Ethics Research in AIS

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Abstract

A review of the extant accounting information systems literature is undertaken in order to identify the current ethical issues that have been, and need to be, raised and investigated as advanced information technology becomes more and more a part of organizational and professional life. Although relatively little AIS research is directly devoted to the study of ethics, there is a growing recognition that systems are influenced by the specific conditions under which they exist, and that they motivate organizational and social consequences that go far beyond improved decision-making and task-performance. Traditional AIS research has focused on the use of technology in improving decision-making and accomplishing other organizational objectives. The applied AIS ethics literature is reviewed, which uses the theories and methodologies developed by moral philosophy to study particular issues and seeks to assist in recognizing and responding to ethical dilemmas arising from the technological innovations and applications. Two categories are used. The first includes normative ethical theories that have been applied to AIS issues. The second includes alternative theoretical perspectives such as responsibility ethics, stakeholder theory, structuration theory, and postmodern perspectives that have been used in addressing ethical issues related to the design, implementation, and application of accounting information systems. The discussion concludes with a summary of the literature review and potential directions for future research.
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INTRODUCTION

Advanced information technology, of which accounting information systems (AIS) are a significant part, is the engine powering unprecedented economic growth and the onslaught of global capitalism. The general well being of society is equated with corporate health, and corporate health is seen as dependent on advanced technology. Thus arises a technological imperative whereby the well being of society is dependent upon the implementation of information technology. The technological imperative leads to a sense of technological determinism in that advances in technology are unquestionably accepted and implemented in all facets of organizational activities with little regard for the noneconomic consequences. Given the increasing momentum of the changes taking place and the pervasiveness of the applications, the rights and interests of affected parties are coming to represent an equally pressing ethical imperative. Informed decisions must be made that consider ethical issues beyond the narrow concerns of ownership rights and stockholder utility. The purpose of the following discussion is to review the extant accounting information systems literature’s response to this ethical imperative.

Although there is relatively little AIS research directly devoted to the study of ethics, there is a growing recognition that systems are influenced by the specific conditions under which they exist, and that they motivate organizational and social consequences that go far beyond improved decision-making and task-performance. Traditional AIS research has focused on the use of technology to improve decision-making and accomplish other organizational objectives. The following AIS journals were reviewed: Journal of Information Systems (JIS), Advances in Accounting Information Systems (AiAIS, has recently been succeeded by The International Journal of Accounting Information Systems), Accounting, Management and Information Technology (AMIT), and Review of Accounting Information Systems (RAIS). Other journals that have on occasion published AIS ethics research were also considered: Research on Accounting Ethics, Accounting Organizations and Society (AOS), Business Ethics Quarterly (BEQ), Business and Society (B&S), Journal of Business Ethics (JBE), Information Systems Research (ISR), and MIS Quarterly (MISQ). The research reviews do not claim to be inclusive but illustrative of the work in the field.

The focus of the following discussion is applied ethics. The purpose of applied ethics is to criticize and improve the values and principles associated with a specific applied field or profession such as medicine, accounting, business, journalism, law, and ecology. Applied ethics appropriates the ideas and theories from the general study of moral philosophy relating of goodness (teleological) and right action (deontological) and applies them to moral (ethical) dilemmas that arise within the particular circumstances of some profession or occupation. Standard philosophical techniques are used to define, clarify, and organize the ethical issues found in the domain. Strictly speaking, ethical dilemmas arise in situations where an agent has a moral requirement to adopt one of two mutually exclusive alternatives. The standard philosophical perspectives most often applied in business and other professional domains are teleological, deontological and contractarian perspectives. Other perspectives that have received attention are virtue ethics and stakeholder theories.

The discussion is organized as follows. The AIS applied ethics literature is reviewed. The work considered is directed toward providing theoretical grounds and direction for AIS ethics research and generally introduces frameworks that can be useful in identifying and resolving ethical issues that arise within the AIS domain. Next, implications regarding potential future directions for AIS ethics research are presented. Concluding remarks follow.

Applied Ethics in AIS Research

Applied ethics uses the ideas and theories developed by moral philosophy to study particular issues that arise in an applied field. In the following discussion, the ideas or frameworks drawn from moral philosophy and business ethics include general teleological, deontological, and contractarian perspectives, interpretative perspectives, responsibility ethics, structuration theory, stakeholder theory, and postmodernism. The AIS literature includes ethical theories and frameworks that can help both researchers and practitioners recognize and effectively...
address ethical issues associated with technological innovations in the accounting field. At the same time the work shows how various theoretical perspectives can illuminate ethical features of AIS contexts and can often uncover a broad range of ethical issues worthy of the attention. Taken together, these papers provide the rudiments of an applied AIS ethics literature and present a set of ideas for ethics research. The studies discussed in this section are summarized in Table 1.

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Teleological, Deontological and Contractarian Perspectives

A series of papers by Sutton, Arnold, and Arnold employ general ethical approaches in an accounting domain, specifically audit/accounting expert systems (AES). Sutton et al. (1995) is the initial study focusing on the ethical issues associated with capturing and broadly distributing expert’s knowledge in the form of an expert computer system. Ancillary issues considered are the diminished value of expertise within the organization and the increased risk if the expertise embedded in the system is misapplied. The ownership of expertise dilemma is evaluated from a teleological, deontological, and contractarian perspective. Within the context of their analysis, a teleological perspective suggests that the implementation of such a system would be the ethical choice because the benefit of the system to the firm would be greater than the cost incurred by the expert.

In a subsequent paper (Sutton et al., 1997-98), the act-based teleological analysis is extended using a rule-based analysis. Using this perspective, the authors conclude that “the implications of the types of action being consistently selected across society” (p. 472) leads to the conclusion that the AES development cannot be ethically justified because the general value of expertise could be diminished. They also suggest that the retarded development of audit knowledge could ultimately reduce audit quality, although they do not pursue this issue.

Sutton et al. (1995) also present a deontological analysis concluding that any activity, such as the development of an AES, diminishing any individual’s human capital would be considered an unethical activity. Such an analysis privileges universal rights such as autonomy, or perhaps intellectual property rights in this case, over a utilitarian criteria of the greatest good for the greatest number. Extending the analysis, Sutton et al. (1995) conclude that a contractarian perspective lends support to the development and use of AES under conditions where the auditor willfully agrees to supply expertise to the project and fully understands the consequences of participation.

Arnold et al. (1997) further explore the contractarian perspective regarding the development of expert systems and ownership of expertise. They employ Rawls’ notion of original position where the parties to the contract begin in a position of equality behind a veil of ignorance. From the Rawlsian perspective, the question becomes one of whether rational decision makers would enter into the contract. The result of a detailed analysis of the contractual relationship between the expert and the employer leads the authors to conclude that from a contractarian perspective the current contractual relationship between the audit expert and the firm is not acceptable. However, extending Sutton et al. (1997-98), they do describe how the contract might be modified in order for it to be acceptable. Somewhat more metaphysically, Sutton et al. (1997-98) question whether expertise is a commodity that can be bartered freely or whether it is part of the auditor’s “being.” Although no conclusion can be reached from these discussions, they clearly indicate the need for further exploration of the issues. These authors recognize that social norms regarding AES continue to evolve as system development and use become widespread and a better understanding of the nature and consequences of these systems develops. For example, as the prevailing norms, generally privileging the organization, are institutionalized, experts find themselves left with little control over their expertise.

Drawing on the previous work, Sutton et al. (1999) propose an integrated framework for analyzing AIS ethical issues that includes the following dimensions: intellectual property, epistemology, quality of work life, competitive advantage, and information security and privacy. They call for the continued pluralistic evaluation of these important ethical issues.

Traditional, Interpretative, and Dialogical Perspectives

Yuthas and Dillard (1996) propose an integrated ethical model for evaluating AES development and present an example of its implementation. The issues surrounding AES development and implementation are

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2 The person resolving the dilemma is not aware of which party s/he represents, the social status, race, gender, and other contextual factors of any of the parties involved.
investigated using three different theoretical perspectives labeled traditional, interpretative, and dialogical. The traditional perspective focuses on effectiveness and efficiency of resource utilization by controlling means-ends relationships. This perspective is exclusively rationalistic assuming a stable, objective reality that can be identified and codified. Logical application of general rules can be used to draw systematic conclusions. System development is focused on meeting a set of predetermined objectives and is considered to be a success if it meets the functional specifications and/or if it promotes the economic well being of the organization in which it is used. This perspective ignores issues related to individual beliefs and values, assumes that all share common goals, generally those of the affected organization, and as a result fails to anticipate potential effects of different perspectives and interests on the ultimate outcome. Social processes surrounding system design and implementation are not considered. Ethical considerations are ignored, couched in neoclassical economic utilitarian terms, or specified more in terms of socially acceptable behavior than moral or right actions.

The interpretative perspective provides a more encompassing ethical perspective. Hermeneutics provides the theoretical grounding. With respect to AES, the interpretative perspective brings into focus the principle ethical issue of whether the expert system can effectively take into consideration the unique elements of an individual decision setting and whether its user can recognize the subjective and personal nature of the “facts” embedded in the knowledge base in a manner sufficient to ensure that an appropriate judgment is made.

The dialogical perspective is theoretically grounded in Habermas’ (1984, 1987) theory of communicative action and focuses on commitments made and interpreted through communication among affected stakeholder groups. Within this theoretical framework, AIS can be evaluated in terms of their confining or emancipatory potential. Thus, the primary ethical issue considers whether the technology is used to constrain or liberate.

Responsibility Perspective

In an attempt to provide a more direct theoretical grounding for ethical research in AIS, Yuthas and Dillard (1996) propose a general model based on the work of Richard Niebuhr (1963). A model is developed as an abstract framework for identifying and evaluating ethical dilemmas. The purpose of the proposal is to recognize the ongoing context of community within which AIS are implemented and to acknowledge the demands of responsibility, accountability, and solidarity. Though implied, the concept of mutually interested parties with diverse and possibly opposing positions is not explicitly discussed.

Continuing with the focus on AES within the public accounting domain, Dillard and Yuthas (1997b) develop the application of the responsibility ethic framework focusing on the relationship between the expert and the employing organization. The rights and responsibilities of the two parties are identified using a responsibility matrix that includes the following categories: commitment, nature of work, audit quality, quality of work life, and competitive pressures. Discourse ethics is introduced as a guide for implementing such a framework. The authors advocate a stakeholder perspective, but the idea is not developed.

Dillard and Yuthas (2001) further extend the responsibility ethic in the area of AES and attempt to articulate what constitutes related ethical issues. The argument assumes that the fundamental form of human association is face to face communication within an ongoing community. The responsibility ethic provides a framework for identifying responsible action. To be responsible, action must consider the ongoing relationships among affected stakeholder groups. The rights and responsibilities for affected stakeholder groups are formulated. The affected stakeholders are identified as the expert, user, CPA firm, client management, client investors, the accounting profession, regulators, and society. The mutual responsibilities for two pairs of affected stakeholders (the expert and the firm, the firm and the client investor) are fully developed using the responsibility ethic as a framework. For example, the mutual responsibilities associated with the action component of the responsibility ethic with respect to the firm are specified for the following dimensions: commitment, nature of work, quality of audit, quality of work life, and competitive pressures. The mutual responsibilities associated with the action component of the responsibility ethic with respect to the CPA firm and client investors are specified for the following dimensions: contractual relationships, personnel, procedures, technology, and competitive pressures. The characteristics that provide the means and conditions for the requisite discourse are specified.

3 Also see Dillard (1995b).
4 For a critique of the application of a responsibility ethic in the accounting domain, see Lampe (1996). For a response to the criticism, see Yuthas and Dillard (1997-98).
The research reviewed in this section has up to this point, either implicitly or explicitly, attempted to provide theoretical discussions concerned with identifying and evaluating ethically relevant issues associated with the development and implementation of AIS within a work organization. However, there has been little consideration given to issues concerning affected parties beyond the employee-employer interactions, individual responsibilities, and workplace considerations. Further, there is no consideration of how social norms and values become institutionalized or how they might change over time. Stakeholder theory has been proposed to address the first deficiency, and structuration theory has been proposed to address the second. Although they are two distinct theories emanating from diverse literatures (structuration theory from sociology\(^6\) and stakeholder theory from business ethics\(^5\)), several of the extant AIS research studies tend to draw upon both as the authors attempt to develop useful conceptual formulations. This line of research will be considered in some depth because it is viewed as one that provides significant potential as a basis for the development of applied AIS ethics research.

**Structuration Theory**

Following from the initial application of a responsibility ethic, there was a recognition of the need to provide a richer theoretical grounding. Dillard and Yuthas (1997a) argue for using structuration theory as a conceptual framework, or sensitizing device, to integrate ethical considerations into the AIS development and implementation processes. Specifically, they propose the use of structuration theory to study advanced information technology (AIT) applications and illustrate its possibilities by examining a situation where a large public accounting firm is considering the implementation of a strategic information system. The framework’s value in understanding the social forces associated with adoption and use of such systems is illustrated, but ethical issues are not extensively investigated.

Yuthas and Dillard (1997-98) extend this line of inquiry more fully articulating how structuration theory can be useful in examining ethical issues associated with AIS applications. Ethics research in accounting and AIS tends to focus primarily on either the individual or the prevailing context within which action is carried out, ignoring the crucial interaction of the two. Structuration theory includes both structure and agency (the individual) and speculates on how the two interact to influence ethical decisions and behavior. If the primary focus is the individual, or agent, a firm concerned with ethical behavior would attempt to identify individuals having certain characteristics that would lead them to take desirable actions when faced with ethical dilemmas. For example, higher levels of moral development\(^7\) (see Kohlberg, 1984) are considered to correlate with a more ethical response to an ethical dilemma. Little weight is given to the structural forces surrounding a particular situation. At the other extreme, the focus is on the influence of organization and social structures on the individual’s response to ethical dilemmas. Following this perspective, changes in ethical behavior can be realized by introducing structural changes, for example the specification of an organization or professional code of ethics. These codes specify guidelines for “appropriate” conduct, spelling out expectations in specific situations. Structuration theory provides a framework through which these two perspectives can be integrated providing insights into understanding AIS related ethical issues, how they arise, and how they might be resolved within a dynamic organization context.

Yuthas and Dillard (1997-98) go on to describe how structuration theory can be applied to AIS ethical issues. The theory’s specification of agency characterizes individuals as purposeful, knowledgeable, reflexive, and active, with the ability to learn from experience and create novel solutions to familiar and unfamiliar problem situations. Agents actively evaluate and choose to design and implement alternative technologies, and they recognize the possible consequences of such actions. The authors claim that this conceptualization of agency is significantly richer than that traditionally found in the accounting literature and highlights the difficulties of whether or not to implement AIT systems. The individual is seen to have access to a large and complex body of knowledge, to be conscious of a set of personal beliefs, and to recognize the consequences of the decision. For example, a manager may choose to appropriate technology in novel ways or choose not to deviate from established processes. The introduction and/or use of a specific technology has the potential to change existing organization structures.

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\(^5\) Structuration theory as used in this work was developed by sociologist Anthony Giddens (1976, 1979, 1984).


\(^7\) Moral development is sometimes equated with a numerical score attained on the Defining Issues Test (Rest, 1993) or some other measure of moral character or sensitivity. If employees are not performing to ethical expectations, one panacea is to provide training programs to teach the individual about ethical theories or to provide guidance in responding to ethical dilemmas.
The potential changes in the power relationships, the communication modes, and norms and values are considered in making the choice as well as the recognition of the unpredictability of such transformations and related outcomes.

Structures are institutional influences that consist of rules and resource control mechanisms that provide the context within which the agent acts, and that exist external to and impose constraints on the individual. From a structuration perspective, the implementation of institutional means such as codes of ethics or standard procedures represent attempts to implement new legitimating and signifying structures as well as related shifts in resource control in order to motivate a certain type of behavior. Institutionalization through structures does not guarantee change. The individuals must internalize and act upon, either by choice or through coercion, the structures for them to influence behavior. In terms of systems applications, the implementation of a new AIS requires approval and allocation of resources. Because structures facilitate interaction, they may support or hinder the implementation of new technology. In order for the implementation to take place, the proposed AIS must be compatible with the current institutional environment. Once implemented, structural changes will result. There may be anticipated and/or unanticipated consequences that result from the use of the system in the daily activities of agents as they produce and reproduce the structures. Through use over time, the system becomes self legitimating and thus part of the legitimating, signification, and power structures within the organization solidifying the assumptions, values, and processes embedded in the system. The system becomes a means for structuring work, allocating resources, and maintaining rules. Yuthas and Dillard (1997-98) state that AIS research generally treats ethical structures as independent of the distribution of power and the means and methods of communication and as a result neglects the precedents to, and the collateral consequences of, a change in the organizational norms and values. Ethical changes cannot be made in isolation. Structuration theory clarifies the interrelationship among the structures of power, of values and norms, and of meaning and communication. A change in one necessarily constitutes, and is facilitated by, changes in the others. Understanding the interactive nature of these structures and the central place of agency in developing and sustaining the structures provides a foundation for understanding and enacting change.

Stakeholder Theory

Stakeholder theory has gained wide acceptance in the business ethics literature. Dillard and Yuthas (1997b) suggest that a stakeholder analysis is useful in the AIS domain to identify affected constituencies and their related rights and obligations as opposed to the traditional view of privileging stockholder/owners. Advocates of stakeholder theories contend that a moral course of action must consider the interests of the affected stakeholders. Dillard and Yuthas (2001) identify the following groups as potentially being affected by the implementation of AES: the expert, employer/user, the organization, client management, client investors, the audit profession, regulators, and society. The relationships among these groups are discussed and examples are provided of the factors to be considered when applying the responsibility framework discussed above. In order to effectively pursue ethical action, it must be recognized that the fundamental form of human association goes beyond the social contract in which atomic individuals make partial commitments to each other for the purpose of gaining limited common ends or satisfying certain laws. Commitments made within the context of an ongoing community represent the fundamental form of human association. In their discussion of structuration theory and AIS, Yuthas and Dillard (1997-98) argue that a decision maker not only should consider the affected stakeholder groups but also recognize the necessity of having in place supporting legitimation, signification, and domination structures.

Yuthas and Dillard (forthcoming) apply stakeholder theory within an AIS environment drawing on the IS work of Hirschheim and Klein, who in turn build upon Mumford’s (1983) innovative ETHICS system. Hirschheim and Klein (1994) present a methodology for including a range of stakeholders in the systems design process. System development begins with the specification of a broad set of objectives that are identified, compiled, and ranked in terms of importance by stakeholder groups. Design efforts consider both technically and socially desirable options. The effects of such issues as individual job characteristics, work lives, and attitudes are considered along with the technical criteria. Ideally free discussions of values, interests, and goals take place in an environment of equal participation of all affected stakeholder groups and are ensured through the suspension or negation of power differentials. Yuthas and Dillard (forthcoming) apply these ideas to a public accounting setting proposing the following four stage approach for development and implementation of AES in public accounting firms. First, a committee representative of all stakeholder groups affected by the AES is formed. Second, the interests and values of the various stakeholder groups are explored, guidelines for systems development are established, and potential projects are identified. Third, preliminary designs are developed and evaluated, projects are selected for

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8 As noted earlier, one of the central issues currently confronting the field is the specification of “affected” stakeholders.
development, and success indicators are identified. Fourth, an oversight committee is established to monitor the use and effectiveness of the system relative to the original goals established by the design committee as well as the ongoing effects of the system on the interests of each stakeholder group. Specific instructions are proposed for public accounting firms seeking to implement AES in an ethically responsible manner, suggesting that top management recognize their moral responsibility to constituent groups and adopt procedures to accommodate the groups’ interests. However, how these managers recognize AES opportunities, their responsibilities, and the manner in which exercising power through the implementation of technology changes the social structures working within the firm and the industry, are not discussed. Further, there is no theoretical basis provided for understanding prevailing social systems or for infusing ethical considerations into these systems.

Yuthas and Dillard (1999) propose a postmodern stakeholder perspective. They apply the principles of affirmative postmodern ethics in proposing a stakeholder theory of enabling. The discussion integrates stakeholder theory with the social context described by postmodern thought.

**Postmodern Perspective**

Some have argued that the conditions of modernity upon which traditional ethics have been articulated have given way to a postmodern age. This postmodern condition is characterized by: a scathing critique of reason and rationality; a rejection of grand narratives and universal theories of social processes; and the futility of the enlightenment concept of an ultimate progressive trajectory of human society. Postmodern ethics points to the failure of modern ethical traditions in providing adequate guidance and direction in resolving modern ethical dilemmas. The application of instrumental reason and technology has resulted in dehumanizing and ecologically destructive courses of action. Reason and rationality do not seem to foster a level of moral responsibility necessary to reverse this trend. Postmodern thinking rejects the teleological presumption of a universally held and definable “overall good” that can be used to specify appropriate courses of action because of the inherent complexity and uncertainty. Thus, the underlying assumption and priority rankings required for a “rational choice” have no validity. Postmodernism rejects the deontological concept of reason providing the means by which universally grounded rules, norms, or principles can be ascertained. The basis for resolving ethical dilemmas must be more than the application of socially constructed norms of behavior. A decision maker is faced with the ambiguity of ethical choices in the absence of any legitimate, defensible criteria for choosing.

Yuthas and Dillard (1997-98) recognize the need to address the issues raised by postmodern ethics in the AIS domain. Yuthas and Dillard (1999) present the arguments generally associated with postmodern ethics. Dillard (1995a) evaluates AIS research using one postmodern lens. Dillard (1998) presents a discussion of postmodern ethics and its relationship to traditional ethical theories. AIS is characterized as a postmodern technology that greatly enhances the ability to control ultimately through the internalization of externally imposed constraints. The extant AIS ethics literature is reinterpreted from a postmodern perspective.

AIS ethics research is totally dominated by the methods and theories of modernity. The ethical issues identified and the inability to adequately address them are pointed to as confirmation of the postmodern condition. Instead of providing solutions, the application of technological resolutions to complex problems leads to another set of more complex issues that in turn motivate the development of complex technological solutions leading to another set of more complex solutions, and so on, indicating the futility of traditional “rational” attempts to adequately deal with the problems. With respect to issues of ownership and intellectual property rights and the impact of technology on certain groups, the law is looked to as the codification of moral values and right behavior within a society. Adhering to the law results in a perceived ethical response. A postmodern rendering would argue that the focus becomes the code or law. As a result, individually discerned moral responsibility is lost in the quest for the code. Long term implications cannot be adequately dealt with because of the time-distance separation of actions and outcomes. Ultimately the individual is called upon to act ethically with little guidance or assurance as to the legitimacy of his or her actions.

From a postmodern perspective, work place and organizational issues also represent irresolvable issues related to the application of advanced technology.

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9 Postmodern social theory is an extensive, diverse, and complex body of thought. See Ritzer (1997) for a review.
10 For example, see Bauman (1992, 1993).
11 See Lampe (1998) for a critique of this work.
Individual potential cannot be developed or utilized along with the increased efficiency. To justify such dehumanizing action, rationalizations are grounded in the sterile economic calculus or the deterministic inevitability of technological advancement. Implicated in these circumstances is the monopoly power of the large multinational organizations capable of allocating the necessary resources to AES development as well as possessing a client base sufficient to recoup the initial investment. Modernist logic separates the human costs, in terms of reduced economic potential and self development, from the untenable trajectory of progress. The postmodernist recognizes the significant ambiguity of the tradeoffs and the futility of attempting to resolve conflicts by using universally accepted grounds. (Dillard, 1998, 50)

The work of Sutton, Arnold, and Arnold, discussed above, evaluates AIS ethical dilemmas using teleological, deontological, and contractarian perspectives. The stream of research undertaken by Dillard and Yuthas generally advocates that ethical action arises from the recognition that the fundamental form of human association is represented by commitments made among responsible members of an ongoing community. The consideration of responsible relationships among affected stakeholder groups represents the appropriate processes for identifying and resolving ethical dilemmas, and a general theoretical framework is proposed for understanding the factors affecting and being affected by the actions taken. A postmodern perspective brings into question the assumed rationality, universality, determinism, and goodness of such proposals by pointing out the pliability, vulnerability, and indefensibility of these modernist formulations. The analysis of the extant AIS ethics literature suggests that the current AIS applications reduce the level of moral responsibility recognized and accepted by an actor because inherent in the methods of rationality is the externalization and objectification of the relationships among human beings as members of an ongoing community, thus severing the link between moral responsibility and codified ethical standards….If responsible decisions are to be made concerning AIS technology, a more realistic and in-depth understanding of the postmodern condition and its moral and ethical implications is needed….In a postmodern world there is no set of universal principles upon which to call. The human being, although draped in the professional robe, senses a deeply felt awareness that even in the absence of universally accepted ethical standards or of a clear understanding of progress, one’s actions do matter in a fundamental way (Dillard, 1998, 55-56).

Yuthas and Dillard (1999) attempt to operationalize a stakeholder perspective using the tenants of postmodern ethics. An application of the principles of affirmative postmodern ethics is proposed using an enabling stakeholder approach to systems development that explicitly allows for the examination of moral concerns that would otherwise be overlooked, ignored, or silenced. In reviewing the evolution of stakeholder theories, Yuthas and Dillard (1999) conclude that there is at least an implied shift away from a hierarchical, paternalistic power locus towards a higher level of inclusivity, but the dominance of reason, rationality, and cost-benefit calculus is not seriously challenged. Following from the work of Calton and Kurland (1996), the paper proposes a stakeholder oriented system development process based on the principles of affirmative postmodern ethics. Stakeholders are enabled by superceding traditional systems design and development processes with processes that support shared empathy, understanding, and solidarity through shared experiences. Yuthas and Dillard (1999) argue that solidarity facilitates the identification of moral issues and the specification of projects that can more likely be mutually beneficial.

**FUTURE RESEARCH DIRECTIONS**

Applied ethics is the application of the ideas and theories developed in the field of moral philosophy to situations that arise associated with particular circumstances or ethical dilemmas of a specific profession or occupation. The purpose of such an analysis is to criticize and improve the values and principles that guide behavior within the field of interest. In this section, suggestions for future research opportunities are discussed.

The extant systems related research in accounting and auditing deals primarily with the technical issues of system design and the effectiveness and efficiency of systems implementation. However, this research takes on an
ethical dimension when it addresses questions regarding “good” and “right” action. Many such papers in the field consider rights beyond property ownership and consequences beyond wealth creation. A brief summary of this work is presented in the tables below. These studies address specific issues having ethical dimensions that are associated with using AIS and related technology in organizational settings. The studies are generally classified as either information issues and work place issues. The information issues are organized using Mason’s (1986) “four ethical issues of the information age” – privacy, accuracy, property, and access, and the related studies are summarized in Table 2. Workplace issues include studies that explore how systems affect the lives, relationships, and work environments of the individuals who use them. The workplace issue studies are summarized in Table 3. The discussion below presents areas of future ethics research that could follow from these studies.

***** Enter Table 2 and Table 3 here *****

The information issues are considered first. Privacy refers to the information gathered about an individual. Privacy of personal information captured and generated within an AIS application is a volatile and difficult problem that affects current and potential employees and customers as well as suppliers and investors. There are many ethical concerns regarding what should be captured, who owns it after it is captured, and how, and to whom, it should be disclosed. For example, is it ethical to use information captured for a specific purpose to be used for any other purpose, especially one that would expose the individual to additional inquiry or evaluation? Such a situation leads to issues of unauthorized use, errors in the data, and the extent to which data should be combined in order to develop individual profiles. From an organization’s standpoint, the issues of security risks and security policies need investigation. If the issue with respect to privacy is how to balance a sense of personal anonymity with economic benefits, then stakeholder analysis and involvement should be considered, and its efficacy evaluated.

Accuracy concerns the quality of information. Two issues are involved: unintended errors and intentionally misleading information. The reduction, though not the elimination, of unintended errors can be achieved through quality control and improved systems design. Though these are not ethical issues in the traditional sense of choosing among mutually exclusive alternatives, there is a sense of responsibility implied with respect to adequate and accurate means for capturing information as well as designing and implementing quality systems. The ethical issues related to intentionally misleading information are obvious. The research concerns include such issues as accountability for information accuracy as well as poor quality systems, detecting fraudulent information, and the influences of codes of ethics on such behaviors.

Property or property rights relate to the ownership of knowledge. Software piracy and the unauthorized use of expertise are two areas of concern here. Research issues concern the context to which individuals distinguish differences among different types of intellectual property as well as the extent to which context and peer attitudes affect appropriation. Another dimension warranting investigation relates to the extent to which an individual’s expertise is the property of his or her employer. The other side of this coin has to do with issues concerning the privatization of public information.

Access refers to who can gain access to what information, when. The ethical issues here consider which group(s) warrant access to specific information. Another issue concerns what information should be made accessible. For example, should publicly reported financial information include social and environmental data? Security is also an issue here in that security systems can limit or deny access to selected individuals thus putting them at a significant disadvantage in certain situations.

Workplace issues were presented under three headings. The first category concerns the research related to the influence of the workplace environment. The second concerns the interaction effect of the individual with the system. The third category concerns the relationship among individuals who take on different roles in the system development process.

The general workplace issues concern the influence of the workplace environment and individual factors on the ethical reasoning in AIS ethical dilemmas. An area that could benefit from further investigation is the influence of system design on the decision process of the individual, and a related issue of whom defines the domain of concern. It has been argued that systems designers prefer efficiency and predictability and that they have a tendency to inhibit discretion and innovation on the part of the user. Research is needed to determine the validity and extent of the effect in given situations. Another ethics related issue concerns the extent to which responsibility can be obscured by the system.

12 A complete review of these studies is not possible within the space limitations of the current presentation.
Deskilling concerns the influence of the system on the individual user. The primary issue here is the extent to which the skill level of the user is enhanced or diminished by the implementation and use of the system. One of the issues identified concerns the possibility that overspecialization in information-related tasks stymies the user’s development. Another concern is the abdication of professional judgment and accountability when expertise is encoded into a system. Questions arose as to under what conditions such circumstances arise, the extent to which they influence behavior, and the degree to which the effect can be ameliorated. As a user becomes more dependent on the computer technology, s/he develops a “technical rationality” that inhibits creativity, innovation, and flexibility. A determination of the extent and influence of such a mind set is needed.

Another workplace issue concerns the relationship between the system user and the system developer, which represents the personal relationships that arise and are affected by systems applications. There is apparently a natural antagonism between system users and developers. Users are concerned with the flexibility, adaptability, and utility of a system while the developers are concerned with design integrity and system efficiency. Related issues include how to implement processes that will avoid and/or assist in resolving the conflicts. One of the primary issues involves the level of user participation in the design process. Stakeholder theory can be useful in investigating and developing processes whereby all affected parties can be meaningfully included in system design, development, and implementation. For example, stakeholder committees have been suggested, but the implementation of such proposals has not been well developed. Also, design and implementation issues need to be evaluated using ethical frames such as procedural justice.

The primary purpose of this discussion has been to facilitate the continued development of applied AIS ethics research. One way to proceed is to evaluate the issues identified above using the ethical perspectives that are part of moral philosophy. As noted, these problems should be evaluated from alternative ethical traditions such as teleology, deontology, and contractualism. Another avenue is to evaluate ethical situations from the perspective of alternative investigative paradigms. The rational-empirical perspective represents the traditional objective, functionalist search of truth beyond the subjective countenance of the seeker. The interpretative perspective makes no such assumptions about the objective possibility of truth beyond the perceptions of individuals involved in the activity. The dialogical perspective provides an abstract grounding in the process of reaching a decision and understanding whereby the context of action is taken into account when contemplating and evaluating action. An alternative to these modernist perspectives is that of postmodernism. All the traditional AIS issues can be revisited from a postmodern perspective.

Structuration theory represents a specific framework that has been shown to be useful in understanding and evaluating AIS issues and applications. This formulation incorporates the dynamics of organization change and includes as one of its primary constructs the norms and values prevailing in a social system – in this discussion a work organization. The norms and values provide the basis for resolving ethical dilemmas. The interrelationships of the norms and values with the extant power and communication structures are formulated, and the means for, and implications of, change are specified. Structuration theory recognizes the interrelationship between organization change and the norms and values held by those who are involved in, and affected by, the change. Much work is needed to determine the applicability of these ideas within AIS settings and to AIS ethical problems.

Stakeholder theory is another set of ideas that are applicable to AIS situations. Inclusivity in design and implementation decisions holds out significant promise for more effective and ethical systems applications. Much work is needed in order for such ideas to be effectively and efficiently implemented. First, the various formulations of stakeholder theory need to be evaluated in light of the unique situations presented by AIS. Next the means for implementing stakeholder theory must be formulated as well as the requisite resources necessary to do so. Third, the means and media by and through which the various groups are to communicate must be established. Fourth, there must be procedures for debate and compromise, and a process by which these procedures are agreed upon and put into place. Lastly, there must be means for evaluating outcomes, providing meaningful feedback, and establishing ongoing accountability. Each of these steps is in need of extensive investigation and development.

CONCLUDING REMARKS

We strongly support a continued self reflectivity of the AIS field as to the quality and character of research in the area. Researchers have a responsibility to identify and address ethical issues and to pursue their research activities in an intellectually honest and ethical manner. While some have proposed useful ethical frameworks for identifying and studying ethical issues, there is a need to improve both the theoretical and normative understanding of the ethical issues associated with the field of AIS. One necessary tact is to move beyond the dominant technoe empiricist perspective and employ alternative viewpoints such as such as interpretivist and critical perspectives. As
Tinker and Yuthas (1995) argue, there is a need to acknowledge the political nature of AIS activities and choices. This is especially critical in AIS ethics research. Failure to acknowledge the political nature of one’s actions and/or to adopt alternative perspectives in ethics research results in the misrepresentation or ignorance of organization influences, unquestioned maintenance of the status quo, a reinforcing of dominant regimes, the perpetuation of power asymmetries, and centralization of control. In conducting AIS ethics research, it must be kept in mind that frameworks and paradigms both enable and constrain the resolution of problems of social integration. In order for the context and consequences of AIS ethics research to be understood, there must be a recognition that historical and social conditions play a role in the dominance of specific frameworks over time.

If accounting as a discipline and profession is to survive, it must move beyond the narrow functionalist, utilitarian based ethics of neoclassical economics. It must broaden its perspective beyond the privileged status of stockholders and accept a broader view of the public interest as its primary responsibility. Computer based information systems represent the bone and marrow of the future functions carried out by what has been called accounting. The dangers are many. Responsible professional vigilance requires recognition and consideration of the ethical implications of the design, implementation, and use of these systems. A summary of the ethics research in the AIS literature has been presented, possible areas for future research identified, and alternative theoretical perspectives that might profitably be employed specified. The academic community must take the lead in developing and advocating accounting for the public interest that implies a strong grounding in social responsibility and ethical analysis. There are several areas to be addressed. The first is to bring ethics issues and social responsibility into the AIS classroom. The social implications of computer based information systems must be fully articulated and explored. System attributes beyond efficient use of corporate resources must be recognized as necessary design criteria. System success must be defined in terms of the impact on all affected stakeholders. Applied ethics should become an integral component in the AIS curriculum. Second and not unrelated, academic accounting should move beyond its current role as apologist for the actions and activities of the profession and the proponents of global capitalism. The responsibility of the academic community is to provide an ideologically pluralistic view of the world and above all to commit to overcoming the inherent inequities by exposing exploitative and unethical behavior. Having done so, research must be directed toward developing information systems that serve the needs of all sectors of society. To accomplish this objective, inclusive methodologies that facilitate open and honest discussion in the absence of coercion, or the potential thereof, are required. Third, the academic must be held to an exemplary level of ethical conduct in both teaching and research endeavors. To this end, applied ethics should become an integral component of any performance evaluation program as well as all Ph.D. programs. As the field expands, not only is it imperative that attention be specifically devoted to present and potential ethical dilemmas of accounting information systems but also that actors be provided the means for making responsible choices when faced with such dilemmas.
REFERENCES


Harrington, S. 1996. The effect of codes of ethics and personal denial of responsibility on computer abuse judgments and intentions. MIS Quarterly. (September) 20(3) 257-278.


Sutton, S. and Byington, J. 1993. An analysis of ethical and epistemological issues in the development and implementation of audit expert systems. Advances in Public Interest Accounting 5, 231-244.


### TABLE 1

**APPLIED ETHICS IN AIS RESEARCH**

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>AUTHOR</th>
<th>SUMMARY</th>
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<tbody>
<tr>
<td>Teleological, Deontological, &amp; Contractarian Perspectives</td>
<td>Sutton et al., 1995</td>
<td>Different philosophical schools shed different light on what constitutes ethical development and use of expert systems. Society should think diligently before adopting a social norm that may permit a firm to gain permanent access to expertise. Ownership of expertise is evaluated from teleological, deontological, and contractarian perspectives. Conclude that from an act-based teleological perspective suggests system implementation would be the ethical choice.</td>
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<td></td>
<td>Sutton et al., 1997-1998</td>
<td>Employ rule-based teleology in evaluating AES applications and conclude such applications cannot be ethically justified because the value of the individual’s expertise would be diminished.</td>
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<td></td>
<td>Arnold et al., 1997</td>
<td>From a contractarian philosophical perspective, mandatory participation in audit expert systems development may not be appropriate. Ethical evaluation of existing contracts suggests that the expert/firm relationship must be reassessed and the relationship altered to protect the experts interests.</td>
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<tr>
<td></td>
<td>Sutton et al., 1999</td>
<td>Propose an integrated framework for analyzing AIS ethical issues. The primary issues identified concern: intellectual property, epistemology, quality of work life, competitive advantage, and information security and privacy. Advocate a pluralistic approach to the evaluation of ethical issues.</td>
</tr>
<tr>
<td>Traditional, Interpretative, &amp; Dialogical</td>
<td>Yuthas &amp; Dillard, 1996</td>
<td>Understanding of factors associated with expert system success is limited due to an over reliance on a traditional instrumental-rational perspective and a stockholder-oriented definition of success. Expert systems understanding can be broadened by adding interpretive and dialogical analyses and by exploring the perspectives of all major organizational stakeholders.</td>
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<td></td>
<td>Yuthas &amp; Dillard, 1996</td>
<td>A responsibility ethic is proposed as a compliment to the interpretative and dialogical perspectives. The responsibilities of the participants (developer, expert, firm, and field auditor) are identified. The expanded perspective provides a broader understanding of contributors of system success or failure.</td>
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<td></td>
<td>Dillard &amp; Yuthas, 1997b</td>
<td>Reliance upon a cathekontic (responsibility) based ethic is useful for more clearly and completely specifying the ethical issues associated with audit expert systems. Discourse ethics provides the mechanism through which these issues can be addressed. The rights and responsibilities of the expert and the firm are identified using a responsibility matrix that includes the following categories: commitment, nature of work, audit quality, quality of work life, and competitive pressures.</td>
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<td></td>
<td>Dillard &amp; Yuthas, 2001</td>
<td>Illustrates how a responsibility ethic can be used to broaden the field of what constitutes an ethical issue and to provide a framework for identifying what constitutes ethical behavior. The rights and responsibilities of various stakeholder groups (expert, user, the CPA firm, client management, client investors, the CPA profession,, regulators, and society) are specified. Specific mutual responsibilities are formulated for two groups, the expert and the firm and the firm and the client’s investors.</td>
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<tr>
<td>Structuration Theory</td>
<td>Dillard &amp; Yuthas, 1997b</td>
<td>Present structuration theory as a conceptual framework useful in integrating ethical considerations into the AIS development and implementation process. Use the theory to evaluate the proposed implementation of strategic information systems.</td>
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<tr>
<td>Yuthas &amp; Dillard, 1997-1998</td>
<td>Structuration theory is shown to be a useful framework for identifying and investigating the dynamic social processes associated with the development and implementation of AIS. The theory is explained and applied within the AIS domain.</td>
<td></td>
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<thead>
<tr>
<th>Stakeholder Theory</th>
<th>Dillard &amp; Yuthas, 1997b</th>
<th>In conjunction with developing a responsibility ethic, it is suggested that a stakeholder analysis is useful in identifying affected constituencies as well as their rights and obligations.</th>
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<tr>
<td>Dillard &amp; Yuthas, 2001</td>
<td>Specific stakeholder groups are identified that would be affected by the implementation of AES and specifically the relationships among these groups within the context of a responsibility ethic.</td>
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<tr>
<td>Yuthas &amp; Dillard, 1997-1998</td>
<td>Links the implementation of stakeholder theory with the dynamic processes of structuration theory showing how legitimation, signification, and domination structures must change in order to support and sustain a change.</td>
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<td>Hirschheim &amp; Klein, 1994</td>
<td>Develop a methodology for including a range of stakeholders in the system design process. Design efforts consider both the technological and social dimensions of system design and implementation.</td>
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<tr>
<td>Yuthas &amp; Dillard, forthcoming</td>
<td>Propose a four stage model for developing and implementing AES in public accounting firms: form a representative stakeholder committee; establish guidelines for identifying potential systems and their development considering each group’s interests and values; committee evaluation of alternative projects and designs; and committee monitors the use and effectiveness of systems relative to the original design goals.</td>
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<tr>
<td>Yuthas &amp; Dillard, 1999b</td>
<td>Propose a stakeholder theory of enabling through the application of principles affirmative postmodern ethics.</td>
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<tr>
<th>Postmodern Perspective</th>
<th>Dillard, 1998</th>
<th>Ethical considerations relevant to AIS are grounded in knowledge systems and structures of modernity and provide insufficient guidance for understanding and acting in a postmodern world. Current AIS applications reduce moral responsibility required and codified ethical standards tend to externalize and objectify human relationships.</th>
</tr>
</thead>
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<tr>
<td>Yuthas &amp; Dillard, 1999</td>
<td>Presents a review of the issues associated with postmodern ethics and applies them to the AIS domain. A stakeholder oriented system based on the principles of affirmative postmodern ethics is proposed that enables stakeholders by superceding traditional systems design and development processes with processes that support empathy, understanding, and solidarity through shared experiences.</td>
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<tr>
<td>TOPIC</td>
<td>AUTHORS</td>
<td>SUMMARY</td>
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<tr>
<td>Privacy</td>
<td>Hubbard et al., 1998</td>
<td>Technology has made it easier to maintain information about potential and current employees. Managers using human resource information systems must be aware of associated ethical issues—relational databases, data access and privacy concerns, and legal issues—property issues, public disclosure of information, risk of liability, and employee access to records.</td>
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<tr>
<td>Privacy</td>
<td>Spinello, 1998</td>
<td>The protection of personal privacy rights is one of the most volatile and intractable problems of the computer age. Privacy over personal data has eroded. Given the inertia of public policy systems, privacy rights cannot be resolved until there is sufficient clarity about ownership of personal data.</td>
</tr>
<tr>
<td>Privacy</td>
<td>Introna &amp; Pouloudi, 1999</td>
<td>Privacy claims and associated risks can best be understood when privacy is conceptualized as the freedom or immunity from the judgment of others. Two normative stakeholder principles—provide access only to relevant information, and represent all stakeholders in deliberation, and equalize power among stakeholders—can be used to analyze claims and risks regarding privacy and transparency.</td>
</tr>
<tr>
<td>Privacy</td>
<td>Smith et al., 1996</td>
<td>Individual’s concerns about information privacy can be captured through survey instrument. The instrument builds upon the privacy literature, and can tap into important dimensions of information privacy: collection, unauthorized secondary use inside and outside the company, errors, reduced judgement, and combining data.</td>
</tr>
<tr>
<td>Privacy</td>
<td>Griffin et al.,</td>
<td>Conducted interactive survey over the internet. Users are concerned with the security of their transactions over the internet. Suggest government and/or industrial standards as well as user education to overcome problems.</td>
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<tr>
<td>Privacy</td>
<td>Davis, 1997</td>
<td>Managers were found to be committed to implementing and enforcing systems security policies, but those policies were sometimes inadequate. Security risk and specific threats were perceived to vary across hardware environments, and emerging technologies are thought to pose greater risk.</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Chwastiak, 1998</td>
<td>Defense contractors have monopolies over technological expertise, use asymmetric information and accounting systems to distort costs for expropriative gain. Competitive capital accumulation, interactive government and industry labor markets, and use of defense budgets to support high-tech industry also encourage cost fraud.</td>
</tr>
<tr>
<td>Accuracy</td>
<td>McMahon, 1995</td>
<td>Accountability rests on the quality and accessibility of the information environment. The public and private sectors can reduce the impact of corporate pathologies by placing priority on inculcating ethical and moral behavior, emphasizing democratic values, and raising the status of corporate records.</td>
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<td>Reference</td>
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<td>Tuttle et al., 1997</td>
<td>Managers who had either an incentive to shirk or who possessed privately held information about the quality of the system being implemented tended to implement a system that had known quality problems rather than delay until the quality problems were corrected.</td>
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<tr>
<td>Moyers, 1996-1997</td>
<td>External auditors, governmental auditors, and internal auditors hold differing opinions regarding the degree of effectiveness of audit techniques for fraud detection in the Inventory and Warehousing cycle. Techniques that directly collect evidence in the audits of AIS were seen by all groups as being more effective in fraud detection than other techniques, and should be used early in audit planning.</td>
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<tr>
<td>Moyers, 1997-1998</td>
<td>Data mining compared favorably with statistical models and neural networks in the detection of management fraud. Data mining is also less costly and time consuming than alternatives.</td>
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<tr>
<td>Harrington, 1996</td>
<td>Codes of ethics can have some effect on the likelihood of employees to commit computer abuse relating to viruses, hacking, computer fraud, illegal software copying, and corporate sabotage. Individuals with a tendency to assign responsibility for personal actions to others (deny responsibility) were shown to be less likely to judge a computer abuse as wrong, and more strongly influenced by ethical codes.</td>
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<tr>
<td>Sutton, 1993b</td>
<td>Intellectual property rights embodied in expert systems represent a significant issue facing the application of AIT.</td>
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<tr>
<td>Sutton &amp; Byington, 1993</td>
<td>Discuss the legal liability of AES and conclude that the firm and the expert are subject to liability exposures if the system is misused, a faulty system is implemented, or a new technology is not judiciously applied.</td>
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<tr>
<td>Dillard &amp; Bricker, 1992</td>
<td>Specify intellectual property as a significant issue that must be addressed using multiple perspectives.</td>
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<tr>
<td>Constant et al., 1994</td>
<td>Subjects were found to be more willing to share expertise than to share information such as software products, although they viewed expertise as being individual property and products as organizational property. Willingness to share property is related to prosocial attitudes and workplace norms; willingness to share expertise is related to self-expressive needs.</td>
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<tr>
<td>Whitehead et al., 1997-1998</td>
<td>US law greatly restricts the exportation of powerful encryption programs. Developers and users view this as an unacceptable burden on electronic commerce. Courts have decided that regulation must exist within the bounds of scientists and scholars' first amendment rights.</td>
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<tr>
<td>Christensen Eining, 1991</td>
<td>Students reported heavy software piracy behavior; knowledge of copyright law had little impact on piracy behavior. Students did not perceive piracy as inappropriate behavior and did not believe that friends and superiors thought it inappropriate.</td>
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<tr>
<td>Gopal &amp; Sanders, 1998</td>
<td>Software piracy rates in developing countries are extremely high. Governments’ incentives to address copyright issues were found to be related to the size of the domestic software industries. Copyright enforcement can be strengthened through alliances between foreign and domestic software publishers. US ethical models relating to piracy do not apply to other cultures, and more cross-cultural research is needed.</td>
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<tr>
<td>Lipinski, 1999</td>
<td>The successful development of information products and services relies upon a market space for information. The public information space is slowly being reduced by attempts to obtain legal protection for information in the public domain, and checks must be placed on this movement. Information controversies can be better understood and predicted via a model that defines elements of the informational environment and market factor criteria.</td>
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<tr>
<td>Author</td>
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<td>Citation</td>
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<tr>
<td>Jensen &amp; Sandlin</td>
<td>1997</td>
<td>Jensen &amp; Sandlin, 1997</td>
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<tr>
<td>Mathews</td>
<td>1995</td>
<td>Mathews, 1995</td>
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<tr>
<td>Espinose-Pike</td>
<td>1999</td>
<td>Espinose-Pike, 1999</td>
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TABLE 3
WORK PLACE ISSUES

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>AUTHOR</th>
<th>SUMMARY</th>
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<tbody>
<tr>
<td>General</td>
<td>Dillard &amp; Bricker, 1992</td>
<td>General work place issues identified are choice orientation, implied relevance of system procedures, transfers of power, unintended consequences, obscured responsibility, and a false sense of objectivity.</td>
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<td></td>
<td>Aldridge &amp; Harris, 1997</td>
<td>Involvement in a retail IS lead to greater managerial power, reduced IS department power, job loss, improved vendor relationships, improved inter- and intra-organizational communications, increased functional integration, short-term increased workload and stress, and resistance to change.</td>
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<td></td>
<td>Banerjee et al, 1998</td>
<td>The ethical reasoning of groups operating in organizations is influenced by personal and situational factors. When facing IT-related ethical dilemmas, subjects’ intentions were found to be influenced by the specific dilemma addressed, the personal normative beliefs regarding appropriate response to the dilemma, and the ethical climate of the organization in which they worked.</td>
</tr>
<tr>
<td>Individual Skills &amp; System Use</td>
<td>Eining &amp; Dorr, 1991</td>
<td>Use of expert systems with and without explanatory capability improved learning among novices on an auditing task.</td>
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<tr>
<td></td>
<td>Odom &amp; Dorr, 1995</td>
<td>As elaboration of expert system rules increased, knowledge transfer to the novice user decreased, especially when elaboration was provided at the end of the session. Knowledge transfer was facilitated up to a point of possible overload by continual elaboration.</td>
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<tr>
<td></td>
<td>Sutton &amp; Byington, 1993</td>
<td>Identify the following possibly having a negative impact on audit quality: misapplication of systems, inadequate understanding of system limitations, gradual lose of technical skills, reduced opportunities to gain professional experience, and the gradual disappearance of the small audit firm.</td>
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<td></td>
<td>Sutton, 1993a</td>
<td>Concludes that the research addressing whether nonexperts’ skills are advance using expert systems is inconclusive. Warns that current decision processes are institutionalized when imbedded in the system and that the evolution of professional knowledge may be thwarted. Suggests that cognitive monitoring processes be integrated in the systems in order to enhance the learning potential.</td>
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<td></td>
<td>Pinsonneault &amp; Rivard, 1998</td>
<td>Heavy users of IT tend to focus efforts on information-related tasks and roles that are best supported by technology. By overspecializing in these activities, managers may overlook decisional and interpersonal dimensions of their roles, and may focus more on mechanics than purposes of their work.</td>
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<tr>
<td></td>
<td>Bartlett, 1999</td>
<td>Technology produces dysfunctional professional consequences such as reduced accountability, technical rationality, acceptance of authority, malicious obedience, baseline behavior, and reduced learning. These dysfunctions reduce the need for and exercise of professional judgement.</td>
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<td>User – Developer Relations</td>
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<tr>
<td>Essex, 1997</td>
<td>Conflict between users was found to positively influence resistance to an AIS, while pressure negatively influenced resistance. Resistance was found to result in negative client/developer relationships and ultimately negative attitudes toward and low use of an information system.</td>
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<tr>
<td>Mathis-Beath &amp; Orlikowski, 1994</td>
<td>As a result of deconstructing systems develop methodology, they conclude that negative user – developer relationships can result from problematic assumptions about roles in the development and implementation process.</td>
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<tr>
<td>Hunton, 1994</td>
<td>When promised and actual user participation (voice and choice) were congruent, participation lead to increased attitudes and performance. When actual participation was less than promised, increased participation led to decreases in attitudes and performance.</td>
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<tr>
<td>Hirschheim &amp; Klein, 1994</td>
<td>Mumford's ETHICS methodology for systems development can be extended to embrace emancipatory principles more comprehensively. Through such modifications as intensifying focus on both quality of work life and technical efficiency, and jointly optimizing technological and social concerns, the method can advance emancipation within the constraints of resources and authority.</td>
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