People's Democratic Republic of Algeria

Ministry of Higher Education and Scientific Research

Ibn Khaldoun University of Tiaret

Faculty of Letters and Languages

Department of English

Investigating Ethical Use of Technology in Education
Case Study: E.F.L Classes at Ibn Khaldoun University of Tiaret

A Dissertation Submitted in Partial Fulfilment of the Requirements for the Master's Degree in Didactics

Submitted by

Miss. Hadjer Farah BESSAS

Miss. Khalida BOURDAS

Supervised by

Dr. Djilali MOURI

Board of Examiners

Dr. Mostapha TOUBEIDA	Chairperson	MCB	Ibn Khaldoun University of Tiaret
Dr. Djilali MOURI	Supervisor	MCA	Ibn Khaldoun University of Tiaret
Dr. Djilali BELAIDOUNI	Examiner	MCA	Ibn Khaldoun University of Tiaret

Academic Year: 2024/2025

Dedication

In the name of **Allah**, whose kindness is boundless and whose guidance lights the path of knowledge.

To my beloved **Mother**, the first teacher I ever had, whose affection has been my shelter, and whose might has guided me through all difficulties. This work belongs to you as much as it does to me.

To my precious **Dad**, the steadfast support behind every move I've made, For the affection you offered in your gentle, steady way. This work is for you.

To my sisters **Hiba** and **Hanaa**, and my brother **Mohamed**, my first best friends, my lifelong crew, for the late-night chats, the laugher when I needed the most.

For my grandmother **Hbiba,** whose love had always been a quiet kind of magic.

To someone very special to my heart **Mimi**, this is for your presence, your heart, and for being a beautiful part of my life.

For my best friend **Battoul**, for every long discussion, every laugh, for all the times you've been there for me, without ever needing to be asked.

For **Hadil** not only my research partner, but also a true friend, your kindness, strength, and support meant more than words can say.

Hadjer Farah BESSAS

Dedication

In the name of Allah, the most gracious, the most merciful. Praise be to Allah, and my blessing and peace be upon the beloved prophet, his family, and those who fulfilled their duties. I begin by thanking Allah, who has enabled me to complete this thesis. I dedicate the fruits of my success to my late father, may Allah have mercy on him, who supported me throughout my studies and whose encouragement motivated me to pursue my master´s degree. My wish today is that he was here to share in my joy. To my mother, who was my rock after my father. To my supervisor, Dr. Mouri Djilali, for all his support and guidance. To my dear husband, for his encouragement and support. To my sister, Roufaida and my brother Younes .To my aunt, Zineb, for her unwavering support until the very end. To my friends Farah and Khalida. And to all my family members, including aunts and uncles. Thank you from the bottom of my heart.

Miss. Khalida BOURDAS

Acknowledgments

We express our gratitude to Almighty "Allah" first and foremost for giving us the fortitude and patience to complete our research effectively.

We would also want to thank our supervisor, **Dr. MOURI Djilali,** for providing us with advice, and support during the research process. We value the time and effort he put into supervising our work, and his direction helped us remain focused and sustain our progress.

A particular word of gratitude also goes to the members of the examination board,. we are really thankful for **Dr. Mustapha TOUBEIDA**, the president, and **Dr. Djilali BELAIDOUNI** the examiner, who graciously offered their significant time, as well as for the helpful advice and kind remarks that Dr. **Djilali BELAIDOUNI** gave us.

We would also like to express our gratitude to everyone who supported us throughout the entire process, our teachers and our friends who were always there for us, and to our loved ones, your love, prayers, and faith in us meant the world. We appreciate you being our greatest source of strength.

Abstract

The integration of technology in classrooms is now ubiquitous, lauded for its potential to unlock limitless opportunities for excellence and innovation, often overshadowing the ethical challenges it presents. This abstract delves into ethical theories, examining deontology, utilitarianism, and virtue ethics to understand technology´s ethical impact on education. Building upon this, it proposes theoretical frameworks for ethical technology design, digital inclusion theories,and ethical decision- making models, identifying the implications for policymakers and practitioners. The central research question is whether ethical theories and frameworks are sufficient to achieve responsible and ethical technological integration, fostering a fair, inclusive, and ultimately effective learning envirenment. To address this, a qualtative approach was employed, encompassing a liturature review of ethical theories, ethical design frameworks, digital inclusion theories ,desision making models,and policy and practice ; conceptual analysis of ethical theories and frameworks ; and two investigation tools were used a quesionnaire and an interview. Questionnaires were distributed to both students and teachers, and structred interviews were conducted with university professors. The key findings suggest significant implications for stakeholders in their use of technology, advocating for the ethical use, promoting decisions that enhance ethical practices by policymakers, addressing issues such as equitable access,algorithmic bias,and privacy.

Keywords : *Educational Technology, Ethical Theories, Ethical Design Frameworks, Decision Making, Ethical Dilemmas, Ethical Use*

List of Acronyms

AI: Artificial Intelligence

APED: Arab Program for Education for Development

BMG: Bertelsmann Music Group

COPPA: Children´s Online Privacy Protection Act

EdTech: Educational Technology

EU: European Union

FERPA: Family Educational Rights and Privacy Act

FIT: Farmers´ Internet of Things

FPF: Future of Privacy Forum

FAT: Fairness, Accountability, and Transparency

GDPR: General Data Protection Regulation

GSMA: Global System for Mobile Communications Association

ICT: Information and Communication Technology

IOT: Internet of Things

ITU: International telecommunication Union

NAAC: National Assessment and Accreditation Council

NCERT: National Council of Educational Research and Training

NCTE: National Council for Teacher Education

PEAT: Partnership on Employment & Accessible Technology

Rest-Kit: Racial and Ethical Sensitivity Training Kit

UGC: University Grants Commission

UDL: Universal Design Learning

W D Rossi: William David Rossi

List of Tables

List of Figures

Table of Contents

General Introduction

Chapter One

Ethical Theories and their Application in Educational Technology

Chapter Two

Theoretical Frameworks for Ethical Technology Integration in Education

Chapter Three

Data Gathering and Analysis

General Introduction

In our ever-evolving world, education is undergoing rapid and fundamental transformations. The digital age has ushered in a revolution in education, driven by technology´s transformative potential. This shift emphasizes innovation and technological integration, thereby fostering a student- centric learning environment. This includes active learning methods to understand complex concepts through various support mechanisms, providing innovative technologies and tools to enhance the learning process, developing critical thinking and creativity skills, and offering numerous and diverse opportunities to explore all needs. We observe that in traditional education, the curriculum is extensive and lengthy, failing to meet the needs of most students. However, contemporary education offers a concise curriculum, focusing on the principle of brevity. It also does not focus solely on religious sciences and philosophy but includes diverse content and different cultures that students can explore within a comprehensive and inclusive educational framework. This approach is not limited to a specific group but provides fair and equal education to all students, even attracting students from diverse nationalities, cultures, and backgrounds.

1. Problem Statement

The core challenge lies in ensuring that the deployment of technology adheres to established rules and principles, guaranteeing benefit for the majority of students and fostering interactions grounded in ethical conduct amoung userers. Furthermore, it necessitates addressing complex ethical dilemmas, such as algorithmic bias, privacy concerns, security vulnerabilities, issues of fairness, accessibility challenges, and intellectual property rights.

2. Purpose of Study

The aim of this study is implementing data protection regulations, and clear policies for the responsible use of digital tools, designining technology to optimize learning outcomes for diverse populations, minimizing surveillance or bias in AI tools ,fostering ethical behavior in online interactions, examining whether technology shapes education or societal factors ,balancing the needs of all stakeholders (students,teachers, parents, administrators ,examine how educators and students perceive ethical issues related to technology use, assess the application of ethical frameworks in the design and implementation of educational technology, development of teacher training programs based on ethical principles, developing ethical strategies to close the divide , and propose guidelines for ethical practice.

3. Significance of Study

This study is significant in develop more ethical educational technologies, raise awareness among stakeholders, provide effective teacher training, and contribute to the evolution of teaching practices that embody fairness, sustainbility, and efficacy. It also seeks to apply ethical frameworks to ensure technology is used in ways that enhance learning , while addressing ethical concerns and dilemmas.

4. Research Questions

The integration of technology offers unprecedented opportunities for enhanced and evolving educational experiences. However, this has prompted our inquiry into the multifaceted ethical dimensiond of technology use in education, leading us to explore several key research questions

1. How do stakeholders perceive the ethical implications of their use of specific educational technologies?

2. Is the application of ethical frameworks sufficient, or does it encounter limitations and challenges in the design and implementation of educational technologies?
3. Have policymakers and practitioners effectively promoted the fair and responsible use of technology in education?

5. Research Hypotheses

Based on the research questions, it is hypothesised that

1. Stakeholders hold diverse perspectives on the ethical implications of educational technology**,** often shaped by their prior experiences**.**
2. While the implementation of ethical frameworks is a proposed solution, it faces limitations, such as resource constraints and a lack of adaptability to rapid changes.
3. Despite the efforts of policymakers and practitioners to promote the fair and responsible use of technology in education, their endeavors have been incomplete, particularly concerning training and unconsidered technological advancements.

6. Methodology

This dissertation adopts a mixed-method approach incorporating a literature review and the collection and analysis of both quantitative and qualitative empirical data. The literature review will involve the analysis and critical examination of existing literature to identify key concepts, gaps, debates and expectations regarding the ethical the implications of technology use. Foe data collection and analysis, statistical analysis are employed such as descriptive statistics to analyze the quantitative data derived from closed-ended questions. In the qualitative data analysis, thematic analysis was utilized for the open-ended questions. By integrating both the literature review and the data collection and analysis phases, the ai mis to

ensure a comprehensive understanding of the research topic which is the ethical use of technology in education.

6.1. Sample of the Study

In this study, the participants will comprise a diverse sample of students, teachers and university professors. Two questionnaires are used, the first one will be distributed to students and teachers from various disciplines, age groups, genders and so on..The teachers' and students' responses totaled approximately 32. The second questionnaire will target a sample of professors from Ibn Khaldoun university of Tiaret. , and the responses totaled 12. The rational for selecting these samples is to gather reliable rich and indepthdata aligned with the research objectives.

6.2. Data Collection Tools

Regarding the data collection tools, online questions are utilized. The teacher's and student's questionaires were designed to assesss, understand and gauge their awareness and experiences related to their use of technology. The questionnaire for university professors aims to elucidate the diverse perspectives of the professors o the nature of dual technology in education. Closed-ended questions in the questionnaires will generate quantitative data, while open-ended questions will yield qualitative data. This approch is intended to provide comprehensive and concise information that is directly relevant to the research questions.

7. Road Map

This research is divided into three chapters. The first and second chapters will be theoretical, while the third and final one is purely practical. The first chapter begins with an overview of ethical theories such as deontology, which focuses on adherence to rules and ethical principles ; utilitarianism, which aims to achieve the common good for all ; and virtue ethics , which seeks to develop good character traits in individuals . Then, secondly and finally, how to apply these theories will implement policies fort the responsible use of

technology, minimize potential harm, design technology to optimize learning outcomes for diverse populations, and encourage digital citizenship for ethical behaviour in online interactions.

The second chapter focuses on the theoretical frameworks for integrating technology in education, starting with the presentation of ethical technology design frameworks FAT and UDL. Secondly, the digital inclusion will also be discussed, covering the digital divide theory, technological determinism versus social constructivism . Thirdly, ethical decision-making models will also be examined such as Rest´s Four Componement Model (1986) and Stakeholder theory. Finally, the implication for policy and practitioners will be discussed in detail.

Chapter One

Ethical Theories and their Application in Educational Technology

Chapter one

Ethical Theories and their Application in Educational Technology

1.1 Introduction

Ethical theories are sets of principles that guide us in making moral decisions, provide a framework for thinking about right and wrong, and also provide a framework for considering issues like a privacy, access and equity in the use of educational technology. The use of technology in education is rapidly evolving, presenting both exciting opportunities and ethical challenges. As we integrate technology into the learning environment, it´s crucial to consider the moral implication of our actions.

In this chapter, we dive into ethical theories, such as deontological ethics, utilitarianism, and virtue ethics, and the application of them provide frameworks for navigating these complexities. Deontological ethics emphasizes the inherent rightness or wrongness of actions, regardless of their consequences, Utilitarianism focuses on maximizing overall happiness and well-being, and Virtue ethics emphasizes the development of good character traits. By applying these theories to educational technology, we can strive to ensure that its use promotes fairness, equity, and beneficial to everyone involved.

1.2. Deontological Ethics

As stated by Christensen (1986), deontological Ethics in education is a branch of philosophy concept that comprises analyzing and conceptualizing the behavior of personages in making decisions that align with moral rules, standards, principles, and values .This means nothing good or bad actions by figuring out responsibilities of everybody included, such as teachers, learners, parents, and school leaders. Here, he speaks precisely about the introduction of small computers into classrooms, so that the real goal is to study the ethical dimensions of our integration of the latter into the educational environment, and to do this, one must take into consideration how to reconcile technological decisions with ethical decisions. Contemporary ethical challenges should be examined, and some examples of deontological theories should also be revealed.

1.2.1. Contemporary Ethical Challenges

Contemporary ethical challenges refer to dilemmas and moral issues addressing issues that were nonexistent or only recently emerged in digital age, demanding greater effort in our contemplation and mitigation, particularly as these challenges are, in a way, complex and do not easily resolved. Contemporary ethical challenges examine issues like cultural competence, intellectual property, critical theory in educational technology, system ethics, social responsibility of professionals, fostering a culture of ethical use.

1.2.1.1 Cultural Competence

According to Rogers-Sirin and Sirin (2009), Guarantying technology is culturally sensitive and inclusive, means indicates to the mastery to understand, wonder, react effectively with people from diverse cultures, respecting the cultural background, significances, and beliefs of learners, as the number of diverse student populations in schools increases more than very before, teachers need to make a greater effort to understand their needs and that they will certainly fall into the error of racial discrimination. Therefore, initial

studies have provided a theoretical model for training in racial and ethical sensitivity (Rest-Kit), which in turn focuses on the fact that cultural competence is a professional requirement and not a personal choice to avoid unethical practices, and also be familiar with teaching methods and materials to meet their need, by focusing on representation, in its design and implementation.

1.2.1.1.1 Representation

Representation of knowledge in digital educational environments representation refers to the technology that represents the varied practices and sights of users, means containment and inclusion of different cultures, and races, genders, abilities, age, religions. In the curriculum, like using textbooks with different contents that introduce other culture, traditions, backgrounds, and also examining various historical events that happened, in the teaching materials, means the use of set of materials for example teaching with text books and novels, radio programs and podcasts, lectures, software, multimedia, platforms and games, applications, social media, and digital learning resources such as audio, images, video, text, websites, in the school environment, exploring the diversity of cultures and backgrounds by representing them. This can be achieved by keenly holding events, theatrical performances, and displaying artworks. In this way we can provide many opportunities to discuss this difference and diversity.

1.2.1.2. Intellectual Property

In the opinion of Marín and Tur (2024), the educational environment, due to its use of technology, has not taken into account the ethical consequences of the correct use of technology, so interest in ethics has decreased. A sample of 99 studies is included in the review and coded according to the basic characteristics of the study. The data collected indicates important research growth, namely two basic topics data privacy and confidentiality, and academic integrity, and intellectual property, and the protection of intellectual property in

educational process requires a balance between fair accesses to information while respecting the creators means acknowledging their ownership.

Everyone needs to understand things like copyright, trademark, and patent so educational implication for copyright in a digital world means to safeguards the thing you create, for example lectures of the teachers, images or videos, software. But there is a solution which is resists your copyright to make it more legal and protect, according to trademark trends and brand activity in higher education trademarks are requires to save logos, symbols, brand names, name of courses within the framework of the educational process, and patent application educational technologies for enhancing and assessing learning patents are considered the most complex, like new educational platform, and teaching method.

1.2.1.3. Critical Theory in Educational Technology

As reported by Allen-Brown and Nichols (2004), towards a critical theory of educational technology, is a negative theory, as some believe that criticism oppresses people. Rather, critical theories seek the best. Educational technology indicates that technology and its use in education without any official notice. Thus, a group of authors like Apple (1986), Bowers (1999), Damarin (1994), Koetting (1994), Schrage (1994), Taylor and Johnsen (1986) intervene that the biggest mistake is education with technology because it depends on progressive and revolutionary mentalities whose results are not known later. So, critical theory in educational technology involves examining use of technology shapes power dynamics and create new forms of social inequalities, this confirms that all students have the right to use technology in a way that helps them, not just a specific group or sample. For example, the professor explains his lesson via an online course. Some students like it because they are visually, but others not because they are auditory or kinesthetic.

1.2.1.4. System Ethics

Pursuant to Moore, Balbaa, Abdurashidova, Khalikov and Ismailova (2023), system ethics regard the ethical implications of large-scale call for evaluating their potential effects on online education safety, the ethical use of artificial intelligence, and the overall learning experience for all learners. Online education safety in system ethics focuses on the first thing data privacy and security means protecting student data like personal information, fair access and equity online education should be accessible to all student, algorithmic bias, and academic integrity for example preventing cheating and plagiarism, artificial intelligence must be used in an ethical manner, so that no one relies on it as a way that is always right, but it also carries many errors, including bias, AI integration, limited knowledge, legal issues, lack of creativity, and the overall learning experience for all learners to ensure that the digital age is supported by ethical considerations, protecting the integrity and comprehensiveness of the educational experience for all concerned.

1.2.1.5. Social Responsibility of Professionals

In accordance with Harris, Lang, Yates, and Kruck (2011). The study of ethics focuses on issues of morality and justice, i.e. everything that is right or wrong. That is, ethics and social responsibility in education are extremely important. Here, the focus is on the fact that social responsibility has a moral obligation that does not negatively affect the individuals involved, so that the student does not misuse data or information while collecting it. As the proverb says, ´´ information is power ´´and´´ power corrupts´´. Harms are noticed such as privacy violations and data breaches. An example of this is the sonny BMG rootkit case that occurred in the field of information technology. Social responsibility of a profession emphasizing the ethical obligations of educators using technology checking their accountabilities to maintain reinforce responsible utility, and ensure ethical gauges in the integration of technology into the education milieu. Include reinforce responsible utility, and ethical language use.

1.2.1.5.1. Reinforce Responsible Utility

Reinforce responsible utility means taking into account some aspects like balance, digital citizenship, critical thinking, ethical use, and wellbeing. Balance means balancing between screen learning ,which means teaching with internet ,and also teaching without it, digital citizenship learn learners about privacy, responsibility, safety, and avoid cyber bullying, critical thinking teaching students to learn to use technology that enables them to criticize information in a constructive way, to know misleading information, and to avoid confronting media illiteracy, ethical use respect others, intellectual property, and copyright laws, and finally well-being strengthening supervision for students, and addressing various issues such as online harassment and screen addiction.

1.2.1.5.2. Ethical Language Use

This means talking about respectful communication the use of technology requires commands, which are respectful communication in a respectful and understandable language, respect for the points of view of others, and constructive, not destructive, criticism so that positive education prevails. Include digital citizenship and avoiding bias. Digital citizenship means that teachers are keen on strict decisions to punish students who misuse technology in an unethical manner that has no connection to positive, beneficial education, and according to avoiding bias means not biased towards any content or technological material.

1.2.1.6. Fostering a Cultural Ethical Technology Use

Based on Lucy and Grant (2008), Computer-based Learning presents many social dilemmas within the framework of the digital divide. Empowering application strategy in the technology adoption means include open dialogue, collaboration, and continuous learning. Open dialogue is to maintain open conversations to ensure technology is used more ethically, collaboration means teachers are keen to cooperate with the students´ parents in order to spread the benefit in my class. I guide him to use technology ethically, and at home it is your

role to teach him also to use it in my way as well, as this is the responsibility of us all, and continuous learning significant that teachers should keep up with the latest developments the new one and modern inventions and learn and teach them as well so that everything is at the same level because reliance on modern technology is considered in our time to be constantly continuing and updating.

1.2.2. Examples of Deontological Theories

Deontological ethics emphasizes moral rules and principles, the importance of duties, intentions, and also criticisms and in deontological theories. There are various examples to be taken into consideration like Kantian Ethics, Divine Command Theory, Natural Rights Theory, Ross´s prima facie duties, and rights based ethics.

1.2.2.1. Kantian Ethics

Immanuel Kant´s philosophy is based on the categorical imperative, it acts only according to that maxim where by you can act the same time will that it should become a universal laws, which in turn works to realize that the purpose is to help others, not merely as a means to an end. If you cannot behave in a certain way, then that action is morally wrong.

1.2.2.2. Divine Command Theory

Based on Ibrahim (2022), Divine Command Theory is a theory that stipulates working and derives from legal and religious texts or God, it means that any action you take from these texts is one hundred percent correct. In other words, every action that is considered moral or immoral falls within the scope of religions.

1.2.2.3. Natural Rights Theory

According to Steutel and Carr (2005), the Contribution of Deontological Rules to the Efficient Exercise of the Right to Education said that the pioneer of this theory is John Locke, which is linked to individual rights such as the right to liberty, life, and property. Violation of these rights is considered immoral regardless of its consequences.

1.2.2.4. Ross´s Prima Facie Duties

As stated by Amadi and Okonkwo (2023), W D Rossi talks about several duties that everybody must have, such as sincerity, being sincere in his work, whatever it may be, compensation, when someone makes a mistake, the person compensates or atones for his mistake, doing good, and this is by helping people in various ways, avoiding harming people in any situation, we understand from all of this work these duties.

1.2.2.5. Rights-Based Ethics

This point focuses on Dennis and Harrison (2021) on protecting individuals in the sense of individual rights such as the right to privacy, freedom of expression, etc., and considers violating them to be immoral and illegal.

1.3 Utilitarianism

Utilitarianism is a theory whose goal is for everyone to achieve a public benefit, provided that it includes the largest number of students to benefit from it, and this falls within the framework of educational technology, and most importantly of all in an ethical manner. Based on Pogukaeva, Pancova and Syryamkina (2016), knowledge in our time is not fixed and is changing due to continuous development, unlike what was previously known in the era of Aristotle knowledge was fixed, meaning that information remained stable for a long time, this means providing students with the greatest amount of knowledge. However, now it is not because of information that it is not under control at all. It is embodied in the following providing materials and contents that are easy to learn and access, focusing on being different and diverse for a wide range of learners, that is, meeting everyone´s needs, a means of support and mutual influence between students and teachers, a highly effective in achieving the benefit of critical thinking and solving complex and easy problems. In this way, equality, comprehensiveness, utilitarianism, and positive learning outcomes are enhanced and they become beneficial for the largest number of learners.

The digital divide in utilitarianism is a significant aspect so that digital tools have significantly impacted learning environments, bringing both opportunities and challenges. Kumpulainen (2007) discusses both opportunities and challenges of digital tools.

1.3.1. Opportunities

The opportunities of digital tools include personalized learning, engaging content, collaboration and communication, access to information, and developing essential skills. Personalized learning denote that digital tools give wide scope to individual needs and personal learning methods, engaging content suggest designing learning resources and contents under the circle of play, which makes teaching with technology a fun and attractive matter that eliminates the opportunity for boredom, laziness, and complaints. Collaboration and communication mean creating an effective mutual bond between the teacher and the learner, by providing the feature of facilitating online platforms so that communication is reliable. It then ensures more comfort for both interact ants, access to information express that digital tools facilitate everyone´s access to the internet. The evidence is that everyone from all over the world, uses them and develops essential skills integrating technology into education which provides us with many opportunities, including developing students´ skills, by making the internet a small village. The latter saves time, effort and money. It also solves various problems such as teaching constructive criticism, fighting illiteracy and ignorance, and moving to the stage of development in the twenty-first century.

1.3.2. Challenges

The challenges of digital tools include digital divide, distraction and misuse, privacy and security, and teacher training and support. Digital divide indicates inequality, totalitarianism and utilitarianism exacerbate the situation, making it more vulnerable to lack of access and possibility to connect to the internet, distraction and misuse signify that although technology is useful and beneficial to everyone, it is a double-edged tool in that students can use it

incorrectly, on the one hand, to distract attention. On the other hand, use it for non-educational purposes, privacy and security concerns means when using digital tools, privacy and security must be taken into account, because they are considered extremely important. This is due to their status, and teacher training. The support expresses that technology is considered an easy matter in the beginning, but if you dig deeper into it, you will find it is somewhat complicated. Sometimes even teachers need extensive training in order to issue it to their students in a correct manner.

1.4. Virtue Ethics

Crisp (2014), states that Aristotle, the theory of virtue ethics in his book Nicomachean Ethics, explains his view of Eudemonia, which leads to prosperity or good living, was based on his belief in the good development of various personalities in a moral and virtuous way, including justice, equality, reason, integrity, etc. As a result, a generation with strong morals emerges that enables it to solve all problems related to choosing the right decisions, and have achieved the principle of virtue ethics. Aristotle considered the most vocals about this theory. It is also noted the intervention of other philosophers like Plato, Confucius, and Mencius. According to Steutel and Carr (2005), Plato emphasizes the commitment to work with the ethics of virtue, which achieves for us a happy and true life based on ethics through which our lives are straightened. As stated by Bay, M. Confucius began to establish laws and rules that stipulate the inclusion of the virtue of ethics, in order for people to have virtues such as justice, doing good, keeping trust, and others, and according to Mencius Bay also pointed out that following this theory does not mean making more effort or changing what a person is, but rather developing yourself through your experiences in daily life and what you have studied.

1.4.1. Encouraging Responsible Behavior and Integrity among Educators and Students

This was discussed by Dennis and Harrison (2021) ? It's about encouraging responsible behavior and integrity among educators and students, and this entails cultivating a diverse culture of ethical behaviors, which in turn, fosters an environment where responsible citizens thrive, particularly for students and teachers, who are considered the exemplary models upon which educational institutions depend including Educators role models and Students as active participants.

1.4.1.1. Educators Role Models

Teachers are role models for their students in terms of digital citizenship champions, data privacy protectors, critical thinking facilitators, and inclusive technology advocates. Digital citizenship champions means teachers are responsible in online behavior such as communicate in respectful way, protecting the students personal information, and trying to deal with copyright laws, data privacy protectors by taking into account student data privacy adhering to privacy policies for example using secure platforms, critical thinking facilitators denote that all teachers seek to help learners identify bias, save their personal information, do not make technology impact on you, and inclusive technology advocates means that teachers must provide equitable, fair, and accessible technology.

1.4.1.2. Students as Active Participants

Students as active participants means that students should engage in multiple ways, including critical thinking, accountability, respect for others, collaborative strategies, ethical dilemmas, peer support and mentoring, and rewards and recognition. In critical thinking students should learn how to think critically about technology, accountability is to ensure that students are monitored on their use of technology, respect for others means that students respect each other, value and take their points of view into consideration. In collaborative strategies, students share their interactions with each other about technology, each one of

them working to benefit the other party, ethical dilemmas teachers present students with a set of ethical problems and invite them to solve them to ensure that students are properly taught about technology, and peer support and mentoring for teachers to establish support systems and guidance programs for responsible use of technology.

1.5. Applying Ethical Theories to Educational Technology

Education is considered one of the most important pillars of society and it's considered one of the fields that have the ability to change, constantly renew, adapt and adjust according to the passage of time. Today, people are moving away from the traditional pattern and approach and mixing it with conversation and modernity, this means educational technology or EdTech. This is to increase the opportunities for knowledge to produce new educational projects. With all these developments, researchers must study and think carefully about them, and analyze their impact on society, and in turn, the student and the teacher should include several aspects and issues.

1.5.1. Deontology

Applying ethical theories to educational technology and especially deontology means to take into consideration the importance of strict compliance with data protection regulations like GDPR General Data Protection Regulation and FERPA Family Educational rights and privacy, and the implementation of clear policies for the responsible use of digital tools.

1.5.1.1. Importance of Strict Compliance with Data Protection and Regulation

The ethical principles on which ethics is based are data protection, duties, respect for everyone´s rights, analysis of right and wrong, and working to solve different issues related to the diversity of resulting actions rather than consequences. Data protection and regulation are designed to protect the privacy of individuals, which are both a right and a duty. Furthermore, compliance with these regulations is an ethical duty, regardless of the expected results,

whichmeans the compliance with the laws set to ensure this protection. For example GDPR and FERPA.

1.5.1.2. GDPR General Data Protection Regulation

Dewaele (2020) staes that the General Data Protection and Regulation (GDPR) was adopted under a legal framework, setting out a set of programmed instructions to protect and process the data and privacy of all individuals within the European Union, obligating everybody to comply with these instructions, including higher education institutions, like for example offering online courses, interacting with EU graduates, or using their data to ensure general data protection.

1.5.1.2.1. Key Data Protection Principles

The key data protection principles include lawfulness, fairness, and transparency, purpose limitation, data minimization, accuracy, storage limitation, integrity and confidentiality, and accountability. In lawfulness, fairness, and transparency data processing must be processed and analyzed in a legal fair, and transparent manner, i.e. everything that is mentioned must be applied to everyone without exception, purpose limitation collecting data is legal, i.e., specifying only specific and legitimate data related to the department of e-learning, data minimization during the data collection process, only necessary and sufficient data is collected, i.e., specific and not general information, accuracy ensure that the data is accurate, meaning it is correct and precise and not from unreliable sources, storage limitation make sure to save if possible. For example the university keeps the results of the semesters in order to obtain the final credit, integrity and confidentiality data processing is strictly confidential and fair, and accountability everything that happens in data processing is the responsibility of the controller and he is accountable for it.

1.5.1.2.2. Key Rights

Key rights include right to be informed, right to access, right to rectification, right to erasure, right to restrict processing, right to data portability, and right to object. Right to be informed the right to educate individuals about how their data is used, right to access everyone has the right to access to their data, right to rectification correcting any data error is a necessary responsibility and everyone has the right, right to erasure erase any data relating to an individual and he has the right to request that, right to restrict processing everybody should set rules and guidelines for their personal data on how it is used, right to data portability the ability and capacity of any person to receive his data in a portable format, and right to object the possibility and ability of any person to object to the use of his data for certain purposes.

1.5.2. FERPA Family Educational Rights and Privacy

As stated by Mishra (2023), FERPA appeared in an era of widespread data breaches, in 1974, US federal law was created to protect the privacy of student educational records from breaches; it applies to educational institutions that receive funding from the US Department of Education and includes public and private schools.

1.5.2.1. Key Rights

Key rights include right to inspect and review, right to request amendment, and right to consent to disclosure. Right to inspect and review parents have the right to inspect their children´s education records, right to request amendment the ability of both parents and students to request to amend their inaccurate information for review, and right to consent to disclosure **to** avoid fraud and forgery, all institutions must request written consent from parents and learners before disclosing any information. FERPA requires educational institutions to continually protect student data, inform both parents and students of any disclosure of information, and establish rules regarding the disclosure of students' records.

1.5.2.2. Implementing Clear Policies for the Responsible Digital Tools

Implementing clear policies for the responsible digital tools means establishing rules for how digital tools should be used. In order to establish explicit policies for the responsible use there should be a respect of students' privacy, equitable access to technology, and promoting responsible digital citizenship.

1.5.2.3. Respecting Student's Privacy

This work by FERPA stipulates the establishment of strict laws on each of the learner´s data, its disclosure, its exchange, and its protection from any breach and this, is the responsibility of all.

1.5.2.4. Equitable Access to Technology

Ethics require equitable access to technology, i.e., digital tools, as an opportunity for all interacting individuals. Policies promote solutions to eliminate digital divides, ensure equitable access to technology for all, and consider learners with disabilities as well.

1.5.2.5. Promoting Responsible Digital Citizenship

The role of the teacher is to impose control over his students by educating them about the correct and ethical use of digital tools, including preventing cyber bullying ,respecting the views of all those interacting online, learners must be responsible digital citizens, and teaching them property rights and respectful criticism.

1.6. Application of Utilitarianism Theory in Ethical Technology

Applying utilitarianism theory in the use of ethical technology in education means involves designing technology to optimize learning outcomes for diverse populations like maximizing happiness and well-being for greatest number of people, and minimizing potential harm such as over-surveillance or bias in AI tools.

1.6.1. Designing Technology to Optimize Learning Outcomes for Diverse Populations

Dorrestijn and Verbeek (2013) highlighted about how to desingning technology that all users benefit from it. By comprehensive needs assessment that includes socioeconomic factors, language proficiency, disabilities, and cultural differences. Socioeconomic factors technology is working hard to satisfy all users by providing educational resources that are easily accessible, especially for low-income learners, by providing free or low-cost devices to achieve equality among all, and allocating educational platforms that benefit a greater number of students, language proficiency internet is used in several useful ways, including learning to master the language , by providing multi-privileged educational platforms to facilitate the learning process, making learning faster and more enjoyable by watching videos, films, and scenarios to learn listening and speaking skills, focusing also on reading and writing, by providing remote support lessons that address the needs of a large percentage of learners, and other matters, disabilities modern technology always seeks to satisfy the goals of people, including people with disabilities, in order to provide assistance to the largest possible number. This is done by designing assistive technologies such as screen readers, voice recognition programs, and alternative input devices, and cultural differences different educational programs provide educational resources in several languages to learn about different personalities, histories, and cultures, which are integrated into the textbook so that the student can interact with them by appreciating, respecting, and responding to them. The goal is to improve education and effective participation, so that we can take the learner to several destinations.

1.6.1.1. Design Phase

The design phase includes demonstrable outcomes, continuous refinement based on data, and study of ethical implications this is also includes distributing the benefits of technology fairly, data privacy protection. Demonstrable outcomes designing a set of assessments to see

the results of using the internet on learners by setting pre-assessments before exams to determine the success rate for a large number of students, participating in discussions via the Internet , for example, the teacher uses Google Meeting application to see on the one hand the possibility of students accessing and on the other hand the extent of effectiveness, enjoyment, and changing the normal study pattern, and observing the intelligence of learner in solving school assignments, whether the student takes the solution method and understands the question or only takes from Internet sources without taking into account the ethics of education, continuous refinement based on data technology must be reviewed and improved to meet the needs of both the teacher and the learner. To ensure this, one could first collect and analyze data to identify areas for improvement, such as comparing different sources to determine which is appropriate, and arriving at solutions in various ways to understand online lessons by adding examples, explanations, or more training opportunities, and study of ethical implications includes Distributing the benefits of technology fairly means everyone has the right to access the internet, avoiding bias, and avoiding solutions that disadvantage certain group of students, Data privacy protection to achieve good, enjoyment, benefit, and utility for all, the necessary protection and security must be provided to ensure the continuity of learners´ privacy.

1.6.1.2. Minimizing Potential Harm as Over-surveillance

It is said that, too much of a good thing often leads to careless mistakes, means that if something exceeds its limit, it turns into its opposite and this is the case with excessive monitoring of learners and data collection. In the opinion of Dennis and Harrison (2021), utilitarianism is characterized by the following data minimization, transparency, purpose limitation, data security, and student agency. Data Minimization to achieve educational objectives, only important, necessary and relevant data should be collected, transparency students and parents should be aware of the data collected, how i twill be used,

and how to access it, purpose Limitation avoid using data for non-educational purposes, such as researching personalities or graphic additions, collecting data from unreliable sources, and shopping, data Security implement security measures to protect student data from unauthorized access, and student Agency every student has the right to intervene in his data, either by correcting it or deleting it.

1.6.1.3. Addressing Bias in AI Tools

If (AI) Artificial Intelligence or learning bias is not intelligently designed and carefully tested, it perpetuates and amplifies biases. Following Smith and Vickers (2024), the utilitarian approach includes data diversity, algorithmic transparency, bias detection and mitigation, human oversight, and ongoing evaluation. Data Diversity implementing a set of AI algorithms to avoid biases with different data, algorithmic transparency understand how AI works to identify biases and make algorithms as transparent as possible, bias detection and mitigation to identify and detect biases in artificial intelligence, develop mechanisms to identify and mitigate bias, help teachers identify biases, and teach them how to deal with and treatment methods, Human Oversight teachers are seeking to provide recommendations to their students to raise their awareness of the risks of using AI by providing specific information that is not related to a specific educational purpose in order to maintain human oversight, and ongoing evaluation to extract any information from artificial intelligence, one must first verify the validity of the data, secondly, continue to search for bias, and finally, ensure the benefit to all individuals.

1.7 Application of Virtue Ethics Theory in Educational Technology

Finally, one could say that applying the theory of virtue ethics in educational technology aligns with making sound decisions based on the character, qualities, and traits each individual possesses, rather than focusing on the ensuring consequences. Directly involves

encouraging digital citizenship in online interactions and also by fostering ethical behavior in online interaction.

1.7.1. Encouraging Digital Citizenship in Online Interaction

According to Wulandari, Win Arno, and Triyanto (2021), digital citizenship education means Ensuring ethics and equity Policy, planning, and digital citizenship. We said previously that the ethics and virtues that characterize any individual express his self and personality. Learning ethics is not only for oneself, but also for dealing with other individuals. Digital citizenship and interactions over the Internet encourage in ways including honesty, respect, empathy, courage, consider your character, reflect on your values, and seek wise counsel. Honesty providing any information or data truthfully, i.e. representing oneself as it really is, without falsifying one´s identity or impersonating any person, respect treat all users with politeness and respect to reflect the user´s morals, respect their views, and do not bully them, empathy sharing feeling on the Internet confirms the extent of understanding of each other, eliminating conflicts and enhancing the spirit of cooperation and participation, courage everyone should tell the truth even if it is difficult and encourage everybody else to do the same. Combat or reduce unethical behavior, consider your character means that you think that you are in this person´s place and what you would do, reflect on your determine the appropriate behavior to deal with in any decision you make regarding any situation that occurs to you while interacting on the Internet, and seek wise counsel while interacting online, meeting people worth following or learning from their own experiences. They may be known or unknwn people, such as family and friends.

1.7.2. Fostering Ethical Behavior in Online Interaction

Good morals are standards of actions rely on the following promoting constructive dialogue, combating cyber bullying and harassment, encouraging responsible content creation, and building trust and community. Promoting constructive dialogue the discussion

should be based on mutual respect and appreciation between the interacting parties to ensure a useful dialogue, combating cyber bulling and harassment is done by opening a long discussion on this topic, where the person works hard to convince the bullies that he is an incorrect creation and is not closely related to the quality of person with a wise mind in this era, encouraging responsible content creation everyone is responsible for their words and actions on the Internet by creating content that reflects moral character, and building trust and community trust is built when technology is used consistently and with mutual respect between interacting parties .

1.8 Conclusion

It could be concluded from the above that deontology, utilitarianism, and virtue ethics are theories that explain the technology used in the educational environment. Deontology precisely explains the complexities involved and the strict penalties that, in turn, reduce or eliminate unethical practices. Utilitarianism works to benefit the greatest number of students under the framework of improving education, while virtue ethics focuses on encouraging interactions between users online. As for the application side deontology focuses on rules and duties no matter the outcome, utilitarianism is about outcomes what is the most good, benefit the most or majority of all and minimizes harm, and virtue ethics emphasizes character, choosing sound and appropriate decisions that reflect the quality of the action and how to deal with it.

Chapter Two

Theoretical Frameworks for Ethical Technology Integration in Education

Chapter Two

Theoretical Frameworks for Ethical Technology Integration in Education

2.1 Introduction

Ethics involves guidelines and principles that inform us on how individuals should behave in numerous circumstances, such as in education, where the ethical use of technology is crucial to ensure fairness, protect students' privacy, and promote equal access to learning resources. It is necessary to tackle the ethical obligations associated with technology's integration into education as it progressively contributes to it.

This chapter explores the theoretical frameworks of the ethical use of technology in education, with a particular emphasis on the necessity of achieving harmony between innovation and ethical responsibility. it also reviewed the educational technology in terms of how technological tools are used in learning and teaching processes.

2.2. Accessibility

Concurring to the Organization on Business & Accessible Technology (PEAT) accessibility means that everyone can utilize the same technology as others, no matter their physical or cognitive abilities. This incorporates individuals who may not be able to control a mouse, have constrained vision or hearing, or how they handle data. "Available innovation" is technology that can be used effectively by users with a broad range of abilities. When innovation is open, each person can use it in way that suits them best. For instance, when using a desktop computer there are several ways to input information, like using a mouse, a keyboard, or voice commands. Digital access reflects how engaged students are with digital tools which include both hardware and software. If the computer's operating system is accessible, it will support all these input methods.

2.2.1. Equitable Access

According to the Goguardian, team equitable access to technology means making sure everyone, no matter their background, with equal chances to utilize technological tools for education and personal growth. This idea highlights removing obstacles like income, location levels, or physical challenges to make ensure that technology is accessible and useful to everyone. It includes that all students regardless of their race, financial situation, age, or physical condition, should be able to access digital tools and information. This access is essential not only for learning opportunities but also the key for helping students build the skills required to be competent in a digital world. When some students don’t have the same access, they miss out on valuable learning experiences that may face limited opportunities later on. This issue has become even more serious with the shift to online learning. However, providing students with devices and internet access alone is insufficient. Real access to technology means ensuring that each student has the chance to learn from educators skilled in

using technology, and making sure every student can identify, comprehend, interact, and engage with technology.

Vestberg, H. (n.d.) expressed in his discourse that regardless of where you were born, or your current residence, everyone should have access to the digital services that are essential for full participation in 21st century society. He stated that his lifelong mission has been to facilitate access to our shared future, and is a priority for Verizon every day.

2.2.1.1. Importance of Equitable Access

Ensuring fair access to technology plays a crucial role in enhancing student learning outcomes by guaranteeing that all students can equally engage in educational activities. When learners from different backgrounds, have access to the same technological resources, helps create equal opportunities in the classroom, that ensure better participation and academic success, as all students can utilize digital tools and work together on projects. Ensuring equitable access to technology is essential for closing the gap between learners from different backgrounds, schools and educational institutions are starting to provide more support by providing devices, web access, and training to underserved communities. Policies pointed that promoting equitable access typically involve funding, better infrastructure, and community involvement. Technology integration in classrooms is most effective when all students can participate equally in learning exercises supported by these tools. Research shows that providing equitable access can lead to increased student engagement, motivation, and academic achievement. (Fiveable, 2024)

2.2.2. Inclusivity

According to Diversity for Social Impact, Inclusivity implies making sure individual feels welcome, appreciated, and respected, regardless of their identity or background. It requires treating everyone equally free from discrimination based on race, gender, beliefs, or origin. Inclusivity also extends to creating technological opportunities that are accessible to all, and

provide a friendly atmosphere for everyone. This perspective can be used in a variety of contexts, such as education, the workplace, innovation, and governance. A wide range of study findings are included in inclusive technology enhanced learning, offering valuable information on how technology can address cognitive, physical, emotional, or geographical barriers in education.

Ingabire, P. (n.d.) announced that we are putting programs that will guarantee that our residents have access to reasonably priced smart devices, and equip them with the best technological skills to take benefit of a digital and cashless economy. The invitation was broadened to include governments and partners in the Edison Alliance to accelerate their commitments to ensure universal and sustainable digital literacy for one billion people.

2.2.2.1. Inclusive Innovation

According to Rajeswari, during the pandemic, online platforms have played a crucial role in delivering continuous instruction, particularly in keeping education going when schools were closed; emphasizing technology's potential in making quality education more accessible. The 'Digital India' initiative aims to supply digital foundation available to every citizen, leading to strengthening. India's urban-rural divide has been decreased due to the rise of mobile phones and affordable internet access. Furthermore, worldwide web service portals have minimized bureaucratic obstacles. A clear example of FIT is agricultural modernization. Precision farming, and tools like the Internet of Things (IoT), supports Indian farmers to enhance their crop production and adapting to climate variability.

2.2.3. Bridging the Digital Divide

The term "digital divide" refers to the gap in access to digital services between nations, areas, and individuals (Fuchs & Horak, 2008; Van Dijk, 2020; Potter et al., 2008; Mubarak, 2015; Bon, 2020). As noted by Smith and Doe (Eds.) (2023), The Digital Divide indicates the perceived gap between individuals who can take advantage from modern information

technologies, and those who are excluded from these benefits. In the context of the information Age, Lack of access to this knowledge is a social and economic drawback. While some believe that the digital divide is an overblown nonissue, others see it as exaggerated. Bon, Saa-Dittoh, and Akkermans (2024) stated that, in 2023, more than half of Africa's population about 57% is unconnected to the worldwide advanced society (Web World Stats, 2023) pointing to this disparity as a significant global issue. Digital access is progressively seen crucial for the advancement of both nations and local communities. The digital divide involves not only physical access to technology and internet, but also the ability to afford and use it effectively. It exists not only between wealthier and poorer countries, but also between urban and rural populations, younger educated and older and less educated people, and even genders. This gap leads to serious consequences, such as isolation, which can influence mental health, educational barriers as learning shifts online, and heightened gender inequality. The COVID-19 pandemic has highlighted the disparities, showing how students in low-income areas and underserved populations in the U.S. struggled in online learning, or even booking vaccine appointments. The U.S. government allocated $65 billion in the Infrastructure Investment and Jobs Act to expand digital access.

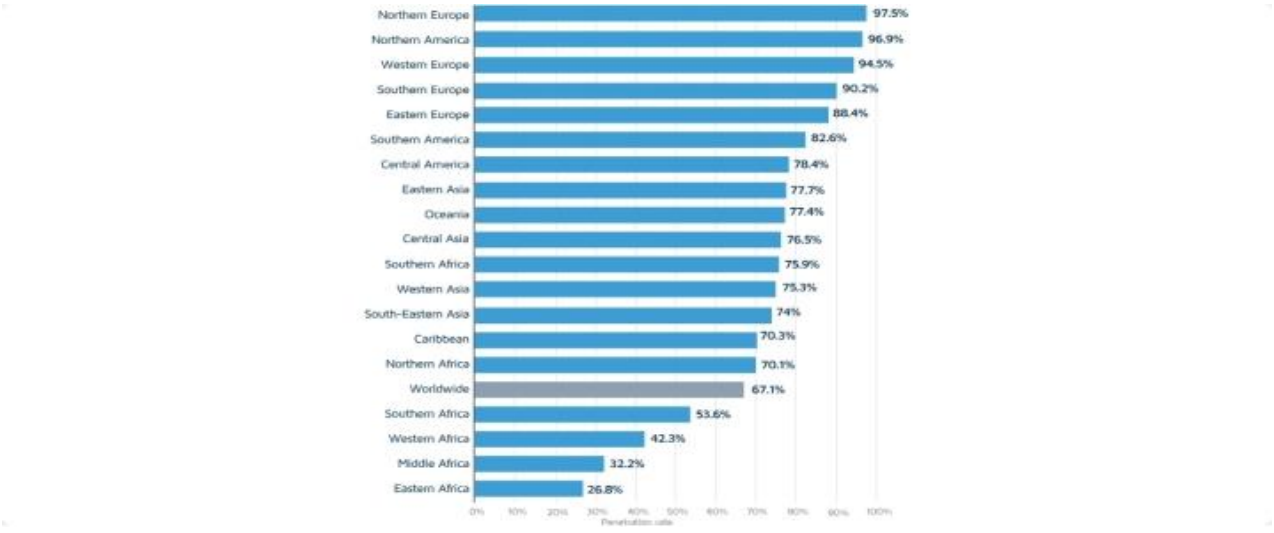

Figure 1: Global Internet Penetration Rate by Region, %, (2022)

As noted by Filipenco (2024), even while internet penetration is currently lower in African countries, this is often changing. In 2022, the number of internet users had risen about 570 million; over two times as many as there were in 2015. Nigeria has the largest user base, with 163 million internet users, while Morocco has the highest at 91%. The rise of mobile devices, and upgrades in telecommunications infrastructure, are resulting in an increase in internet connection throughout Africa.

2.2.3.1. Digital Gender Divide

According to Touati and Benasla (2021) Research consistently indicates gender-based gap in ICT usage. Women are often not represented fairly in various areas of digital technology and ICT. According to the OECD (2019), the digital gender gap was discussed in all APED in 2017; revealing that women are less likely to utilize the web compared to men. When it comes to competency and confidence in implementing digital abilities, gender disparities are evident. This report points out various challenges that hinder women from being actively involved in the advanced revolution. Limitations in internet access within our communities and the education system restrict women's access to the opportunities presented by the digital age creating obstacles that become more noticeable later in life.

The issue of the digital gender gap is recognized as a significant barrier to realize equality between genders, particularly for women. Gaining access to digital tools is crucial in fostering digital inclusion. Nevertheless, women have more limited access to digital devices and the internet compared to men. According to GSMA (2018), women across various nations engage with mobile web less frequently than men. Moreover, access and usage are not the only aspects of interaction with digital technologies; it must also involve equal participation in the design and development of technologies. Women reap fewer advantages from digital devices and the web, particularly certain demographics like elderly women, those residing in rural regions, and individuals with disabilities. Recent data from the ITU as of 2017 pointed out

that women worldwide are 12% less inclined than men to claim or utilize the smart phones, which are the primary tools for personal communication and web access in many nations. (Reiko, 2019)

2.2.3.2. Digital Homework Divide

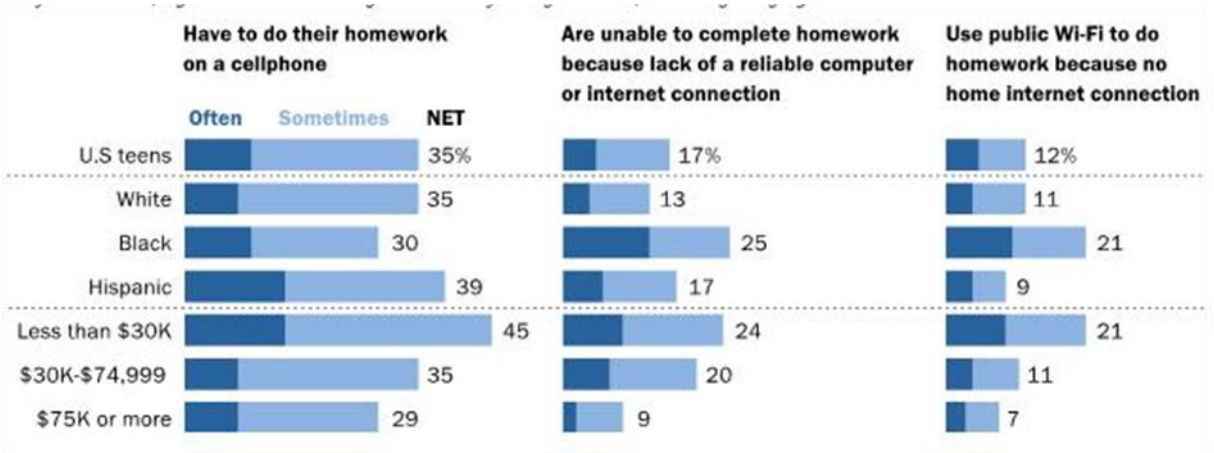

Figure 2: Impact of the Digital Homework Gap 2018 on Black Teens

As reported by Anderson and Perrin (2018), around 25% of Black teenagers indicated that they could not finish their homework, due to the limited of digital access occasionally or frequently, this includes 13% who reported that it occurred regularly. Only 4% of White high schoolers and 6% of Hispanic teenagers experienced this issue often. (There were not sufficient Asian participants in this study provide separate results.) There was also a significant difference based on salary level: 24% of teenagers whose yearly family salary was under $30,000 stated that the lack of reliable technology or internet access prevents them from completing homework, compared to 9% of teenagers whose families made $75,000 or more annually.

According to Pringle (2021), everyone is aware that having access to the web is crucial for education. Regardless of their location, the learner relies on it for his research, finishing assignments, and go to class, especially when schools are not open.

2.2.4 Privacy And Data Security

Sharma (2022) highlights that digital privacy involves keeping personal data and information safe within digital environments, which covers activities, messages, and financial operations on the internet. In the context of education, cyber privacy plays a crucial role due to the requirement of managing confidential materials such as student information, academic performance, and evaluations. Schools and universities must protect this data and guarantee it isn't shared but only with appropriate authorization.

2.2.4.1. Digital Privacy Issues in Education

Concerns about digital privacy in education, have taken on greater significance as technology's role in classrooms has elevated. Schools manage large amounts of personal information like student grades and personal records, which can be exposed to breaches caused by cyberattacks. Such occurrences can arise from mistakes made by individuals, hacking attempts, harmful actions. Additionally, as students who always use social media platforms, it will expose them to experience cyberbullying and other forms of harassment online, and it will negatively affecting students' emotional health and academic achievements. Many learners also don’t fully grasp the consequences of excessively posting personal details on the internet, including their location, images. This lack of awareness can expose them to dangerous situations. Furthermore, some institutions might employ surveillance technologies, like cameras or tracking software to keep an eye on student behavior. That may violate students' rights, and lead to privacy issues. There is also growing concern over how educational technology companies might gather and utilize student information for tailored advertising, which expose more ethical and privacy challenges. It is essential for educational organizations to create a safe and supportive learning environment and take actions to tackle these problems, and make sure that student privacy is respected and protected. (Sharma, 2022)

2.2.4.2. Student Data Protection

The National Student Support Accelerator emphasizes that students deserve privacy. When tutoring programs that aim to be included in a student's learning journey, they require the student's full trust. Therefore, it is essential for your system to preserve and secure that trust. Sharing students' personal information with unreliable outside parties breaks that trust. Digital privacy regulations and policies play a crucial role in preserving personal data of both educators and students. FERPA is a federal statute that designed to safeguard the confidentiality of student educational records. According to this law, Parents and scholars who are at least 18 years old, is allowed to check and ask for changes to their academic records. Additionally, the FERPA requires that schools must get written permission before sharing any personal data from a learner's academic transcripts. Similarly, the COPPA is another national law that secures the digital privacy of minors below the age of 13. This statute obliges online platforms and services to get parental validation before they can gather, utilize, or share any private data from kids within this age range. Meanwhile, the GDPR applies across the European Union, guidelines for the collection and handling of personal data. It is relevant for schools that gather user data from learners who are EU community members. Many schools implement their personal cyber privacy guidelines that provide certain standard for records management, security, and sharing in addition to complying with these legal requirements.

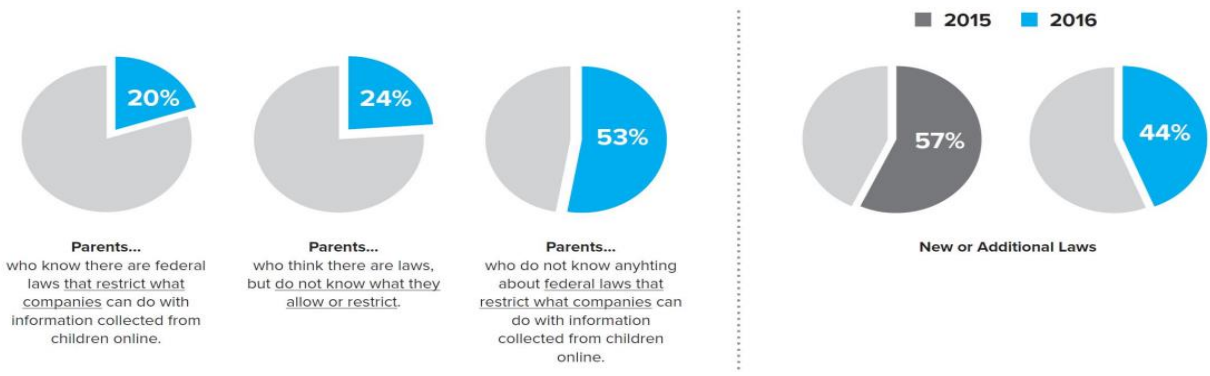

Figure 3: Parent and Existing Laws and Protection

The Future of Privacy Forum conducted a poll in 2015, in an effort to gather insights specifically from parents regarding their perspectives on technology usage in their kid's education and the data produced from it. During that period 87 % of parents indicated worry about confidentiality and safety of learner information in educational environments, while 71% were open to the idea of their child having an «adequately secured electronic learning record «for their young ones. The present year the FPF carried out the study again with some modifications. The emphasis in the most recent survey aimed to determine if parents have turned more informed about the act and regulations regarding learner records and if their worries have shifted.

2.2.4.3. Transparency

The watermark insights define the data transparency as ensuring that the information of your organization may easily access, clear, and quickly accessible to those who have a true interest in it. This practice includes promoting a setting of honesty regarding the sources of that information and your usage of it. Ungerer and Slade (2022) discuss the significance of transparency in student records, the need for approval, and the ability to strive for justice. Transparency in how educational data is handled is crucial to maintain confidence between parents, learners, and schools. It means regularly keeping everyone informed about which types of learner records is being gathered, why it is collected, the security measures in place, and who it is shared with. In addition to completing their legal requirements set by FERPA and PPRA, academic institutions are urged to adopt best practices that promote transparency. This can involve providing effective communication through the use of simple language, offering data lists, accessible websites, and engaging parents in discussions about policies. Additionally, schools should make contact data easily accessible and address concerns immediately and respectfully. Transparent methods help avoid misconceptions concerning the

usage of data and promote a society that is responsible (Rodriguez, Hawes, & Morrissey. 2014)

2.2.4.4. Compliance With Regulations

Kyobe (2010) stated that modern educational establishments must adhere to cyber security laws and regulations. Colleges and universities provide web access to users and keep private information about students, faculty, and conference participants. This situation makes them uncover to various threats and possible legal issues. Not complying with data protection policies might result in serious financial losses and reputational harm, making academic institutions targets for legal assessment by authorities. Even though colleges have tried different strategies to guarantee compliance, such as developing security, self-regulating, or even creating handbooks for crew and learners, the performance of these actions in changing user behavior has been restricted. The occurrences of online misconduct and policy violations are increasing. According to the EDUCAUSE Review from August 2009, safeguarding is still a principal strategic challenge that academic institutions face.

2.2.5. Ethical Content and Use

Guney (2019) claims that ethical concerns in Educational Technology cover various factors such as the web, suitable digital etiquette, learner safety and data protection, unapproved access in schools, and unsuitable content created in educational settings. It is an important emphasis for creators, developers, and students who utilize technology in lecture halls or study spaces. Both students and educators are supported in integrate innovation into their teaching and daily routine. Therefore, it is important that digital ethics and occupational ethics are included in the planning and producing digital learning tools. Educators and creators must tackle both digital ethics and occupational ethics, but they can complete within their existing educational design frameworks and educational settings. They can also enhance their

additions to their continuous learning design and technology efforts or teaching technology projects.

2.2.5.1. Academic Integrity

If a teacher neglects to engage with his principles and commitments during discussions, why would the learner do so? Wellstone (n.d) Academic integrity involves a devotion to the essential principles of honesty, trust, justice, respect, accountability, and courage. (Fishman, 2014)

According to Holden, Norris, and Kuhlmeier (2021), exploring academic integrity in online assessments, through these principles, moral conduct in education, is detailed, promoting a society aimed at knowledge acquisition and sharing of thoughts. For a higher education organization, it is significant for all learners and educators to illustrate academic integrity, that maintains the institution's standing, ensuring that an academic record, diploma, credential is understood in a similar way, pointing out specific proficiency and abilities of the owner. Consequently, individual learners gain from this image and the assumptions drawn from their academic achievements. On a larger scale, acknowledging and complying with the core principles of academic integrity inside a society creates a unified standard, for quality practice, highlighting the importance of mastering knowledge and proficiencies. Academic honesty can transform the world. Begin with changing the colleges, subsequently, the world will follow. (Kim, 2008)

2.2.5.2. Plagiarism In Academia

As highlighted by Eret and Gokmenoglu (2010), plagiarism is defined in The Compact Oxford English Dictionary (2009) as «the act of imitating another person's thoughts, phrases, or work and passing them off as your own." Plagiarism is described in the literature as "academic dishonesty" Wilhoit (1994), and also as a “kind of intellectual piracy” (Ashworth, Bannister, & Thorne, 1997). There are many definitions of plagiarism in various dictionaries

and publications, Ercegovac and Richardson (2004) suggested that the rationale behind the complexity in the plagiarism topic may be from its cross-disciplinary character and its growing prevalence. Aligned with this perspective, academic dishonesty could also have several underlying causes, including purposefully misrepresenting or accidentally neglecting the guidelines of educational writing. (Jolly, 1998) In the modern era, without considering the cause, considerable efforts have been undertaken in higher education establishments to spot plagiarism and take action against violators applying a clear framework of moral guidelines. Along with these regulations intended to prevent plagiarism, in particular, the development of technology plagiarism detection systems may be really helpful if applied effectively by teachers and schools. (Beasley, 2004)

2.2.5.3. Balancing Screen Time

Since excessive screen time may negatively impact kid's cognitive, language, interpersonal-emotional development, has led to crucial social health concerns. Screen time can have various cognitive effects, showing both constructive and destructive outcomes. While screens can enhance knowledge acquisition, excessive screen exposure and juggling with different media have been connected to weaker executive performance and lower academic success. (Muppalla et al., 2023) According to Cox (2019), it’s essential to distinguish between "digital media time" allocated to engaging in digital games or browsing TikTok and "learning screen use" intended for education. If digital time is aimed at learning goals, it can benefit a kid's progress and improve their education, provided it is not over utilized, as stated in a recent 2023 study evaluating the influences of excessive device use on kid growth. The amount of technology employed in learning space should take into account the learners' age and expected outcome of the digital usage. Digital time can offer numerous advantages, allowing the learner to accomplish activities they may encounter challenges otherwise, such as accommodating different educational approaches and personal needs.

Additionally, this dynamic learning can attract students, enhancing their comprehension and recall ability. Furthermore, screen use introduces learners to technologies they could come across in their upcoming positions. Learning about these electronic resources today will better train them for what lies ahead. The U. S. National Library of Medicine warns that excessive digital use may result in sleep issues, nervousness, sadness, Concentration difficulties, and obesity. Given the rise in screen usage, it is important to set clear regulations for learners to follow in the learning spaces. There are several suggestions regarding the way to assist learners in managing their digital use suitably while learning.

- ✓ Differentiate between educational and entertainment screen usage. Active digital usage includes educational activities that can result in productive results, while passive screen usage is focused on entertainment and may cause in negative outcomes.
- ✓ It is important to reveal your assumptions regarding technology to create a constructive educational atmosphere.
- ✓ Establish boundaries on screen time to avoid excessive exposure.
- ✓ Apply technology exclusively as a means to support teaching, instead of as a replacement for teaching.
- ✓ Teach students how to make reliable decision about their digital use to support them build self-control abilities.

2.3. Fairness and Biases

Chinta et al. (2024) argue that bringing technology into education can change how learning happens, offering individualized educational opportunities and innovative teaching strategies. Nonetheless, the pre-existing biases within artificial intelligence algorithms are restricted this progress by unconsciously supporting biases against particular groups, particularly in areas that focus on people, such as learning. Even with the advantages, applying artificial

intelligence in educational settings provokes a significant concern about Equity and prejudice. These Intelligent systems may unintentionally sustain and even aggravate the biases found in the information they learn from, resulting in unjust results.

2.3.1. Algorithmic Bias

Algorithmic bias, according to Jonker and Rogers (2024), is the result of systematic mistakes in the data-driven systems lead to unjust or biased results. This type of bias often shows or strengthens present economic, ethnic, and gender-based prejudices. The origin of algorithmic bias is not just the algorithm, but instead the method the records research group gathers and programs the training information. Some particular reasons for this are: biases present in training data, the development of algorithms, representative data, and biases during assessment.

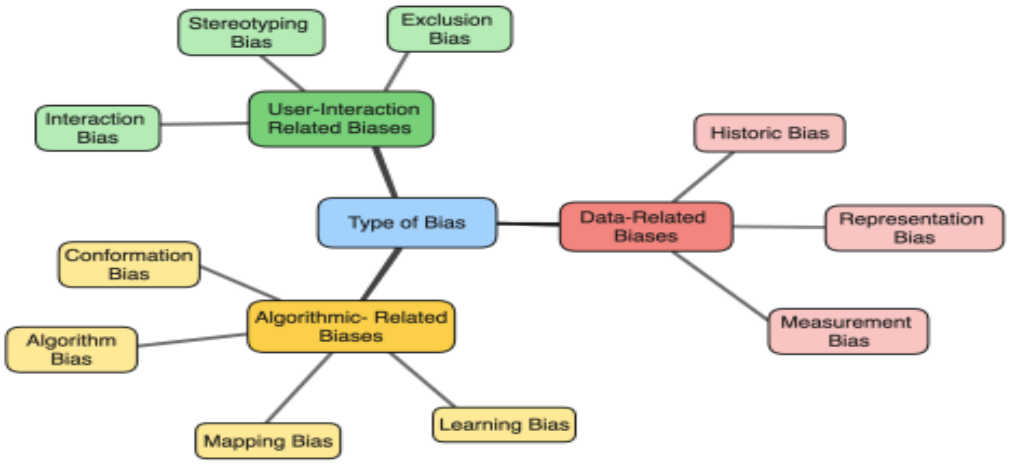

Figure 4: Types of Bias in Education

2.3.2. Equal Opportunity

As stated by Maclean (2003), the idea that everyone should have fair chances in learning is essential. This indicates that all individuals should be able to access high-standard education fairly, despite of their ethnicity, social status, gender, or faith. Academic achievement should

come from individual contribution and talent, without encountering any type of bias. This principle is included in numerous worldwide accords.

The United Nations (1948) states that education is an essential individual right:

“Every individual is entitled to an education. Education ought to be accessible without any cost, especially during the primary and essential stages. Primary education is mandatory. Skill-based education should be widely accessible, and academic education must be open to all according to their qualifications”. (Article 26)

2.3.3. Teacher Autonomy

Huang (2005) points out that the concept of "teacher autonomy" is progressively noted as an important element influencing the improvement of student autonomy in non-native language education. Many researchers now claim that improving learner autonomy includes improving teacher autonomy as well (e.g., Benson, 2001; Little, 1995; Little et al., 2003b; McGrath, 2000; Thavenius, 1999). In his work, Smith (2000) highlights the significance of teachers controlling their autonomous learning in teaching frameworks mentions that educator autonomy can be understood, to some extent, through the perspective of the educator's position as a learner, which he refers to as instructor-learner self-direction. Moreover, he agrees that there is a need to reframed and spread this definition. (Smith, 2003)

2.4. Teacher and student support

Effective teaching develops educated students by providing them with fundamental skills for critical thinking, employment, and social interactions. It emphasizes the learners' experiences both in and out of the classroom. Sibley et al. (2017), highlight that educators understand the importance of a learner's life beyond the classroom in relation to their academic performance. A poll carried out in 2015 by Scholastic, which involved a teacher of the Year Awardees, revealed their perception of the primary challenges that face student achievement. The most frequently mentioned obstacles were family pressure noted by 76% of

participants, financial distress issues, which 62% identified. After these were learning difficulties and mental health issues, mentioned by 52% of the educators. If given the chance to allocate education funds to support learner education effectively, these teachers would emphasize initiatives to combat poverty and eliminate learning challenges, utilizing holistic services like healthcare. (Worrell, 2015)

2.4.1. Digital literacy

As stated by Lee (2014), digital literacy involves an individual's comprehension and capacity to use information and communication technologies along with the power to execute different challenging tasks efficiently and successfully in the virtual platforms. Jones-Kavalier & Flannigan, (2008) illustrate that internet literacy has developed into an essential skill for individuals to gather data, progress personally and reach objectives, exchange ideas and connect with others, obtain employment, succeed financially, and participate actively in digital citizenship and cooperative communities. (EC, 2011) Identified as a difficulty in implementation of technology in educational programs (Blau, Shamir-Inbal & Avdiel, 2020), the contemporary literature described digital literacy as the abilities and qualifications needed to navigate a fragmented and complicated data system (Eshet, 2004). Eshet-Alkalai (2012) created a digital literacy guideline that includes six categories:

- Visual cognition (comprehending and applying visual data).
- Simultaneous thinking (analyzing diverse inputs at the same time).
- Knowledge processing (assessing and integrating data from diverse online platforms).
- Non-linear navigation (exploring dynamic interactive digital spaces).
- Innovative thinking (producing results with digital tools by the creation of new material).
- Emotional intelligence.

Current systematic evaluations have highlighted the significant role of digital literacy in the progressive educational setting. (Tinmaz et al., 2022)

2.4.2. Ongoing Feedback

As noted by Ouzzir and Kecir (2024), feedback plays an essential role and is a central feature of continuous assessment. An assessment cannot be identified as continuous if it lacks in providing supportive feedback. Various scholars have outlined this aspect in multiple forms.

Overall, feedback is an important component that is that is closely related to the process of learning, as highlighted by Bee (1998). In essence, when feedback is provided, it supports an individual in their learning experience, elevates their knowledge and abilities, and plays a role in upgrading their actions and performance. Numerous scholars have described feedback in learning context as any sort of input offered to learners upon finishing an educational task (Wager & Wager, 1985). Narciss (2008) shares a similar perspective, determining feedback within educational environment as the guidance given after a reply that teaches learners about their existing educational progress and abilities, and facilitates their assessment in case this status meets the educational goals set for a particular situation.

2.5. Ethical Decision-Making Models

Ethics teaches us on how people should act in a variety of situations via principles and rules, such as friends, kids, parents, residents, merchants, employees, and others. An ethical choice is one that is legitimate and morally right in the eyes of the broader society. On the other hand, immoral choice is either against the law or seen as ethically wrong by the wider society. This explanation is based on the understanding of crimes of obedience as described by Kelman and Hamilton (1989) and matches with how other writers in the area of moralities identify the concept, whether clearly stated or implied.

2.5.1. Four-Component Model (Rest, 1986)

According to Jones (1991), the fact of dividing the process into its individual components increases clarity regarding moral decision-making and actions. Ethical researcher James Rest outlines four fundamental parts of ethical behavior. Rest created his Four-Factor Model questioning: “What psychological processes need to happen for us to act morally?" He found that moral behavior occurs due to these cognitive functions:

- Moral sensitivity (Awareness).
- Moral judgment.
- Moral motivation.
- Moral character.

2.5.1.1. Moral Sensitivity (Awareness)

Johnson (2006) suggests that moral sensitivity means the awareness that an ethical issue is present. This awareness involves comprehending how our actions affect other people, evaluating possible actions, and considering the outcomes of each option. According to Myyry (2003), who discusses Rest (1986; 1994) definition of moral sensitivity being conscious of the way our behaviors influence individuals. It involves recognizing who is concerned in the context, what possible behaviors are available, and what diverse actions could lead to in terms of outcomes for all stakeholders. Rest believed that having moral sensitivity includes creating diverse possibilities for the situation and visualization how various behaviors possibly affect parties concerned. Creating these cases can be seen as an essential human feature. Humphrey (1976) argued in his paper on the social role of reasoning that:

“Social primates needed, due to the essential qualities of the systems they establish and support, be mindful and be strategic thinkers, they need to consider the outcomes of their own actions, assess the intended actions of individuals, and measure the benefits and drawbacks,

all within an environment where the information they depend on temporary, unclear, and variable, often influenced by their own actions."

Moral sensitivity is essential for change-oriented ethics. We are unable to address an ethical challenge if we are unaware of its existence to improve your moral consciousness practice reflective listening and participate in role-playing exercises. Listening attentively to others offers valuable insights into the possible moral results of our decisions and the assumed reactions from different people. Role-playing might also present advanced knowledge. By assuming the role of another individual or team, you can gain significant perspectives on how they might reply.

2.5.1.2. Moral Judgment

Myyry (2003) states that in Rest's framework, the second element which is moral judgment is the most researched element of morality. This element involves choosing which behavior among several choices is suitable in a specific context. For example, Blasi (1980) noted in his evaluation that "an action cannot be seen as moral unless someone makes a judgment about it, regardless of how helpful it may be." At this level, the scenario has previously been evaluated, along with the rights and advantages of everyone involved must be taken into account. Rest (1983) The intellectual-growth perspective has provided the greatest persuasive input in this field. This theory arises from Piaget's (1932) work, which proposed children's cognition progresses in a significant way with age, illustrating an advancement journey from self-centeredness to a balanced comprehension in their ethical reasoning. Children analyze what is good and bad in these particular situations. To elevate your ethical judgment, concentrate on essential ethical standards. Take into account that leading moral philosophers make decisions based on widely recognized moral principles, therefore, we ought to comply.

2.5.1.3. Moral Motivation

Rest (1986) described moral motivation as linked to what people focus on in terms of values, especially how they balance ethical principles against other types of principles. Blasi (1999) argued that to act ethically, one should do so with awareness-driven process. The reasons behind moral actions should also be ethical, meaning that they need to align with the agent's perspective of what is considered right or wrong. Mainly, individuals seek to see their own as fair and moral, indicating that ethical character could play a significant contribution in how they see themselves (Blasi, 1984). Damon (1984) proposed that when a person incorporates their self-identity with morality, it fosters a moral identity that motivates ethical action. Nevertheless, Nucci (2002) declared that this viewpoint decreases morality to personal gain and Self-centered morality, suggesting that individuals act morally mainly to protect their self-image. (Myyry 2003)

2.5.1.4. Moral Character

"Moral character includes qualities like self-confidence, commitment, resilience, hardiness, strong beliefs, and bravery" (Rest 1994). An individual or group may be aware of the moral aspects connected to a situation (Component 1), have the ability to express valid arguments for choosing a specific behavior (Component 2), and focuses on effective methods and positive outcomes (Component 3). Nonetheless, they could still be without the required ego strength, to continue in challenging periods, such as when confronting anxiety, exhaustion, insufficient emotional support, or direct opposition. (Schweigert 2016)

2.6. Stakeholders Theory

Stakeholder theory was first presented by Freeman (1984) and refers to a way of thinking about management, concentrating on strategic planning and ethical considerations. It includes any person or group that may affect or be affected by the organization's goals (Freeman & Phillips, 2002; Mahajan et al., 2023). Asiyai (2014) noted that this theory urges organizations

to identify and address the needs, desires, and assumptions of stakeholders. It proposes a comprehensive and responsible approach to decision-making focus on increasing value, securing long-term prosperity, and extending beyond just the interests of shareholders.

2.7. Sustainability

Smith (2011) points out that one significant barrier to accomplishing sustainability Drops within the scope of education. The issue emerges because education seldom questions the accepted beliefs, and priorities of national authorities, affluent elites, and prevailing economic or political frameworks. Andrzejewski and Alessio (1999) argue that there is a possibility of disagreement between promoting education that supports social responsibility like sustainability, and educating for economic aims such as employment and market competitiveness. This is absolutely is going to contributes to the issue, as our education system concentrated more on economic advancement and wealth formation than on sustainability. As a result of this enduring neglect of sustainability, along with the absence of a cultural basis for sustainability, we are now tackling issues that might have been avoidable. As noted by West Chester University (2011c), our world is experiencing extraordinary environmental, societal, and financial challenges. To efficiently reply, a significant shift is required not just in what we know and believe, but also our cultural and institutional frameworks. Learning for sustainable development plays a crucial role in addressing these challenges.

2.7.1. Ethical Leadership and Policy Development

Žydžiūnaitė (2024) expressed that ethical leadership in education is linked to how institutions act based on shared standards and values that most staff members agree upon for the Shared prosperity. This means that ethics ought to be included in the decision-making process in leadership. This form of leadership is a deliberate choice, inspired by the consideration of the rights and dignity of others. Opting for this ethical approach at an

institution promotes a supportive environment for everybody and enhances overall performance. The concept of ethical leadership shapes the practices and methods used by educational leaders. A modern perspective on ethical leadership centers on the idea of social information analysis. This perspective indicates how emotions impact employees' ethical choices and behaviors. Leaders who act with honesty, fairness, and empathy tend to inspire moral feelings that praise others within their group. These feelings foster a sense of joy when individuals help and support each other. Secondly, by being a positive ethical role model, leaders encourage emotions like admiration and esteem, leading them to treat others with kindness and fairness.

2.8. Impact of ICT on Teacher Education in the 21st Century

As outlined by Bhattacharjee and Deb (2016), Information and Communication Technology (ICT) is crucial for improving teacher training for both pre-service and in-service educators by fostering innovation, advancing professional development, and strengthening teaching abilities. It facilitates effective lesson planning, engage students, allows for feedback, and improves classroom management. ICT enables teachers to connect with institutions such as NCERT, NAAC, NCTE, and UGC, which also encourages the use of different software and hardware tools that are important in modern education. Programs like word processors, spreadsheets, and databases assist in teacher training, helping them apply their skills in real-life teaching situations. Additionally, ICT supports communication, data collection, research, and helps create assignments. ICT also contributes to educational management by creating effective learning environments and aiding in institutional organization and infrastructure. Moreover, it prepares teachers for future job and social needs, helps teachers build professional networks and learn from professional communities. In essence, ICT updates traditional teaching methods, empowering teachers to adopt modern, effective approaches that connect them better with their students.

2.9 Conclusion

Considering what we have covered in this chapter, it is clear to state that, stakeholders must give careful thought to all of the ethical issues involved in integrating educational technology into teaching, even though it provides unrivaled opportunities to transform the field.

Some issues are addressed about data security, equal access, algorithmic bias, and teacher and student support. These issues and their influence on student autonomy and teacher roles demand our immediate, focused attention. When highlighting the welfare and educational needs of all learners, teachers, policymakers, and educational technology creators have a responsibility to use technology morally and equitably. Regular evaluation of the impact of technology is essential, along with a commitment to integrity and transparency. For ethical educational technology applications, it is crucial to adopt a human-centered approach that prioritizes a student-centered perspective, and taking initiative, and dedicated to creating unbiased and technologically enhanced educational environments.

Chapter Three

Data Gathering and Analysis

Chapter Three

Data Gathering and Analysis

3.1 Introduction

Following the two prior theoretical chapters, which focused on the ethical use of technology in education and the importance of confronting the ethical obligations that come with the growing implementation of technology in learning, the study then goes to the third chapter, which is primarily practical, we created a questionnaire for students and instructors that was intended to gather relevant information about their thoughts and experiences. Furthermore, we performed another questionnaire with university teachers to learn more about how ethical concerns develop in their integration of technology into education. Those research instruments were utilized for gathering data from the target participants. Following that, we will proceed with evaluation and interpretation of the collected information by the research tools.

3.2. Data Collection Tools

The two primary data collection tools: two distinct questionnaires, will serve as the foundation for the investigation. One has been given to students and teachers, and the other has been given to instructors.

3.2.1. Teacher and Student Questionnaire

Our research heavily relied on two separate questionnaires as our primary data collection methods. The objective of the initial study, which was administered to both teachers and students, was to determine their opinions on the ethical application of technology in the classroom. The second questionnaire was created exclusively for teachers and covered their ethical dilemmas, professional methods, and implementation of technology in the classroom with deeper analysis.

The questionnaires were both precisely designed in in alignment with the main concepts covered in the study's theoretical component. They were classified into categories that included demographic data and different ethical aspects of the use of technology in schools. To facilitate both quantitative and qualitative analysis, each questionnaire contained a range of questions kinds, such as open-ended, multiple-choice, and closed-ended questions.

3.2.1.1. Evaluation of Teachers and Students' Questionnaire

Section A: Personal Information

- Age

Age	Number	Percentage
Under 25	24	75 %
25-34	4	12,5%
35-44	4	12,5%
45-54	00	00%

55 or above	00	00%
Total	32	100%

Table 1: Participants Age

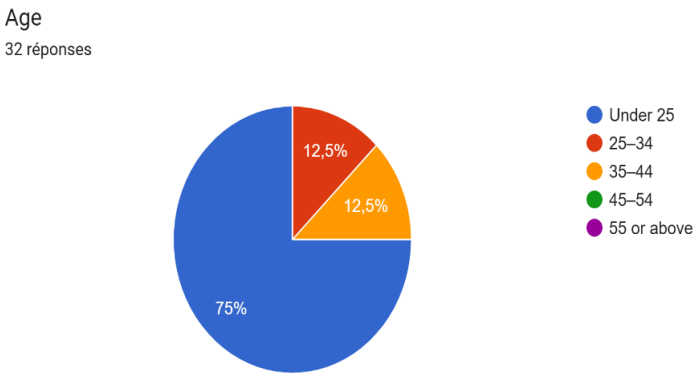

Figure 5: Participants Age

The findings from both the table and the diagram show that the participants included individuals of different ages. Those below 25 making up the largest portion, about 75%; the participants aged 25 to 34 account for 12,5%; the age group of 35 to 44 represents 12,5% of the total sample; meanwhile the sample did not include participants from the 45 to 54 and 55 or above groups since both groups had a response rate of 0%.

- Gender

Gender	Number	Percentage
Male	9	28,1%
Female	23	71,9%
Total	32	100%

Table 2: Participants' Gender

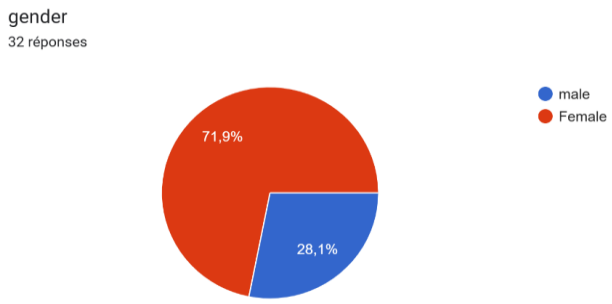

Figure 6: Participants' Gender

This analysis shows that there is a greater number of females (23) compared to males (9). In other words, only 28,1% of the sample is comprised of males, while 71,9% is comprised of females.

Question Three: What is your role in education?

Role	Number	Percentage
Student	27	84,4%
Teacher	5	15,6%
Administrator	00	00%
Total	32	100%

Table 3: Participants Role in Education

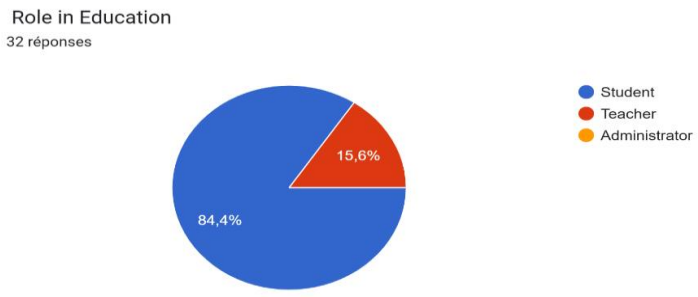

Figure 7: Participants Role in Education

The results regarding the participants' roles in education highlight that the majority were students, making up around 84. 4% (27 participants), 15.6% (5 participants) of the sample consisted of teachers. While none of the respondents were administrators (0%).

Question Four: What is your academic level?

Level	Number	Percentage
First year	3	9,4%
Second year	1	3,1%
Third year	4	12,5%
Master's level	23	71,9%
Doctorate	1	3,1%
Total	32	100%

Table 4: Participants Academic Level.

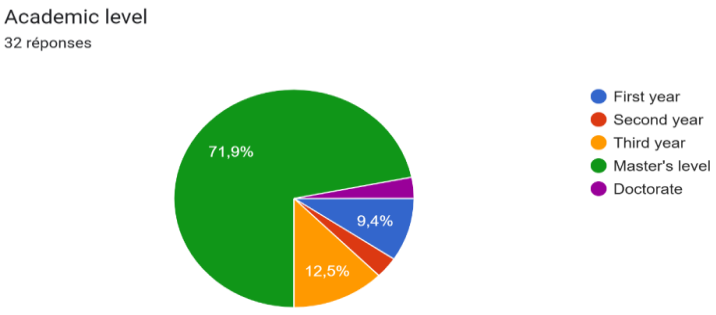

Figure 8: Participants Academic Level.

The outcomes of the participants' academic levels reveal that the majority of the study individuals were Master's students, corresponding to 71. 9% (23). First-year students made up 9.4% (3) while third-year students represent 12. 5% (4). Second-year and doctoral level

participants each only accounted for 3. 1% (1) of the total, making them the least represented groups.

Section B: General Attitudes towards Technology in Education.

Question One: How often do you use technology for educational purposes?

Frequency of Use	Number	Percentage
Daily	21	65,6%
Several times a week	7	21,9%
Occasionally	4	12,5%
Never	00	00%
Total	32	100%

Table 5: Participants' Frequency of Technology Use for Educational Purposes

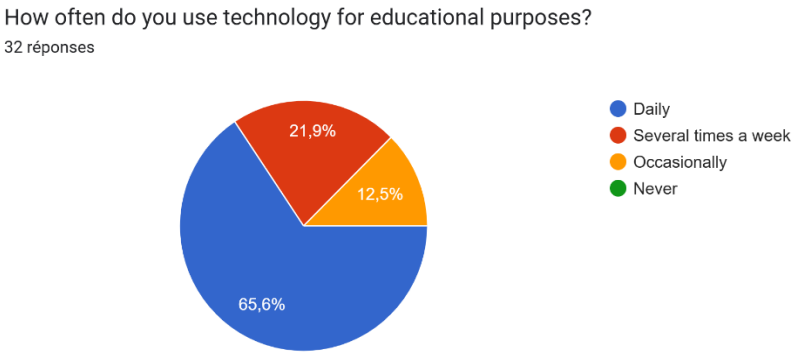

Figure 9: Participants' Frequency of Technology Use for Educational Purposes

The findings demonstrate that a large majority respondents, about 65. 6% (21), said they utilized technology every day. Furthermore, 12. 5% (4) of participants adopted technology on occasion, and 21. 9% (7) used it many times a week. Notably, none of the participants chose never.

Question Two: Do you think technology improves the quality of education?

Response Option	Number	Percentage
Strongly agree	14	43,8%
Agree	16	50%
Neutral	2	6,3%
Disagree	00	00%
Strongly disagree	00	00%
Total	32	100%

Table 6: Participants' Opinions on the Impact of Technology on Education Quality

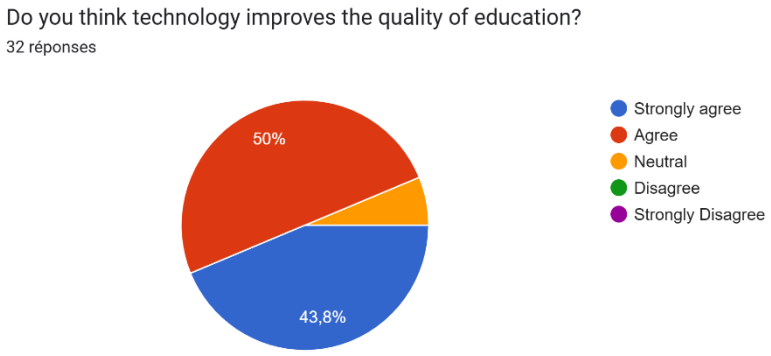

Figure 10: Participants' Opinions on the Impact of Technology on Education Quality

These findings point to the fact that the majority of our participants about 43,6% (14) strongly agree and 50% agree, believes that the integration of technology enhance educational quality, which make a combined total of 93% of respondents. Only 6,3% of participants selected a neutral statement.

Question Three: Which of the following technologies do you commonly use in an educational context?

Technology	Number	Percentage
Laptop	19	59,4%
Tablets	5	15,6%
Smartphones	26	81,3%
AI-based Tools	20	62,5%
Educational Apps	10	31,3%
Video Conferencing	5	15,6%
Total	32	100%

Table 7: Types of Technologies Commonly Used by Participants in an Educational Context

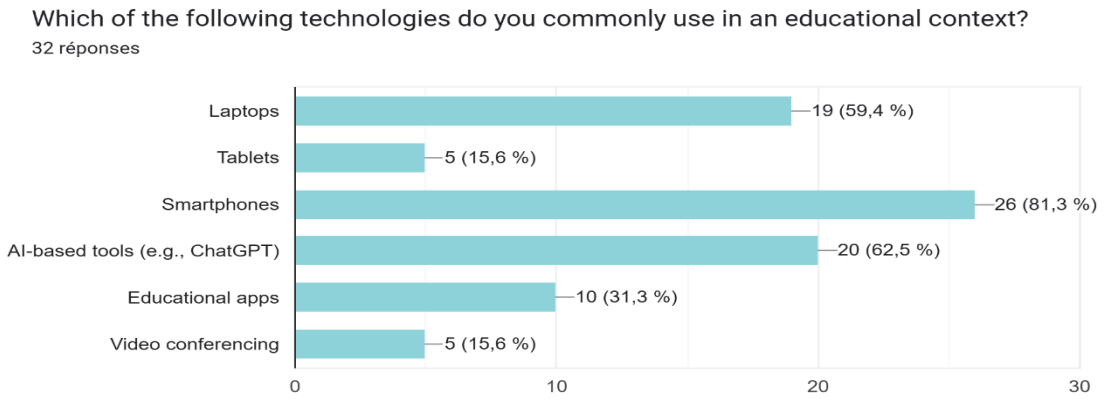

Figure 11: Types of Technologies Commonly Used by Participants in an Educational Context

The data suggests that participants in educational settings utilize smart phones about 81,3% and AI-based tools with 62,5% the most often. Laptop follow closely at 59,4%. In contrast,

the usage of educational applications 31.3%, tablets 15.6%, and video conferencing tools 15.6% is lower.

Section C: Ethical Concerns

Question One: Are you concerned about data privacy when using educational technologies?

Response	Number of Participants	Percentage
Yes	14	43,8%
No	5	15,6%
Not sure	13	40,6%
Total	32	100%

Table 8: Participants' Concerns About Data Privacy When Using Educational Technologies

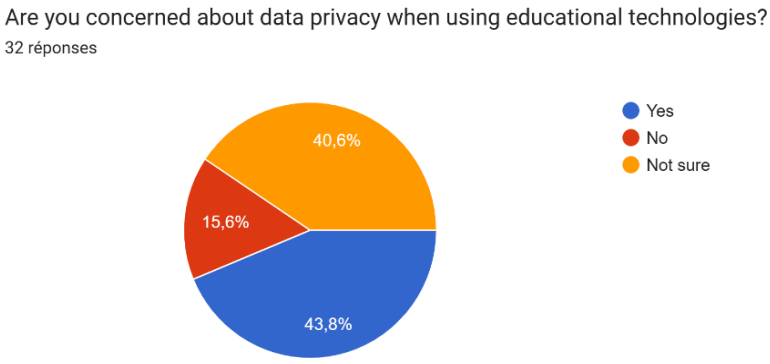

Figure 12: Participants' Concerns about Data Privacy When Using Educational Technologies

According to the findings, 43.8% of respondents were concerned about the privacy of their data when using educational technologies. In contrast, 40.6% of respondents expressed uncertainty, indicating a lack of awareness or comprehension relating to how their data is processed. Only 15.6% stated they had no concerns.

Question Two: Do you feel that students' personal data is adequately protected by schools/universities?

Response Option	Number	Percentage
Strongly agree	1	3,1%
Agree	11	34,4%
Neutral	13	40,6%
Disagree	7	21,9%
Strongly disagree	00	00%
Total	32	100%

Table 9: Participants' View on Data Protection Practices in Schools and Universities

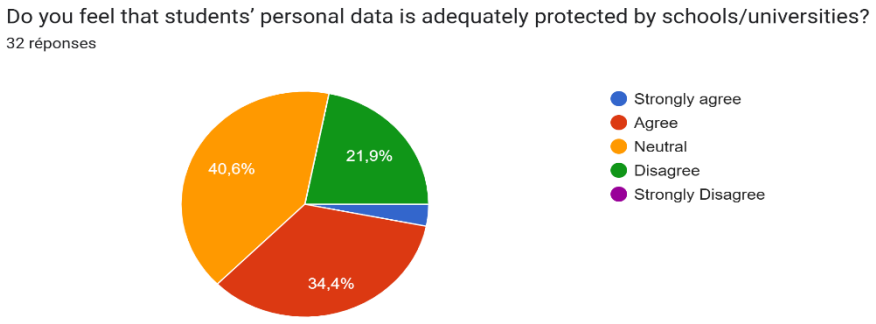

Figure 13: Participants' View on Data Protection Practices in Schools and Universities

The results indicate that, just 3. 1% of respondents strongly agree that schools or universities adequately protect students' personal information, but 34.4% agree. The majority of respondents about 40.6% were neutral, which shows their limited comprehension of the topic. Meanwhile, 21.9% of respondents disagreed, but no respondents expressed strong disagreement.

Question Three: Should students be informed about how their data is used by educational platforms?

Response	Number	Percentage
Yes	28	87,5%
No	3	9,4%
Not sure	1	3,1%
Total	32	100%

Table 10: Views on Students Awareness of Data Usage by Educational Technologies

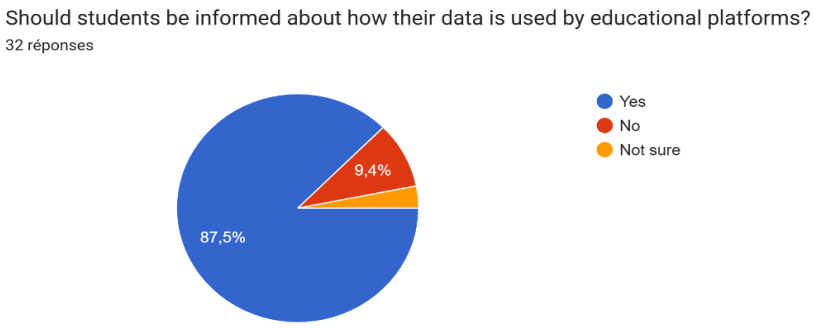

Figure 14: Views on Students Awareness of Data Usage by Educational Technologies

The purpose of this question is to assess participants' views on data transparency and students' rights to know how educational technologies handle their personal data. With 87% of respondents answering "Yes", only a tiny minority of people consider it unnecessary, as shown by the 9.4% "No" response. The 3.1% "Not sure" where selected by only one participant.

Question Four: Is it ethical for schools to track student performance using AI and analytics?

Response	Number	Percentage
Yes	5	15,6%
No	16	50%
It depends	11	34,4%
Total	32	100%

Table 11: participants' opinion on if it is ethical for schools to track student Performance using AI and analytics

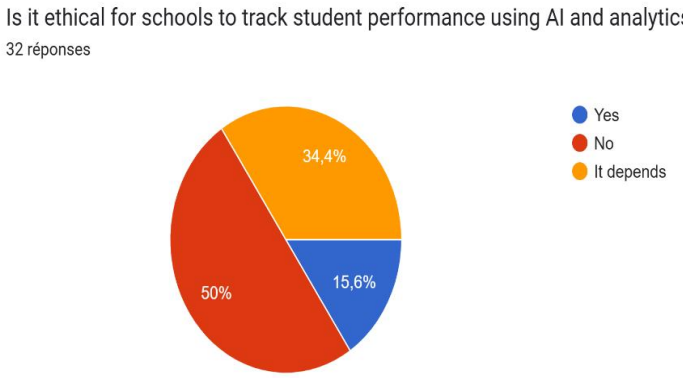

Figure 15: participants' opinion on if it is ethical for schools to track student performance using AI and analytics

The findings indicate that half of the respondents think it is unethical for schools to employ AI to monitor student achievement, while 34. 4% think it depending on how it is done. Only 15.6% of participants completely support it.

Question Three (part 2): If it depends, can you explain please?

The aim of this question is to examine participants' opinions on the ethical implications of employing AI to assess student performance, taking into account both its possible outcomes and ethical challenges. The 34.4% of respondents who said "It depends" highlighted that

although AI holds significant educational value, it also violates important ethical norms. Possible violations of learner privacy, the risk of algorithmic bias, lack of clarity regarding data management were among the main concerns. Others said that relying too heavily on AI was risky and that students should be guided by it rather than having it do their tasks for them. Moreover, numerous participants distinguished between moral and immoral use of AI by learners, stating that they believed that it was allowed for students to employ AI to guide them in acquiring knowledge and encourage innovation even if they still had to do some of the work themselves. One participant stated that, in his opinion the AI use is acceptable provided it is monitoring my academic performance.

Section D: Academic Integrity

Question One: Have you ever used AI tools (like ChatGPT) to complete academic work?

Response	Number	Percentage
Yes	29	90,6%
No	3	9,4%
Total	32	100%

Table 12: Participants' Use of AI in Academic Work

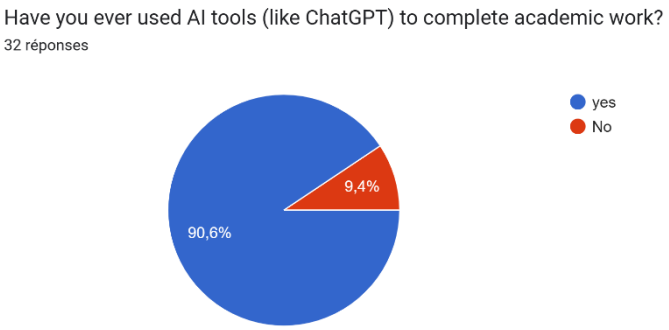

Figure 16: Participants' Use of AI in Academic Work

We designed this question to investigate the frequency of AI tools implementation among learners for academic purposes. The results illustrate that 90,6% of participants have used AI tools like chatGBT to accomplish their academic assignments; this indicates a remarkable integration of artificial intelligence tools in educational settings. While only 9,4% declared avoided using them.

Question Two: Do you think using AI to assist with assignments is a form of cheating?

Response	Number	Percentage
Yes	11	34,4%
No	5	15,6%
Depends on the context	16	50%
Total	32	100%

Table 13: Participants' Opinion on Whether the Use of AI is A Form of Cheating

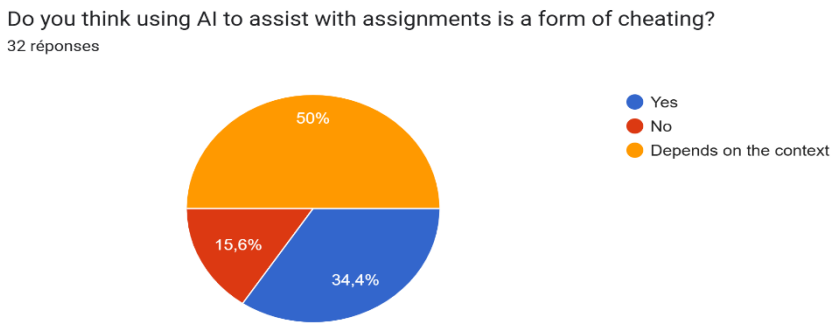

Figure 17: Participants' Opinion on Whether the Use of AI is A Form of Cheating

The question is created to reveal conflicting viewpoints on whether using AI is a form of cheating. 34.4% of individuals is convinced that using AI is considered unethical behavior. Only 15.6% of the sample feels that it is not a form of cheating. Significantly, the majority

(50%) respond that it “depends on the context”, that means they assess the ethicality of AI usage according to how and for what reasons it is utilized.

Question Three: How important do you consider the following ethical risks in the use of technology in education?

Ethical risks	Not important	Somewhat important	Important	Very important
Student data privacy breaches	0	8	12	12
Plagiarism and cheating	3	6	10	13
Digital inequality	6	6	11	9
Excessive screen time	4	13	9	6
Teacher surveillance of student	6	16	8	2

Table 14: The Importance of Ethical Risks in the Use of Technology in Education

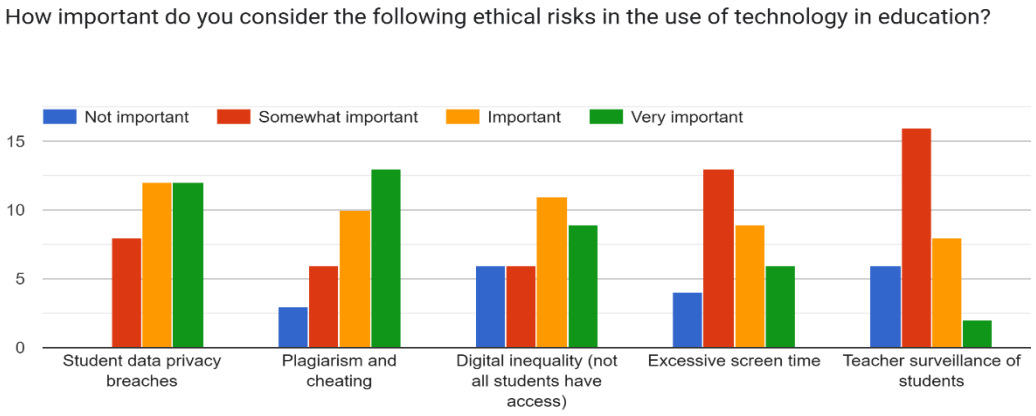

Figure 18: The Importance of Ethical Risks in the Use of Technology in Education

According to the data, participants prioritize all of the ethical threats in the educational technologies mentioned, to different levels. The most frequent “very important” rating were for student data privacy breaches, plagiarism and cheating, pointing out critical worries in these fields. Although excessive screen time was viewed somewhat less essential, digital inequality and teacher surveillance were also major concerns.

Question Four: Have you ever encountered ethical dilemmas while using technology for educational purposes?

Response	Number	Percentage
Yes	7	19,4%
No	25	80,6%
Total	32	100%

Table 15: Experiences with Ethical Dilemmas in Educational Technology Use

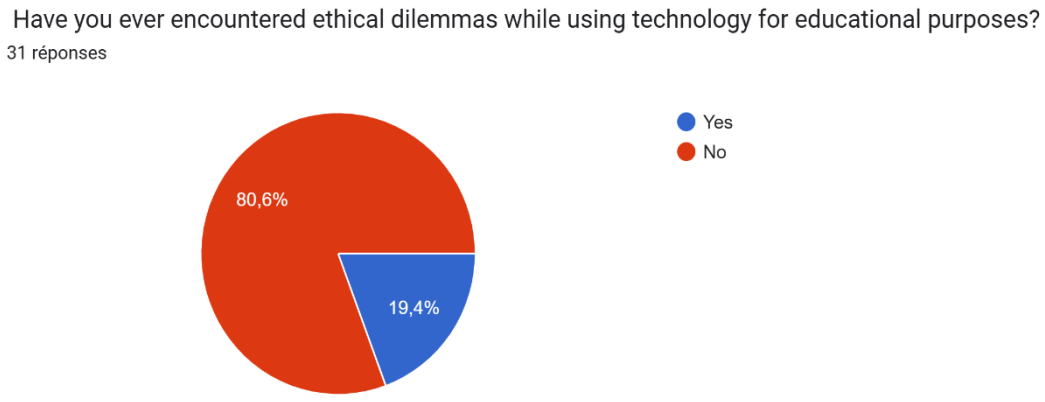

Figure 19: Experiences with Ethical Dilemmas in Educational Technology Use

This question seeks to investigate whether the participants have encounter situations where they had to face complex ethical decisions, while using technology in an educational setting. According to the findings, the vast majority of respondents 80.6% said they had never run into

ethical issues, when employing technology for academic reasons. Just 19.4% of participants said that they experienced these kinds of situations.

Question Four (part 2): If yes, could you please briefly explain?

Those who responded yes offered a helpful thought that emphasized important ethical problems. The loss of credibility in academic work, the unethical use of AI tools, the unequal access to technology, and the privacy of students were all common themes. During assignments, some participants had self-conflicts regarding the timing and method of using AI ethically. Nevertheless, some participants worried about the over-reliance on AI, which may hinder intellectual growth and Individual effort.

Question Five: What ethical guidelines should exist around using technology in education? (Open-ended)

This question is meant to assess the participants' understanding on the ethical use of digital tools and technologies in educational settings. The participants' exchange of their responses demonstrates their awareness regarding the moral issues in the context of technology in educational usage. The majority of respondents emphasized the protection of student records and confidentiality as the top priority, pointing out it is a significant moral issue. A large number of participants indicated academic integrity by acknowledging the need to employ artificial intelligence tools ethically, essentially as pedagogical tools rather than as a method for plagiarism. Another important topic was equal access to technology, with concepts that every learner, regardless of their origins, should have equal chance to access digital resources. To guarantee the proper use of technology, especially AI, and adapt its usage based on age and educational background, certain solutions called for strict regulations and teacher supervision. Moreover, the participants brought up topics like transparency, cultural awareness, preserving the authenticity of student work.

3.2.1.2. Discussion of Teachers and Students' Questionnaire Results

According to the data gathered from the questionnaire completed by teachers and students, the study reveals increased awareness among college teachers and students of the ethical considerations involved in using technology in educational environments.

Participants expressed the highest regard for significant ethical principles like students' privacy protection; this corresponds with concepts presented by various authors in the previous chapter like Sharma (2022) who stated that digital privacy involves keeping personal data and information safe within digital environments, which covers activities, messages, and financial operations on the internet. As well, we discussed digital privacy regulations and policies that play a crucial role in preserving personal data of both educators and students. The respondents also noted one of the basic ethical standards several times in our questionnaire which is equal access to technologies and digital tools, that we covered in the last chapter, according to what Vestberg (n.d.) expressed in his discourse that regardless of where you were born, or your current residence, everyone should have access to the digital services that are essential for full participation in 21st century society.

Our questionnaire indicates that numerous individuals are concerned about transparency, this outcome agrees with the belief of Ungerer and Slade (2022) who discussed the significance of transparency in student records, the need for approval, and the ability to strive for justice, and who transparency means regularly keeping everyone informed about which types of learner records is being gathered, why it is collected, the security measures in place, and who it is shared with.

The data generally supports the need for ethical principles to govern the future use of educational technology in schools, as it demonstrates that learners are analytical thinkers who are conscious of both the positives and negatives of it and not just consumers.

3.2.2. Teachers' Questionnaire

The second questionnaire is effectively designed to explore the ethical questions surrounding the usage of technology in education, viewed through the lens of the teachers. It seeks to gain a deeper understanding of how teachers view, react to, and tackle ethical dilemmas caused by digital technologies in their career lives. The issues cover fundamental topics like data privacy, equality of access, academic honesty, and the use of learning and AI technologies.

3.2.2.1. Analysis of Teachers' Questionnaire

Section A: Personal Information

Question One: What is your gender?

Gender	Number	Percentage
Male	4	66,7%
Female	8	33,3%
Total	12	100%

Table 16: Teachers' Gender

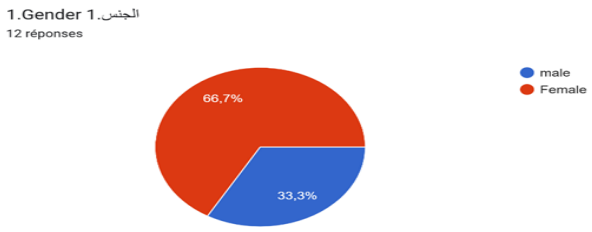

Figure 20: Teachers' Gender

According to the findings the female instructors represent a large portion about 66,6% and male instructors made up around 33,3%.

In other words, the number of female teachers is about 8, and male teachers about 4.

Question Two: How long have you been teaching?

Years	Number	Percentage
Less than 5 years	6	50%
5-10 years	2	16,7%
11-20 years	3	25%
More than 20 years	1	8,3%
Total	12	100%

Table 17: Instructors Years of Experience

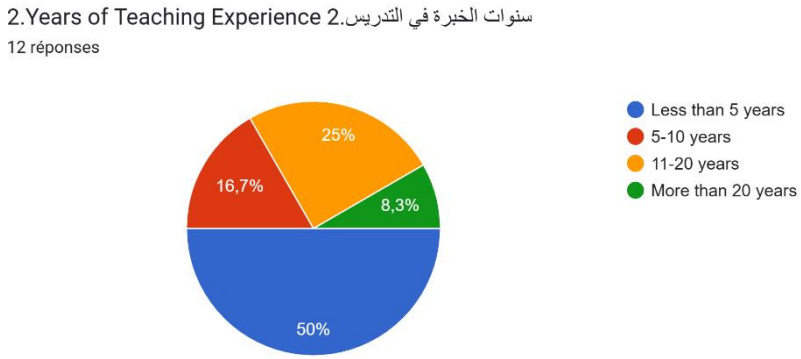

Figure 21: Instructors Years of Experience

This question is designed to identify the years of experience of the instructors at the university in teaching English and Frensh as a foreign language. The data gathered showed that 5 of teachers means half of the respondents have less than 5 years of experience in teaching. Furthermore, 16,7% of teachers have 5 to 10 years of experience in education, 25% of respondents about 3 said they have around 11 to 20 years' experience as an educator. Only one instructor said that more than 20 years was his teaching background.

Question Three: Have you participated in any formal training on digital ethics or data security in the educational context?

Response	Number	Percentage
Yes	5	41,7%
No	7	58,3%
Total	12	100%

Table 18: Teacher Participation in Digital Ethics and Data Security Training

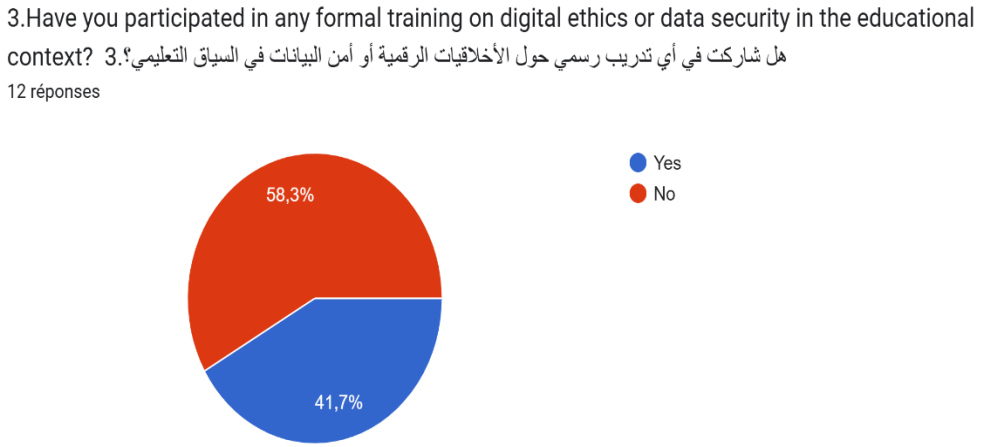

Figure 22: Teacher Participation in Digital Ethics and Data Security Training

This question seeks to find out if the instructors that have answered the questionnaire have participated in any formal training on digital ethics or data security in the educational context. The majority of teachers about 58,3% stated that they haven't participate in any official instruction on digital ethics or data protection in educational settings. Meanwhile, 41,7% of respondents answered by "Yes".

Section B: Attitudes toward Ethical Technology Practices

Question One: To what extent do you agree with the following statements?

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Technology improves the quality of education	6	5	1	0	0
Ethical issues are frequently neglected during the deployment of educational technologies.	2	6	3	1	0
My institution has clear policies on the ethical use of technology	1	4	1	6	0
I feel certain about handling ethical matters related to educational technology	1	6	1	4	0
Students are well-informed regarding their digital rights and responsibilities	1	3	3	3	2

Table 19: Teachers' Perceptions on the Ethical and Educational impact of Technology Use in Education

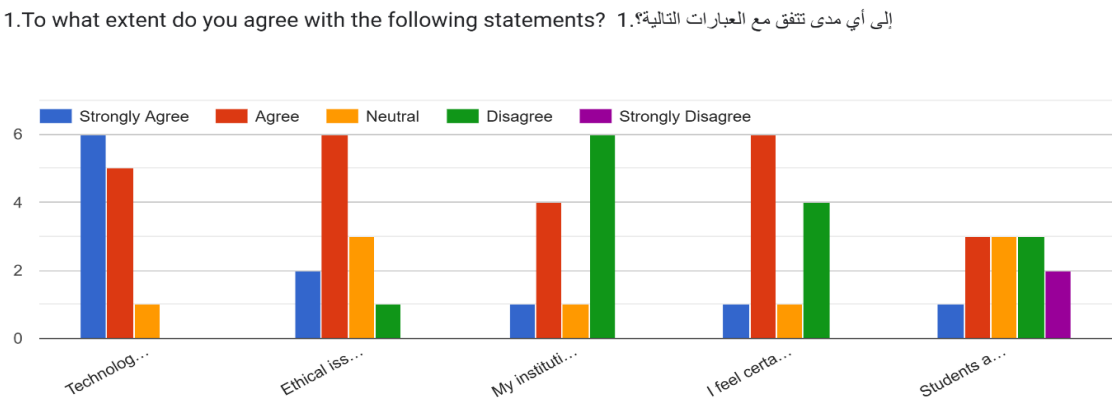

Figure 23: Teachers' Perceptions on the Ethical and Educational impact of Technology Use in Education.

The purpose of this question is to determine instructors' opinions and attitudes toward the moral and practical consequences of using technology in the classroom. The most frequent "Strongly Agree" rating were for technology improves the quality of education, our respondents choose "Agree" the most in ethical issues are frequently neglected during the deployment of educational technologies, and I feel certain about handling ethical matters related to educational technology. On the other hand, many instructors pick the answer "Disagree" for my institution has clear policies on the ethical use of technology.

Section C: Practices and Challenges

Question One: Which of the following ethical concerns do you encounter in your teaching? (Select all that apply)

Ethical concerns	Number	Percentage
Student data privacy	3	25%
Plagiarism or AI-generated cheating	8	66,7%
Digital inequality (lack of access)	5	41,7%
Algorithmic bias or unfair treatment	2	16,7%
Surveillance or misuse of tracking tools	1	8,3%
None	1	8,3%
other	1	8,3%
Total	12	100%

Table 20: Ethical Concerns Encountered in Teaching.

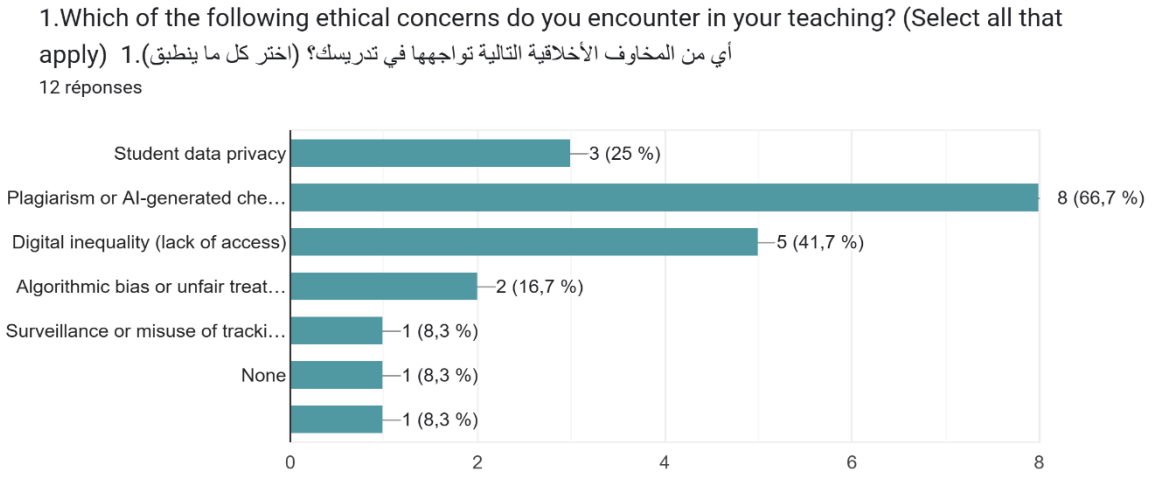

Figure 24: Ethical Concerns Encountered in Teaching

This question intends to identify the specific ethical obstacles that teachers regularly experience when employing technology in the classroom. The data reveals the most often experienced moral dilemmas is "Plagiarism or AI-generated cheating" among teachers, reported by 66,7% of the participants. 41,7% of instructors said that "Digital inequality (lack of access)" is one of their main concerns while using technology in their teaching, so are the "Algorithmic bias or unfair treatment" and many other challenges.

Question Two: Do you believe students should be explicitly taught about ethical technology use?

Response	Number	Percentage
Yes	12	100%
No	0	00%
Not sure	0	00%
Total	12	100%

Table 21: Teaching Students Ethical Technology Use

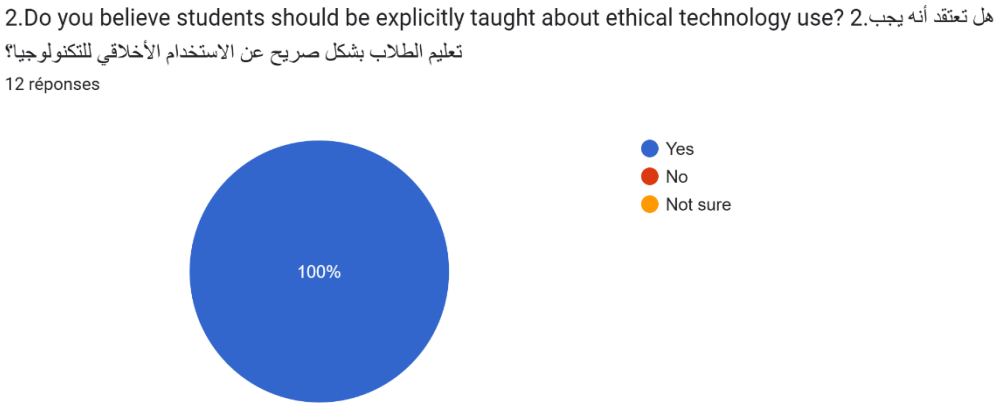

Figure 24: Teaching Students Ethical Technology Use

The data indicated that all respondents (100%) agreed that students should be explicitly taught about the ethical use of technology. This shows that all instructors see digital ethics as an important part of education.

Question Three: How do you ensure ethical use of technology in your own teaching? (Open-ended)

The aim of this question is to understand how teachers apply ethical principles when using technology in their teaching. The answers to this question show that instructors use a variety of strategies to ensure the ethical use of technology in their in their pedagogy. Teachers employ three main approaches to ensure privacy and data protection for learners and teach them digital citizenship while demonstrating proper online behavior. Most of the teachers said that they use AI monitoring, where students can use AI for inspiration purposes but prohibit them from using AI to do complete assignments to maintain academic integrity. Some educators engage parents at the time of selecting ethical platforms and work towards ensuring equal access to technology for all learners. The responses confirm that teachers are aware of ethics and they certainly aim to address ethics problems at universities.

Section D: Policy and Training

Question One: Does your institution have clear policies on the ethical use of technology?

Response	Number	Percentage
Yes	2	16,4%
No	5	41,7%
Not sure	5	41,7%
Total	12	100%

Table 22: Teachers' institution clear policies on the ethical use of technology

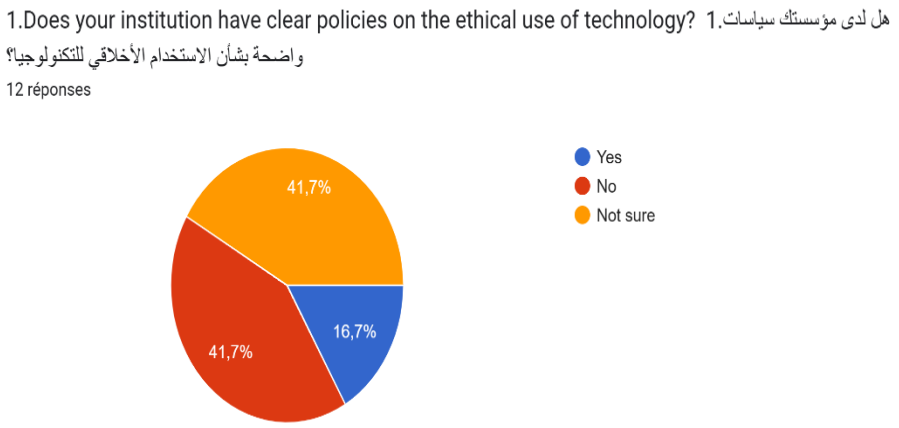

Figure 25: Teachers' institution clear policies on the ethical use of technology

This question seeks to assess teachers' awareness of whether their institution has implemented explicit guidelines concerning the ethical use of technology. The results indicate that only 16,4% validated the presence of explicit ethical technology policies in their institution. In the meantime, 41.7% stated that there are no such policies, with another 41.7% unsure of their existence.

Question Two: What kind of support or training would you recommend for teachers to deal with ethical technology challenges?

This question intended to gather educators' recommendations on the types of support of training they consider essential for tackling ethical issues connected to technology integration in educational settings. Several participants suggested workshops, training courses, and awareness initiatives addressing subjects like data privacy, ethical AI use, plagiarism identification, and cyber security. Others instructors highlighted the significance of case studies, collaborative efforts among peers, and ongoing education. Several participants noted the necessity for useful tools, such as plagiarism detection software, and more explicit ethical guidelines.

Section E: Final Thoughts

Question One: In your opinion, what are the most urgent ethical risks related to educational technologies today?

The purpose of this question is to investigate educators' viewpoints on the most significant ethical threats connected to the current educational technology. The study results show that teachers are deeply worried about major ethical risks that occur in educational technology. The most frequently mentioned problems in digital learning involve plagiarism and cheating through AI tools as well as data privacy breaches and digital divide because some students do not have the same opportunities for technology and internet access. Some instructors discussed how algorithmic bias and excessive automation reliance can cause the loss of human elements in education.

Question Two: Do you have any further remarks or recommendations for enhancing of ethical technology practices in education?

This question is designed to collect additional suggestions or ideas from teachers on how to improve ethical technology practices in education. The responses all share a general sense

of necessity for clear ethical guidelines, provision of training, and equal access to digital tools. The majority of the respondents promoted awareness among educators, learners, and parents regarding ethical technology use. The suggestions that were given in the questionnaire included the formulation of strong policies, integration of ethics in curricula, and balance of use of digital tools and traditional methods of education. A few of educators also stressed the importance of collaboration between policymakers and teachers.

3.2.2.2. Discussion of the Teacher's Questionnaire Results

As per the findings obtained from the questionnaire submitted by teachers, the data reveals that teachers are highly aware of the ethical issues of technology use in education. The majority of respondents were highly concerned with issues on plagiarism, this matches the concepts proposed by different writers in the chapter before this one like Eret and Gokmenoglu (2010), who stated that plagiarism is defined in The Compact Oxford English Dictionary (2009) as " the act of imitating another person's thoughts, phrases, or work and passing them off as your own." Plagiarism is described in the literature as "academic dishonesty" (Wilhoit, 1994), and also as a "kind of intellectual piracy" (Ashworth, Bannister, & Thorne, 1997), and so are many authors like Ercegovac and Richardson (2004). Our participants also highlighted the data privacy as their main concerns in the educational settings; it was also discussed in the previous chapter. The digital divide was also identified as a common challenge that many instructors encounter in their daily teaching practices, this finding is consistent with the views of the authors presented in the second chapter, who stated that the term "digital divide" refers to the gap in access to digital services between nations, areas, and individuals (Fuchs & Horak, 2008; Van Dijk, 2020; Potter et al., 2008; Mubarak, 2015; Bon, 2020). As noted by Smith and Doe (Eds.) (2023), The Digital Divide indicates the perceived gap between individuals who can take advantage from modern information

technologies, and those who are excluded from these benefits. In the context of the information Age, Lack of access to this knowledge is a social and economic drawback.

A large number of instructors also specified the lack of institutional policy, with 83.4% not knowing or specifying a lack of any ethical guidelines in their institutions. Educators recognized a wide variety of ways of promoting ethical practice, including role-modeling desired behavior, protecting student data, and preventing inappropriate use of AI. The implications suggest that enhancing ethical technology practices in education is a shared responsibility among policymakers, institutions, educators, and students.

3.3 Conclusion

Chapter three is considered the most crucial part of the research, presenting the conclusive study derived from the questionnaires. These questionnaires were administered to students, teachers, and university professors. Furthermore, chapter three provides analysis and discussion based on open-ended and closed-ended questions presented to the participants. Through the first questionnaire, we observed the level of awareness and understanding related to the use of technology among both college teachers and students. The other questionnaire for university professors aimed to examine the ethical dilemmas faced by professors in teaching, to understand the professors´ participation in any training related to data security and digital ethics. The chapter also covers the intensive education and clear policies provided by university professors regarding the proper use of educational technology. Finally, it includes the recommendations and suggestions made by university professors within the framework of technological use in light of ethical challenges.

General Conclusion

It could generally be deduced that technology plays a significant role in our society as a whole and a particularly important role in education. It makes learning more interactive and collaborative than before, especially with subjects that are complex or difficult to understand, it serves as a means to save time, money, and effort in obtaining information more easily and quickly. Moreover, it has enhanced connection and communication among all individuals, and around the world. However, this integration is a double-edged sword, facing several challenges, including unethical use that violates laws and ethical principles, which in turn reduces innovation, productivity, and high-quality education. Ethical theories such as deontology, utilitarianism, and virtue ethics are crucial considerations. Deontology emphasizes the rules and principles governing technological use, while utilitarianism focuses on the beneficial aspects for the greatest number of users. Virtue ethics, on the other hand, emphasizes responsible behavior characterized by each individual for positive interactions. From a practical standpoint, deontology focuses on implementing data protection regulations and clear policies for the responsible use of digital tools. Utilitarianism concentrates on achieving outcomes that maximize well-being for the largest number of people while minimizing harm. Virtue ethics promotes ethical interactions among users online, encouraging responsible digital citizenship. Despite the availability of theoretical frameworks, decision-making models, and policymakers, we have addressed issues related to data security, algorithmic bias, and equitable access, which, in turn, have hindered the ethical use of technology for stakeholders. Therefore, it is essential to adopt an approach that benefits the majority of users, particularly students, by creating unbiased, high quality educational environments. Teachers and technology developers bear the responsibility of ensuring fairness, equity, inclusivity, and accessibility for all, while upholding integrity and transparency. On a practical level, questionnaires have assisted us in gathering valuable

information from students, teachers, and university professors. Utilizing a descriptive approach, we aimed to ascertain the outcomes derived from this technological application, assessing knowledge, experience, experiments, and awareness related to technology use within the educational environment for both students and teachers. Regarding the professors, we have deduced the ethical dilemmas they encounter in teaching, the policies designed to mitigate misuse, and the results of intensive training provided to them. Based on these findings, their proposed suggestions and recommendations have been analyzed. In a nutshell, based on the aforementioned studies, it could be asserted that the integration of technology in the educational environment is dualistic in nature. On one hand, it is effective and crucial, providing limitless opportunities for innovation, productivity, and development. On the other hand, it lacks certain elements that require careful consideration to prevent the benefits from being undermined by challenges, deficiencies, and unintended ethical consequences stemming from misuse.

List of References

Allen-Brown, V., & Nichols, R. G. (2004). Critical theory and educational technology. Handbook of research on educational communications and technology, 2004, 1-2

Amadi, C. C., & Okonkwo, C. O. (2023). William David Ross on Prima Facie Duties: Implications for Business Ethics in Nigeria. SAPIENTIA, 19, 84.

Anderson, M., & Perrin, A. (2018). Nearly one-in-five teens can't always finish their homework because of the digital divide. Pew Research Center, 26, 2018

Ardashkin, I., & Martyushev, N. (Eds.). (2016). RPTSS 2015 – International Conference on Research Paradigms Transformation in Social Sciences 2015, Tomsk, Russia, December 15-17, 2015. SHS Web of Conferences, 28.

Aristotle. (2014). Nicomachean Ethics (R. Crisp, Trans.). Cambridge University Press. (Original work published ca. 350 BCE)

Bay, M. (2021). Four challenges to Confucian virtue ethics in technology. Journal of Information, Communication and Ethics in Society, 19(3), 358-373.

Bhattacharjee, B., & Deb, K. (2016). Role of ICT in 21st century's teacher education. International Journal of Education and Information Studies, 6(1), 1–6.

Bon, A., Saa-Dittoh, F., Akkermans, H. (2024). Bridging the Digital Divide. In: Werthner, H., et al. Introduction to Digital Humanism. Springer, Cham.

Christensen, K. E. (1986). Ethics of information technology in the educational system. ACM SIGCUE Outlook, 18(2-4), 60-74.

Cox, J. (2019, November 18). How to balance screen time in the classroom. TeachHUB.

Dennis, M., & Harrison, T. (2021). Unique ethical challenges for the 21st century: Online technology and virtue education. Journal of Moral Education, 50(3), 251-266.

Dewaele, H. (2020). Is the GDPR's data protection by default rule an ethical nudge? Interdisciplinary Study of Law 2020.

Dorrestijn, S., & Verbeek, P. P. (2013). Technology, wellbeing, and freedom: The legacy of utopian design. International journal of design, 7(3), 45-56.

Eret, E., & Gokmenoglu, T. (2010). Plagiarism in higher education: A case study with prospective academicians. Procedia - Social and Behavioral Sciences, 2(2), 3303–3307.

Filipenco, D. (2024, October 4). Internet access and digital divide: Global statistics. DevelopmentAid. Fishman, T. (2014). The fundamental values of academic integrity (2nd ed.). International Center for Academic Integrity.

GoGuardian Team. (2023, July 11). What it means to have equitable access to technology for today's students & educators. GoGuardian.

Güney, Z. (2019). Professional ethics in performance and educational technology. Educational Policy Analysis and Strategic Research, 14(4), 191–205.

Haile, T. M., & Mekonnen, E. A. (2024). Impacts of stakeholder engagement on curriculum implementation in Ethiopian Defense University. Pedagogical Research, 9(2), em0201.

Harris, A. L., Lang, M., Yates, D., & Kruck, S. E. (2011). Incorporating ethics and social responsibility in IS education. Journal of Information Systems Education, 22(3), 183-190.

Johnson, C. E. (2006). Ethical decision making and action (Chapter 3). In Meeting the ethical challenges of leadership: Casting light or shadow (pp. 59–86). SAGE Publications.

Jones, T. M. (1991). Ethical Decision Making by Individuals in Organizations: An Issue-Contingent Model. The Academy of Management Review, 16(2), 366–395.

Jonker, A., & Rogers, J. (2024, September 20). What is algorithmic bias? IBM.

Kim, Y. (2008). Academic integrity is a way to change the world. Change the university first; then change the world. ICAI Conference.

Kumpulainen, K. (2007). Educational technology: Opportunities and challenges. University of Oulu.

Maclean, R. (2003). Equality of opportunity in education. In J. P. Keeves & R. Watanabe (Eds.), International handbook of educational research in the Asia-Pacific region (Vol. 11, pp. 143–157). Springer.

Mishra, A. (2023). Educational Technology Ethics. University of California, Santa Cruz.

Muppalla, S. K., Vuppalapati, S., Reddy Pulliahgaru, A., & Sreenivasulu, H. (2023). Effects of excessive screen time on child development: An updated review and strategies for management. Cureus, 15(6), e40608.

Myyry, L. (2003). Components of morality: A professional ethics perspective on moral motivation, moral sensitivity, moral reasoning and related constructs among university students [Unpublished doctoral dissertation]. University of Helsinki.

National Student Support Accelerator. (n.d.). Student Data Privacy Guidance. OUZZIR, Y. & KECIR, A. (2024). Continuous Assessment and Constructive Feedback for Improving English Language Writing Skill. IBN KHALDOUN UNIVERSITY OF TIARET. 19

Park,T. Collins,S. and Vance, A. (2019). The Policymaker's Guide to Student Data Privacy.

Pogukaeva, N. V., Pancova, N., & Syryamkina, E. V. (2016). Innovation strategies for education: liberal and utilitarian educational tendencies in the higher education system.

Pringle,B.(2021). Closing the Opportunity Gap: Bridging the Digital Divide in the US Schools. Open Journal of Social Sciences, 13(2), 85-100.

Roberts, T. S. (Ed.). (2008). Student plagiarism in an online world: Problems and solutions. Information Science Reference.

Schweigert, F. J. (2016). Moral formation in four essential components: Sensitivity, judgment, motivation, and character. In D. Cates (Ed.), Philosophical foundations for moral education and character development: Act and agent (pp. 169–183). Springer.

Sharma, A. (2024). Teaching Digital Privacy: Navigating the Intersection of Technology, Education, and Privacy. 2022. 154-161.

Smith, J. A. (2011). Innovative strategies in multidisciplinary research. Journal of Multidisciplinary Research, 3(3), 86–95.

Smith, J., & Doe, A. (Eds.). (2023). The digital divide: Facing a crisis or creating a new opportunity? MIT Press.

Smith, N., & Vickers, D. (2024). Living well with AI: Virtue, education, and artificial intelligence. Theory and Research in Education, 22(1), 19-44.

Steutel, J., & Carr, D. (2005). Virtue ethics and the virtue approach to moral education. In Virtue ethics and moral education (pp. 3-18).

Tinmaz, H., Lee, YT., Fanea-Ivanovici, M. et al. A systematic review on digital literacy. Smart Learn. Environ. 9, 21 (2022).

Touati, S., & Benasla, F. Z. (2021). Investigating gender gap in ICT uptake in Algerian university: Case study of master students at Ibn Khaldoun University Tiaret (Master's dissertation). University of Ibn Khaldoun, Tiaret.

U.S. Department of Education. (n.d.). Family Educational Rights and Privacy Act (FERPA).

United Nations. (1948). Universal Declaration of Human Rights. (Article 26).

Watermark Insights. (n.d.). The importance of data transparency for higher ed success. Watermark. Retrieved mars 12, 2025, from

Wellstone, P. (n.d.). If a teacher does not involve himself, his values, his commitments, in the course of discussion, why should the students?

Werthner,H. Gheezi, C. Kramer, j. Nidia-rumelin, J. Nuseibeh, B. (2023). introduction to Digital Humanism. Springer.

Žydžiūnaitė, V. (2024). Educational ethical leadership: Characteristics and styles. In S. E. Eaton (Ed.), Second handbook of academic integrity (pp. 1259–1311). Springer.

Appendices

Appendix 01

Teacher's Questionnaire

Dear teachers,

The purpose of this questionnaire is to gather data for a dissertation on " The Ethical Use of Technology in Education " Your answers will be kept private and confidential.

I appreciate your constructive contributions.

Section A: Personal Information

1. Gender

1.الجنس

a) Male ☐

b) Female ☐

2. Years of Teaching Experience

2.سنوات الخبرة في التدريس

a) Less than 5 years ☐

b) 5-10 years ☐

c) 11-20 years ☐

d) More than 20 years ☐

3. Have you participated in any formal training on digital ethics or data security in the educational context?

3.هل شاركت في أي تدريب رسمي حول الأخلاقيات الرقمية أو أمن البيانات في السياق التعليمي؟

a) Yes ☐

b) No ☐

Section B: Attitudes towards Ethical Technology Practices

1. To what extent do you agree with the following statements?

1.إلى أي مدى تتفق مع العبارات التالية؟ (Strongly Agree / Agree / Neutral / Disagree / Strongly Disagree)

a) Technology improves the quality of education

b) Ethical issues are frequently neglected during the deployment of educational technologies.

c) My institution has clear policies on the ethical use of technology

d) I am confident in addressing ethical issues related to educational technology

e) Students are adequately informed about their digital rights and responsibilities

Section C: Practices and Challenges

1. Which of the following ethical concerns do you encounter in your teaching? (Select all that apply)

1.أي من المخاوف الأخلاقية التالية تواجهها في تدريسك؟ (اختر كل ما ينطبق)

a) Student data privacy ☐

b) Plagiarism or AI-generated cheating ☐

c) Digital inequality (lack of access) ☐

d) Surveillance or misuse of tracking tools ☐

e) Algorithmic bias or unfair treatment ☐

f) None ☐

a. Other: ……

2. Do you believe students should be explicitly taught about ethical technology use?

2.هل تعتقد أنه يجب تعليم الطلاب بشكل صريح عن الاستخدام الأخلاقي للتكنولوجيا؟

a) - Yes ☐

b) - No ☐

c) - Not sure ☐

3. How do you ensure ethical use of technology in your own teaching? (Open-ended)

3.كيف تضمن الاستخدام الأخلاقي للتكنولوجيا في التدريس الخاص بك؟ (مفتوح)

……

Section D: Policy and Training

1.Does your institution have clear policies on the ethical use of technology?

1.هل لدى مؤسستك سياسات واضحة بشأن الاستخدام الأخلاقي للتكنولوجيا؟

a) - Yes ☐

b) - No ☐

c) - Not sure ☐

2. What kind of support or training would you recommend for teachers to deal with ethical technology challenges?

2.ما نوع الدعم أو التدريب الذي توصي به للمعلمين للتعامل مع تحديات التكنولوجيا الأخلاقية؟

……

Section E: Final Thoughts

1.In your opinion, what are the most urgent ethical risks related to educational technology today?

1.برأيك، ما هي المخاطر الأخلاقية الأكثر إلحاحاً المتعلقة بتكنولوجيا التعليم اليوم؟

……..

2.Do you have any further remarks or recommendations for enhancing of ethical technology practices in education?

2.هل لديك أي ملاحظات أو توصيات أخرى لتعزيز ممارسات التكنولوجيا الأخلاقية في التعليم؟

……..

Appendix 02

Student's Questionnaire

Dear Participant,

The purpose of this questionnaire is to collect data for a dissertation on "The Ethical Use of Technology in Education". Your answers will be kept private. Thank you for your valuable input**.**

Section A: Personal Information

1. Age:

1. Under 25 ☐
2. 25–34 ☐
3. 35–44 ☐
4. 45–54 ☐
5. 55 or above ☐

2. Gender

a) Male ☐

b) Female ☐

3. Role in education:

1. Student ☐
2. Teacher ☐
3. Administrator ☐

4. Level of education:

1. First year ☐
2. Second year ☐

3. Third year ☐
4. Master's level ☐
5. Doctorate ☐

Section B: General Attitudes towards Technology in Education

1. How often do you use technology for educational purposes?

1. Daily ☐
2. Several times a week ☐
3. Occasionally ☐
4. Never ☐

2. Do you think technology improves the quality of education?

1. Strongly agree ☐
2. Agree ☐
3. Neutral ☐
4. Disagree ☐
5. Strongly disagree ☐

3. Which of the following technologies do you commonly use in an educational context?

1. Laptops ☐
2. Tablets ☐
3. Smartphones ☐
4. AI-based tools (e.g., ChatGPT) ☐
5. Educational apps ☐
6. Video conferencing ☐

Section C: Ethical Concerns

1. Are you concerned about data privacy when using educational technologies?

1. Yes ☐
2. No ☐
3. Not sure ☐

2. Do you feel that students' personal data is adequately protected by schools/universities?

1. Strongly agree ☐
2. Agree ☐
3. Neutral ☐
4. Disagree ☐
5. Strongly disagree ☐

3. Should students be informed about how their data is used by educational platforms?

1. Yes ☐
2. No ☐
3. Not sure ☐

4. Is it ethical for schools to track student performance using AI and analytics?

1. Yes ☐
2. No ☐
3. It depends ☐

4.1. If it depends, can you explain please:

……
…….

Section D: Academic Integrity

1. Have you ever used AI tools (like ChatGPT) to complete academic work?
   1. Yes ☐
   2. No ☐

2. Do you think using AI to assist with assignments is a form of cheating?
   1. Yes ☐
   2. No ☐

3. It depends on the context ☐

3. How important do you consider the following ethical risks in the use of technology in education? (Not important, somewhat important, Important, very important)

1. Student data privacy breaches ☐
2. Plagiarism and cheating ☐
3. Digital inequality (not all students have access) ☐
4. Excessive screen time ☐
5. Teacher surveillance of students ☐

4. Have you ever encountered ethical dilemmas while using technology for educational purposes?

1. Yes ☐
2. No ☐

4.1. If yes, could you please briefly explain?

……..

5. What ethical guidelines should exist around using technology in education? (Open-ended)

……..

Summary

The conclusion highlights the dual nature of technology integration in education. On one hand, it is enhancing the learning experience by making it more interactive, collaborative, and accessible. It supports innovation, productivity, and facilitates access to information quickly and efficiently. Moreover, it strengthens communication and connection, making education more inclusive and dynamic. On the other hand, this integration is a double-edged sword. It presents several drawbacks and challenges. These include deficiencies, ethical concerns, and misuse. Unethical practices that may violate laws and ethical principles can undermine its benefits, reducing innovation, productivity, and the overall quality of education. Therefore, while technology offers great potential, it should be implemented carefully and ethically to make sure its advantages are fully achieved and maintained over time.

Key words: integration, technology, education, ethical concerns, ethical principles

الملخص

يسلط الاستنتاج الضوء على الطبيعة المزدوجة لدمج التكنولوجيا في التعليم. فمن ناحية، هو تعزيز تجربة التعلم من خلال جعلها أكثر تفاعلية وتعاونية وسهولة الوصول إليها. ومن ناحية أخرى، يدعم الابتكار والإنتاجية ويسهل الوصول إلى المعلومات بسرعة وكفاءة. كما أنه يعزز التواصل والاتصال، مما يجعل التعليم أكثر شمولية وديناميكية. ومع ذلك، فإن هذا التكامل سلاح ذو حدين. فهو يطرح العديد من العيوب والتحديات. وتشمل أوجه القصور، والمخاوف الأخلاقية، وسوء الاستخدام. ويمكن أن تؤدي الممارسات غير الأخلاقية التي قد تنتهك القوانين والمبادئ الأخلاقية إلى تقويض فوائده، مما يقلل من الابتكار والإنتاجية والجودة الشاملة للتعليم. لذلك، في حين أن التكنولوجيا توفر إمكانات كبيرة، إلا أنه ينبغي تطبيقها بعناية وبشكل أخلاقي للتأكد من تحقيق مزاياها بالكامل والحفاظ عليها مع مرور الوقت.

الكلمات المفتاحية : دمج , التكنولوجيا, التعليم, المخاوف الأخلاقية, المبادئ الأخلاقية

Résumé

La conclusion met en évidence la double nature de l'intégration de la technologie dans l'éducation. D'une part, elle améliore l'expérience d'apprentissage en la rendant plus interactive, collaborative et accessible. Elle soutient l'innovation et la productivité et facilite l'accès à l'information de manière rapide et efficace. D'autre part, elle renforce la communication et la connexion, rendant l'éducation plus inclusive et dynamique. Néanmoins, cette intégration est une arme à double tranchant. Elle présente plusieurs inconvénients et défis. Il s'agit notamment de lacunes, de problèmes éthiques et d'utilisations abusives. Des pratiques contraires à l'éthique, susceptibles de violer les lois et les principes éthiques, peuvent saper ses avantages, en réduisant l'innovation, la productivité et la qualité globale de l'éducation. Par conséquent, si la technologie offre un grand potentiel, elle doit être mise en œuvre avec prudence et dans le respect de l'éthique afin de s'assurer que ses avantages sont pleinement exploités et maintenus au fil du temps.

M**ots clés :** l'intégration, la technologie, l'éducation, problèmes éthiques, les principes éthiques

Key words: integration, technology, education, ethical concerns, ethical principles