethical considerations at the interface. The goals of interface design and the place of 'ethics' to improve the use, understanding and safety of the interface are discussed.

Global communication and interaction with its many cultures and conflicting norms highlights the need for a strong ethical foundation in interface design.

SEG99055

Codes of Professional Ethics: Can They Be Useful?

(Panel Proposal)

Patsy Segall

URCOT: an affiliate of RMIT, Melbourne, Victoria, Australia

Computer science and related fields are comparatively recent professions. Following the example of many professional bodies, associations of computer professionals have developed and adopted codes of ethics for their members. The Australian Computer Society has both a Code of Ethics and a Code of Professional Conduct and Practice. Like other professional codes, the ACS codes aim to provide guidelines for their members as to how to exercise their responsibilities to society, clients, the computing profession itself, and other stakeholders.

But how effective are such codes in promoting ethical and socially responsible behaviour?

What kinds of processes should be used in their development to ensure they are more than good intentions with little practical relevance?

How should they be enforced?

What kind of support is appropriate for people who find themselves at risk because they attempt to apply ethical principles in a hostile environment?

If organisations employing the services of professionals are not ethically accountable, what space is there for the individual to make ethical choices?

The panel members bring distinctive experience and perspectives to these issues. Each panellist will provide a brief account of their position, and then they will engage in exploration of their differences and commonalities, with the assistance of the audience.

Panel members:

Prof. Don Gotterbarn, East Tennessee State University, USA.
Prof. Gotterbarn chairs the task force which developed the Software Engineering Code of Ethics and Professional Practice which has recently been adopted by the IEEE-Computer Society and the Association for Computing Machinery.

Andrew Alexandra, Senior Lecturer in Philosophy, Charles Sturt University and Senior fellow at the Centre for Philosophy and Public Issues, University of Melbourne. He has been closely involved in the development of codes of ethics for academic and social workers, and has published papers about professional codes of ethics.

Prof. John Hughes, University of Technology, Sydney.
Prof. Hughes is Chair of the Australian Computer Society's Membership Board, which is responsible for the ACS codes and also for disciplinary processes.

Dr Rosalie Holian, Director Research, RMIT School of Management.
Dr Holian's research on ethics has included looking at 'whistleblowers' and if they were seen as positive (ethical) or negative (dobbers). She has also examined the impact on behaviour of codes of several professions/organisations.

Moderator: Patsy Segall, Research Officer, URCOT, a research centre affiliated with RMIT undertaking applied research in the workplace.

STA99042

Teaching Ethics to Computing Students

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The Australian Computer Society has identified a body of knowledge for computing professionals. This includes the teaching of ethics in computing courses as mandatory for professional level accreditation of a course. The Division of Information Technology at La Trobe University Bendigo offers three entry-level courses in computing that are accredited by the ACS:

- a Bachelor of Business where students can elect to major in Information Technology (BBus(IT));
- a Bachelor of Computing, which includes a requirement for study in a different discipline of the student's choice (commonly accounting, electronics or psychology)(BComp);
- and a Graduate Diploma in Computing, with no non-computing components (GradDipComp).

Core subjects in the Information Systems streams of these courses introduce students to, for example, the ACS Code of Ethics. However, the only in-depth treatment of computer ethics is currently in an elective ("capstone") subject called Professional Environment, open only to final year students in all three courses. The objectives of Professional Environment are to assist students to orientate themselves to the professional aspects of practising in the computing field, to learn about ethical and legal responsibilities, to consider social implications of their work, to do independent research, and to further develop oral and written communication skills. This subject has been taught in its present form since 1995. Approximately 25 per cent of the 39 hours allocated for Professional Environment involve teaching ethics.

This paper describes and discusses the teaching methods and assessment used in teaching computer ethics in Professional Environment. The ACS core body of knowledge in its section entitled Ethics/Social Implications/Professional Practice states that students should be "encouraged to develop a personal ethical framework". Both the teaching methods and assessment in Professional Environment have been chosen specifically to encourage and assist students to do just this. In teaching ethics a combination of methods are used: ethical theory via a lecture, tutorials using case studies and/or role plays, videos, and an assignment where students need to apply ethical theory to solve an ethical dilemma drawn from their personal experience. Some of the methods used have been more successful than others, from both a teaching and a student perspective.

A number of controversial issues in teaching computer ethics are discussed in the paper. For example, is it necessary to teach ethical theory to students, and if it is to be covered should it be taught by a computer professional or a philosopher?

Student comments from the Professional Environment subject evaluations have singled out ethics as the most valuable component of the subject. These results are presented in the paper.

Many people would argue that ethics should be taught in every computing subject, and certainly there are some subjects in our courses where lecturers successfully weave ethics into the subject content. However, the reality is that many do not, and an elective capstone course for those students who are interested and motivated to learn about

professional issues in computing has been our choice at La Trobe University Bendigo over the last four years.

TAM99043

Lest We Forget - The biases of computer technology regarding older adults

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This paper looks at ethical issues that arise in the context of computer technology and senior citizens. The rapid advancement of computer technology has left the community sector in general and senior citizens in particular lagging behind. This generates issues involving social justice and equity for all.

In this paper the definition of ethics according to James H. Moore is examined (Hoffman and Moore 1982: 27). The view taken in this paper follows Moore's analysis and interpretation of the ethical use of technology.

The social impact of computers in the life of an aging person is examined, particularly the impact of computer technology on senior lifestyles in the 1990's. If computer technology in design and availability does discriminate against seniors then questions of social justice and the distribution of resources arise. These issues are canvassed in the paper.

As human individuals we are unique. This also is true for senior citizens. Thus, there is no one typical senior who we can use as a basis for examination. Therefore, in order to provide a balanced analysis, a number of variables characteristic of the senior citizen context need to be examined. There are, for example, many ailments, disabilities and changes to lifestyle that occur or take place, as one grows older. On the health side a range of problems may generate special needs. For example, Alzheimer's and other forms of dementia in some degree are common among the aged. Parkinson's Disease, Motor Neurone Disease, Arthritis, Acquired brain/head injury, mature-aged diabetes also are commonly found among aged communities and all influence the ability of seniors to adapt and use computer technology as we know it.

Keeping these variables in mind the paper looks briefly at the accessibility and ease-of-use of computer technology for seniors.

One can argue that computers are functional machines. They are used to write letters, assignments, calculate the weather forecast and solve many other problems.

However, Hoffman and Moore (1982: 37) say that '...computer technology does have a bias, attributable to inherent features of the technology and to the social settings in which computers are developed and used. This bias can be seen in the types of computer-based products and services available, in their locations and in their sources'.

It may be the case that computers have been designed for a specific reason for a specific environment. When one takes these machines and tries to adapt them for personal use one finds that the design is not always compatible with the intended purpose. At least, so this paper speculates. This maladaptive aspect of computer technology, it is argued, is nowhere more evident than in groups of senior citizens. There is very little in the way of interface design and hardware that takes senior lifestyle into consideration (so it is argued). Yet, we see the increased marketing of computer technology within the senior context and thus, the ethics, or the lack of ethics, of the advertising industry is brought into focus.

In conclusion, the paper suggests that technology design suited for one environment may not be suitable for another. If this is the case then there may be an inadvertent and perhaps even deliberate discrimination against groups such as senior citizens. This raises important questions of social justice and brings into question the ethical standards of all those involved in the computer industry.

Ensuring that Ethical and Related Issues are Addressed in Masters Level Computing Courses:

A Report of Developments and Experiences Over a Five Year Period

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Research investigations carried out by members of the Software Engineering Group at the University of Sunderland [Edwards et al, 1989; Stobart et al, 1991; Davis et al, 1993; Hardy et al, 1995a; Hardy et al, 1995b] have provided an insight into the state of the software industry in the UK. It has become clear that many of the problems within the industry can be considered to be due to an over emphasis on the technical aspects associated with software development compared with human aspects such as: the quality of work , professionalism, ethics and responsibility [Thompson, 1996]. It is also clear that these latter aspects often receive a relatively low priority within many computing courses. However, it appears that the academic community and industry are starting to discuss these fundamental issues in a more meaningful manner via conferences such as the ETHICOMP series [e.g. Erasmus University, 1998] and PASE'96 [University of Westminster, 1996].

At the University of Sunderland we offer two "sister" courses in computing at postgraduate level which share a number of common modules. Our M.Sc. in Computer Based Information Systems (CBIS) is a "conversion" course for graduates from non-computing disciplines who have little or no computing experience. While our M.Sc. in the Management of Information Technology (MIT) is intended to assist graduates in computing, or others with an equivalent existing background, become hybrid managers. That is, managers who combine information technology and computing skills with business and organisational skills in order to ensure the effective deployment of information technology in their organisation. In the development of theses courses we have obviously been influenced by the needs of industry, our research as detailed above and the trends relating to ethical, professional and legal issues.

In the paper we will provide brief overviews of the two courses and their intended markets. We will then provide details of the development of the courses and the modules which address human aspects such as ethics and professionalism. In particular we will cover the development and operation following modules:

Computing and Research Skills (introductory CBIS module),

Research, Ethical, Professional, and Legal Issues (introductory MIT module),

Systems Development (common module),

Systems Engineering (common module).

We will discuss the approaches that we have adopted in running the modules and the philosophy behind them. Finally we will present an evaluation of what has been done and we detail those developments that we see for the future.

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TSV99025

Unemployment and the Internet

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While new information technologies are universally blamed for the disappearance of many traditional jobs, they have at the same time opened new horizons, provided new opportunities and given new hopes. The Internet has already proven to be a major and most innovative tool/resource in many important areas of human activity, i.e. business, education and entertainment among others. These areas are of crucial importance for the unemployed since they often need to upgrade (refresh) their skills and knowledge (poor or insufficient skills/educational background being usually the main reason for the unemployed not being able to join the workforce). The Cybernation, a "nation whose communication of commonly held beliefs and philosophies is effected through the Internet", already exists and the unemployed are among its citizens.

At the same time the processes of globalization, technological change and organizational restructuring in the past decade are forcing governments and institutions to redefine their concepts of work and (un)employment. The latest trends of labour force mobility and flexibility and the frequent redundancies (downsizing) are a sign of the inevitable - during the new millenium many people will be without long-term secured jobs; immersed in an Information Age environment they will have more free time and hopefully access to the Information Superhighway.

The Internet can benefit the short/long-term unemployed in various ways: through on-line educational and training programmes, non-residential learning centres, alternative schools and youth centres, job-search databases, ties to individuals in other unemployment settings, through creating and maintaining novel relationships that can lead overtime to new employment opportunities, etc. However, unlike the use of television, radios and telephones, the individual use of network information services currently appears to be accelerating at higher income and education attainment levels. Unemployed people with poor education do not often find the way or the financial means to the Internet and its resources.

Governments should implicitly encourage the use and development of Internet based educational programs. It should be noted that the relative cost of developing such educational programmes (reaching many people) can be significantly reduced. Incentives should be provided to unemployed that would qualify for participation in Internet professional training programmes, varying from raising the unemployment benefits for the successful participants or alternatively directly subsidising the costs of Internet access on the participants' side. The US administration's National and Global Information Infrastructure initiatives, providing a broad, modern concept of universal service and open access to the Internet can serve as an example of using the Internet as a generator of new employment opportunities.

Governments should combine market incentives and individual tax credits to increase computer ownership among unemployed, provide free e-mail and fund educational programmes in order to avoid the emergence of a "two-tier" society of information haves and have-nots.

TUR99021

Ethical Issues Concerning the Use of Geographic Information Systems Technology With Indigenous Communities

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This paper discusses the ethical issues involved in the participative development of cultural heritage information systems for indigenous people, based on geographic information systems (GIS) technology. Threats arising from the use of GIS in this context are examined through a detailed analysis of the issues raised by Rundstrom (1995), Miller (1995) and Prickles (1995). A set of indigenous GIS projects reported in the literature are reviewed. A project being carried out by the author with indigenous communities in the Pilbara region of Western Australia is used as an example to explain the practical implications of such ethical issues.

GIS are combinations of hardware, software, data, procedures and people assembled for the capture, storage, retrieval, analysis and display of spatially and temporally referenced information. Miller

(1995) and Prickles (1995) highlight the need to address social and ethical questions in relation to GIS.

Kling (1996) summarises the key ethical issues for information systems practitioners and reviews some approaches for dealing with them. Ethical considerations are especially important where the system users may be vulnerable to exploitation, breaches of confidentiality and misrepresentation of concepts (e.g. GIS for indigenous communities). The use of a highly participative system development methodology is critical in such circumstances, however this will not guarantee that all relevant ethical issues are appropriately addressed.

Rundstrom (1995) discusses a large number of ethical issues for cartographyand GIS related to indigenous peoples. He highlights so many potential pitfalls and ethical dilemmas that one could infer that such projects should never be attempted. However, there are strong reasons why at least some indigenous people want to use GIS. This paper examines the issues raised by Rundstrom in some detail.

The author is working with co-researcher Kathryn Trees and the indigenous community at Ieramugadu (Roebourne) Western Australia to develop an information system (ICIS) for the storage of the Ngaluma, Injibandi and Banjima peoples heritage information (Trees and Turk, in press - a; b; Turk and Trees, 1998 - a; b; c). The project seeks to aid in empowerment of indigenous communities through highly participative, culturally appropriate information systems design and implementation.

Because the most fundamental thing in indigenous culture is land (a person's "country"), ICIS must incorporate spatial aspects (Turk and Mackaness, 1995). This is being achieved through the linking of GIS software to multimedia and database elements. Using the government topographic mapping as a spatial base, new maps are being created which use the traditional names and show places of cultural significance. Multimedia elements (such as images, sounds and video sequences) can then be associated with particular locations to help convey the connection between place and traditional law.

This project addresses key ethical issues in the context of post-colonial practice, critical ethnography and visual anthropology. Culturally appropriate technology developments must complement existing oral traditions. They must also engage with specific cultural practices such as naming taboo - the prohibition on using a person's name after death. With the use of photography, film and multimedia in indigenous communities the naming taboo has been redefined to take into account the use of images (Michaels, 1990).

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SIP99006

A conceptual framework for teaching computer ethics in a university level to non-computer science students

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Most of the works with respect to educational issues of ethical aspects of computing have been focused on professional or computer/IT major student level. The role and occurrence of moral reflection of ordinary computer users (henceforth referred as end-users) are also important due to increased use and role of IT. This paper formulates a conceptual framework aimed at covering relevant issues concerning the 'user ethics' in computing, excluding computer professionals from the concept. This framework is developed to use in a university level and approaches the domain of considerations by divided it into category, description and implementation parts.

Keywords: computer ethics, teaching of computer ethics, end-user computing

1. **Introduction**

The relevance of ethical issues in professional level starts to be a recognized matter (likely to be as a prima facie -prove) e.g. (Computing Curricula, 1991; Summers & Markusen, 1997). Equally, in the era of information society the importance of ethical dimensions encompassing ordinary end-users (henceforward referred as 'end-user ethics') are of crucial relevance e.g. (Bynum, 1992), for example because increasing amount of people (at least in Western societies) use computers for different purposes. Due to certain differences between teaching matters of end-users and professional users, albeit there are certain similarities in the most abstract level, the both groups are likely to need separate frameworks for ethics teaching in the area of computing. This is simply because computer usage of professionals have, for example, a professional focus, such as planning and implementing of computer systems, etc. (there is, of course, advanced end-users that may use fourth generation languages, do macro programming and similar - that need to be taken into consideration). Also, professional codes of conducts, specially the most detailed ones, may not be fully appropriate at least per se for end-users. Furthermore, irrespective of category of users, there is often argued to be a gray area, for instance people have difficulties to extend their moral reflection in cases where IT/computer are involved. There have been several reasons to describe this kind of problem, such as conceptual muddle by (Moor, 1985); moral distance by (Conger et al., 1994; Rubin, 1994); a moral crisis by (Severson, 1997); people are under a spell of IT (Rogerson, 1996); problem related to conventional moral notion (Siponen, 1999), etc. End-users' education needs efforts to avoid the aforementioned problem - a facet that is not approached holistically.

Also, the ethics of ethics teaching demands that we should avoid indoctrination and the teachers should act in the neutral way (Lisman, 1998; Macklin, 1980). However, in spite of such a demand, ethics teachers should promote commonly agreed ethical goals of computer usage, and notice the importance of an occurrence of moral responsibility as well as they should tell about dangers and problems related to computer usage. Although teachers are not directly responsible of users' actions and their goals, teachers are responsible to tell facts and outcomes of computer usage - as far as it can be predicted. By analyzing end-user ethics teaching we use Rest's (1994) four component model, which includes moral sensitivity, moral judgement, moral motivation and moral character. Components represent possibilities for moral failure in general, but they also give framework and goals for developing ethics teaching. Moreover, a short look at implementation issues of end-user ethics teaching in the light of some examples is order, for instance, to demonstrate the use and usability of this framework.

The main research problem is to develop such a state of art framework that can be used providing end-user education in a university level. This furthermore includes certain restrictions and limits of our framework. In this respect, however, an objective also is that the framework should be developed such a manner that problem related to different contexts can be (at least partly) avoided by an abstraction mechanism.

Conceptual analysis is used as a primary research method. Also qualitative research, mostly related to literature review and our earlier experiences, is used.

The scope of this paper is restricted to the use of non-computer/IT professionals and the teaching of computer ethics in university level is restricted to non-computer science students.

Table 1: A conceptual framework for teaching computer ethics in a university level to non-computer science students.

Category	**Description**	**Implementation in courses**
Goals, Purposes	Morally responsible users who achieve their own ethical purposes with the help of IT.	Teaching the use of equipment. Promoting ethical use of IT for ethical purposes.

Analysis of computer usage	Use of IT (excluded computer professionals' usage) for variety of purposes.	The nature of IT, the dangers and pitfalls of computer usage and possible future usage are covered. The responsibilities of the usage of "universal tool".
Moral Distance	The distancing effect of IT creates gap between computer users and the people affected.	Moral distance made known to students. Practices which help the distance can be narrowed.
Solving and avoiding conflicts and dilemmas	By teaching theoretical virtues we may hope that students form good practical virtues.	Value discussions. What are such virtues? Can we formulate these? Solving of ethical conflicts/dilemmas.
Ethical theories	Classical	Teaching ethical theories to non-philosophy students.
Moral vacuum	The absence of ethical traditions in IT. The applicability of our values in IT. Amorality in the area of IT.	Forming solutions to new situations. Using ethical theories in problem solving. Use and usability of analogies.
Ethics of ethics teaching	The ethical problems and conflicts in ethics teaching. Free will, autonomy and weakness of will.	Neutral teachers. Students make their own decision how they use IT.
Practice of ethics teaching	Organization matters of end-user ethics teaching.	The most important issues should be covered. What are they? Shall we teach all the ethical theories or subset of them? How much time and resources is allocated in end-user ethics teaching?

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VON99014

Virtual advertising: an ethical perspective

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As with any ethical debate, there are both some potentially positive outcomes and some real difficulties. This paper seeks to highlight some of the positive benefits, and discuss some of the ethical difficulties of what is becoming known as "virtual advertising". In order to enhance the discussion some technical details relating to this technology will also be discussed.

In an information rich world, we are used to many different kinds of information and mis-information. We are used to images being edited or ‘sanitised’ for the purposes of advertising. A frequently asked question is: How much can or should images be altered in the endeavour to gain custom for a product?

The development and application of recent computer technology offers some revolutionary, complex and wide-ranging challenges in this area. The altering of images has up until recently been a largely manual process of editing and bringing together photos or film from various sources.

Recently technology has enabled more adroit manipulation of images, by manipulating them in the very act of filming them in the first instance. It is possible, for instance, to superimpose an advertising image onto say the playing field at a sporting fixture. This has both advantages and disadvantages. It enables advertising material to be superimposed where traditional methods of applying it may be hazardous (eg material pained onto the road surface of a formula one race). However, it alters the point from which advertising content is controlled and hence the relationship between the event and the advertisers.

This developing technology also enables material received from international sources to have local advertising superimposed onto it (often in real time), much as though that advertising had been there in the first instance (eg altering the advertising on bill-boards at a sporting fixture). This enables material where the original may have been inappropriate for cultural or legal reasons to be superimposed with material more appropriate for a particular audience. However, questions regarding control of what advertising will be seen in the first instance are raised in a sharp way - who should control the content, the receiving television station or the original broadcaster?.

There is however a more serious set of ethical questions to be faced. These relate to the fact that even the original source from which the image is later copied (be it photo, film, internet, or other) is already computer mediated. The representation has already been purposefully altered or changed in the act of filming. Here is where a substantial debate arises. On the one hand it is typically the case that any image represents only a certain aspect of what ‘was actually there’ and in that sense any image "edits reality". On the other hand here is a tool which can be used by advertisers and others to add material (or edit or alter material) in almost any scene so as to make it appear that this particular material was part of the scene when the image was taken. This ability to film seamlessly while changing the content of the scene being filmed raises questions about ethical standards, control and ownership of material, informed consent, privacy, and others.

WAR99024

Cyber-Terrorism – a new threat for the next millennium

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1 Introduction

Information Technology (IT) is now widely used in all aspects of modern business. However, advances in technology has resulted in a increase in information services. At the present time, the most suitable and easily accessible means of information services is via the World-Wide Web, the popularity of which has increased dramatically in recent years. The growth of commercial information services have also been mirrored in the growth of pornography services and other anti social areas unfortunately this includes terrorist related information.

The term terrorist or terrorism is a highly emotive term. But the general term terrorist is used to denote revolutionaries who sought to use terror systematically to further views or to govern a particular area. Cyber Terrorism is a different form of terrorism since physical systematic terror does not occur, but systematic wide spread destruction of information resources does.

The problem relates to the fact that a terrorist group could easily be perceived as a resistance group carrying out lawful actions. In the context of the paper all groups will be defined as terrorist/resistance groups in order to give a neutral perception of their activities/aims.

2 The current situation

As stated before, the growth of the Internet has lead to a diversity of web sites. We are now facing a situation where terrorist/resistance groups are now developing Internet sites and using Internet technologies.

The areas where terrorist/resistance groups are using the Internet are:

2.1 Propaganda/Publicity

Terrorist/resistance groups have difficulty in relaying their political messages to the general public without being censored, they can now use the Internet for this purpose.

2.2 Fundraising

Some terrorist/resistance groups are linked to political parties these parties are now using the Internet for funding raising purposes. It is now possible to make direct donations using your credit card to Sinn Fein, to fund their political activities.

2.3 Information Dissemination

It is now possible for terrorist/resistance groups to exchange information without being traced. It has been proven that terrorist organisations use the Internet to try and buy illegal information.

2.4 Methods of Attack

The term Information Warfare (IW) has been used to describe the ways in which terrorist organisations could use technology to attack the IT infrastructure of a country or a particular company. The type of common attack methods currently available include:

Denial of Service;

Direct Attack.

3 The Future

It is difficult to predict how terrorists/resistance groups may use the Internet in the future. The previous table shows the diverse range of groups presently using the Internet, the following are areas of possible future Internet usage:

Internet Attacks;

Improved Electronic Communications;

Improved Propaganda-Publicity.

The paper will detail why terrorist/resistance organisation are using the Internet and the ethical implication of their use and where it could lead.

4 Conclusion

It is possible to protect a single target against physical attacks, but when these targets become computer centres and when the attack method is via the Internet it becomes more difficult. It is now becoming more widely accepted that groups have the ability to attack targets using cyber terrorism techniques, i.e. such as the IRA and the City of London. Recent research from the UK Ministry of Defence – Defence Evaluation and Research Agency has shown that they expect widespread Information Warfare terrorist attacks by the year 2005.

The paper has shown that terrorist/resistance groups are currently using the Internet, and the paper will discuss many of the ethically related issues.

WEC99054

Trust in the Information Age

John Weckert

Charles Sturt University, Wagga Wagga, NSW Australia

Successful living in groups or in relationships requires some trust. I must trust that others will act in ways which are conducive to harmonious living, and they must trust that I will do the same. Given the importance of trust, it seems not have received the attention that it deserves. Trust, rather than being seen as an important concept, is frequently portrayed as something naive. I want to explore the idea of trust, and consider what it is, why it is important, and why it requires re emphasis in the computer age and particularly with respect to the Internet. While trust is perhaps not a moral notion, it is closely related to important moral notions, for example trustworthiness (obviously), and respect for persons. It is difficult to have a well-functioning and happy community without a high level of trust. It is also difficult to have a high level of self-respect without the trust of others, and lack of trust indicates lack of respect.

Computer systems are hardly neutral with respect to trust. They do not cause lack of trust, but where people are inclined not to trust, these systems facilitate lack or reduction of trust. It is very easy to check on what someone is doing if they use a computer system. For example, email sent and received, web sites visited, and listserver activity can be checked with ease. This is partly an issue of privacy, but privacy gains much importance because of lack of trust. We are not trusted, so we are

monitored. We do not trust the monitors so we want privacy protection. The Internet raises trust in another way as well, and this concerns personhood or personal identity. Anonymity, and the taking on of various personas is easy, so the issue arises of whom to trust. Are people who they say they are? If we cannot be sure who they are, can we trust what they say? What are reasonable conditions for trust here?

WIL99022

Information Operations

(Panel Session)

Michael Wilson

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Information Operations (IO) are increasingly the focus of military and political attention, ranging from terrorist acts, Low Intensity Conflict or guerrilla actions, to information warfare as a supplemental element to conventional conflicts. The presentation will present a cognitive toolset for thinking about effectiveness in conflict, and includes:

- Definitions and Assumptions

- Context, Content, Constraints, Consequence

- Data, Information, Knowledge, Wisdom

- Boyd: Observe, Orient, Decide, Act

- Maslow's Hierarchy of Needs

- Infrastructures: Economy of Scale, Value Chains, and Social Contracts

- Trust in Processes and Systems

- Organization: Elements of Structure, from Information to Leadership and Management

- Operations

- Planning and Training

- New Intelligence Cycles

- Seeding the Operational Process

- Strategies and Tactics

- Denial, Material and Virtual Infrastructures

- PsyWar, Subversion of Decision Processes

- PolWar, Propaganda and Political Processes

- Attack-In-Depth

- Defense-In-Depth

PRESENTATION TYPE: Lecture (also available as a tutorial)

LENGTH OF PRESENTATION: 60-90 minutes (tutorial would require one day)

SPEAKERS: Michael Wilson

WOO99036

Ethically Situated Information Systems Development

A. Trevor Wood-Harper 1,2, **Steve Corder** 3 **and Brian Byrne** 1

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Introduction [to full paper, in lieu of Abstract]

An understanding of a problem situation is typically described as the starting point for the information system development process. What differs is the perspective used to view the situation. Technically oriented methodologies tend to view the organization metaphorically as a machine that can be fixed through the application of tools. Organizationally oriented methodologies such as soft systems methodology (SSM) work to expose and reveal the cultural, political, and social dimensions, recognizing in new implementations of information systems (IS) a potent change factor in these human dimensions. A deeper understanding of the human dimensions can be obtained by analyzing the ethical perspectives of the actors in the situation and the ethical dilemmas faced by the actors, defined in this case to include the analyst (or analysis team) as well.

Examining the ethical aspects of the situation, though frequently recommended, is often omitted. Though the IS practitioner has been presented with codes of ethics from the professional bodies, such as the Association for Computing Machinery or British Computer Society (Couger 1989), they are not given instruction in their use or implication for their practice. The tendency to teach ethics separately from the technical courses reinforces the idea that ethics are not important when doing technical work (Friedman and Kahn 1994). In a recent ad hoc survey of final year computer science

students in a new module on professional issues at the University of Salford, no student had been exposed to the code of ethics produced by the British Computer Society. This was one of the reasons for the new course. Even if shown that the codes were having a strong influence, there can be a strong argument made that the codes exist to protect the professional body, not primarily those for whom information systems are being developed. Even when using the codes, the analyst must use them in context (Anderson, et al 1993).

The existence of the codes indicate that there are ethical dilemmas that arise in the course of system development. Their context sensitive use also seems to imply a need for studying the ethical perspectives that are present, the extent to which they are implicit or explicit, and the points at which the perspectives conflict. The problem, much as it is with most study of the human social aspects, contains no clear cut guidelines for recognizing that an ethical dilemma exists. Without being aware of it, analysts who accept a technical orientation (with presumed ethical neutrality) accept the implied ethical stance of the methodology they use. Indeed the emphasis on technical work may ingender a dominance in analytical thought and lead to a rationalistic choice of ethical stance (Byrne and Wood-harper 1996). Analysts also accept with little question that the dominant ethic should be that of those who fund the development.

Yet even brief introspection would make obvious that multiple ethics are present. The analyst may judge a decision as good if it results in increased fame, prestige, power, or financial renumeration for himself. The users may judge a decision as good if it results in the maintenance of current social groupings. For both of these, we have a individual consequentialist ethic, discussed more fully in the next section. The organization, when evaluating decisions as a corporate body, may evaluate the goodness of decisions, based on whether the decision will result in maximizing dividends to its shareholders, a type of group consequentialist ethic. A external group, such as a human rights watchdog group, may evaluate a decision, based on its adherence to a set of non-discriminatory guidelines, a type of deontological approach.

Recognizing the different ethical perspectives enables the analyst to discern not only the issues, but at least in part, why they exist. The reasons for seeking knowledge has been suggested by Habermas as falling into three categories (Habermas 1968), technical, understanding, and emancipation. Primarily, the search for the ethical perspectives is one of understanding. At this point, the concern is not for technical understanding leading to control or to criticism of the existing state of affairs leading to radical political action (Dahlbom & Mathiassen 1993). Yet as Dahlbom and Mathiassen point out, seeking understanding requires interpretation. The analyst can not lose sight of the fact that they interpret the ethical perspectives of others through the lens of their own ethical tenets.

Before demonstrating how analyzing the ethical perspectives might be used, a brief explantion of four ethical viewpoints is presented. A scenario, which is obviously an ethical dilemma in itself, is explored, identifying its stakeholders and their possible ethical perspectives. The article concludes with possible implications of using ethical analysis as part of the system development process.

WOO99044

Information Technology Education and Ethics (Pedagogical Impact of Ethics Education on Students in Australia)

Leone Woodcock and Bruce Armstrong

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This paper presents the findings from a survey of information technology students on the role ethics education has played in shaping their perceptions and deliberation of situations involving ethical considerations. The project surveyed 325 students undertaking information technology studies in north-eastern Australian senior secondary schools, TAFEs, and universities (undergraduate and postgraduate levels). Current research is aimed at examining the effects of cumulative ethics education with regard to students' ethical behaviour when dealing with various computer oriented situations.

The survey shows that students' perceptions of the amount of training they received in computer ethics differ from one student to the next, regardless of their level of education. The study by Pizzolatto and Bevill (1996) noted that this may indicate that the amount of time spent teaching ethics is less important than the effectiveness of various teaching methodologies. Kohlberg (1969) maintained that ethics cannot be taught. Cohen and Cornwell (1989) supported this theory by stating that ethics are best taught through integration into the curriculum. They suggested that one solution is to pose a series of ethical questions within class discussions. This type of approach has been adopted by the Australian Computer Society as it provides a number of ethical dilemmas with some suggested solutions formed by ACS members.

This paper is an initial report on work in progress. Information technology educators from the surveyed educational establishments will be interviewed, as part of the study, to ascertain the extent to which they have incorporated formal ethics content in their courses and to identify the teaching methodologies used within these courses. The burgeoning information technology sector has placed greater on the ability of its professionals to deal with a range of situations which have ethical implications. The research investigates students' perception of the legality of an action and compares this to their responses in regard to the ethics of that action. This study has found that students clearly see a cross-linking between computer ethics and their knowledge of the legality of a particular dilemma. It also shows that students' ideas vary as to what is legal and ethical, and what is illegal and unethical. The results to date, show that increased emphasis on education with regard to legal issues as well as ethical behaviour of our future computing professionals may be necessary to ensure a consistent approach to ethical professional responsibilities.

The preliminary findings presented in this paper show that there is considerable scope for all information technology courses to expand the level of ethical and legal content. This is supported by a number of authors including Chaney and Simon (1994) who state "Educators must take responsibility for providing effective training that identifies and stresses the importance of appropriate ethical behavior especially as it relates to the use of computers".

YIP99046

Educating IT students Ethics by using a Cognitive Dissonance Theory Perspective

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The information technology revolution we are now facing affects all aspects of our daily life. The issues that arise from such rapid changes include the impact on our social values as well code of ethics. While the motives of unethical behaviour are not new, the manifestations in the IT (information technology) context present a challenge to our society. As more and more people are now employed in the IT industry and society depends more and more on IT, it is important that IT professionals graduating from Universities have the right ethical attitude and understand the conflicts they are facing when tempted to carry out unethical behaviour. This paper reports an exercise to educate IT students on computer ethics by using scenario analysis.

In this exercise, students are introduced the Cognitive Dissonance Theory. Formulated by Leon Festinger in 1957, the Cognitive Dissonance theory is based on a few assumptions. The central assumption is that human beings cannot tolerate cognitive inconsistency. The theory states that dissonance (psychological inconsistency) exists whenever one cognitive element conflicts with another cognitive element. The magnitude of dissonance is a function of the importance of each cognitive element and the number of dissonant and cognitive elements that exist at that time. Once dissonance is aroused, there will be a need to reduce dissonance. Dissonance may be reduced in many ways, including revoking the decision that causes the dissonance, lowering the importance of the decision and adding consonant elements. Thus, from the Cognitive Dissonance Theory perspective, when a person who believes he/she is a good person is tempted to commit or has committed an act of unethical behaviour, cognitive disssonance arises. The belief that one is a nice and honest person and the thought that one is about to commit or has committed an act of unethical behaviour (such as copying software illegally) causes conflict, dissonance or psychological discomfort. To reduce that discomfort, one may add consonant elements or "look for excuses" such as "every body is doing it anyway", "it's actually not serious unethical behaviour" or "I want to save up for my kids".

After the theory is introduced, the students are given scenarios of unethical behaviour and requested to analyse the unethical behaviour from the perspective of the theory. The questions being asked are: What are the psychological conflicts when the person in the scenario is tempted to commit or has just committed an unethical act of behaviour? What are the dissonance and consonance elements? Though ethical attitudes of a person cannot be changed overnight, by using such exercises, the objective is to guide students into examining the psychological conflicts they may have when tempted to commit unethical behaviour.