Ethical Aspects of Doctoral-Research Advising in the Emerging African Information Society

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Abstract

This paper discusses the ethical aspects of doctoral-research advising in the emerging African information society from an African perspective. It addresses the following research questions: What is the status of information ethics in Africa? What theoretical frameworks are available to illuminate the ethical dimension of the emerging African information society? To what extent are ethical aspects of the emerging African information society integrated into doctoral-research advising in library and information science in Africa? What are the roles and obligations of the supervisor and supervisee in doctoral research? How is information and communication technology (ICT) being used to enhance doctoral-research advising? The paper is underpinned by various ethical theoretical models, such as the Trust Model, Hayward Power Relations, classical and contemporary ethical traditions, and game theory. It relies upon a literature survey to address the research problems. Results reveal, among other things, the milestones achieved by African scholars in promoting information ethics through curriculum development and research. However, there is a need for the evolving information society to take cognizance of African cultural contexts. The results also reveal that supervisor–supervisee relationships are constrained. The ethical dimension of the emerging African information society should be infused into the doctoral-research process to improve the relationships of supervisor and supervisee. This should be supported by responsible use of ICT, taking into account the Africa cultural context and African values to facilitate the doctoral-advising process. All these should be buttressed by an enabling policy framework at

the institutional level to promote harmony and productivity in doctoral research.

INTRODUCTION

The concept of *information ethics* gained prominence after the World Summit on Information Society (WSIS) meetings held in Geneva, Switzerland, in 2003 and Tunis in 2005, respectively (WSIS, 2005). According to Britz (2013), information ethics refers to a form of applied ethics that investigates ethical issues in the life cycle of information. Such ethical issues include the right to privacy, the right to access to information, the right to intellectual property, and the right to quality information. The WSIS was necessitated by UN General Assembly Resolution 56/183 (December 21, 2001) that called for the urgent need to harness the potential of knowledge and technology in promoting the goals of the UN Millennium Declaration. Subsequent to the UN resolution, 175 UN member states and fifty heads of state gathered in Geneva and Tunis for the WSIS gatherings in 2003 and 2005 with the aim of bridging the global digital divide and narrowing the development gaps, leveraging information and communication technology (ICT), and improving connectivity and universal access in order to achieve the UN's Millennium Development Goals.[1]

Britz situates the origin of information ethics in the oral tradition of ancient Greece, when the concept of *information dissemination* and its associated ethical connotation manifested itself in the form of freedom of speech in the agora (marketplace). Two thousand years later, in the fifteenth century, the free flow of ideas was given impetus by the invention of the printing press. One of the effects of this was the translation of the (Latin) Bible into vernacular languages, implying that everyone could have access to information, not just the clergy and social elites schooled in Latin. Subsequently, the Enlightenment greatly advanced the cause of free-thinking. In the twentieth century, information ethics values were strengthened by the enunciation of the UN Declaration of Human Rights (1948) dictum that emphasized access to information and freedom of expression and the press as basic human rights.

STATUS OF INFORMATION ETHICS IN AFRICA

Since the WSIS meetings in 2003 and 2005, African scholars have reflected on how information ethics can be promoted and institutionalized on the continent, and their ideas have gained momentum, evidenced by a series of conferences and workshops discussing the subject. As a sequel to the WSIS of 2003, an international symposium on information ethics was organized in 2004 in Karlsruhe, Germany, under the auspices of the International Centre for Information Ethics. During the symposium, the need to integrate African scholars into international debate on information ethics was galvanized. Following the symposium and with support from the Eu-

ropean Centre of Information Ethics, scholars in library and information science (LIS) from the University of Pretoria, UNESCO, University of Wisconsin at Milwaukee, and University of Tennessee at Knoxville conceived the first African Conference on Information Ethics, held on May 7, 2007, in Pretoria. The theme was the impact of use of modern ICTs on the African continent in order to develop a people-centered information society. The main outcome of the conference was the formation of the African Network on Information Ethics (ANIE), whose mission is to promote conversation on information ethics in Africa post-WSIS.

Another gathering of African scholars convened during February 23–26, 2009, in Pretoria to further examine issues of information ethics in e-government. The participants were drawn from across Africa, and the workshop concerned global perspectives on information ethics; the planning, implementation, and evaluation of e-government; freedom of expression and censorship; the private and public divide; transparency and secrecy; rights, responsibilities, and accountability; trust, culture, and tradition; policy reforms; and infrastructure (Capurro, 2010). The third gathering on information ethics drew scholars from Africa, Europe, and North America. The meeting "Information Ethics in Africa: Current Status, Opportunities and Challenges" took place at the University of Botswana during September 6–7, 2010, and developed a framework for an information ethics toolkit for universities in the region (Mutula, 2010). The fourth gathering on information ethics happened during July 4–5, 2011, at the University of Pretoria. The main outcome of the meeting was a draft of an information ethics curriculum for university undergraduates. Subsequent meetings have continued to solidify and institutionalize ethical thinking in Africa post-WSIS on such themes as the ethical dimensions of social media (June 3, 2012, Nairobi, Kenya); workshop on privacy; ICT; cyber law; and research ethics, integrity, and quality assurance.

The discourses on information ethics in Africa have generated attention regarding several issues pertinent to both global and local interests: e-government and governance; information poverty and social exclusion; universal access to digital networks; privacy; freedom of information; intellectual property; ethical dimensions of social media; African identity; an information ethics research agenda for Africa; and the institutionalization of information ethics in universities' research and curriculum development. These themes have been discussed with the aim of developing an information ethics curriculum and research agenda for Africa. This paper attempts to show how infusing information ethics in the doctoral-research advising process would enhance the quality of the supervisor–supervisee relationship by expanding the ethical scope beyond research ethics that are hinged on the response use of ICT in the emerging African information society.

Research Problem

The present paper is motivated by three factors. First, the industrial-knowledge economy expects all universities to be part of a knowledge-generation, knowledge-innovation, and knowledge-production process wherein ethical issues like privacy, confidentiality, ownership, trust, access and accessibility, accuracy, and integrity are of paramount importance in enhancing the quality and credibility of the research process. Second, knowledge generated in universities and research institutions is increasingly seen as the driver determining progress toward the emerging African information society. Third, the ethical aspect of the emerging African information society—that is, the responsible use of ICT, or simply information ethics—is not yet fully embedded in doctoral research in Africa, where an information society has yet to be realized. Finally, doctoral students in LIS in Africa have been reported in the literature as failing to complete their research projects on time due to factors attributed, in part, to poor advising (Mutula, 2009).

Research Questions

The extent of integration of ethical aspects of the emerging African information society in doctoral-research advising in LIS from African perspectives brings into focus the following research questions:

1. What is the status of information ethics in Africa?
2. What theoretical frameworks are available to illuminate the ethical dimensions of the information society?
3. To what extent are the ethical aspects of the emerging African information society integrated in doctoral-research advising in LIS in Africa?
4. What are the roles and obligations of the supervisor and supervisee in doctoral research?
5. How is ICT being used to enhance doctoral-research advising?

In spite of the adequate literature on the academic-research advising process (Rugg & Petre, 2004; Wisker, 2008), there have been few attempts to address the issue of trust or ethics arising from the use of ICTs in the emerging African information society. This study is based on a review of the literature on, first, ethics theory generally, and second, on information ethics in relation to Africa.

Ethics Theory

There are various theoretical models relevant to studying the ethical aspects of the emerging African information society. These include the Trust Model, Hayward's Model of Power Relations, classical and contemporary ethical traditions, and game theory (Boyd, 2007; Vallor, 2010; van Eede, 2010). *Trust*, according to the definition highlighted by Mutula (2009), is the dependence on another party to whom one is often subordinate, be-

lieving that the other party is honest, means no harm, and is reliable. The Trust Model is underpinned by the following elements:

- *Empathy*: access, approachability, communication, and understanding the customer
- *Competence*: possession of the requisite skill and knowledge to perform services
- *Courtesy*: politeness, respect, consideration, and friendliness of contact
- *Responsiveness*: providing speedy feedback to services
- *Credibility*: believability and honesty of services
- *Availability*: continuance of a service activity irrespective of the user's time and location and understanding the user/customer

The concept of *trust* in the information domain can be seen as having cross-disciplinary origins in marketing, psychology, management, sociology, and economics (Dirks & Ferrin, 2002). Customer satisfaction includes interaction, honesty, moral values, responsiveness, confidentiality, privacy, data protection, integrity, security, accuracy, the option to use or share information, redress in filing a complaint, access to personal information, appropriateness, authentication, accreditation, affordability, efficiency, effectiveness, benefits, transparency, mobility, and ubiquitous interaction (White, 2008).

Hayward's Model of Power Relations (Hayward, 1998) as discussed by Boser (2007, pp. 1068–1069), on the other hand, is a useful framework for designing strategies to consider ethics. Hayward argues that power is a function of the network of social boundaries existing within a social phenomenon—boundaries that establish the limits of potential actions by actors (for example, supervisor and supervisee) in that phenomenon. Accordingly, the model views power as the capacity to navigate social boundaries in order to act in one's self-interest. The strength of the Hayward model is that it calls for a nuanced consideration of the constraints and possibilities of all actors.

Scholars have often used classical and contemporary theoretical frameworks for studying ethics in different contexts. The classical ethical frameworks draw considerable insights from the utilitarianism and deontology realms (Boyd, 2007). There is, however, a growing debate regarding whether classical ethical frameworks are sufficient to weigh the ethical implications of emerging ITs like social media. Consequently, Kaplan and Haenlein (2010) advocate for contemporary ethical frameworks that take into account issues of IT. Such contemporary frameworks include, among others, pragmatism (van Eede, 2010) and intercultural information ethics (Capurro, 2010). The contemporary ethical traditions largely define ethical standards in technological environments and consequently expand the scope of the ethical milieu beyond what is conventionally provided by the

classical traditions. The classical ethical traditions focus on privacy, confidentiality, contextual integrity, and freedom, while the contemporary ethical traditions add onto this milieu accessibility, trust, and intellectual property and copyright (Kaplan & Haenlein, 2010; Mason, 1986; WSIS, 2005).

Methods
A survey of the literature was useful in providing background information about the ethical aspects of the emerging African information society; the status of information ethics in Africa; the theoretical frameworks for studying ethics; the extent of integration of ethical aspects of the emerging African information society in doctoral research in the LIS field in Africa; the roles and obligations of supervisor and supervisee in doctoral research; the use of ICT in doctoral research; and ethical issues arising out of the use of ICTs in the emerging African information society. The literature also helped in understanding user policies governing work in online environments like social media. The literature reviewed here comprised published and unpublished theoretical and empirical reports, theses, and books and journal articles in both print and electronic formats.

Results
The extent of integration of ethical aspects of the emerging African information society into doctoral-research programs in LIS in Africa is explored here. This mainly involves the roles and obligations of the supervisor and supervisee in doctoral research, and the use of ICT in enhancing such research.

Perspectives of the Emerging African Information Society
The current conversation in Africa regarding information ethics revolves around whether the emerging information society should reflect African values and traditions. Ofcom (2006), the UK Office of Communications, notes that local issues continue to matter to people, and local content could, in this respect, deliver a range of benefits. Such benefits would include more relevant local news; improved access to local services; stronger involvement in community affairs; and enhanced democratic participation. Ocholla (2011) asks whether African information ethics ought to be considered unique. Gordana and Hofkirchner (2011) raise a similar question, albeit from a different perspective: they ask whether ethical issues in computing should be defined uniquely according to contexts, or whether such issues are simply moral issues that happen to involve ICT.

According to Carbo (n.d.), each individual belongs to a number of different cultures at different levels while living in one country by speaking different languages and adhering to a wide range of religious and political beliefs. Wiener (1964) says that cultural diversity provides a context in which human beings can flourish. Gorniak-Kocikowska (1996) adds his voice by arguing that the diverse ethical systems of the world all derive

from local histories and customs and are unlikely to be applicable worldwide. Hoesle (1992), on the other hand, indicates that computerized information systems require people to act and think in proscribed ways that privilege Western cultural traditions while marginalizing the cultural traditions of others. This line of argument suggests the need for context to be factored into the ethics of the doctoral-advising process. Floridi's (1999) information ethics theory—macroethics—attempts and advocates for addressing all ethical situations in all traditions.

As part of the evolving global knowledge economy, African universities must become more responsive to the needs of the African continent with regards to skill needs, as well as to technology innovation and transfer. In so doing, the ethical dimension of the emerging African information society must reflect African values and cultures in all ways, including doctoral research. This would give the African continent an opportunity to (re-)validate its indigenous ways through research and scholarship. Mason (1986), commenting on the the importance of intellectual property, regrets that current protocols have not effectively espoused indigenous knowledge. Capurro (2008), quoting another source, says that Ubuntu OS principles have been used in the African renaissance, black economic empowerment, corporate governance, and conflict resolution. Therefore, Ubuntu principles or philosophy should be foundational to the African information ethics curriculum and research agenda. Doctoral research and its advising must be predicated on the principle that affords African scholars the opportunity to reflect their lived experiences and African values, such as courtesy, empathy, communality, and responsiveness.

Doctoral-Research Advising
Doctoral research is a common feature of advanced studies in modern universities the world over. Holligan (2005, p. 276), cited in Stephens (2014), observes that doctoral study is a system of training in both technical and intellectual skills, the possession of which will ultimately lead to an original contribution. This contribution may be in extending or improving an existing theory, developing a new theory, interrogating and modifying widely accepted perceptions, or adding a new aspect on existing literature. Moreover, the contribution of doctoral study may include improving or developing new practices to enhance processes, outcomes, or changing behavior. Doctoral studies are expected to improve existing policy or develop new ones; they must also improve the lives of people in qualitative and quantitative ways. Doctoral studies are also expected to prepare students for research, teaching, and professional work. In the knowledge economy, such studies should also provide the seeds of incubation, innovation, commercialization, and entrepreneurship, with spinoff companies that become brands for economic development.

Advising in doctoral research is essential because it is an intervention

provided by a senior member of a profession to a junior member or members of that same profession (Bernard & Goodyear, 2004, p. 8). In doctoral-research advising, there are different modes and mixtures of feedback and of the conversations between supervisor and student. A typical sequence of events in the advising process involves the student handing in a piece of written work; the supervisor reading, reflecting, annotating, and preparing comments; and then the two parties meeting to discuss the work. The student may also submit a written work; the supervisor types comments and notes, or edits the submitted text, using an application like Microsoft Word's tracking tool; the reviewed text is then returned to the student via e-mail. If the student has an issue that needs discussion and/or resolution, he/she makes an appointment to meet the supervisor. This discussion may also take place via telephone or e-mail exchanges (Sussex, 2011).

The completion of a doctoral-research program can be tedious, requiring effective advising and adherence to standards of behavior on the part of both supervisor and supervisee (Abiddin & West, 2007). Moreover, effective advising of a doctoral project to its completion is a two-way interaction that requires professionalism, respect, collegiality, and open-mindedness (Hodza, 2007, p. 1156). The relationship between the supervisor and supervisee should be cordial and collaborative throughout the research project in order for the outcome to be of acceptable quality and be completed in a timely manner (Abiddin & West, 2007). Each party to the relationship (contract) must honor their part of the bargain and their respective obligations. The supervisor must, for example, provide constructive, consistent, and prompt feedback to the supervisee (Chiome, Chabaya, Mupa, & Chabaya, 2012, p. 15). Similarly, the supervisee must continuously engage with the supervisor but also demonstrate some level of independence in the research (Wisker, Robinson, & Shacham, 2007, p. 302).

The Supervisor–Supervisee Relationship in Doctoral Research
The supervisory relationship is an association between student and supervisor (Chiapetta-Swanson & Watt, 2011, p. 9). This relationship between the parties is two-way, which implies mutual trust, respect, and acceptance (Masembe & Nakabugo, 2004, p. 6). Wright (2003, p. 210) claims that a supervisory relationship has a significant part to play in the successful completion of a research project. Tahir, Ghani, Atek, and Manaf (2012, p. 213) maintain that the relationship between supervisor and supervisee is essential because it is one of the factors that will affect the progress of research students, and eventually their completion of projects. Chiapetta-Swanson and Watt (2011, p. 1) also insist that the relationship between supervisor and doctoral student is critical to the success of the learning experience, to the satisfaction of both participants, to the development of research skills, and to shaping the career paths of both supervisor and supervisee. Supervisors perch on a higher pedestal than supervisees and

can therefore use their power to enhance the supervisory relationship (Murphy & Wright, 2005, p. 284).

A good supervisor is one who possesses professional knowledge and is capable of exhibiting care and concern for the personal well-being of the supervisee (Stephens, 2014). Supervisors need to be friendly, open, approachable, and supportive toward their supervisees so that the supervisory relationship can proceed smoothly (Sidhu, Kaur, Fook, & Yunus, 2014, p. 152). A good supervisory relationship is characterized by warmth, rapport, and mutual respect that allow the development of competence, skill, and self-awareness (Burt, n.d.). Lessing and Schulze (2002, p. 147) recommend that supervisors be more supportive, must be encouraging in approach, show interest in the work of the supervisee without forcing their thinking, and be empathetic enough to understand the problems that the supervisee encounters. De Vos, Strydom, Fouche, and Delport (2011, p. 113) claim that research should be based on mutual trust, acceptance, cooperation, promises, and well-accepted conventions and expectations between the parties. To avoid conflicts, both the supervisor and supervisee should remain calm during the research process because it will help them develop an environment that enables them to respond to each other's needs (Hodza, 2007, p. 1164).

The Roles and Obligations of Supervisor and Supervisee in Doctoral Research

Students begin their research projects with the expectation that throughout the process, the supervisor will guide them and actively direct their work (Sayed, Kruss, & Badat, 1998, p. 279). One of the supervisees in the study by Sayed and colleagues complained that "I felt frustrated at not being given specific instructions. I was expected to make up my own mind about the problem that I [did not understand in the first place]. I expected my supervisor to hold my hand" during the project (p. 279). Abiddin and West (2007, p. 28) state that ethical, technical, and methodological problems can be minimized or prevented if all the participants in the relationship strive to enter it with clear expectations regarding their roles and about the rules for their interactions. In the same vein, Abiddin, Ismail, and Ismail (2011, p. 207) acknowledge that clarity about the roles and responsibilities of supervisors and supervisees is vital. Both need to understand their roles in order to ensure a good relationship (Hockey & Wilkin, cited in Abiddin & West, 2007). Similarly, Hodza (2007, p. 1161) suggests that the relationship between supervisor and supervisee succeeds when both understand their roles. A *role* is a set of responsibilities, obligations, and duties that are associated with any given position an individual holds within a particular context. Hodza further explains that both the supervisor and supervisee should know when and where they need to complement and help each other. The failure to acknowledge the specific roles that each must fulfill may degenerate into conflict and tension.

Mutula (2009) asserts that in the supervisor–supervisee relationship, the former is expected to provide academic guidance by supporting the supervisee emotionally and helping to manage the research process, providing timely and constructive feedback, getting to know the supervisee and assessing his/her expectations, maintaining regular contact, encouraging and motivating him/her and closely monitoring the progress being made, and providing help when needed. Conversely, the supervisee must assume responsibility for managing the relationship with the supervisor, discussing and seeking clarification on mutual expectations at the commencement of the relationship, fulfilling expectations, requesting or insisting on regular meetings, being punctual in meeting deadlines, and end meetings with a confirmation of the next one.

McMillan (2002) affirms the expectations of both supervisor and supervisee as follows: supervisors should provide regular constructive feedback about the supervisee's progress, know when to push the supervisee and when to be supportive and encouraging, have expertise in the supervisee's research area, and be willing to share information without "spoonfeeding." On the other hand, the supervisee should keep appointments and work schedules, assume the responsibility for ensuring accuracy by carefully proofreading their draft and final submissions, and respect their supervisors. Friedrick-Neil and Mackinnon (2013) highlight the expectations of both supervisors and supervisee as follows: supervisors expect supervisees to work hard, learn constantly, accept constructive criticism and feedback, and be dedicated and committed so as to successfully complete the research process. On the other hand, the supervisee expects research guidance and mentorship from the supervisor.

Ethical Issues in Doctoral Research
Doctoral research is a process that involves two parties—supervisor and supervisee—in a power relationship. Mutula (2009) claims that the power in this relationship resides with the supervisors because they have subject knowledge and are mentors that set deadlines and monitor progress. The relationship is positive if it promotes an atmosphere of trust, and if supervisors collaborate with supervisees and consciously empower them (Schulze, 2012, p. 1). Malfroy (2005) suggests that a trusting and positive environment should be established in order to counteract the disjunction in expectations between supervisor and supervisee.

Due to the unequal status of supervisors and supervisees, responsible behavior is required. Unethical conduct in the doctoral-advising process has been reported in LIS literature. For example, students have been found to not complete research projects in a timely manner due to the lack of commitment on the parts of both supervisor and supervisee. Infrequent meetings appear to play a major role in this (Abiddin et al., 2011, p. 206; Mutula, 2009, p. 9). One study (Stubb et al., cited in Lofstrom &

Pyhalto, 2012) found that 43 percent of doctoral students drop out of their program due to problems with their supervisor.

Although there is a significant amount of literature on the ethical aspects of doctoral advising, the impact of ICT in the emerging African information society seems to have attracted little research attention. Consequently, ethical issues encapsulated in the WSIS's (2005) Action Line 10 on the ethical dimensions of the emerging African information society, including privacy, confidentiality, trust, integrity, intellectual ownership, access, and accessibility, are hardly addressed in doctoral-research advising. Mutula and Braman (2011) assert that information ethics is not institutionalized in higher education in Africa and express the need to devote more work on interdisciplinary discussions about ethical issues dealing with the impact of ICT on African societies. Additionally, there is a need to develop an Africa-oriented research agenda on information ethics.

Ethical issues manifest in different ways during doctoral-research advising. For example, integrity issues may arise when the supervisee cites other scholarly works inappropriately and irresponsibly, in a manner that may be construed as plagiarism, thus undermining the commitment to scholarly ethical practice. Moreover, issues of privacy may arise in different circumstances—when, for instance, the supervisor may be inclined to share the original research of one supervisee with another, thus breaching the confidentiality agreement. In this regard, Nissenbaum (2004) points out that privacy is about context, and sharing researchers' data without their consent is unethical and a violation of privacy. These privacy issues may also be at play when more information is revealed by the supervisor to a third party than may ordinarily be considered reasonable. The issue of accuracy may be a consideration when either the supervisor or the supervisee, or both, do not take responsibility for the authenticity of the completed work (Mason, 1986). Both supervisor and supervisee should equally take responsibility for errors in the supervised thesis. The issue of ownership or intellectual property may be contentious in doctoral-research advising. The extent to which the supervisor may claim ownership of the supervised thesis, or only a part thereof, is a subject of debate; for example, who has overall responsibility of controlling accessibility to the work being supervised or the completed work? Mason wonders whether organizations (interpreted as institutions where the doctoral work was undertaken or other entities that may publish the completed thesis) should have a monopoly of controlling access and use of the final product. Such organizations may have the capacity to ensure the security of the information infrastructure used to store the data sets and completed works.

Buchanan (2012) identifies the anonymity and confidentiality of data, data integrity, and data security as important ethical aspects in research advising. Kaplan and Haenlein (2010), on the other hand, point out that adequate provision must be made to protect the privacy of subjects and

maintain the confidentiality of any data collected; they also state that a violation of privacy or breach of confidentiality presents a risk of serious harm arising from exposure of personal or sensitive information or the release of data protected under the law. Hammington (2010), Light, McGrath, and Griffiths (2008), Skog (2011), Vallor (2010), and Van Eede (2010) indicate that classical utilitarianism and deontology perspectives show that privacy, confidentiality, and contextual integrity are of critical importance to developing an information society's ethics. Contemporary ethical traditions (Kaplan & Haenlein, 2010; Mason, 1986; WSIS, 2005) underscore the importance of respecting the tenets of access, accessibility, accuracy, security, trust, identity, intellectual property, and copyright. These tenets must find a place in doctoral-research advising in the emerging African information society environment where the use of ICT is pervasive.

The Ethical Dimensions of Research in LIS in Africa
Within LIS schools in the eastern and southern countries of Africa, some master's programs require a thesis, and all doctoral programs require the completion of a dissertation. Kaniki (2000, p. 39) notes that "a research report demonstrates the candidate's ability to carry out, with substantial independence, a rational investigation that is significant in the field and to report the result in a sensible and understandable fashion," further specifying that what constitutes a sound piece of research, such as a dissertation, is one that both displays the candidate's mastery of the research process while also describing his or her study in sufficient enough detail to permit replication (p. 41). Kaniki additionally points out that research in LIS, as with any other professional field, contributes to the existing body of knowledge and identifies and advances solutions for the many problems with which the profession is grappling. One of the major ethical challenges that LIS researchers face, however, is the issue of trust in the research process.

There are numerous concerns expressed by students in the preparation of LIS theses: poor research skills on the part of the candidates and inadequate preparedness and lack of adequate skill on the part of supervisors are some of them. Additional problems are poor graduate throughput; strained supervisor–supervisee relationships; the high-handedness of the supervisor without a mechanism for redress for the supervisee; delays in providing feedback to candidates by supervisors; and supervisors often having the prerogative of choosing when to provide feedback (Mutula, 2009). Biermann and Jordaan (2007) note that the status of research at the Tshwane University of Technology in South Africa is poor, for example, because of the scarcity of research expertise, inexperienced supervisors, and supervisors working in fields that differ from their specializations. This situation results in low research outputs and generally discourages students who would wish to continue with their postgraduate studies. A study by Mutula (2009) on building trust in the research process in LIS

in programs in the eastern and southern countries of Africa revealed the following concerns: delays by both supervisors and students in providing feedback; supervisors being overloaded; a general lack of clear guidelines; inattention to the scheduling of meetings; supervisors being too busy; a lack of support for students; and poor supervising skills. Supervisors in particular complained of the poor quality of the students admitted to post-graduate programs; of the inability of candidates to balance work and study; of candidates wanting supervisors to do the bulk of the work for them; and of otherwise low motivation among the candidates. These issues are ethical ones requiring a holistic approach using both classical and contemporary theoretical tools, including ICTs to facilitate the research process.

The Role of ICT in Doctoral Research
The internet has become a powerful tool for creating, storing, and convey-ing the digital information necessary for teaching, learning, and research, among other applications. Kraut, Olson, Bruckman, Chen, and Couper (2003) note that the internet has changed communication and is enabling researchers to observe new or rare phenomena online and do research more efficiently, thus enabling them to expand the scale and scope of their work. The internet has also enabled scientists to collaborate more easily with geographically distant partners or share information (Walsh & Maloney, 2002). Research done via the internet allows the hosting of online experiments and surveys, enables researchers to monitor online behavior, and offers the mining of archival data sources. Through online research, data can be collected from thousands of participants with mini-mal intervention on the part of experimenters, as internet chat rooms and bulletin boards provide a rich sample of human behavior that can be mined for studies of communication (Nosek, Banaji, & Greenwald, 2002). The detailed transaction logs that people leave when using the internet for a wide variety of activities provide a wealth of potential data for study. Online research also allows a degree of automation and experimental control, which otherwise can be difficult to achieve without the use of computers.

Instant-messaging tools may be integrated into the doctoral-advising process. These tools allow the supervisor and supervisee to communicate instantly, which is similar to how a chat room operates, except that it is a one-on-one conversation. Watson (2003) notes that the main advantage of such messaging is that it allows for instant communication between super-visor and supervisee. As with chat-room technology, supervisees must have internet access and a personal computer to download and use an instant-messaging program. Social networking is a web 2.0 technology that can be used to promote the integration of widely separated individuals (such as may be the case with supervisors and their supervisees) or disparate organizational units and a workforce freed of geographic constraints (Ma-then, 2012). In education, Rice (2011) points out that college students

are using social-networking sites like Facebook to communicate with one another and with their lecturers or supervisors. Such sites can therefore be deployed as powerful tools to enhance the doctoral-research endeavor. Other web 2.0 ICTs with potential to enhance doctoral research include: wikis, blogs, internet forums, online communities, e-mail, virtual worlds, and so on (Kaplan & Haenlein, 2010). Sussex (2011, p. 122) claims that electronic networks currently provide a richer and faster bidirectional connection between supervisor and supervisee; moreover, they offer scholars the tools to share ideas, comment on one another's projects, and publish research, thus sharing data collected on mobile devices during fieldwork (Mutula & Braman, 2011).

According to Sussex (2011), students undertaking remote research degrees need special support, since they lack face-to-face contact with supervisors and peers. ICT provides multiple means of communication, most of them fast and relatively inexpensive, for developing and sustaining viable supervisory communication. Sussex points out that an analysis of these options along the written/spoken and synchronous/asynchronous axes allows us to develop a useful taxonomy of communication for research. Because media files can be recorded and are retrievable, they have emerged as a central component of effective advising, one that is not often accommodated in face-to-face interactions. A combination of media involving maximum immediacy and personal interaction, combined with recording for later review, has been shown in practice to yield the richest and most flexible student advising. Oravec (2000) stresses the need for computer-based supervisors to be able to discern when there is a need to meet with a supervisee face-to-face rather than through a computer-based medium. This is important because sensitive issues may best be addressed in a format in which visual and contextual clues are readily apparent to the supervisor. Both the supervisor's and supervisee's informed consent and professional disclosure statements should explicitly discuss the limits of the confidentiality of computer-based advising (Panos, Cox, Roby, & Matheson, 2002; Welfel, 1998). These authors suggest that all parties involved (supervisor, supervisee, and client) sign these documents, acknowledging their understanding of the potential limitation of confidentiality.

Although ICT can be used to aid doctoral-research advising, there are several ethical concerns that must be addressed. For example, with regard to security and how it affects confidentiality in doctoral research, Barak (1999) notes that supervisors must have methods to encrypt or protect confidential client information that is relayed through e-mail, chat rooms, and similar media so that dishonest persons do not gain access to highly sensitive and private information (see also Remley & Herlihy, 2001). In addition, although technologies like social media are impacting the research process in supporting the communication, collection, storage, and dissemination of data, there are increased concerns about the violation

and infringement of users' rights like privacy, confidentiality, trust, security, content ownership, content integrity, access, and accessibility (Hart, 1994). Moreover, evidence is growing that social-network sites are not really able to protect the rights of users (Capurro, 2010). Sites like Facebook acknowledge that uploaded content is not necessarily guaranteed secure because such content may be accessed by cookies. Zabala (2012) points out, therefore, that while social media provides a central platform, as well as a closed silo, of content, it is one that does not give you full control over your information.

Steel and Vascellaro (2010) state that social-networking sites are faced with increasing scrutiny by consumers, privacy advocates, and lawmakers regarding their practices. For example, such sites allow advertising companies to harvest user information; moreover, their policies generally indemnify service providers from liability in the event of any litigation arising out of the breach of rights of their users or third parties (Burke, 2012). In addition, there are technological gaps in social-networking environments attributed largely to the security weakness of the internet technology itself. Danezis (2011) observes that social-networking sites have come under criticism for their poor privacy-protection track record due, in part, to the internet's limited engineering features. This is exacerbated by the fact that Facebook, for example, as with other social-networking sites, has no technological means or otherwise of verifying the integrity, honesty, reliability, and accuracy of the information uploaded to its site by users. Ethical concerns for both supervisors and supervisees in social-media environments should understand the limitations and potentials in order to make effective use of these platforms for research purposes. Chuang and Chen (1999) note that the use of computers in university research has created new problems involving information overload, cybercrime, plagiarism, and infringement of copyright laws. For these reasons and others, the WSIS in 2005 underscored the importance of putting in place mechanisms to ensure the responsible use of ICT in order to minimize its intrusiveness. WSIS's Action Line 10 on the ethical dimension of the emerging African information society asserts that "the emerging African information society should . . . promote the common good and prevent abusive uses of ICTs; and all stakeholders should increase their awareness of the ethical dimension of their use of ICTs" (n.p.).

CONCLUSION AND RECOMMENDATIONS

This paper addresses the ethical aspects of doctoral research in the emerging African information society from an African perspective, motivated by three factors: first, the industrial and knowledge economy now expects all universities to be part of knowledge-generation, knowledge-innovation, and knowledge-production processes whereby ethical issues like privacy, confidentiality, ownership, trust, access/accessibility, accuracy, and integ-

rity are of paramount importance in enhancing the quality and credibility of the research process. Moreover, knowledge that is being generated in universities and research institutions, including doctoral research, is considered the driver in determining progress toward the emerging African information society. Second, the ethical aspects of the emerging African information society are not yet fully infused into the doctoral-research process in Africa. Third, doctoral students in the LIS field in Africa have been reported in the literature as failing to complete their research projects on time due to factors attributed, in part, to poor advising. The ethical dimensions of the emerging African information society involve issues of privacy, trust, confidentiality, intellectual property, access/accessibility, and integrity. These elements should be part of the doctoral-research process, given the existing concerns about poor advising in the LIS field in Africa in particular. ICTs can help to facilitate the doctoral-advising process, but their responsible use is vital. Moreover, the embedding of ethics into the doctoral-research advising process should take into account the cultural context and values of Africans. This should be buttressed by an enabling policy framework at the institutional level that must be effectively implemented and monitored to promote harmony and productivity in doctoral research.

Note

1. In 2000, a UN-sponsored "Millennium Summit" developed eight Millennium Development Goals for participating countries: 1) to eradicate extreme hunger and poverty; 2) to achieve universal primary education; 3) to promote gender equality and empower women; 4) to reduce child mortality; 5) to improve maternal health; 6) to combat HIV/AIDs, malaria, and other diseases; 7) to ensure environmental sustainability; and 8) to develop a global partnership for development. These goals have a deadline for achievement by 2015 (UN Millennium Project, 2006).

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