10 WHATEVER HAPPENED TO INFORMATION SYSTEMS ETHICS? Caught between the Devil and the Deep Blue Sea

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Abstract This paper explores the development of information systems and computer ethics along separate trajectories over the 20 years since the first Manchester Conference, and ponders how things might have been and could be different. Along each trajectory, the challenge of aligning theory and practice has stimulated much research. We evaluate some of this research with respect to this alignment, discuss ethical theories and behavior, and explore the role of education in the development of practitioners who can and do behave ethically. We recommend the inclusion of the ethics of care, and more research into the teaching and learning of ethics as part of the personal journey of students, teachers, and practitioners.

Keywords: Computer ethics, information systems, information systems development methodologies, education

1 INTRODUCTION

Many interesting observations can be made regarding the development of the Information Systems discipline since the Manchester IFIP 8.2 conference in 1984 (Mumford et al. 1985). One of the most important of these relates to the way in which IS, as a discipline, has developed a largely separate trajectory from that of information or computer ethics. Things might have been different. With the increased interest in participative approaches, and the recasting of IS development as a thoroughly social and cultural enterprise from the 1980s onward, we might have expected an information

systems ethics to have developed as part of the parent discipline. However, this does not appear to have happened, prompting our question of what has happened to information systems ethics. Instead there appears to have been a split between the development of IS as a discipline and information or computer ethics. Henceforth we shall refer to the discipline of IS as DIS, and computer ethics (or information ethics) as CE.

As it is overly ambitious to take on the whole scope of the DIS and CE disciplines in one research paper, we are concentrating on some of the ramifications of this split in terms of the implications for IS education and practice. While recognizing that there are many information systems management ethical issue (e.g., relating to data protection, privacy, etc.), we center our argument, in the main, on information systems development. Although the maturation of DIS and CE as separate disciplines has allowed each of them considerable space to develop theoretically and empirically, we do not believe that it is ultimately a good thing for them to be so separate in scope, and we conclude with some suggestions as to how the interests of the IS community and those affected by IS might be better served by a closer intellectual relationship between the two disciplines.

Information systems is often characterized as a young discipline concerned with the reflexivity between theory and practice. The scope of IS has greatly increased over the last 20 years as information technology has pervaded first the workplace and, lately, the home and social life in general, at least in Western societies, with the growing convergence of information and communications technologies. CE is an equally young discipline addressing similar issues concerning the social and ethical contexts of information systems and of information and communications technologies (ICT). However, given the relative fluidity of definitions of the respective disciplines, and given the intersection of interest, it is surprising that the two disciplines have grown up quite so separately. As Walsham (1996) notes, papers in IS journals often mention ethical issues yet they rarely focus on such topics in terms of explicit ethical concepts and systems of ethics, nor do they tend to cite CE research explicitly, although there have been some attempts to integrate ethical reasoning into systems methodologies which will be discussed below. However, there are a number of mainly quantitative studies of IS professionals' attitudes to ethical issues that have been reported in the IS and business studies literature (e.g., Khazanchi 1995; Kreie and Cronan 2000). Walsham's criticism of the lack of ethical development in IS does not appear to extend to this work, as such. Nevertheless, as discussed below, statistical surveys of ethical beliefs tend to deflect interest away from ethical theory and theorizing, and focus unethical behavior into ethical decision making (Adam 2001b).

Revisiting the place of ethics in the IS research agenda in this millennium, noted earlier by Walsham, we find it instructive to review briefly how far publication on ethics has permeated the leading IS journals, taking *Information Systems Research* and *Communications of the ACM* as our sample. We note that in the research commentaries (where previous research in an area is reviewed and future areas laid out) published by *Information Systems Research,* a leading IS journal, none published since January 2000 mention ethics (Alavi and Leidner 2001; Ba et al. 2001; Basu and Kumar 2002; Lyytinen and Yoo 2002; March et al. 2000; Orlikowski and Iacono 2001; Sambamurthy and Zmud 2000; Straub and Watson 2001; Wand and Weber 2002), although ethics was mentioned in an earlier commentary (Benbasat and Weber 1996). Specific journals, such as *Ethics in IT* and *Information, Technology and People,* explore the ethics of IS

research and practice but they are likely to be addressing those with an existing interest in ethics. This leads us to question the place of ethics in the IS research agenda.

Communications of the ACM is a leading publication read and written by practitioners and academics, and it has shown sustained concern with the ethics of practice. The topics covered in articles on ethics, published in the last 25 years, include ethical decision-making, codes of ethics, ethics education, and issues raised by specific problem domains or technologies. An early example was the self-assessment procedure published in 1982 (Weiss 1982), and revised in 1990 (Weiss et al. 1990), an educational article encouraging the reader to explore ethical scenarios with reference to the ACM Code of Conduct. The 1982 article was the only one specifically related to ethics published in *CACM* in the 1980s, but as the decade progressed, the subject of ethics began to crop up in editorial material and letters and, since the publication of the second self-assessment procedure in 1990, there has been a steady stream of articles relating to ethics. Almost all of these articles make some reference to ethical theories and offer guidance to the reader on applying ethical theory generally, or in specific situations, such as given scenarios or in the context of particular technologies. Several articles cover specific codes of conduct and practice (Anderson et al. 1992; Anderson et al. 1993; Farber 1989; Gotterbarn et al. 1997; Gorterbarn et al. 1999), while others refer to them in offering guidance. Some articles offer explicit methodological support on ethical practice, usually decision-making (Collins et al. 1994; Huff and Martin 1995; Mason 1995; Wood-Harper et al. 1996), while others situate their discussion of ethics in a given area of practice or in the use of a specific technology, often the subject of other articles in the same issue (Berdichevsky and Neunschwander 1999; Bowen 2000; Johnson 1997; Sipior and Ward 1995; Wagner 1993). Survey-based research into ethics has been presented to try to understand how individuals make ethical decisions (Kreie and Cronan 1998, 2000; Loch and Conger 1996; Moores and Dhillon 2000; Pearson et al. 1997), and one article deals with ethical issues in Internet research (Duncan 1996). While we may regret that all of the research is survey-based, and question some of the more formulaic guidance, we recognize *CACM's* commitment to dealing with ethics in the context of practice, education, and research. An interesting editorial piece publicizes action taken against an author who plagiarized in an article published in an ACM publication (Denning 1995). Although it is difficult to generalize from one publication, we tentatively hypothesize that *CACM*'s engagement with a practitioner audience, in contrast to other more academically focused IS journals, may partially account for its apparently greater interest in ethical issues.

Similarly CE research rarely references mainstream IS research. Some CE writing is philosophical and abstract (e.g., Floridi 1999). Yet there are many practical case studies and good philosophical approaches to relevant writing (e.g., Tavani, 2004). However, quantitative studies, so popular in the North American management literature, are rare in the CE literature; philosophical analysis and case studies are much more common. This implies a certain amount of incommensurability in the ethics research paradigms of DIS and CE that may go part of the way toward explaining the split.

A number of implications spring from this separation. As well as different paradigms for research on information systems ethics and the tendency to focus on ethical decision making, a significant implication is the difficulty of integrating ethical practice into IS development. This is manifest initially in terms of IS education and later

in relation to the development, and use, of IS in the workplace. Both DIS and CE struggle, on their separate trajectories, to align theory and practice. The IS community's response to the challenge of integrating social aspects into IS development is evident in much of the IS development methodology research over the last 30 years. In the remainder of the paper, we consider the *status quo,* in terms of what practitioners do and what students learn, and continue by reflecting on the implications of characterizing moral behavior as decision making. We consider some of the problems of the separation of CE and DIS within the context of the rise of CE as an identifiable, separate area of research and the significance of professional codes of conduct in delineating the boundaries of an emerging computing-IT-IS profession. We continue by discussing three areas: first, codes of ethics as teachable constructs; second, the related perils of focusing on rules, decisions, and goal-centered activity as a reflection of moral life, a view of ethics that is encouraged by the prominence of quantitative studies of IS professionals' views on ethics; third, efforts to integrate ethics more formally into systems development methodologies.

2 WHAT PRACTITIONERS DO AND WHAT STUDENTS LEARN

As well as incorporating ethics in methodologies and professional codes, we can include ethics in the curriculum of putative IS developers (e.g., on undergraduate courses) with the hope of encouraging practitioners to become moral agents. However, it is not clear how ethical development can be taught effectively as part of the IS curriculum unless a more adequate means of integrating ethics into mainstream IS is developed. Currently ethics is often taught as a separate subject within the IS curriculum. While this may be better than not teaching ethics at all, it suggests to novice IS students and professionals that ethics and practice are separate and may encourage them to compartmentalize elements of their education. Our experience in teaching a core undergraduate module in ethics to a range of IT, IS, and computer science students suggests that this may be happening. Although most students enjoy this module, there is always a small group of students, admittedly usually drawn from the computer science and software engineering end of the spectrum, who struggle to see the significance of the material. Their concerns seem to run deeper than questions of teaching quality, relating, rather, to what they, and we, expect to see as a suitable topic in the IS curriculum. Despite the efforts of professional bodies to emphasize the importance of ethics in the curriculum, it often looks like something of an optional extra, a theory that is irrelevant to practice. We argue that, unless we find ways of integrating ethics into core elements of the IS curriculum, it will always seem marginal and not something that graduates would expect to apply in their professional practice. In addition, were we able to achieve a better integration into the curriculum, it would undoubtedly affect what is taught as ethics. The emphasis might move away from hacker ethics and Internet pornography, admittedly important topics, to information systems management and development, for example, to ethical applications of systems development methodologies in the workplace, a more mainstream concern.

This signals one of the most problematic aspects of the separation of ethics and IS education and practice that manifests itself in the way that students may avoid asking

difficult questions about applying ethics to practice. This is inevitable; they cannot frame such questions if they have no obvious means of connecting ethics and practice. There is already evidence that students or new graduates find it difficult to integrate ethical awareness into the workplace. Alarmingly, a recent study at Nottingham Trent University found that final-year business students who had attended work placements were less likely to show ethical awareness than students in their second year (*Times Higher Educational Supplement,* December 6, 2002, p. 8). Although this might suggest that earlier ethics training is needed, we argue that it is just as likely that novices in the workplace have little idea of how to integrate ethical practice into their work even if they have been taught ethics. This problem is unlikely to be stemmed by earlier training, unless it explicitly addresses practical methods of application and integration.

3 MORAL BEHAVIOR AS DECISION MAKING OR WHAT?

What is it that we do when we act morally as IS professionals? We think it is doubtful that we apply rules in a conscious way in acting morally. The concept of a rule implies that there is a potentially correct answer, a decision or set of decisions that can be chosen. Therefore, there are two further issues to consider: first, the construction of techniques that can be used to choose rules to decide between ethical alternatives, and second, the related characterization of ethical behavior in IS in terms of making a decision based on a rule or rules. On the first point, an emphasis on rule following and concomitant decision making as encapsulating moral behavior in relation to IS can lead researchers into developing difficult and potentially convoluted ethical methods that are difficult for teachers to teach, and for students to apply.

Possibly partially in response to such albeit somewhat intangible difficulties, some authors have interpreted the ambiguities involved in terms of a need to resolve conflict between different courses of action. For instance, Mason describes such conflict resolution as supersession, where the moral agent selects the ethical principle or principles that is the most compelling in a particular case. Supersession requires an individual to make decisions even when using ethical principles agreed by a collectivity, such as a professional body. Depending on the source for the judgement of which principle is the most compelling, this process involves selecting the higher order ethical principle, and the ability to defend the reasoning by which the superseding principle is chosen (Mason et al. 1995).

There are a number of problems with such a process. It describes an ideal situation that is very unlikely to exist in real life, whereas a decision may have to be made swiftly and against a messy backcloth of conflicting parameters that do not readily map onto sets of ethical principles amenable to priority rating. If we accept, as has been argued elsewhere (Adam 2001a), that moral reasoning in CE tends to follow traditional utilitarian and deontological moral reasoning, then criticisms of traditional ethical theories may be relevant to CE. Critics (Adam 2001a; Tong 1993) have commented on the way that traditional systems of ethics, particularly those based on Kantian theories, presuppose a rational, individual moral agent, who can select among a set of abstract principles of justice that are available *a priori* those principles which should apply in a

given situation. The individual moral agent is the free man of traditional liberal theory, making decisions on justice and rights unfettered, in his decision making, by the nexus of societal relations. However a number of writers on ethics (Robinson 1999; Tong 1993) have, more recently, emphasized power relations in relation to ethics. One might not be able to choose freely among competing alternatives, but may be constrained heavily in one's choice depending on one's position in the hierarchy.

A related issue is the emphasis placed on the role of the professional at the expense of other workers, such as information owners, users, or other stakeholders (Orlikowski and Baroudi 1989). This is not just a limitation in the scope of professional codes but is more generally part of the disguised power relations embedded in traditional liberal ethics. There is a particular tension here regarding the traditional ethics that act as a cornerstone for computer and professional ethics, as its focus on the individual moral agent is based on the assumption that all have an equal chance to speak. Given the movement toward user participation in IS, the focus of CE could be at odds with user-centered participative approaches. This is especially important in relation to the newer critical movement in IS (Hirschheim and Klein 1994) where, following Habermas, the will towards emancipation emphasizes the concept of the ideal speech situation. Yet within the critical IS field, we have barely begun to construct the critical IS ethics that could make use of these ideas (Adam and Bell 2003).

An additional difficulty lies in the tacit and persistent acceptance, embedded in approaches such as supersession, echoing scientific management, of management activity as rational pursuit of a goal through decision making. Such a view has been extraordinarily tenacious, stretching from Taylorism, through Simon's (1976) later work on the scientific management of human problem solving, even into views of intelligence as rational problem solving encapsulated in artificial intelligence and knowledge management. Later approaches toward the characterization of decision making in scientific management include the theory of reasoned action and, more broadly, rational choice theory (Archer and Tritter 2000). These theories impose a mathematical model on the business of making decisions, often with weightings. Only with the advent of anthropological and interpretive approaches to recording management and workplace behavior has the reliance on rationalistic, goal-seeking decision making diminished. Nevertheless such approaches have been extraordinarily tenacious especially in normative areas such as methodologies for system design and for ethical analysis.

Taking such criticisms on board for CE leads us to doubt the practical use of ethical methodologies such as supersession and reliance on the power of the code of ethics and rationalist goal-centered approaches in ethical decision making (Mason et al. 1995). Furthermore, this leads us to question the teaching of ethical methods in CE education especially those built round the objective of designing methods to enable following professional codes and applying sanctions if codes are not followed. Apart from the whole question of the ineffectiveness of professional codes in an industry that is largely unregulated, this view places far too much reliance on formal processes of rational decision making, ignoring the question of how far moral activity is directed into activities other than decisions. On the other hand, unless we are to admit some sort of methodology such as that put forth by Mason et al., we may have little by way of practical suggestions as to how to teach ethical principles, other than abstract approaches that struggle to connect case studies to ethical theory.

4 CODES OF CONDUCT AND PRACTICE

The rise of CE as a discipline involves the intersection of several vectors. It can be seen as part of the professionalization strategy of the emerging computing-information technology profession (Adam 2001a) where the notion of a *social contract* is important. As citizens, we are all bound by a social contract to act in particular ways toward each other and with regard to the instruments and institutions of the state. The social contract takes on additional burdens beyond those expected of the individual member of society when applied to professions. A profession has particular duties to its users and a wider public, not only to do them no harm, but also, more positively, to act in their interests according to the dictates of the profession. The computing industry, in subscribing to codes of ethics, attempts to enter into a similar social contract. Yet it can be argued that the computing profession hardly matches any of the traditional indicators of professional status (e.g., standard education, professional autonomy, regulatory bodies).

Computing codes of conduct and practice, as an explicit representation of the social contract, have two goals: to capture the essence of the profession's commitments and responsibilities as a basis for ethical decision-making and to convince the public that the profession is capable of self-regulation (Walsham 1996). This can be characterized as a deal between a profession and society: accountability of the profession and its members in return for the trust, confidence, and respect of the public (and the accompanying increased social and economic rewards) (Mason et al. 1995). Early versions of the codes of bodies such as the ACM tended to be regulatory, but in the 1990s these codes become more normative in nature. Gotterbarn (1997) sees normative codes as reflecting some sort of consensus of traditions and a growing sense of maturity in a profession.

Although in this discussion we recognize the role of the ethical code in formalizing the social contract between a profession and the public, we note that much of that social contract is tacit, not written down and not strictly enforceable. This is especially the case in the computing-IT-IS profession where most practitioners practice perfectly well without reference to professional membership and one need not be licensed in order to practice. This reinforces Gotterbarn's point. It is not so much that the codes of ethics strictly lay down rules for the profession to follow, rather that they reflect the maturity of the social contract into which the profession has developed. Codes of ethics are generally seen to provide useful sets of principles and duties but several IS researchers have clearly alluded to the difficulties that practitioners may have difficulty in applying them (Anderson et al. 1993; Mason et al. 1995; Walsham 1996).

Teaching codes of conduct, including an awareness of how and why these have changed through the years, is therefore important. Although codes are by no means the only topics taught on CE courses, they do form a convenient peg on which to hang the topic of professionalism. Yet too sharp a focus on ethical codes may prove problematic. Rules cannot stand alone as simple prescriptions or proscriptions for action; in professions, they are bedded into practice by a variety of means including education. We have the legal profession to help us apply legal rules and mathematics teachers to help us apply mathematical rules, at least until we become expert in the application of mathematical principles. Therefore, we should not be surprised if ethical rules are difficult to apply, and we should expect that ethics be taught by teachers who can understand ethical theories and apply them to the information systems context.

This serves to emphasize that although codes can help rule out unacceptable decisions, they are not prescriptions for action. This is partly because, in real-life contexts, different principles and duties may be in conflict, but also because, especially in more recent form, ethical codes tend to display the "open texturedness" we expect from a good rule, where all the states to which the rule applies are not written down in advance (they cannot be). Rather the rule is subject to interpretation in each new case, in the same way that legal rules are constantly reinterpreted in new legal cases, thus building up the body of case law. In summary, the point we make here is that teaching codes of conduct, especially if they are taught as part of a separate professional studies or ethics module, tends to move the focus of information systems ethics teaching and practice away from real life practical action toward more abstract rules.

5 TEACHING AND LEARNING COMPUTER ETHICS

Although professional bodies attach importance to the inclusion of ethics on approved course syllabi, there is a lack of consensus about the effectiveness of ethics education in improving information systems practice, and this is an issue that runs through business and management literature more generally. Indeed the considerations raised in the previous section reinforce doubts about CE education, especially in terms of an over-reliance on the idealized decision- making processes that traditional systems of ethics offer. Wright (1995) claims that education is the best means of developing good ethical behavior in the modern business environment. However, a recent statistical survey found that in terms of the ethical values examined in this survey, there were no significant differences between business students who had taken an ethics course and those who had not (Peppas and Diskin 2001). This tends to reinforce the findings of the Nottingham Trent University study cited earlier. Additionally, these findings are borne out, at least to some extent, by the studies referenced in Wright's literature survey on learning ethical behavior and judgement where results were mixed, to say the least. This is a disturbing finding, suggesting that our attempts to incorporate ethics into the curriculum may be to little avail. However, Peppas and Diskin (2001) suggest that further research is needed into how ethics can be learned, suggesting that case studies could help simulate the experience of exposure to business circumstances and may, therefore, be more effective than teaching abstract principles, avoiding the difficulties that students experience in trying to apply systems of ethics (Johnson 1994).

The difficulty of turning abstract ethical principles into teachable moral procedures is, perhaps, to be expected for any discipline, not just for IS and computing. We contend that the teaching of ethics demands teachers capable of post-formal reasoning, who can facilitate the development of such reasoning by their students, and who appreciate

> that the intersections of expert knowledge, imagination, and ethical decision are governed by a postformal stage of reasoning, that is, a way of thinking allowing for multiple and contradictory views of truth, for bridging across belief systems, and for bringing to the foreground subjective and self-referential thought (Lee 1993).

Post-formal thinkers do not rely solely on propositional knowledge but can also use self-referential and subjective knowledge in their consideration of wider issues, guided by the compassion, responsiveness, and responsibility that are the hallmarks of an ethics of care. They can connect hypothetical situations to their own experiences, and still consider the other. Achieving this is a tall order.

Our understanding of ethical decision-making is constrained by the style of empirical study that preponderates in the research literature on business and IS ethics (Adam 2001b). In many studies of ethical decision making, the main research tool is the questionnaire followed by statistical analysis. This is a standard quantitative research approach that predominates in North American management research. It also reinforces an approach to business and management, echoed in IS and computing, that focuses on decision making as the primary thing that managers do. However, for ethical analysis, the effect is to take a "snapshot" of the ethical event, to focus on actual decisions that respondents would take, or at least the decisions they say they would make under the circumstances outlined in the questionnaires (Kreie and Cronan 1998). Apart from our concerns about the value of such an exclusive concentration, this also raises the age-old problem that we do not know how to correlate what people say with what they do. More importantly, this style of research has three important consequences. First, it assumes that there is a "right" answer that is clear from the brief description of the case. Second, it forces considerations of moral behavior into the end process of an ethical decision, de-emphasizing or ignoring the complexities of the process and context within which the decision was made. Third, it ignores the way that much, if not the majority, of moral behavior is not concerned with making decisions. Making good decisions may not be all there is to being "good." Hence the effectiveness of ethics education is as much about providing the opportunity to reflect on accountable, ethical practice as about learning codes or theories and emphasizing decisions based on such theories. Post-formal thinkers will be equipped to grapple with the age- old ethical dilemmas and their current manifestations in the context of globalization, people working, learning and socializing via the Internet, as well as face-to-face—namely, power, trust, identity, and many other issues. In the next section, we examine the possible role of methodology in learning the practice of an important activity in IS, systems development.

6 METHODOLOGIES AS NORMATIVE ETHICAL DEVICES

In the education and practice of systems analysts, information systems development methodologies (ISDMs) are typically used as normative devices to encourage "good practice" (Klein and Hirschheim 2001). Where ISDMs operate as static rule-systems that require developers to operate in a standardized manner, they offer poor support for learning compared with second-order learning processes that provide a framework within which individual learning can take place (Floyd 1987). The combination of the structure of a documented process with reflection and tutor feedback can make a methodology a good framework for students learning systems development, even if they do not use the methodology once they graduate. However the concept of *good* in an IS development methodology rarely maps on to what is understood by good in a moral

sense. We regard this separation as problematic. It is as if the goodness of ISDMs is to be understood in functionalist terms rather than moral terms and further underlines both the apparent separation of ethics from other parts of life and the lesser status of ethics within disciplines. Witness the way that business ethics exists as a separate and somewhat lesser status discipline from management, a situation that parallels the separation and status of CE and DIS.

Research into the use of methodologies by practitioners indicates that in many cases they are not used (Chatzoglou 1997); that where they are used, they are adapted to the exigencies of the problem and development situations (Fitzgerald 1997); and that in some cases the goal of using them may be displaced to legitimize the development process, what Wastell calls a social defense (Fitzgerald 1996; Wastell 1996). Therefore, we can see that practitioner respond to methodologies by a combination of ignoring them and using them in their own way, or for their own purposes—in short, they have difficulties in aligning theory and practice. Commercial methodologies are often adopted by virtue of a decision to purchase a computer-aided software engineering (CASE) tool. Many of these are focused on a bounded, often technical, rationality, with recognition of the need to align with business needs and be usable by end-users, but with little or no recognition of wider ethical issues raised by consideration of stakeholders beyond rational views of client, developer, and user, for example, rational unified process (Kruchten 2000). As we explore later, even methodologies that take account of social aspects do not explicitly include tools and techniques to support ethical analysis.

Hirschheim and Klein (1995) define an information systems development methodology as "an organized collection of concepts, methods, beliefs, values and normative principles supported by material resources." By including "beliefs, values and normative principles" in their definition, Hirschheim and Klein suggest that the adoption of a particular information system development methodology (ISDM) may have an effect on the analyst's treatment (or not) of ethical issues. Methods based on a technical rationality (e.g., SSADM—Goodland and Slater 1995), pay minimal attention to ethical issues (Rogerson et al. 2000; Walsham 1993). Paradigmatic analysis has revealed the extent to which different methodologies facilitate the consideration of ethical and social issues (e.g., ETHICS—Mumford 1996; soft systems methodology—Checkland and Scholes 1990; Multiview—Wood-Harper et al. 1985; the collective resource approach—Ehn and Kyng 1987; and critical action research—Hirschheim and Klein 1995; Jonsson 1991; Walsham 1993). Even those methodologies that encourage the analyst to raise ethical issues offer limited support for the resolution of these issues. In his exploration of the support offered by SSM to the analyst as moral agent, Walsham (1993) provisionally concludes that the degree of support offered by SSM depends on the analyst's own actions and the particular adaptation of SSM adopted by the analyst.

In the case of information systems development, as opposed to information systems management or strategy, there is a small body of literature on the role of ethics. An important strand of this work looks at the philosophies that underpin various systems development methodologies, and claims that they favor various value orientations, apparent as design ideals (Hirschheim and Klein 1989; Iivari et al. 1998; Klein and Hirschheim 2001). The speech act-based approach developed separately in North America and Scandinavia, the latter stream being strongly influenced by the critical social theory of Habermas. While Iivari et al. (1998) identify a means-end orientation

in the research based on this approach, with the IS designer adopting an emancipatory role, they point out that the emphasis on the intersubjective use of rational communication can be used to increase organizational effectiveness. Soft systems methodology, with its use of *Weltanschauungen,* does offer the opportunity to consider alternative viewpoints (including ethical ones), but its ethical approach depends on how it used, and specifically how "accommodation" is achieved between these viewpoints in plans for action (Checkland and Scholes 1990; Iivari et al. 1998; Walsham 1996). It seems, therefore, that methodology is no guarantor of ethics; the change agent(s) and the problem situation also affect the process of making ethical decisions.

Let us examine two analyses of how specific methodologies could be extended to improve their support for ethical analysis. In the first example, Wood-Harper et al. (1996) take the view that there is a dominant ethical belief that can help to predict and understand group behavior in a given situation, while also considering the various, possibly conflicting, stakeholder ethical views. The analyst must choose a methodology, and decide how to analyze and resolve conflicting ethical viewpoints. In order to do this, the analyst should understand and be able to apply ethical theory. They offer a five step ethical analysis approach, which they claim might be integrated into any systems development methodology, and they then retrospectively map that approach on to soft systems methodology as it was actually applied in their case study.

In the second example, Rogerson et al. (2000) attempt to map the Australian Computer Society's Code of Ethics (ACSCE) on to structured systems analysis design method on the basis that such a mapping on to a technically oriented systems method is a good test of the possibilities for enrichment of methodologies with ethical analysis. Their initial approach covers a mapping of ACSCE on to SSADM modules, and an example of how ACS articles might be used to derive (ethical) product criteria for SSADM products.

In neither of these examples has an ethical methodology been identified then explored in practice, but the mapping between a practice case study and a methodology, in the light of ethical theories, may be a useful activity in ethics education. Systems development methodologies have been claimed to offer a useful learning framework for novice system developers, making explicit activities and decisions that more experienced developers may treat as a matter of course. Case studies that use the ethical SSADM product criteria or follow the approach suggested by Wood-Harper et al. or give rich descriptions of how ethical dilemmas were handled (as messy processes rather than correct decisions) will be a useful resource for educators. Using such case studies in ethics education has the attraction of offering a safe "sand pit" where novices can experiment with ethical thinking, digging and building without doing any damage. However, we need case studies that capture the process and complexities of dealing with ethical issues in a range of contexts for IS, systems development, systems integration and implementation, management, and use of information systems, in the home, the workplace, and other social settings.

7 CONCLUSION

In this paper we have raised a number of issues relating to the connection, or lack of connection, between DIS and CE. These disciplines have shared concerns: they seek

to align social and technical concerns, and theory and practice; such goals are inherently difficult; they seek to influence practice through education; and research methods are moving from quantitative to qualitative. We note the relatively separate trajectories of the two disciplines; this is especially notable when we consider the relative lack of interest in ethical issues displayed by flagship IS journals. This is also hard to understand when DIS and CE address similar subject matter and when other disciplines, such as science and technology studies, have taken a turn toward the ethical.

Our primary concern is with the integration of ethics into IS education, an endeavor that remains problematic for reasons relating to the curriculum in relation to the dominant theories espoused by teachers, and to the inherent difficulty of learning to reason ethically in practice. The split between CE and DIS has exacerbated these problems. Furthermore, the emphasis on moral behavior as decision making, which is displayed more generally in business ethics, but is also found in CE, leads us to develop ever more convoluted decision-making techniques that are difficult to apply and emphasize the individual, Kantian, rational-moral agent in favor of considering a network of moral relationships. This appears to be the traditional Tayloristic view of meaningfully activity as rational pursuit of a goal.

We recommend that, as is usually the case, where ethics is taught as a separate subject, the curriculum be changed to integrate ethics with practice, for example, in systems analysis or in reflection on information systems management and development. This would also emphasize a more relational approach to ethics with the inclusion of an ethics of care that encourages the connection of individual experience to consideration of that of others, within the context of self-referential and subjective thought. We recognize how difficult it will be to achieve the development of such ethical thinking in undergraduates (and in us, the teachers), and look forward to a body of qualitative research in this area, that can transcend the limited view of ethical reasoning as judged by decisions that follow from a rational process, provided by the body of quantitative research to date.

The very few attempts to integrate ethical analysis into systems development methodologies appear to be at an early stage of development and have not really spawned a research tradition. Given the emphasis on emancipation and communicative rationality within critical IS, we argue that further empirical work in this field would provide more appropriate case studies of integration of ethics into IS, particularly where these can be integrated into political and social contexts as suggested by Benhabib (1992). We leave you to surmise which is the devil, and which is the deep blue sea.

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