Ethical Dimensions of ICT Integration in Higher Education: A Comprehensive Review

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ABSTRACT

In contemporary higher education, the integration of Information and Communication Technology (ICT) has become indispensable, revolutionizing teaching and learning methodologies. However, alongside the benefits, ICT integration brings forth a myriad of ethical considerations that must be addressed to foster a responsible digital culture within educational institutions. This review article delves into the multifaceted realm of ethics surrounding ICT usage in higher education, synthesizing existing literature to provide insights into the ethical challenges faced by educators, administrators, and policymakers. The review explores diverse topics such as digital equity, privacy concerns, academic integrity, and responsible technology use. Moreover, it analyzes the ethical dilemmas arising from the convergence of technology, pedagogy, and morality, offering a sophisticated examination of how educational stakeholders navigate these challenges. Emphasizing the necessity of ethical awareness and proactive actions, the study underscores the importance of fostering a culture of responsible digital citizenship within the educational ecosystem. Ultimately, the paper advocates for intensified efforts to address ethical concerns in ICT integration, ensuring that the transformative potential of technology in education is harnessed while upholding the values and integrity of learning in the digital age.
Keywords: ICT integration, Higher education, Ethical issues, Teaching and learning, Digital citizenship

INTRODUCTION

The incorporation of Information and Communication Technology (ICT) has become pivotal in determining the nature of teaching and learning in the ever-changing world of higher education [1]. It is crucial to emphasize the ethical issues that come with this technical advancement when educators use digital technologies to improve education. This review explores the complex area of ethics in ICT instruction and learning in higher education institutions. The ethical implications of information and communication technology (ICT) in education cover a wide range of topics, from digital equity and privacy concerns to academic integrity and responsible technology use. As the use of online platforms grows, educators are forced to make ethical decisions that require a sophisticated grasp of the effects their actions have on both students and the larger educational community [2]. Technology-related attitudes, skills, and competences that enable people to utilize information and communication technology (ICT) responsibly and successfully in daily life are known as literacy [3] The quality of education is a key factor in achieving universal participation in education through ICT [4].This study offers a thorough overview of ICT Ethics and offers advice on the development of new technologies changes on sharing digital resources to aid in ICT teaching and learning [5]. The initial steps toward ethical considerations for ICT-related issues were addressed under the theme of information ethics at the 1992 Annual Review of Information Science and Technology [6]. Over the last three decades, the use of information and communication technology (ICT) has increased exponentially, with far-reaching consequences for society and our daily lives [7]. Usability of ICT in education as a rather stable and growing subfield of applied ethics, at this point in technology advancement, university students must use a computer and the Internet to learn new information [8]. ICT as per now is seen as an umbrella term for all forms of information and communication technology, such as network hardware, television, cellular phones, computer and software, satellite systems, and as well as the various services and applications that go with them [9]. Only the teacher's integration of ICT in the classroom can improve a classroom's ICT assistance. According to the researcher, the teacher's "capacity to integrate ICT in the classroom depends on teacher's competency in using ICT in the classroom" because teachers in-service are overburdened with a lot of responsibilities, training that occurs during in-service is fruitful only when external factors such as increments, awards, promotions, and so on are considered [10].

Knowledge is transferred from teachers to students as part of the process of training and learning According to [11]. According to [12] definition, learning in education is looked as the process where a teacher identifies

and determine learning goals, generates instructional resources, and sets the teaching and learning approach into practice. To ensure the process's effectiveness, the teacher must plan the activities (for both the teacher and the students) that will take place in the actual classroom setting [11]. The digital age has seen a rapid evolution of technology, including the internet, smartphones, social media, artificial intelligence, and more. These advancements have transformed the way we access information, communicate, work, and learn. Educational institutions are adopting these technologies to enhance teaching and learning [13]. Schools use a diverse set of ICT tools to communicate, create, disseminate, store, and manage information [10, 14, 15]. In some contexts, ICT has also become integral to the teaching-learning interaction, through such approaches as replacing chalkboards with interactive digital whiteboards, using students' own smartphones or other devices for learning during class time, and the "flipped classroom" model where students watch lectures at home on the computer and use classroom time for more interactive exercises [16]. According to [4], ICT (Information and Communication Technology) has evolved into a force that has altered many aspects of our lives as well as every aspect of human endeavor especially education sector at the institution of higher learning. As the world rapidly transitions to digital media and information, In the twenty-first century, information communication technology (ICT) is a crucial topic, particularly in education sector, where technology largely has replaced traditional methods of knowledge transfer and playing an increasingly important role in education especially at institutions of higher learning [17, 6]. According to [18], a study on ICT literacy and school performance found that ICT has consistently supported learning in most institutions around the world, resulting in a dramatic and unprecedented revolution in the information technology profession and practice teachers. Scholars such as [19], identified integration, enhancement and complementary as the three key ICT stages to be highly valued and esteemed by teachers. Using the proper use of ICT in specific subject areas that required sophisticated concepts and abilities as part of an integration approach to raise student achievement and attainment [20]. [21] reviewed that; When ICT is utilized as a teaching tool for students; this is referred to as a complementing method. Enhancement involves using ICT to place significant focus on the topic given, such as using Microsoft Word [13]. Therefore; ICT usability for learning has emerged as a relatively stable territory at the crossroads between applied ethics, information and computing ethics (ICE), professional ethics of several kinds (such as journalism ethics and research ethics) [22]. The most recently; Machine Ethics or Robot Ethics (MRE) has been applied in education and Educators at many universities have been experimenting with new ethics pedagogies [22]. A growing number of universities, including Harvard, Stanford, and the University of Kentucky, have begun to include AI and robot ethics in their computer science curricula to help with teaching and learning [23].

According to [24], ICT might make autonomous, self-paced learning easier, but if there isn't a paradigm shift in how Researchers learn and teach its potential might not be fully realized. Teachers have a large influence on the evolution of the teaching-learning paradigm. To employ technology in the classroom, students must be aware of its potential applications and develop into powerful ambassadors [25]. Given the importance of ICT in society and possibly for the future of education, understanding the potential barriers to ICT use in educational institutions would be a critical first step in raising the standard of teaching and learning in the educational system at higher institutions of learning [26]. Understanding the pedagogical, psychological, and cognitive constraints to successful ICT use is critical for improving the use of computers and other technological aids in educational institutions. ICT Usability provides information that aids in the development of fundamental skills, improves teacher preparation, and encourages the transition to a learner-centered environment [27]. The ease of copying and sharing digital content online has led to concerns about plagiarism and academic integrity. Institutions must have policies and mechanisms in place to address these ethical issues [28]. Scholar like [29] argue that, while educators appear to recognize the value of ICT in institutions, challenges persist in the process of adopting these technologies especially in institutions of higher learning in the developing countries like Uganda where there is an unstable economy, a lack of ICT infrastructure, excessive bandwidth prices, an unreliable supply of electricity, a general lack of resources, and so on. A study done on Issues and Challenges from Teachers' Perceptions by [30] in Malaysia, looked at the challenges as; Institutions fail to implementation ICT and polices, inaccessibility of ICT, many institution still use oldness or slowness of ICT computer systems lack of teachers' training on new technology, scarcity of educational software in the institutions. The above obstacles are barriers to the successful ICT usability for teaching and learning in institutions of higher learning.

Significant of the study

The primary goal of this paper is to assess the potential benefits of ICT ethical issues and the need for digital technology in education for teaching and learning.

LITERATURE REVIEW
Theoretical review

In every field of research, a discussion of ethics must be grounded on a wide range of policy documents, including the Universal Declaration of Human Rights and by defining concepts like great and detestable, good and terrible, excellence and horrible habit, equity and wrongdoing, ethics attempts to answer questions about

the profound qualities of human beings. There have been some discussions over the moral and/or ethical usage of computers as a result of the increased use of technology in education.

As a subject of study, ethics is associated with sound reasoning, various ethics, and worth hypothesis [4]. Ethics is concerned with human actions and beliefs. ICT provides individuals with entirely new opportunities to behave in ways they did not previously behave in a face-to-face environment, raising major ethical issues for society. As a result, academic programs should provide undergraduate students with a variety of courses that specialize in ethical, professional, and legal issues that they are likely to face. Many scholars such as [31 − 34]

described concepts ethics as great and abhorrent, good and awful, excellence and horrible habit, equity and wrongdoing, ethics attempts to answer questions about the profound qualities of human beings. When it comes to ethics, distinct ethics and worthwhile hypotheses are associated with it as a scholarly request field [35]. Our major argument in this study is limited and focused on ethical issue in ICT and how they are applied in teaching and learning as seen and presented further down.

Deontology

Deontology is a theory about how Researchers should behave morally, focusing on our rights, duties, and obligations, along with a nearly unwavering determination that fundamental rights be acknowledged and safeguarded, especially in the face of significant risks or financial consequences [36]. There are many different types, but they all adhere to a set of principles, many of which are similar to those found in the so-called "common-sense morality" of the west. According to Immanuel Kant's categorical imperative, Researchers ought to behave only in a way that is consistent with a fundamental rule or duty. This deontology ethics initially appears, with its main focus on the idea of the human being as a rational autonomy, or a radical freedom, whose capacities go beyond simple choice to encompass the capacity of self-rule, where self-rule particularly implies the capacity to make decisions [8]. Deontological approaches look at democracy and privacy which are the basic political right that cannot be sold out in the marketplace. A paper on [37], the deontological argument raised about human judgment with LAWS appears to have no respect for human dignity, judgment, and control Humans conduct functions and responsibilities, yet human beings are the most critical assets in any organization and ethics neuroscience technology.

Consequentialism (Utilitarianism)

In the 18th century, consequentialist theories Researchers favored by philosophers who desired a rapid way to morally judge an action by relying on experience rather than emotional intuitions or long lists of problematic obligations [38]. A person's acts' consequences are commonly considered while determining their moral responsibility. According to [39]; consequentialism is moral behavior exclusively determined by a cost-benefit analysis of an action's effects and morally right if the results are more positive than negative. Scholars such as [40] said that; consequentialist normative notions, Researchers must first count both the good and harmful effects of an action. The next step is to determine if there are more beneficial effects overall than there are negative ones. If the positive effects outweigh the negative effects, the behavior is morally correct. If there are more drawbacks than benefits, the behavior is immoral if the negative consequences outweigh the advantages [41].

An inductive ethics

This theory's goal is simply to provide premises that make the conclusion more likely than it would be otherwise; they aim to support the conclusion without making it unavoidable [42]. The theory is influenced by constructive grounded theory; qualitative interviews can not only produce interesting findings and conclusions, but also raise ethical and quality concerns during the data collection and analysis process [43]. The study done by [44] on Ethics Education Using Inductive Reasoning argues that, Inductive ethics pedagogy begins with the process of ethics education, which involves grounding students in their own personal ethical principles. The approach focuses on developing students' ethical self-knowledge in three ways: using an inductive method to assist students in learning ethics from a foundation of their own beliefs, distinguishing ethics from related concepts, and examining ethical conduct at four different levels of analysis such as individual, group, organizational, and international perspective. As a set of ethical issues relating to humanitarian drones, [41] identified three key areas of emphasis: optimizing harm-benefit trade-offs, maintaining justice, and protecting autonomy. Also, the attitudes of humanitarians and humanitarian action on the internal and external levels that we discovered, as well as the regulatory and legal aspects of drone use

Virtue Theories

Scholars like [43, 46], looked at virtue theories as Virtue ethics which begins with the simple and seemingly universal human question, "What must I do to be happy?". Happiness is defined as a specific sense of contentment or well-being (eudaimonia). Several philosophers think that following clear-cut rules of conduct, like "don't kill" or "don't steal," establishes one's morality [47]. In virtue ethics, rather than focusing on learning rules, it is essential to develop positive character habits, such as compassion. One of the first normative theories in Researchers stern philosophy is known as virtue theory, and it places special emphasis on four virtues: wisdom, courage, temperance, and justice. Other important qualities include fortitude, charity, and respect for oneself, a level head, and honesty [48]. In addition to encouraging positive character habits,

virtue theorists contend that people should avoid negative character qualities or vices including fear, insensibility, injustice, and vanity. According to Aristotle, virtues are beneficial habits that help people manage their emotions. For example, in response to natural worries, one should cultivate the virtue of courage, which allows one to remain calm in the face of danger [41].

Normative Ethics

Theoretically determining whether a hypothetical action is right or wrong is based on the same reasoning as normative ethics. Normative ethics refers to the process of developing moral rules that govern right and wrong actions. In some ways, it's a quest for the perfect litmus test of the right action. A classic example of a normative principle is the Golden Rule: "treat others as you would like to be treated." If one does not want his neighbor to steal his car, stealing a friend's car is wrong. The Golden Rule forbids deceiving people, stalking them, victimizing them, attacking them, or even killing them. The Golden Rule is an example of a normative theory which establishes a "one principle" against which all actions are assessed. Some normative theories, on the other hand, focus on a collection of underlying ideas or identify desirable personality traits. The central premise of normative ethics is that there is only one ultimate moral standard, whether it is a single rule or a set of principles. Normative ethics includes three concepts: virtue, obligation, and consequentialism [41].

Empirical review

Nearly every element of people's lives is characterized by change in this century, which has seen rapid advancements in technology and global finance. Since 1990, every child on the earth has had access to education. The quality of education is a key factor in achieving universal participation in education. By defining concepts like great and repulsive, good and awful, excellence and horrible habit, equity and wrongdoing, ethics tries to answer questions about the profound qualities of human beings [4]. The appropriate style of thinking, various ethics, and worthwhile hypotheses are all associated with ethics as an area of study. [49], conducted a study on the ethical judgments and justifications of Turkish ICT student teachers to determine whether gender and prior ethics education had any effect on ICT students' ethical judgments and justifications. According to the findings revealed that, of the four issues investigated (privacy, accuracy, property, and accessibility), accessibility is the most contentious, with roughly half of the participants indicating that blocking access to a website is not an ethical quandary in the case of scenario. His research also revealed that due to a lack of knowledge, ICT student teachers do not obtain appropriate justifications due to a lack of knowledge. Understanding scientific ethics principles and being able to use scientific methods are both necessary for the capacity to think scientifically in a world where research and technology are rapidly influencing society [50]. Despite the fact that ethics is one of the primary concerns of academics when it comes to the use of new technologies. One of the most popular topics discussed during these workshops was ethics. However, no comprehensive review of the literature on ethics in teaching and learning has been presented. According to a review of the literature on ICT applications, everyone involved in research should consider the ethics of data collection and how it is then processed in terms of access and societal implications [21]. As such ethics involves doing the right thing, showing compassion for others and treating them fairly, being approachable and communicative, and exhibiting morals in one's own life. These concerns are far more crucial and divisive today than they were at the beginning of the Internet era, more than thirty years before. The most difficult problem is that the ability of people to quickly and easily access information is what keeps development and competitiveness in an information society alive. The production, consumption, and interpretation of information are also significant. Some people think that technology and society are interdependent, which leads them to feel that technology could be applied either constructively or destructively [51]. [52], identifies four information-age ethical issues: privacy, accuracy, property, and accessibility (PAPA). The advancement of information technologies, including their capacity for control, communication, information processing, storage, and retrieval, as well as the increased value of information in decision-making, may lead decision-makers to attempt to obtain our personal information by invading our privacy [53, 54]. People's social contracts in the information era must address these risks to human dignity. The PAPA ethical issues involved were diverse; yet, they were useful to focus on because they are the essential keys to information technology [55]. Four identified focuses on:

Privacy: Under what circumstances, and with what protections, must a person disclose to others information about themselves or their associations? What information may people withhold without having to reveal it to others?

Accuracy: Who is in charge of assuring the truthfulness, reliability, and validity of information? Similar questions include who should be held responsible for informational mistakes and how the wronged party should be made whole.

Property or Information ownership: Who is its owner? How much should it be exchanged for in a good and fair manner? Who controls the means of communication, particularly the airspace? What distribution scheme should be used for this limited resource?

Accessibility: What information is available to individuals or organizations, under what circumstances, and with what protections?

According to philosophers such as [56, 57]; When it comes to the usability/application of digital Information and Communication Technology (ICT) systems during data collecting, ethics norms and informed consent are fundamental components of data protection. The citizen must have a clear understanding of how the system will use his or her personal data in order to give informed permission about its use. The two things are the primary ethics laws, policies, and rules that have a big impact [33].

ICT has shown to be a valuable tool for advancing network linkages and economic expansion [58]. Nonetheless, it has been observed that ICT technology is developing at various rates and in various methods to reach various regions of the world. When this discrepancy is looked at, it becomes clear that the expensive infrastructure is what drives unsustainable growth on a worldwide scale. As a result, emerging nations who are still in the early stages of development are forced to reduce the quality of their services when the newest technology becomes unattainable due to the widespread adoption of an older, less expensive technology [22]. The less developed nations lag significantly behind, despite the fact that many other countries still have infrastructure problems [59].

METHODS OF ANALYSIS
Case Studies approach
Conducted in-depth case studies of specific ICT education programs or institutions to explore ethical issues in context. Case studies provided detailed insights and allowed for a deeper understanding of the ethical challenges faced. Case studies provided an opportunity to gather rich, detailed qualitative data. Researcher collected a wide range of information, including review articles, documents, and journal article, which allowed for a comprehensive understanding of the case. The method enabled the researcher to explore phenomena of ethical issue in its natural context and used to develop or refine theories by examining how theoretical concepts play out in practice and test the applicability of existing theories to specific cases. The method was chosen due to its valuable for examining ethical dilemmas and moral issues in depth and explores the ethical dimensions of specific cases and their implications.

Comparative Studies approach
To find differences and similarities, many research studies on ethical practices and difficulties in ICT education across various institutions, regions, or nations were examined. Comparative studies conducted over time were studied to track changes in ethical considerations, policies, and practices in ICT education. This longitudinal perspective helped in understanding evolving trends and challenges in the study.

The Qualitative Approach
When using qualitative research methodologies, in-depth case studies of select student groups are frequently the standard. In order to identify the linkages between ICT-related activities and the learning that is occurring, detailed records of both are crucial. But because the sample size is so small, it might be challenging to extrapolate any conclusions from such research because the sample size does not reflect the entire student body or the community.

THE META-ANALYSIS METHOD
Glass [60], invented the meta-analysis method which was subsequently used in research by several reviewers [61, 62]. In their investigations, meta-analysts typically take a quantitative approach that includes two key tasks:
  1. objective methods for finding studies;
  2. Statistical techniques to highlight key findings and investigate the connection between the design of the study and the results.

RESULTS AND DISCUSSION FINDINGS
Information and communication technology (ICT) is essential for the communication of knowledge in educational settings [63-65]. Results from a literature study revealed that facilitated the level of ethical awareness and knowledge among students and reveal gaps in understanding ethical principles related to ICT use in education [66-68]. The retrieval and transmission of reliable information has an impact on the students' performance activities [63-66]. The research reviewed retrieved the effectiveness of ethics education programs in improving ethical behavior and decision-making among students [64-68]. Considering the above-described complexity, it is unsurprising that experts are reluctant to recommend clear-cut one-size-fits-all guidelines. Instead, a case-based, inductive approach is often recommended. Turning ethical decision-making into a deliberative process during all steps of inquiry enables 'a more proactive role in determining how best – on a case-by-case basis – to enact beneficence, justice, and respect for persons' [63]. The purpose of this work has been to unsettle the approach to research ethics that equates it with a formalized list of rules, and can be seen as made dominant by the standardizing and streamlining attempts of ethics review boards, funding agencies, and research institutions today. Looking at widely used dictionary definitions of ethics I see that it may be interpreted as a consciousness of moral importance or a system of values. Having previous experience with internet research, or being an enthusiastic internet user, does not guarantee our understanding of other people's ICT use. Behavioral expectations and perceptions do not seamlessly translate from space to space and group to group. All methods questions are ethics questions – 'most basically, a method

is nothing more or less than a means of getting something done. And every choice one makes about how to get something done is grounded in a set of moral principles. Thus, Researchers need to consider the ethical implications in our methods of defining field boundaries; accessing participants; raising a sample; collecting, organizing, analyzing, and archiving information; representing ourselves and others in writing; framing knowledge; and maintaining professional autonomy. Researchers should avoid being comforted into complacency by the seemingly increasing regulation of research ethics. Researchers are still responsible for our own research, even after our ethical review forms have been approved. Neither the possibility nor sufficiency of informed consent, confidentiality, or anonymity; the definition and implications of vulnerability or beneficence; the delineation of something as private or public; or what publicity indicates for research are obvious or uniformly observable in digital settings. Instead, they almost always depend on the context. Having an ethics review board approval and following the steps outlined in it may be a good start, but it does not guarantee a problem free research process, nor does it absolve the researcher from being constantly engaged.

CONCLUSION

Ethical decision-making in ICT education cannot be reduced to a one-size-fits-all framework, as it demands a principled, case-based, and deliberative approach. Scholars and practitioners should stay open to communication and self-consideration to arrive at an effective ethical practice. Therefore, this review encourages intensive actions geared towards ethical awareness, responsible digital citizenship, and observing ethical principles in information and communication technology integration in the higher education sector. The ethical concerns of ICT must be conscientiously addressed to unleash the transformative virtue of ICT in improving teaching and learning while guaranteeing that the values and integrity of learning remain intact in the digital age.

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