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Preparation for ethical decision-making: An analysis of research in professional education

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ABSTRACT

The current societal and professional context presents a variety of ethical challenges to decision makers. The importance of educational preparation for ethical decision-making and ethical leadership has been addressed in the literature of library and information science (LIS), among other professions. However, it can be quite difficult to measure the impact of professional ethics education on students. This article is based on an evaluation of published original research related to ethics education in disciplines supported by professional education, including education, nursing, allied health, journalism, social work, public health, engineering, and LIS. The study considers data related to research design, methodologies used, populations studied, approaches to measuring impact, levels of impact, and publication in the journal literature. Results indicate more extensive research in education and nursing as compared with other fields, a lack of baseline data gathering for comparison, a reliance on a limited number of data-gathering techniques, and a tendency toward studying alumni over current students

1. Introduction

Many high-profile cases of unethical practice in business, higher education, the public sector, charities, and professional and amateur sports have drawn increased attention to ethical questions in recent years. In recent years, several examples of the questionable use of organizational resources, employee theft, financial irregularities, and other widely publicized controversies relating to professional decision-making have come to light. In many cases, new professionals entering the workforce may be heavily influenced by the prevalence of unethical behavior that they see in the media. This can run counter to what they were taught in their degree programs.

For professionals, particularly those in leadership roles, ethical decision-making is necessary because of the need for accountability to stakeholders both inside and outside organizations. In addition, the research indicates that organizational success, measured in various ways, is strongly associated with ethical practice ("Is Ethics Good Business?" 2003, pp. 6–21). In service professions such as LIS, ethical practice becomes even more significant as the individuals who receive service – customers or patrons – rely on the practitioner's judgment and reflective professional practice.

However, the nature of organizational and interpersonal competition and a perception that others are using unethical means to get ahead contribute to increased motivation to engage in unethical activity (Callahan, 2004). Despite its obvious importance, ethical decision-making is not always easy. In many cases it can be counterintuitive.

2. Problem statement

Researchers have addressed the complexity of decision-making associated with ethical dilemmas and the need for an enhanced focus on the academic preparation of future professionals. Professional fields—including nursing, teacher education, allied health professions, social work, public health, engineering, and LIS—have established the presence of ethical instruction in their professional schools. However, the presence and nature of ethics education can vary significantly across these different academic curricula. To a limited extent, differences in the nature of these professional fields account for this variance across comparable disciplines. However, the variance also reveals a need for increased research into the impact of ethics education on students and future practitioners.

LIS literature has included a very limited discussion of ethical decision-making and even less discussion related to ethics education within LIS curricula. This is particularly true in the literature based on original research. More studies related to the value and impact of ethics education have appeared in the research literature in comparable fields (Hill, 2004; Kaplan, 2006; Lee & Padgett, 2000). The analysis of research related to ethics education in comparable fields provides a basis for determining what form such research might take

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in LIS. It also indicates the potential impact of ethics education on learning and professional behavior.

This study represents an analysis of the research that has been conducted over the last 7 years in the study of education for ethical decision-making and leadership in disciplines supported by professional education. It addresses the following three research questions:

1. What methodological approaches have been used to study ethics education and its impact?
2. What factors have served as the bases for measuring the impact of ethics education?
3. What segments of the academic and professional populations have been studied with regard to the impact of ethics education?

3. Literature review

3.1. Ethical concerns

In recent years, a growing body of evidence has suggested that Americans have entered a challenging ethical period, societally and organizationally. Even before joining the professional world, most students admit to having engaged in unethical and explicitly prohibited behavior. In self-report research, 75% of high school students (Winik, 2004, p. 20) and 70% of college students (Center for Academic Integrity [CAI], 2005) admit to some level of cheating. Callahan (2004) posited that much of the cheating, academic and otherwise, occurs because individuals assume—often correctly—that others are cheating and they must themselves cheat in order to remain competitive. While students may be more likely to cheat based on their perceptions of their classmates' actions, they also have a huge amount of evidence from the professional world and the broader societal context that cheating and other unethical behavior are widespread.

In various professional contexts, both difficult ethical dilemmas and clear ethical violations have become increasingly common and widely covered by the media. Ethical problems have plagued the corporate world in highly publicized cases, such as Enron and WorldCom. Organizational leaders have engaged in the "misuse of company resources, misrepresentation of financial performance, and aggressive and illegal marketing practices" (Winston, 2005, p. 238). The potential causes of such corporate fraud are many. They include the potential lack of oversight of organizational performance, executive compensation that is not linked to organizational performance, "overly powerful CEOs, weak boards and audit committees, ineffective or compliant auditors, weak internal controls and weak management of risks, and soft penalties for accounting fraud perpetrators" (Beasley, 2004, p. 11). However, the examples of ethical abuses involve employees at all levels, not only senior management, and include the hundreds of billions of dollars that employees "steal… from their companies each year" (Winik, 2004, p. 20). Large and successful non-profit organizations, including the American Red Cross and the United Way, have undergone investigations for financial irregularities ("Grassley calls for investigation into charities," 2002). Similarly, the Olympics, historically associated with very high ideals, have been plagued by bribery scandals (Hemphill, 2003, p. D1), drug use (Hohler, 2006, p. D2), and compromised scoring (Michaelis, 2004, p. 1D). In sports, baseball stars (Jenkins, 2005) and Tour de France winners ("Landis' backup," 2006), among many others, have tested positive for various performance-enhancing substances in very high-profile cases.

The responses to such cases have included "criminal fines and civil penalties" (Silverman & Schwab, 2004, p. 8). The government has also instituted regulatory and legislative changes such as the Securities and Exchange Commission's increased oversight and more stringent reporting requirements and the Sarbanes-Oxley Act, which focuses on the quality of financial reporting and increasing the accountability of company leaders. With regard to individuals' decision-making, however, the success of changes in financial reporting requirements relates to the need to "[a]ggressively address ethical attitudes and the potential for rationalizing fraud" (Beasley, 2004, p. 11). Thus, organizational and professional responses to reduce ethical abuses have included increased emphasis on organizational and professional codes of ethics in order to guide the decision-making of professionals (Hatcher, 2003, pp. 42–45).

Beyond the clear ethical violations of rules, laws, and honor codes, complex ethical dilemmas have emerged. The case of Theresa Marie Schiavo transcended political controversy because of the complex, multifaceted ethical issues surrounding end-of-life choices and care. The responsibility of the medical establishment, the level of decision-making (whether of government or family), and even the moral value of end-of-life care became issues of national discussion, which health care professionals of any level and any discipline must take more seriously (Gostin, 2005, p. 2403). While the medical community tended to treat the Schiavo case as a matter of legal versus familial rights (Annas, 2005; Gostin, 2005), the case clearly had implications for ethical debate far beyond its professional context. Thus, in the health sciences and in general, the complexity of ethical decision-making necessitates academic preparation for future practitioners.

3.2. Research associated with ethical decision-making

Despite the regulatory, legislative, organizational and professional responses to unethical behavior, the research indicates factors that may serve to motivate or encourage unethical behavior and that complicate the process of making ethical decisions. These factors relate to the climate of competition, the way in which success is viewed, and the lack of preparation for ethical decision-making.

Issues associated with competition and success, along with the associated financial rewards, contribute to the complexity of ethical decision-making. Additionally, high-profile media coverage of ethical abuses in the private and public sectors, including sports, can have a significant impact on impressionable youth. Research has documented the existence of a "cheating effect:" The supposition that others are cheating causes one to engage in unethical behavior in order to remain competitive (Callahan, 2004). Thus, the nature of competition and evidence of unethical behavior by others enhance the challenges associated with fostering ethical behavior. The research also indicates the tendency of individuals—managers, in particular—to overestimate their ability to make ethical decisions (Banaji, Bazerman, & Chugh, 2003, p. 56).

Reflective of the ethical challenges and documented levels of unethical behavior, Callahan (2004) emphasized the importance of ethics education to better prepare students for ethical challenges that they will face in the workplace. In business and other aspects of professional education, degree programs are being updated to reflect the increased emphasis on preparation for ethical decision-making.

3.3. Professional education

Functional definitions of professional education, which inform the discussion of ethics, focus on the application of theory to practice. While professional education attempts to provide academic preparation in both theory and practice, traditional professional education has placed the emphasis on theory because of the need "to prepare professionals who can integrate theory into their practice" (Delaney, 1997, p. 243). In applying theory to practice, professional education requires educators and students to consider broad moral and ethical questions in addition to questions of technique.

> Research regarding the role and challenge of professional education indicates that professional competence requires that an individual possess the ability to put the pieces together and apply the whole of what has been learned in practice. To accomplish this goal, professional education must include attitudinal and behavioral objectives, focus on process, emphasize the

application of theory to practice, and prepare individuals to apply critical judgment in complex situations. (Delaney, 1997, p. 243)

Thus, professional education is intended to ensure the communication of specific curricular content, indicative of the body of knowledge of the profession. It also emphasizes the more challenging goal of integrating and applying the knowledge in a professional context.

Many disciplines and professional fields, which are supported by a core base of knowledge associated with professional work, require a specific academic credential that has become known broadly as the professional degree. The professional degree is often supported by content guidelines identified by professional or scholarly associations. Thus, membership in the profession is often predicated on attaining the appropriate professional degree, as in the case of the American Library Association (ALA)'s accreditation process for the master's degree. The degree may also serve as a de facto or actual requirement for employment in professional positions in the field. This is the case in LIS, where, particularly among libraries, the "majority of employers require an ALA-accredited master's for professional positions" (American Library Association [ALA], 2007). Thus, there is a basis for codifying the base of knowledge and attempting to ensure that graduates of professional degree programs have been exposed to this knowledge. However, the process of ensuring that graduates are able to integrate that knowledge is more difficult to accomplish, especially in light of the complexity of issues addressed in the professional context. This is also true of the process of measuring its effectiveness.

3.4. Prior research

Prior research involved the meta-analysis of literature published between 1996 and 2006 and related to ethics education in business curricula. This research involving MBA programs and undergraduate business curricula found a "relatively limited application of methodologies in the study of ethics education in general" (Winston, 2007, p. 247). A majority (75%) of the research studies that evaluated the impact of ethics education used survey research. This earlier study also indicated a recent increase in interest in accounting ethics education, which can likely be attributed to the various accounting scandals that came to light around 2002. In the business literature, a larger number of studies dealt with undergraduate populations than graduate students. Further, many of the studies did not apply a treatment to the population studied. This made it difficult to draw any substantive conclusions related to the impact or effect of ethics education on students' perceptions, cognitive development, or professional behavior (Winston, 2007). While the study of business literature was undertaken in order to shed light on the possibilities of studying ethics education in LIS, there remains a need to consider the research in LIS and other comparable professional disciplines.

4. Procedures

Initially, data gathering for the study required identifying the disciplines to analyze. Educational preparation for ethical decision-making and ethical leadership is highly relevant to a variety of disciplines and professions. Researchers selected disciplines that were similar to LIS in requiring a master's or undergraduate professional degree for professional positions. Such disciplines attach theory to the practice of a professional craft, as defined broadly by researchers such as Delaney (1997, p. 243). Disciplines identified as comparable to LIS in terms of educational requirements included journalism and mass communication; a variety of health sciences disciplines including nursing and public health; allied health disciplines, such as therapeutic recreation and rehabilitation therapy; education, including degree programs in K-12, higher education, and school counseling; engineering; and social work. While degree programs in law and medicine include coverage of ethics, the numbers of credit hours required in these disciplines are substantially greater than those in the other disciplines. This made comparison with LIS inappropriate.

For each of the disciplines, it was necessary to identify the body of literature in which empirical research findings and new knowledge is likely to be published. Each discipline had one or two leading article databases that contained a large portion of the scholarly output related to education in the professional field. Databases were chosen for comprehensiveness and authority based on reviews, recommendations, and simple data related to coverage and scope (George Mason University Libraries, 2003; Jacso, 2006; Lafferty & Porter, 2005; Oldenkamp, 2004; Tenopir, 2003). For each of the disciplines, the following relevant scholarly databases were identified:

- LIS: Library Literature and Information Science (Wilson) and Library and Information Science Abstracts
- Journalism and mass communication: Communication and Mass Media Complete
- Health sciences: Health Source: Nursing/Academic and CINAHL
- Education: ERIC and Education Full Text
- Engineering: Compendex
- Social work: Social Services Abstracts and Social Work Abstract

Researchers conducted literature searches using the online databases. This study evaluated published articles that addressed or investigated the delivery of education related to ethics, ethical and moral values, and character development. It did not include purely conceptual publications related to the broad concept of professional values overall or within each profession. Essentially, studies that measured the impact or presence of ethics education in these professional disciplines were isolated from a larger number of articles that were retrieved by multiple phrase searches within each database. Exact phrase searches were conducted across all fields—most notably, abstracts and subject headings or descriptors—within each database. In order to account for the different terminology used by individual researchers, searches included five related phrases, detailed below, which had been used in the study of business ethics education (Winston, 2007). Only articles published in 2000 and later were included in the study. In total, there were 1754 hits across all databases, including journal articles, conference proceedings, book chapters, and book reviews. As there was some overlap among the five searches in a number of the databases, the total number of unique articles retrieved in each database was smaller than the total of the separate searches in many cases. Additionally, there was some overlap between databases. As each article was reviewed for relevance, overlapping articles were eliminated from the final data collection. The number of hits retrieved by database, with the phrases identified, is as follows:

Library Literature and Information Science = 26
- "ethics education" = 1
- "education in ethics" = 0
- "moral education" = 1
- "character development" = 10
- "character education" = 14

Library and Information Science Abstracts = 4
- "ethics education" = 1
- "education in ethics" = 0
- "moral education" = 0
- "character development" = 3
- "character education" = 0

Communication and Mass Media Complete = 27
- "ethics education" = 7
- "education in ethics" = 2
- "moral education" = 10
- "character development" = 8
- "character education" = 1

Health Source: Nursing/Academic = 117
"ethics education" = 67
"education in ethics" = 11
"moral education" = 36
"character development" = 9
"character education" = 6
CINAHL = 153
"ethics education" = 133
"education in ethics" = 10
"moral education" = 5
"character development" = 3
"character education" = 7
Education Full Text = 944
"ethics education" = 18
"education in ethics" = 1
"moral education" = 839
"character development" = 61
"character education" = 212

The large number of hits in Education Full Text can be accounted for, in part, by the fact that "moral education" refers to a developed sub-discipline in educational studies and educational philosophy. It includes a published journal entitled the *Journal of Moral Education*. Searching for "Journal of Moral Education" revealed 357 hits on its own, greatly increasing the number of results including the phrase "moral education."

ERIC = 363
"ethics education" = 20
"education in ethics" = 1
"moral education" = 192
"character development" = 53
"character education" = 151

As the focus of this study was the journal literature, the searches of ERIC were limited to journal articles and did not include ERIC documents.

Compendex = 51
"ethics education" = 37
"education in ethics" = 0
"moral education" = 5
"character development" = 8
"character education" = 4
Social Services Abstracts = 60
"ethics education" = 23
"education in ethics" = 0
moral education" = 26
"character development" = 7
"character education" = 7
Social Work Abstracts = 9
"ethics education" = 5
"education in ethics" = 5
"moral education" = 0
"character development" = 3
"character education" = 1

The articles retrieved by the searches were evaluated to determine whether they were based on original research related to ethics education. Retrieved articles were not included in the analysis if they

- were not based on original research
- did not address the education of professionals
- did not focus on the United States entirely or in comparative studies with other countries
- did not consider disciplines covered in the study; articles related to business, law, medicine, and divinity were all excluded on this basis.

Review of the articles retrieved from Library Literature, Library and Information Science Abstracts, and Social Work Abstracts did not reveal any articles related to ethics education that were based on original research.

In the education databases, in particular, researchers identified articles that related to ethics education in disciplines beyond the professional education of teachers and counselors. Only those articles related to the professional education of future educators and the other disciplines included in the study were included in the data collection. In all, the searches of the education databases revealed 15 articles, 13 from Education Full Text and 2 additional articles from ERIC. These articles included the disciplines of education, social work, engineering, and nursing. One article each that related to divinity, public administration, and law enforcement/criminal justice were not included in the study because they were not related to the disciplines identified at the outset. In Compendex, retrieved articles that addressed ethics in disciplines other than engineering were also excluded. One such article addressed optometry, a medical field requiring a doctoral degree that was not within the scope of the study. Another article related to business ethics was also not included. With these exclusions, one article within the discipline of engineering was included. Searches of CINAHL and Health Source each revealed articles related to the separate fields of nursing and public health.

Because of the cross-disciplinary nature of the articles retrieved from some databases, determining the "discipline" of each article was not as simple as identifying which database contained the article. Two other data categories—discipline of the author and discipline of the population—were used to identify the discipline of each article. The databases from which unique articles in each of the disciplines were retrieved included Library Literature (0), Library and Information Science Abstracts (0), Communication and Mass Media Complete (2), Health Source (5), CINAHL (9), Education Full Text (13), ERIC (2), Social Services Abstracts (1), and Social Work Abstracts (0). Data about the disciplines of the authors were compiled using the "about the author" section of each article as the primary source of information. If that section listed the department, organization, or division the author was associated with, that was determined to be the author's discipline. A Google™ search of the author's name and affiliation was conducted to obtain the same information when it was not available in the "about the author" sections. The academic discipline or profession of the population studied was identified from the text of each article as well, primarily using the methodology section or similar descriptions of the populations studied.

The primary disciplines of the journals in which the articles were published were also identified for each of the studies, based on descriptions of the journal subject in Ulrich's Periodicals Directory (2006). The articles were also categorized on the basis of whether the articles were published in refereed journals, as identified using *Ulrich*'s.

Original research was defined on the basis of the use of an applicable methodological approach and the gathering and/or analysis of data. Original research was distinguished from opinion pieces, articles which represented theory development but which were not based on original research, as well as any other discussion articles that were not based on original research. Although ethics education or professional development is provided outside of the classroom setting—at professional conferences, by consultants, by community-based organizations, and in other venues—the analysis and comparative analysis of data were limited to education in the academic environment and classroom setting.

In total, the analysis revealed 32 articles based on original research that met the other criteria for inclusion in the research study. For each of the articles included in the analysis, the data-gathering technique that was identified or described by the author(s) was noted. In those

instances in which more than one data-gathering technique was used, all of the techniques were identified. Depending on the structure of the research, several data collection techniques were possible. For example, survey methodology could use quantitative statistics, qualitative results, or a combination of the two. Thus, the research studies were coded and the data analyzed on the basis of how data were gathered, rather than simply whether the studies were qualitative or quantitative. This allowed for greater specificity in the results.

As this research focused on studies of the impact of ethics education in professional disciplines, researchers gathered data from each article regarding the analytical approaches used to measure impact. For example, studies might measure the amount of ethics taught in professional curricula or the amount of cognitive or moral development that an ethics class actually engendered in its students. Thus, those studies in which some sort of treatment had been applied and the change or impact on research participants had been measured in some way were identified. The nature of the general types of treatments (e.g., course content) and the treatment effect sizes (e.g., change in identified measure of cognitive development) could be analyzed. This allowed researchers to measure the general impact of ethics education across professional curricula.

Data regarding the nature of the participants in the research studies (e.g., graduate or undergraduate students or faculty) were gathered, if applicable, as were data regarding sample sizes used. Researchers also identified timeframes for the research studies. Timeframes were measured using the source of the data as the basis—the timeframe for studies involving human subjects was articulated explicitly by the researchers. However, research involving the bibliometric analysis of published research was categorized on the basis of the years of coverage of the data or published research used in the study and analyzed by the author, as opposed to the timeframe during which the author conducted the research. Research based on questionnaires and interviews was analyzed on the basis of whether the research was conducted at one set point in time, such as administering one survey instrument, or with separate instances of administering the survey over time. Data were also gathered from each article regarding whether or not the researchers considered the impact of demographic factors, including gender and race/ethnicity, in the outcomes measured by their research. When the statements of research methodology indicated that such data were gathered but not included in the analysis, researchers recorded that it was not reflected in the data analysis.

Because of the specific emphasis on ethics in organizations and ethics education after the highly publicized corporate scandals in 2002 and after, data regarding the year of publication were recorded and analyzed as well.

Non-parametric tests of independence (chi-square) were undertaken with particular consideration of the issues of data-gathering techniques and approaches used in measuring impact. These determined if there were differences based on the disciplinary foci of the research, the nature of the study participants, publication in refereed journals, and the timeframes involved in the studies. *T*-tests were used to measure the relationship between ratio data in the sample sizes used in the studies and the binary data. These data included the data-gathering techniques used, whether the studies were experimental in nature, impacts measured, whether the research was published in peer-reviewed journals, whether the researchers considered the impact of race and gender, and which disciplines of the study participants were represented in the research.

Table 1
Disciplines of the authors

Discipline	Number	% of total
Education	11	34.4
Nursing	10	31.3
Allied health	3	9.4
Journalism/mass media	2	6.3
Social work	2	6.3
Public health	2	6.3
Agriculture	1	3.1
Psychology	1	3.1
Engineering	0	0.0
Library and information science	0	0.0
Total	32	100.0

Table 2
Disciplines of journals

Discipline	Number of articles	% of total
Education	13	40.6
Nursing	9	28.1
Allied health	3	9.4
Journalism/mass media	2	6.3
Social work	2	6.3
Public health	1	3.1
Psychology	1	3.1
Medicine	1	3.1
Engineering	0	0.0
Library and information science	0	0.0
Total	32	100.0

5. Findings

This research involving professional education addressed academic preparation related to ethical decision-making. Thus, the data gathering and analysis considered the academic disciplines of the researchers and the populations studied, and, with regard to dissemination of the research results, the journals in which the articles were published. The researchers represented a number of fields supported by professional education. The most frequently identified disciplinary affiliation for the authors was that of education (34.4%) (see Table 1). However, nearly as many of the studies (31.3%) were conducted by faculty and other researchers in nursing. Approximately 10% were in allied health professions, including those in therapeutic recreation, those involving rehabilitation clinicians, and an interdisciplinary health care ethics course. Smaller percentages of the articles were published by those in journalism/mass media, social work, and public health (6.3% each), and agriculture and psychology (3.1% each). There were no articles were published by researchers with disciplinary affiliations in engineering or LIS. The analysis considered the possible circumstance of co-authored articles, with the authors representing different disciplines. However, the analysis revealed no instances of such cross-disciplinary collaboration .

Similarly, the journals in which the research studies were published represented a range of disciplines. The disciplines were determined by the areas of coverage identified for the journals in *Ulrich's* and included education (40.6%) (see Table 2). Nearly 30% of the articles were published in nursing journals. A number of the

Table 3
Disciplines of articles

Discipline	Number of articles	% of total
Education	12	37.5
Nursing	10	31.3
Allied health	3	9.4
Journalism/mass media	2	6.3
Social work	2	6.3
Public health	2	6.3
Engineering	1	3.1
Total	32	100.0

Table 4
Study participants

Status of study participants	Number	% of total
Undergraduate students	4	12.5
Graduate students	1	3.1
Undergraduate and graduate students	1	3.1
Faculty	10	31.3
Alumni	15	46.9
Other	1	3.1
Total	32	100.0

journals were in allied health (9.4%), with a relatively small percentage published in journals in social work and journalism/mass media (6.3% each) and in public health, psychology, and medicine (3.1% each).

Data regarding the disciplinary/professional affiliations of the populations studied were also gathered. As was the case with the disciplines of the researchers and the journals in which the research was published, the largest percentage of articles (37.5%) were written by people in the discipline of education (see Table 3). However, the research related to engineering (3.1%) was published in an education journal, indicating that disciplinary research related to ethics might be published outside of the discipline.

Using the journal information included in *Ulrich's*, researchers determined that 87.5% of the articles were published in refereed publications.

Of the total number of articles based on original research, approximately 19% were based on the study of students (see Table 4). Of the total, 12.5% were based on the study of undergraduate students. Only 3.1% addressed solely graduate students, and 3.1% were based on the study of both undergraduate and graduate students. Nearly one-third were based on the analysis of faculty perceptions; one of those studies included academic administrators as well as faculty. The largest group, including 46.9% of published articles, was based on the study of alumni who are now practitioners. The remaining 3.1% included research that did not address human subjects per se and focused on the content/bibliometric analysis of previously published research.

The vast majority of the studies (87.5%) used survey research to gather data (see Table 5). Of the remaining articles, only 6.0% each were based on interviews or content analysis. The category of content analysis included bibliometric analysis, the analysis of the vocabulary or logic represented in published literature, and analysis of the content of assignments completed by students. None of the studies was based on the use of more than one data-gathering technique.

Experimental research includes applying a treatment to a specific study population—such as teaching a course or a component of a course or instituting a program. Researchers then evaluate the effects on the study participants, considering data gathered before and after the intervening experience. In total, five studies (15.6%) were based on experimental research.

To examine research methodologies, researchers in this study noted the timeframe involved in gathering the data in each study. In 78.1% of the studies, the research was conducted at one set point in time. These studies typically involved the administration of one survey instrument. In 15.6% of the studies, the data were based on a timeframe of 6 months or less. Studies based on periods of 6 months to 1 year and one to 2 years made up 3.1% each.

A primary focus of this research and analysis was to address the measures of impact associated with ethics education. The most commonly represented way (68.8%) to measure impact was to measure perceptions or changes in perceptions based on applying some treatment, such as course content or completion of a degree program (see Table 6). The measurement of perceptions included considerations such as respondents' representations of how they would behave in a given circumstance, as well as faculty surveys regarding perceptions of whether ethics should be taught and to what extent they teach it in their courses or academic departments. One-quarter of the studies considered measures of reasoning or cognitive development or changes in such (i.e., learning). These studies evaluated student performance on tests, such as the widely used Defining Issues Test (DIT). The DIT measures moral reasoning capacity. Researchers also evaluated responses to case studies and scenarios that asked what students would do in a particular situation. Nearly one-third of these studies reflected the analysis of individual course content or broader curricula. In addition, 46.9% of studies queried graduates regarding their professional experiences with ethical dilemmas and questions in the context of their academic preparation. Slightly less than 45.0% were based on measures of the respondents' values and used values-based measurement instruments such as the Rokeach Value Inventory. One of the studies analyzed previously gathered data.

Of the research involving human subjects, sample sizes varied widely. Slightly less than 23.0% of the total involved sample sizes of fewer than fifty participants (see Table 7). Studies that used sample sizes between 50 and 99, between 100 and 249, and of 250 or more made up 25.0% each. The largest sample size identified was 1,728 and the smallest was 10.

Of the research studies, 18.8% were based on the study of participants in a single course (see Table 8). Only 3.1% included the study of those in more than one course at a single academic institution. However, the highest percentage (75.0%) was based on the study of those in multiple institutions, including faculty surveys across institutions and surveys of graduates of more than one institution. The "other" category includes one study of the literature related to ethics education.

There was no apparent pattern around a specific time period of publication. The largest percentage of the articles (21.9% each) was published in 2001 and 2004. Only 6.3% were published in 2000 (see Table 9).

Statistical analyses (chi-square and *t*-tests) were undertaken in order to determine whether there were significant differences in research design, including data-gathering techniques; whether or not the studies were experimental, the timeframes of the studies, the

Table 5
Research methods

Data-gathering technique	Number of articles	% of total
Questionnaire	28	87.5
Content analysis	2	6.3
Interview	2	6.3
Total	32	100.0

Table 6
Approaches in measuring impact

Method of evaluation	Number[a]	% of total
Perceptions or changes in perceptions	22	68.8
Curriculum	10	31.3
Reasoning/cognitive development	8	25.0
Experience	15	46.9
Values held	14	43.8
Existing research	1	3.1

[a] The individual studies were not limited to one measure of analysis. Thus, the total exceeds 32.

Table 7
Sample sizes

Sample size	Number of articles	% of total
0–49	7	22.6
50–99	8	25.0
100–249	8	25.0
>249	8	25.0
N/A	1	3.1
Total	32	100.0*

Table 8
Organizational context

Context	Number of articles	% of total
Single course	6	18.8
Single institution	1	3.1
Multiple institutions	24	75.0
Other	1	3.1
Total	32	100.0

nature of study participants and sample sizes, course or institutional context from which participants were drawn, measures of impact, where and when the research was published, and whether the studies evaluated gender and/or race/ethnicity based on the academic disciplines of the populations studied. Only 18.75% of the articles overall studied students and approximately one-third studied faculty. However, 54.5% of the research involving students and 60% of the research involving faculty focused on the discipline of education. While approximately half of all studies were based on querying graduates, 90.0% of the nursing studies and two-thirds of the allied health studies were based on queries of alumni, as represented by a statistically significant chi-square of 0.036. (Significance was set atp ≤ .05.) The only study of graduate students fell into the discipline of public health. While the other public health study focused on faculty, none of the other disciplines included research involving graduate students, as reflected by a chi-square of 0.003. Even those fields with a traditional focus on graduate education, such as social work, education, or nursing, did not focus on graduate students. While 31.25% of the studies overall evaluated gender as a factor, none of the social work articles addressed gender, as indicated by a chi-square of 0.030. However, as only two social work studies were included in the data analysis, limited conclusions can be drawn about the significance of this finding. Curriculum content was evaluated in 28.1% of the studies. None of the studies involving participants in nursing analyzed curricular content, as indicated by a chi-square value of 0.017. Although the nursing studies represented approximately one-third of the studies overall, they were nearly half (46.7%) of the studies that evaluated the study participants' experience. In this regard, 70.0% of the nursing studies evaluated experience, as compared with 36.4% of the studies overall. This is shown by a chi-square value of 0.077, which is approaching significance.

In addition, 70.0% of the nursing studies focused on the values held by research participants, as compared with 31.8% of the studies overall and represented by a chi-square value of 0.044. Similarly, 68.75% of the studies evaluated perceptions, with a chi-square value of 0.030. This did not include any public health research.

Researchers undertook statistical analyses in order to determine if there were significant differences in data-gathering techniques or the measures of impact. These factors were cross-tabulated with other data, including whether the studies were experimental in design, the nature of study participants, the course or institutional context from which the study participants were drawn, the timeframes of the studies and the sample sizes, whether the studies evaluated gender or race/ethnicity, and whether the research was published in peer-reviewed journals. With regard to the data-gathering techniques used, 87.5% of the studies involved the use of questionnaires. However, only 62.5% of the studies that measured reasoning ability/cognitive development or changes in such were based on data gathered using questionnaires, as indicated by a chi-square value of 0.014. Questionnaires were used more to measure perceptions or changes in perceptions (20 of 28, or 71.4%), experiences (13, or 46.4%), or values held (11, or 39.3% of total).

While 68.75% of the studies overall focused on evaluating perception, none of the studies based on content analysis evaluated perception, as represented by a chi-square value of 0.030. However, while 25.0% of the studies overall evaluated reasoning level, all of those involving content analysis included the evaluation of perception, with a statistically significant chi-square value of 0.011. And, as might be expected, the only study that analyzed existing research was the one based on content analysis. Lastly, the only other statistically significant difference in data-gathering technique reflected the fact that while data related to the values held by the study participants were gathered in 43.75% of the studies overall, 100.0% of the instances in which interviews were used involved questions related to values held. This is indicated by a chi-square value of 0.098, which is approaching significance. However, since only two of the research studies using interviews, it is difficult to draw definitive conclusions based on this aspect of the analysis. Similarly, 87.5% of the studies were published in peer-reviewed publications. However, only 50% of the studies based on interviews were published in refereed journals, as represented by a chi-square value of 0.098.

T-tests were used to analyze the sample sizes in relation to aspects of research design, impacts measured, and whether the research was published in peer-reviewed journals. In all instances the data were also coded as binary (using designations of yes/no) for the purposes of these analyses. However, no significant differences were noted.

Researchers also analyzed how the studies measured the reported effect sizes and calculated the predicted effect. Of the thirty-two studies based on original research, twenty-two involved applying some sort of treatment and measuring the impact or change on the research participants. However, only four of the studies (12.5%) included gathering baseline data prior to applying the treatment in order to determine an effect size. Sample sizes varied. In three of the cases where researchers gathered baseline data, the subjects were students at the time the effect was measured. In the fourth study, the subjects were graduates of the respective programs at the end of the research study. The treatments varied: three focused on a component of a course and the other focused on a complete course. Two of the studies measured the impact on decision-making ability and cognitive development, one measured perceptions, and the fourth measured a mix of decision-making ability and perception. While 68.75% of the studies addressed the role or impact of some sort of treatment, 50.0% of the total defined the treatment as that of having completed a degree program in the academic discipline, independent of the institution or the specific curricular content. Approximately one-third of the studies (31.25%) did not include applying a treatment and gathering data, which would have allowed researchers to calculate an effect size. Instead, these studies measured a mix of changes in reasoning or decision-making ability (18.75%), perception (43.75%), or a combination of the two (6.25%). Thus, researchers determined that the small number of studies with effect sizes available for comparison, the varying treatments, and the different effect measures limited the value of a statistical analysis of the predicted effects.

While baseline data were gathered in only 4 of the studies, 15 (or 47%) provided some measure of impact associated with reasoning, perceptions, or values. Of the studies that provided some measure of impact, 86.7% indicated a positive impact on perceptions (33.3% of the studies measuring impact), reasoning (20.0%), values (6.7%), or some combination of the three (40.0%). One study each was found to have

Table 9
Years of publication

Year	Number of articles	% of total
2000	2	6.3
2001	7	21.9
2002	5	15.6
2003	5	15.6
2004	7	21.9
2005	4	12.5
2006	2	6.3
Total	32	100.0

neutral or negative impact. The study that showed a negative impact was based on results of the DIT. It indicated lower scores for those who completed ethics education than for those who had not completed ethics coursework. However, the study was not experimental and did not begin with the gathering of baseline data for purposes of analysis and comparison.

6. Discussion

This study of a range of disciplines supported by professional education indicates a greater emphasis on this area of research in other disciplines than in LIS. However, the limited amount of published research suggests the benefit of analyzing results across disciplines.

The study of the impact of ethics education reflects an extensive focus on ethics research in the discipline of education and, to a lesser extent, in nursing. There has been far less research in the other health sciences, journalism, social work, and engineering. The lack of such research in LIS indicates that evaluating how ethics education has been studied in other professional disciplines provides a basis for determining how best to assess the impact of ethics education on learning and professional behavior in LIS.

The analysis of the research indicates that nearly 70% of the studies focused on measuring perceptions. About 25% of the studies measured reasoning or cognitive development. Comparing the results across disciples, there were statistically significant differences in segments of the population studied or measures of impact considered. However, the key finding across studies and disciplines is the positive impact of ethics education on both reasoning/cognitive development and perceptions.

This research across a number of other disciplines also reflects the emphasis on the study of graduates more than current students in evaluating the impact of ethics courses, course content, and degree programs. This limits the potential for evaluating the immediate impact of ethics education on current students. The research also reflects the use of a limited number of data-gathering techniques, including experimental design. While the research on ethics education reflects the limited application of methodological approaches, the dissemination of the research, particularly in refereed publications, reflects a cross-disciplinary body of research. This indicates some academic and professional interest in the study of ethics education, which has been called for by researchers in a number of fields. However, the gaps in the original research limit the ability to posit the impact of ethics education with regard to changes in learning, perceptions, or the effect on professional behavior beyond analyzing the impact indicated in individual studies.

In addition, a small subset of the research included gathering baseline data prior to applying treatments such as degree programs, individual courses, or components of course content. Based on the research designs, a small percentage of the studies were able to evaluate changes in populations over time.

7. Conclusion

The nature of the organizational and societal context has allowed researchers to document the relative pervasiveness of ethical challenges and examples of unethical behavior. Researchers have also identified the potential causes of such behavior. Similarly, they have addressed the complex decision-making associated with ethical dilemmas and the need for an enhanced focus on the academic preparation of future professionals. While recent high-profile cases have likely been the catalyst for the renewed emphasis on ethics education in business, the ethical challenges are not limited to the private sector or to professionals who have studied business and its sub-disciplines, such as accounting.

Ultimately, researchers have noted that the regulatory, legislative, and organizational responses to ethical challenges and unethical behavior represent only a part of the process. Because ethical decision-making is so complex and competition is so prevalent, addressing and deterring unethical practices and guiding professionals' decision-making also requires educational preparation. There has been limited study of the potential impact of ethics education in the preparation of professionals. Thus, this research, based on the study of ethics education in professional disciplines, highlights the lack of such research in library and information science. It provides a basis for measuring the impact of such educational preparation for professional work in the information professions.

References

American Library Association (2007). 2006–2007 directory of institutions offering ALA-accredited master's programs in library and information science. Retrieved April 13, 2007, from http://www.ala.org/ala/accreditation/lisdirb/lisdirectory.htm

Annas, G. J. (2005). "Culture of life" politics at the bedside: The case of Terri Schiavo. *New England Journal of Medicine*, *352*, 1710–1715.

Banaji, M. R., Bazerman, M. H., & Chugh, D. (2003). How (un)ethical are you? *Harvard Business Review*, *81*(12), 56–64.

Beasley, M. S. (2004). Going beyond Sarbanes-Oxley compliance: Five keys to creating value. *CPA Journal*, *74*(6), 11–13.

Callahan, D. (2004). *The cheating culture: Why more Americans are doing wrong to get ahead.* Orlando, FL: Harcourt.

Center for Academic Integrity (2005). *CAI research*. Retrieved April 15, 2007, from http://www.secure2.mc.duke.edu/academicintegrity/cai_research.asp

Delaney, A. M. (1997). Quality assessment of professional degree programs. *Research in Higher Education*, *38*, 241–264.

George Mason University Libraries (2003). Research guide: Social work. Retrieved December 21, 2006, from http://library.gmu.edu/research/socwork.pdf

Gostin, L. O. (2005). Ethics, the Constitution, and the dying process: The case of Teresa Marie Schiavo. *Journal of the American Medical Association*, *293*, 2403–2407.

Grassley calls for investigation into charities (2002). *Fund Raising Management*, *33*(8), 12.

Hatcher, T. (2003). New world ethics. *Training & Development*, *57*(8), 42–45.

Hemphill, L. (2003, December 6). *Acquittals end bid scandal that dogged winter games*. *New York Times*, p. D1.

Hill, A. L. (2004). Ethics education: Recommendations for an evolving discipline. *Counseling and Values*, *48*, 183–203.

Hohler, B. (2006, February 21). Austrian officials decry Mayer; Actions by central figure of raid are 'inexcusable.' *The Boston Globe*, p. D2.

Is ethics good business? (2003). Interview with Lynn Sharp Paine. *Challenge*, *46*(2), 6–21.

Kaplan, L. E. (2006). Moral reasoning of MSW social workers and the influence of education. *Journal of Social Work Education*, *42*, 507–522.

Jacso, P. (2006). Peter's picks and pans: PubMed Central, BioMed Central, BL Direct. *Online*, *30*(6), 49–51.

Jenkins, C. (2005, March 15). Players admit steroids changed baseball. Retrieved March 24, 2006, from http://www.usatoday.com/sports/baseball/2005-03-15-steroids-mlb-cover_x.htm

Lafferty, M., & Porter, K. (2005). Compendex Engineering Village 2. Issues in science and technology librarianship. Retrieved December 21, 2006, from http://www.istl.org/05-fall/databases.html

Landis' backup doping test also positive (2006, August 5). Retrieved April 15, 2007, from http://www.msnbc.msn.com/id/14059185/

Lee, B., & Padgett, G. (2000). Evaluating the effectiveness of a mass media ethics course. *Journalism and Mass Communication Educator*, *59*, 27–39.

Michaelis, V. (2004, August 25). Judging gets low marks. *USA Today,* p. 1D.

Oldenkamp, D. M. (2004). EBSCO's new Communication and Mass Media Complete database. *Searcher*, *12*(4), 40–48.

Silverman, E., & Schwab, D. (2004, August 1). A bitter pill for nation's drug makers. *Sunday Star-Ledger*, p. 1, 8.

Tenopir, C. (2003). Databases for information professionals. *Library Journal*, *128*(16), 32.

Ulrich's Periodical Directory (2006). Retrieved December 4, 2006, from http://www.ulrichsweb.com/ulrichsweb/

Winik, L. W. (2004, March 28). Are we a nation of cheaters? *Parade*, p. 20.

Winston, M. (2005). Ethical leadership: Professional challenges and the role of LIS education. *New Library World*, *106*(5), 234–243.

Winston, M. (2007). Ethical leadership and ethical decision-making: A meta-analysis of research related to ethics education. *Library and Information Science Research*, *29*, 230–251.

Articles used in the meta-analysis

Behre, W. J., Astor, R. A., & Meyer, H. A. (2001). Elementary- and middle-school teachers' reasoning about intervening in school violence: An examination of violence-prone school subcontexts. *Journal of Moral Education*, *30*, 131–153.

Cameron, M. E., Schaffer, M., & Park, H. (2001). Nursing students' experience of ethical problems and use of ethical decision-making models. *Nursing Ethics*, *8*, 432–447.

Carpenter, C., Ericksen, J., Purves, B., & Hill, D. S. (2004). Evaluation of the perceived impact of an interdisciplinary health care ethics course on clinical practice. *Learning in Health and Social Care*, *3*, 223–236.

Clark, M. A. (2003). Training school interns to teach elementary students to respect and care for others. *Journal of Humanistic Counseling, Education, and Development*, *42*, 91–106.

Congress, E. P. (2001). Dual relationships in social work education: Report on a national survey. *Journal of Social Work Education*, *37*, 255–266.

Dodd, S. J., Jansson, B. S., Brown-Saltzman, K., Shirk, M., & Wunch, K. (2004). Expanding nurses' participation in ethics: An empirical examination of ethical activism and ethical assertiveness. *Nursing Ethics*, *11*, 15–27.

Downs, L. (2003). A preliminary survey of relationships between counselor educators' ethics education and ensuing pedagogy and responses to attractions with counseling students. *Counseling and Values*, *48*, 2–13.

Glanzer, P. L., Beaty, M., & Lyon, L. (2005). Moral education at religious research universities: Exploring faculty attitudes. *Religious Education*, *100*, 386–403.

Gutierrez, K. M. (2005). Critical care nurses' perceptions of and responses to moral distress. *Dimensions of Critical Care Nursing*, *24*, 229–241.

Harms, K., & Fritz, S. (2001). Internalization of character traits by those who teach Character Counts! *Journal of Extension*, *39* Retrieved November 21, 2006, from http://www.joe.org

Hill, A. L. (2004). Ethics education: Recommendations for an evolving discipline. *Counseling and Values*, *48*, 183–203.

Howard, D. E., Lothen-Cline, C., & Boekeloo, B. O. (2004). Using the case-study methodology to teach ethics to public health students. *Health Promotion Practice*, *5*, 151–159.

Jenkins, C. L., Elliott, A. R., & Harris, J. R. (2006). Identifying ethical issues of the Army Civilian and Army Nurse Corps Certified Registered Nurse Anesthetists. *Military Medicine*, *171*, 762–769.

Kaplan, L. E. (2006). Moral reasoning of MSW social workers and the influence of education. *Journal of Social Work Education*, *42*, 507–522.

Keefer, M., & Ashley, K. D. (2001). Care-based approaches to professional ethics: A systematic comparison of students' and ethicists' moral reasoning. *Journal of Moral Education*, *30*, 377–398.

Killen, A. R. (2002). Stories from the operating room: Moral dilemmas for nurses. *Nursing Ethics*, *9*, 405–415.

Killen, A. R., Fry, S. T., & Damrosch, S. (2001). Ethics and human rights issues in perioperative nurses: A subsample of Maryland nurses. *Seminars in Perioperative Nursing*, *10*, 196–202.

King, P. M., & Mayhew, M. J. (2002). Moral judgment development in higher education: Insights from the Defining Issues Test. *Journal of Moral Education*, *31*, 247–270.

Kirschner, K. L., Stocking, C., Wagner, L. B., Foye, S. J., & Siegler, M. (2001). Ethical issues identified by rehabilitation clinicians. *Archives of Physical Medicine and Rehabilitation*, *82*, S2–S8.

Lambeth, E. B., Christians, C. G., Fleming, K., & Lee, S. T. (2004). Media ethics teaching in Century 21: Progress, problems, and challenges. *Journalism and Mass Communication Educator*, *59*, 239–258.

Lee, B., & Padgett, G. (2000). Evaluating the effectiveness of a mass media ethics course. *Journalism and Mass Communication Educator*, *59*, 27–39.

Milson, A. J. (2000). Social studies teacher educators' perceptions of character education. *Theory and Research in Social Education*, *28*, 144–169.

Milson, A. J., & Mehlig, L. M. (2002). Elementary school teachers' sense of efficacy for character education. *Journal of Educational Research*, *96*, 47–53.

Nisbett, N., Brown-Welty, S., & O'Keefe, C. (2002). A study of ethics education within therapeutic recreation curriculum. *Therapeutic Recreation Journal*, *36*, 282–295.

Redman, B. K., & Fry, S. T. (2003). Ethics and human rights issues experienced by nurses in leadership roles. *Nursing Leadership Forum*, *7*, 150–156.

Reed, V. A., Jernstedt, G. C., Hawley, J. K., Reber, E. S., & DuBois, C. A. (2005). Effects of a small-scale, very short-term service-learning experience on college students. *Journal of Adolescence*, *28*, 359–368.

Reiman, A. J., & Peace, S. D. (2002). Promoting teachers' moral reasoning and collaborative inquiry performance: A developmental role-taking and guided inquiry study. *Journal of Moral Education*, *31*, 51–66.

Shortell, S. M., Weist, E. M., Sow, M. S. K., Foster, A., & Tahir, R. (2004). Implementing the Institute of Medicine's recommended curriculum content in schools of public health: A baseline assessment. *American Journal of Public Health*, *94*, 1671–1674.

Ulrich, C. M., & Soeken, K. L. (2005). A path analytic model of ethical conflict in practice and autonomy in a sample of nurse practitioners. *Nursing Ethics*, *12*, 305–316.

Ulrich, C. M., Soeken, K. L., & Miller, N. (2003). Ethical conflict associated with managed care: Views of nurse practitioners. *Nursing Research*, *52*, 168–175.

Ulrich, C. M., Soeken, K., & Miller, N. (2003). Predictors of nurse practitioners' autonomy: Effects of organizational, ethical, and market characteristics. *Journal of the American Academy of Nurse Practitioners*, *15*, 319–325.

Urofsky, R., & Sowa, C. (2004). Ethics education in CACREP-accredited counselor education programs. *Counseling and Values*, *49*, 37–47.