CONFERENCE PROCEEDINGS
Digital Information Literacy in Higher Education

Mohammed First University
Faculty of Letters and Human Sciences, Oujda, Morocco 2021

Research Ethics in Higher Education:
Moroccan Doctoral Students as Case Study

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Abstract

This paper set out to examine the knowledge levels, attitudes, and practices of Moroccan doctoral students regarding research and publication ethics. It adds to the body of knowledge on research ethics in the humanities and social sciences and stimulates reflection and discussion on research integrity and research misconduct from students' perspectives. The study utilized a cross-sectional design survey aimed at investigating postgraduate students' understandings and practices of ethical decision-making while conducting research. The findings confirmed the hypothesis that ethical research training and institutional review boards have a significant positive influence on doctoral students' ethical decision making. The obtained findings establish a foundation for a more extensive discussion of academic integrity in Moroccan higher education institutions.

Key words: Research Ethics, Research Misconduct, Ethics Education, Doctoral Students, Ethical Decision-making.

1. Introduction

1.1. Background of the Study

Research is a cornerstone of the modern knowledge-based society. It is defined as the quest for knowledge obtained through systematic investigation, observation, reflection, and experimentation (Horner,2003). While different disciplines may apply different approaches,

they converge on a shared conceptualization of advancing understanding of the world (ECCRI, 2017). Methods of data collection and analysis have become more sophisticated over the past several decades. The scope of research has greatly expanded and evolved as is evident by the wide range of disciplines and topics being addressed.

Academic research is a complex process in which a number of stakeholders are involved. These include the researcher, the study participants, the university community, the supervisor (s), and the potential readers. This type of research is undertaken by students as part of their academic training requirements. The final product of academic research is typically submitted in the form of a thesis or dissertation. Generally, the thesis is issued as proof of the student's ability to conduct independent research under the guidance of a supervisor. As such, engaging in research can instill in researchers the quest for evidence-based knowledge and practice (Mustajoki & Mustajoki, 2017).

Research-based activity raises ethical issues which vary in degree across research areas and disciplines. Research ethics emerged against the backdrop of malpractice, research misconduct, and unethical research practices. The term ethics has its roots in the Greek "word ethos," which translates to morality. As for research ethics, the concept involves the application of moral values and institutional codes of conduct throughout the entire research process, from its inception through to completion, and publication of results to the scientific community (Brown & Spiro, 2020). As such, ethical research is not static but rather dynamic in nature. New ethical issues surface when new methods are employed and when new materials are analyzed. Whilst some forms of ethical issues can be anticipated before a project commences, many of the ethical challenges and dilemmas are unexpected and emerge as research unfolds.

Research integrity has only recently become recognized by the scientific community as an important field of interest (Steneck, 2007). To this end, ethical principles and guidelines have been established for responsible conduct of research (RCR) defined as "the practice of scientific investigation with integrity (Steneck, 2007). Adhering to these guidelines, which are applied at all stages of research, ensures that the research is conducted with integrity which in turn builds trust in the researchers and their results. Besides these guidelines, institutional review boards (IRB) or ethics committees regulate research involving human subjects in order to guarantee the moral principles and scientific merit of research. These include the safety of human participants, namely respect for persons, beneficence, and justice (Brown & Spiro, 2020).

Higher education institutions as knowledge production sites have all developed policies and guidelines on research ethics. Most universities require research proposals of postgraduate students to be submitted to an institutional ethics committee for approval before being allowed to proceed with the research. Ethical decision making in academic research focuses on providing maximum benefits to the study participants. Accordingly, ethical issues are central to the research enterprise and it is in the interest of the entire research community to join efforts to assure that its members adhere to high standards of ethics and integrity (Anderson et al. 2013).

1.2. Problem Statement

Research misconduct practices have been the subject of increasing attention in the past few years. Unethical research practices undermine the credibility of research findings, and may engender societal trust in research and researchers. Despite the rich body of research available, few empirical studies have been conducted to examine the interplay and dynamics between research and ethics in higher education. Data regarding the prevalence of research misconduct mostly come from Western countries**.** Only a handful of publications on research ethics have been reported in the Middle East and North Africa (MENA) region. To our knowledge, there are scant published data to date that evaluate the knowledge and attitudes toward ethical principles among student researchers in Morocco. Limited training opportunities for graduate students on research ethics and inadequate regulation of research activities cast doubt on the validly and reliability of research undertaken in the MENA region. Research involving human subjects is constantly increasing in the region, underscoring the need to regularly monitor this type of research.

In academic institutions with limited research resources, research projects that involve human participants may not be fully submitted to a rigorous ethical review prior to their implementation. Novice researchers arguably need additional support to incorporate research ethics principles into their research projects. As part of their research activities, tertiary students often aim to collect primary data on topics relating to human behavior patterns using methods like interviews and surveys. Data collection involves significant interaction between the researcher and the researched. Little is known, however, about the methodological procedures employed and whether or not they adhere to ethical standards and guidelines that apply to the research project. Plagiarism is also a growing area of concern in higher education due in large to the high self-reported rates of research misconduct among graduate students in today's digital information age (Anderson et al. 2013).

To date, relatively little empirical research has been conducted on research ethics in the field of humanities and social sciences in developing countries. Only a few studies have explored students' awareness of university policies on academic integrity and how this awareness level shapes students' perception of and tolerance towards research misconduct. The underlying assumption is to create awareness for emerging researchers of the implications and repercussions associated with unethical practices. To address the research gap in the literature, this case study was conducted to assess the knowledge, attitude, and awareness of ethical principles among Moroccan student researchers. This is fundamental to bring value to the academic enterprise knowing that quality and application of research findings heavily depend on ethical conduct of research.

1.3. The Purpose, Significance, and Scope of the Study

The ever-expanding scope of human-based research raises a multitude of ethical and legal issues. An understanding of ethics and ethical frameworks provides an important basis for researchers to make informed ethical decisions. The overarching aim of this study was to examine the knowledge levels, attitudes, and practices of Moroccan doctoral students regarding research and publication ethics. Furthermore, the purpose of the paper was to stimulate reflection and discussion on research integrity and research misconduct from students' perspective. The case study also aimed to build on current literature to address emerging ethical issues associated with the expansion of digital data. The study utilized a cross-sectional design and aimed at investigating graduate students' reported experiences with applying ethical principles while performing research in humanities and social sciences. The group under examination consisted of sixty randomly sampled students who pursued their postgraduate doctoral studies at the faculty of Arts and Human Sciences, Oujda, Morocco.

This paper brings insights into ethical dilemmas which permeate research at all stages of the project. The paper makes a substantial scholarly contribution to discussions on research ethics involved in various disciplines, particularly in humanities and social sciences. It addresses existing research gaps regarding the dynamics governing research in Moroccan universities. The results have important practical implications for higher education. Empirical studies can provide valuable data for making evidence-based policy decisions that promote responsible research practices. The research findings are expected to provide academics, policymakers, and institutions in the higher education sector of in-depth insights into issues affecting research misconduct practices**.**

1.4. The Research Questions and Hypotheses

To examine the knowledge levels, attitudes, and practices of Moroccan doctoral students regarding research ethics, the following primary research questions guided this study:

RQ1) How well are doctoral students informed about acts of research misconduct in their discipline?

RQ2) How do doctoral students perceive acts of research misconduct in their discipline?

RQ3) Which are the most common types of research misconduct being committed among student researchers?

RQ4) To what extend does research ethics training, along with institutional review boards, impact students' ethical decision making?

To address the aforementioned research questions, the following hypotheses have been formulated:

H1) Research ethics training has a positive impact on student researchers' ethical decision making.

H2) Higher education institutions with institutional review boards have a positive impact on student researchers' ethical decision making.

2. Literature review and Theoretical Framework

This case study closely examined existing literature to establish a foundational understanding of the dynamics governing research ethics practices in higher education.

2.1. Research ethics

Ethics has gained increasing prominence within the research community. The renewed interest finds explanation in the substantial increase in the volume of research activity in the past decades (Mustajoki & Mustajoki, 2017). Ethical research is an integral part of advanced academic learning. Academic disciplines give rise to complex ethical issues. Dealing with these issues requires theoretical and practical knowledge, including familiarity with relevant norms in research. Ethical discussions have long been excluded and marginalized from discussions of research projects. There are limited empirical data on the variables that influence ethical practices in research settings. Studies on student awareness of university academic integrity policies have received scant attention (Gullifer & Tyson, 2013).

Ethics education addresses the question of how to morally and ethically conduct research. Horner (2003) views ethics as a branch of philosophy that examines "human

conduct focusing on the rightness and wrongness, goodness or harmfulness of actions." The term research ethics encompasses the values, standards, norms and institutional guidelines that regulate scientific inquiry. The Economic and Social Research Council (2004) defines research ethics as "the moral principles guiding research, from its inception through to completion and publication of results." That said, ethical frameworks have been developed to underpin research practice throughout the research lifecycle.

Whilst there is no single approach to the study of ethics, there are two dominant philosophical standpoints on research ethics: the consequentialist view and the deontologist view. Consequentialism endorses the view that the consequences of an action are the primary basis for moral evaluation of that action. The focus of a consequentialist approach is on the outcomes of an ethical choice. In other words, the consequences of an action are all that matter when taking an ethical decision to act. Hence, the benefits of the study are weighted against the costs of harming the people involved (Doris & Stich, 2007). As for deontology, the central focus is on the rightness or wrongness of actions themselves, as opposed to the rightness or wrongness of the consequences of those actions. In other words, the ends never justify the use of the means that are questionable on ethical grounds (Doris & Stich, 2007).

Research is generally understood as an academic enterprise with mutual respect and trust between researchers, participants, stakeholders, and academics. There is a need to maintain a reasonable balance between the interests of the researcher, the interests of research participants, the academy and the institution where the researcher is based. This is aligned with the belief that not only the researcher, but also the environment and the whole research community are responsible for the promotion of research integrity (Mustajoki & Mustajoki, 2017).

All research raises ethical issues and these will vary across research areas and discipline. Ethical decisions arise throughout the entire research process, including research planning, data collection, dissemination and publication of research findings, and data storage (Clark et al, 2015). Ethical review ensures that a research project adheres to accepted ethical principles and standards. Ethical practices involve much more than merely adhering to a set of rigid and static guidelines. Researchers need to anticipate and address potential ethical dilemmas that may arise in their research. These issues apply to qualitative, quantitative, and mixed methods research and to all stages of research (Creswell, 2014).

2.2. Research in the social sciences

There has been a boom in the popularity of qualitative research in the social sciences in the past two decades. The increasing interest in social research has heightened researchers' awareness of ethical issues and highlighted the need for training and resources to enhance researchers' ethical literacy (Wiles, 2021). One of the central tenets of research in the social sciences is the need to consider ethics from the initial development phase of the research project and throughout its execution phase. From conceptualization to publication, ethical considerations extend not only to research design, data collection and data storage, but also to data analysis and reporting. This is particularly important if the research includes primary data collection through surveys, focus groups or interviews (Clark et al., 2015).

Discussions about ethics in qualitative research design often bring to the fore the need to safeguard the rights of the respondent in order to minimize any potential physical or psychological harm. Complex ethical decisions present a special challenge in balancing the potential risks to study participants involved in the project against the obtained benefits and cost effectiveness of research (Horner, 2003). The researcher takes full responsibility to find the middle ground between being code-governed and ethical relativism. The research process creates tension between the aims of research to be undertaken, and the rights of participants to maintain privacy. An explicit and mutual negotiation of the power between researchers and participants is a constant challenge (Soltis-Jarret, 1997). Embedded in qualitative research are the power dynamics between researchers and researched. The motivation to participate in a research study is highly dependent on the participant's willingness to share their experience (Orb, Eisenhauer & Wynaden, 2001).

Social science and educational research generates considerable amount of raw data. This is evidenced by the increasing use of tape recorded interviews collected by university students for social research projects. Researchers need to anticipate the possibility of harmful, intimate information being disclosed during the data collection process. As such, research involving human subjects requires strict adherence to ethical principles, including informed consent and assuring data confidentiality (Creswell, 2014).

The ethical guidelines need to be interpreted and applied in accordance with a given research context. Several researchers have argued in favor of micro-ethical practices customized to manage ethical dilemmas as opposed to macro ethical practices which take a one-size fits-all approach to ensure that ethical practices are upheld (Anderson, 2017). Central to micro ethics is the need to disclose the ideologies that underlie the research process, along with the power relations between the researchers and the researched (Kubaniyova, 2013).

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Ethical considerations are largely a matter of maintaining a reasonable balance between conflicting interests in the quest for knowledge (Gustafsson, Hermerén & Pettersson, 2011).

In research literature, there are a number of terms used to describe data collected from humans who are often referred to as research subjects, participants or respondents. The concepts carry implications for how researchers view people and their role in the research process. The word 'subject' might carry the implication that "something is being done to them," while the term 'participant' might imply that "something is being carried out in conjunction with them" (Oliver, 2010, p 12). The term subject carries the suggestion that the informants have a rather passive role in the research process and that the research project is unidirectional as it proceeds from the researcher to the subject. It is now common practice to refer to an individual providing data for research as 'participants,' who may or may not know that they are the subjects of research (clark, et al., 2015). There is a fundamental moral and ethical principle to act in accord with standards and values which affirm the essential "humanity" of the informants (Oliver, 2010). This serves to acknowledge the autonomy and agency of the individual in contributing to the research, and their right to withdraw without being penalized (Qates, 2021)

To date, there has been relatively scant research on research ethics in the humanities and the social and behavioral sciences (Wagner, Garner, & Kawulich, 2011). This is striking considering that in these fields, especially the social and behavioral sciences, researchers often conduct research with human participants. A scholarly review of the literature reveals that most studies on research ethics reviews are conducted in the biomedical research domain, while reviews in social sciences are underrepresented.

2.3. Informed consent and institutional review boards

Qualitative research methods have resulted in major changes in how research is currently conducted using established Institutional Review Boards (IRB) and informed consent procedures. Informed consent is a critical procedure for the fulfillment of the ethical dimension in scientific research in social sciences. Seen as a precondition for autonomous decision-making, informed consent has been described as a central element in modern research and an essential requirement for any project that employs humans as a source of data (Wiles, 2021). An integral ethical feature in social science research is the principle that participants need be fully informed about the procedures and risks involved in research before they assent to taking part. Researchers have to be particularly cognizant of ethical issues

involving the coercion of informants to participate in research (APA, 2002). In consenting to participate in research, the process must be voluntary, and based on provision of sufficient information and adequate understanding of the research process. The disposal of raw data is also an issue which should be discussed with research participants during the informed consent procedure.

Besides the requirement for informed consent, higher educational institutions have established Institutional Review Boards (IRBs) to review, approve, and monitor research involving human subjects. Graduate students may be required to submit a research proposal and application to IRBs for approval prior to beginning the research project. Minimal research, however, has delved into the impact of ethical training for research, in particular the submission of IRBs protocols to determine if the study meets ethical standards for the study of human subjects.

2.4. Internet-mediated Research

The proliferation of digital data is radically transforming the research landscape. Today more than ever, data are widely accessible, searchable, and available for research in a diversity of new media contexts. The development of Web 2.0 provides increasing possibilities for researchers to use domains of the Internet for research purposes (Gavin & Rodham, 2017). Internet-mediated technologies have opened up vast new resources for researchers seeking to explore and observe human opinions, activities, and interactions. Big data are transforming how researchers approach their Internet subjects. The issues of privacy, autonomy and consent loom heavily over the proper use of big data. With the evolution of the Internet into a more social and communicative venue, the ethical issues have shifted from purely data-driven to more human-centered. Given the specificity of Internet research ethics, there are increasing calls for new regulatory and disciplinary guidance.

The term internet-mediated research (IMR) covers a wide range of quantitative and qualitative approaches to research involving human participants. IMR can be broadly defined as "any research involving the remote acquisition of data from or about human participants using the internet and its associated technologies" (BPS, 2017). This encompasses both reactive approaches which consist of participants interacting with materials (e.g., online surveys, and interviews) and non-reactive approaches which involve the unobtrusive collection of data (e.g., observations using online data). IMR can raise particular challenges in adhering to existing ethics principles. With online research becoming increasingly

commonplace in academic settings, it is imperative that IMR is being done ethically (Kaye, 2018).

Digital ethics is defined as the moral principles or rules of behavior that govern qualitative internet-mediated research from its inception to publication and the curation of data (Buchanan & Zimmer, 2016). As such, Internet-based research raises critical ethical concerns about the role of the human subject in this digital age. Although new technologies provide researchers with unprecedented access to a vast population of potential research participants, they also yield some ethical considerations, particularly issues around the use and storage of large scale datasets and timing of consent (Gavin & Rodham, 2017). The complex patterns and dynamics created by global connectivity where spatial, social and temporal boundaries become harder to define, making ethical decision-making an increasingly contested terrain. This is further complicated by relatively new possibilities and constraints in accessing, recording, and spreading information and data (Spilioti & Tagg, 2017).

Increasingly, social media tools are utilized to overcome some of the limitations of traditional-based research: subjects might be recruited through social networking websites, surveys are administered online, and data are stored and processed on web-based platforms and repositories. Social media are becoming a preferred domain for ethnographic research: Facebook profile pages are used for data analysis and Twitter data are mined for academic research (Zimmer & Kinder-Kurlanda, 2017). Opinions differ on whether content posted on social media can be classified as public activity. As Eysenbach and Till (2001) opined, "On the Internet the dichotomy of private and public sometimes may not be appropriate, and communities may lie in between." Social media users are defined as human participants if the individuals involved are observed and their data are collected for research purposes.

As Digital ethics has become a field of its own, digital penetration requires researchers to revisit their research practices in an ethical manner (Christensen & Larsen, 2020). While digital data have been growing exponentially, the emergence of big data are pushing researchers to reconsider their ethical responsibilities and obligations (clark et al., 2015). In particular, digital data require a fundamental rethinking of past practices to ensure the ethicality and morality of today's multifaceted research.

2.5. Ethics education and research misconduct

The proliferation of information through digital technologies has made information readily accessible and available to the research community. In the context of higher

education, a constant supply of information is readily available to college students for scholarly purposes. Doctoral students make up a substantial proportion of research activity within academic departments (O'Malley, 2019). Accordingly, research integrity has become a strategic priority in doctoral education, placing higher demands on adequate research supervision and ethical decision-making. Ethics education entails a good understanding of research ethics, including the code of conduct for responsible research, as well as knowledge of the proper methods for presenting research results (Schmaling & Blume, 2009). In their evaluation of ethics training in graduate programs, Sterling, Winke and Gass (2016) reported that formal ethics training is lacking in higher education curricula.

While there is no agreed upon definition of research misconduct, there is common consensus that the core of misconduct is constituted by data fabrication, falsification and plagiarism – often referred to as "FFP" (Gustafsson, Hermerén & Pettersson, 2011). The Office of Research Integrity defines research misconduct as "fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results (The Office of Research Integrity, 2016).While fabrication refers to making up research data and then representing them as genuine, falsification is a more multifaceted phenomenon which comprises all intentional endeavors of manipulating, misrepresenting, or altering the research methodology and/or results in the process of creating an academic output (Mustajoki, & Mustajoki, 2017).

Instances of research misconduct undermine confidence in published scientific results and risk eroding the trust between the researchers and the researched. Hesse-Biber and Leavy (2011) associated the moral integrity of the researcher with the validity and trustworthiness of the research. Student researchers often "adapt" their data to better fit their ideas (Christensen& Larsen, 2020). Incidents of academic misconduct are on the rise for reasons mainly related to the growth of internet-mediated research. Students seemingly have the conception that information available online is public knowledge and is therefore not a copyright infringement (Gustafsson, Hermerén & Pettersson, 2011).

Research ethics education has been heralded as an effective pedagogical strategy for curbing research misconduct among university students (Doylea & O'Flaherty, 2013). The importance of ethics education in developing morally sensitive individuals who apply principled moral reasoning when confronted with dilemmas has been widely acknowledged. A number of studies have examined the possible relationship of ethics education and moral reasoning of both undergraduate and graduate students. Results demonstrated a significant

relationship between ethics education and the development of students' moral reasoning and ethical-decision making (Doylea & O'Flaherty, 2013).

Unethical research practices are a complex multi-faceted phenomenon that require a holistic response. Despite the seemingly large-scale literature on research ethics, empirical research is still at a nascent stage. Scholarly research on ethical research in the context of higher education is still premature, particularly in the humanities and social sciences. A central theme in the reviewed literature is the need for further studies on the ethical dimensions of research involving human participants. Other themes which emerged across the reviewed literature included: informed consent, qualitative research, data handling, digital ethics, and private versus public conceptualizations of data generated through social media. Based on the reviewed literature, research ethics education has received increased attention as a means to address the increasing cases of research misconduct in higher education. This calls for the institutionalization of ethics education and training in graduate courses.

3. Methods

The main purpose of this study was to gather primary data about postgraduate research students' knowledge, attitudes, and practices of doctoral research ethics. The study also captured the perceptions and self-reported behaviors of students regarding academic misconduct**.** To this end, a cross-sectional survey was administered to student researchers currently enrolled in a doctoral program on Languages, Culture, and Communication at the faculty of Arts and human sciences, Oujda, Morocco. Cross-sectional survey designs are useful to gauge participants' attitudes and practices, identify population needs, and conduct program evaluation (Bryman, 2016).

The self-administered online questionnaire consisted of three sections including demographics, knowledge of ethical principles and standards of conduct, and attitudes toward unethical research practices and self-reported research misconduct. A set of ethical issues regarding the administration of the web-based survey have been taken into account. Besides obtaining informed consent, all participants received detailed information about the research project including protection of personal information and confidentiality. Participation was voluntary, and no incentives for participation were offered. A pilot study was conducted to assess the usability and reliability of the online survey.

The mixed methods survey was designed to collect both quantitative and qualitative data with a total number of 31 questions of various formats, ranging from multiple choice

(single or multiple questions), self-assessment items, close-ended questions, likert scale to open-ended question formats. Responses were collected online via Google Forms between July 17 and August 17, 2021. To ensure maximum response rates, the survey URL was distributed through multiple online channels including postgraduate students' Facebook/Whatsapp group and the official Gmail group. Out of 110 enrolled students, 60 completed the survey with a self-reported response rate of 66%.

The data were cleaned, coded, and entered into the Excel spreadsheet for statistical descriptive analysis. Descriptive summaries and frequencies of variables were generated and their relative percentages were estimated. The collected data were presented in tables and analyzed statistically using frequencies and percentages. For the purpose of this study, variables with a p-value of < 0.05 were considered statistically significant. Following descriptive statistical analysis, inferential statistical analysis was undertaken to interpret the data generated and test the research hypothesis. To this end, correlation analysis was applied to establish the correlations between the variables within the sample. To test the validity of the hypotheses, Pearson correlation coefficient was calculated.

4. Findings

This section outlines findings from the cross-sectional web-based survey which consisted of three sections. In the demographics section, demographic variables were collected including age, gender, year in program, and educational background. Of all the respondents, roughly two-fifth (42.1%) belonged to the 30-39 age group followed by the 20-29 age group (36.8 %), with a mean age of 29.5. As for gender distribution, nearly two-thirds of the respondents identified as female (63.2%), and more than one-thirds identified as male (36.8%). Most of the surveyed population (42.1%) reported being in their second year of doctoral study, followed by more than one-thirds (36.8%) in their third year. Doctoral research students were roughly equally distributed across the social sciences (51%) and humanities (49%).

The second section of the survey was designed to collect data about students' self-reported knowledge of research ethics principles and standards. To rate students' knowledge of ethics in academic research using a five point Likert-type scale from 1 to 5 (1 being the lowest score and 5 the highest), only one in five (21.2%) reported being well informed about the subject while almost six in ten (58%) being somewhat informed. As an extension to this question, the informants were asked to report on research ethical guidelines within their field of expertise using a five point likert-type scale (1= "I am fully informed" and 5 =

"I am not informed at all"). Almost four in ten (39%) reported being somewhat informed, about one-third (31.6%) fully informed, and one in ten (10.5%) poorly informed. Among the surveyed participants, more than third (35%) had prior formal training on research ethics. More than three-fifths of the survey takers (63.2%) have never sought institutional ethics approval for their doctoral research projects. Less than half of the surveyed (48%) reported being aware and roughly one third (36.8%) not aware of the availability of an institutional ethics committee where their studies are being carried out.

Among those who reported having published an article in a scholarly journal during their doctoral studies (52%), nearly four in ten (39%) have considered ethical issues while working on the article. Almost five *out of* ten (48%) respondents who reported having conducted a survey, interview, or focus group as part of their research project revealed that they informed the participants of the risks and benefits of participation, and the manner and form in which data will be collected and confidentiality will be maintained. A fair majority of the students surveyed (72%) reported that the academic curriculum of their institution does not provide enough content and training on research ethics guidelines.

The third section of the survey was designed to explore and analyze the perceptions, attitudes, and practices of student researchers towards research ethics. More than half of the survey takers (57 %) reported that research methodology takes precedence over research ethics in doctoral studies. The participants were requested to rate the level of importance of research ethics for doctoral studies on 5-point Likert scale, where: 1=Not at all important and 5= extremely important. Research ethics was rated as extremely important (78.9%) and very important (21.1%) for the completion of a doctoral dissertation. When asked whether or not the subject of research ethics generates a sense of unease and uncertainty among researchers, almost eight out of 10 respondents (78.9%) responded with "No" while less than one fifth (15.8%) with "Yes."

More than two-thirds (67%) reported that they frequently consult their supervisors for guidance on research ethics while one-third (33%) do not. To elaborate further on this, a sub-question sought to ascertain whether supervisors help their supervisees reflect on ethical dimensions throughout their research project. About three-quarters (73%) responded with "Yes" while only a minority (17%) preferred not to answer. Using a 5-point Likert scale where 1 is 'strongly disagree' and 5 is 'strongly agree,' the surveyed sample were asked to rank their level of agreement with the statements "Research ethics course should be mandatory in postgraduate programs," and "Informed consent form should be a mandatory

document in every research project that involves human participants." The vast majority strongly agree on the inclusion of research ethics courses (63%) and the requirement of informed consent (71%). A follow up question surveyed students' attitudes towards the inclusion of an institutional review board (IRB) within their academic institution. The overwhelming majority (89%) revealed that an IRB will have a positive impact on student researchers' ethical decision making.

The last section of the survey provided insights into the attitudes of doctoral students towards research misconduct. The vast majority of the surveyed population (77%) considered research misconduct to be on the increase due primarily to the rapid incorporation of Internet-enabled technologies into research practices. When asked to rate their level of concern about ethical misconduct in academic research on a five-point scale where 1 is not at all concerned and 5 is extremely concerned, six in ten of the respondents (61%) reported that they are extremely concerned, and almost four in ten (39%) very concerned. Nearly two-thirds (65%) revealed that they are familiar with their institution's policy on cheating and/or plagiarism. Up to one-third (33%) of the students conducting research and publication related activities have been involved in questionable research practices. Whether or not publication pressure is a major driver of research misconduct, six in ten strongly agree, and four in ten agree with the statement. A follow-up question surveyed self-reported attitudes towards identifying acts of plagiarism. The surveyed sample identified the following as acts of plagiarism: copying verbatim from another person's work (88%), quoting without acknowledgement (77%), paraphrasing a text without acknowledgement (46%), and summarizing a text without acknowledgment (35%).

Another question enquired about respondents' perceptions of misconduct practices using a five likert scale where 1 = not serious at all and 5= extremely serious. Creating non-existing research data and results (83%), manipulating data or results (80%), and appropriating another writer's ideas and results without appropriate credit (90%) were rated as extremely serious research misconduct practices. Publishing the same research in more than one journal (41.6%), selecting only those data that support the research hypotheses (50%), and writing more than one article using the same data (43.3%) were perceived as very serious acts of unethical conduct (See Table 1).

Table 1

Research Misconduct

Statements	5	4	3	2	1	Mean
			Frequency (N)			
1. Creating non-existing research data and results (fabrication)	50	8	2	0	0	4.8
2. Manipulating/changing or omitting data or results (falsification)	48	10	2	0	0	4.7
3. Appropriating another person's ideas/results without giving appropriate credit (plagiarism)	54	6	0	0	0	4.9
4. Publishing the same research in more than one journal	20	25	10	5	0	4.08
5. Selecting only those data that support your hypothesis	20	30	5	5	0	4.25
6. Writing more than one article using the same data	20	26	8	6	0	4

Among the respondents who admitted having committed research misconduct, roughly six in ten (55%) have not obtained proper informed consent from participants and more than four in ten (41%) have coerced study participants to take part in the in research. More than half (55%) admitted to plagiarism and data falsification, roughly one third (36%) to data fabrication, more than seven in ten (72%) to double publication and more than one-thirds (36%) to simultaneous publication (See Table 2).

Table 2

Self-reported Research Misconduct Practices

	Frequency (N)	Percentage (%)
1. Manipulating data to achieve statistical significance	33	55
2. Fabricating data to achieve statistical significance	22	36
3. Not obtaining proper informed consent from participants	44	73
4. Submitting previously published manuscript to another journal	43	72
5. Submitting the same manuscript to two or more journals at the same time	22	36
6. Appropriating someone's ideas without giving credit	33	55
7. Coercing study subjects to participate in research	25	41

To test the hypotheses, statistical tests were performed to determine if there is a linear relationship between the variables. To determine how the independent and dependent variables are related, respondents were asked to rank their level of agreement with the correlation between research ethics training/ institutional review boards and ethical decision making on a 5-point Likert scale where 1 is 'strongly disagree' and 5 is 'strongly agree.' The hypotheses were tested using significance levels, namely *p*-value, and Pearson correlation coefficient. Two main hypotheses have been formulated:

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H1) Null Hypotheses (H0): Research ethics training has no apparent impact on student researchers' ethical decision making

H1) Alternative Hypothesis (Ha): Research ethics training has a positive impact on student researchers' ethical decision making

H2) Null Hypotheses (H0): Higher education institutions with institutional review boards have no apparent impact on student researchers' ethical decision making.

H2) Alternative Hypothesis (Ha): Higher education institutions with institutional review boards have a positive impact on student researchers' ethical decision making.

The alternative hypothesis (H1) used a one-tailed prediction wherein the independent variable is "Research ethics training" (RET) and the dependent variable is "ethical decision making" (EDM). To test the null hypothesis (H1), the probability value was calculated to obtain the mean score. The p-value scored 0.02 (p=.02), with a 2% chance that there is a difference between research ethics training and students' ability to effectively make ethical decisions.

The alternative hypothesis (H2) used a one-tailed prediction wherein the independent variable is "institutional review boards" (IRBs) and the dependent variable is "ethical decision making" (EDM). To test the null hypothesis (H2), the probability value was calculated to obtain the mean score. The obtained p value was 0.03 (p=.0.3), implying that the null hypothesis is invalid as opposed to the alternative hypothesis. For both the two hypotheses (H1&H2), there is a statistical significance between the two variables ($p < \alpha$).

For the alternative hypothesis (H1), the linear regression model was applied to estimate the level of student researchers' ethical decision making performance. The coefficient value (0.699) indicates that the two variables are highly correlated and that the independent variable has a positive influence on doctoral students' performance (See table 5).

Table 5
Pearson correlation analysis (RET/EDM)

Variable	Mean	SD	Correlation
RET	3.21	0.81	
EDM	3.35	0.84	0.699 [**]

As for the alternative hypothesis (H2), the coefficient value of 0.679 indicates that the correlation between the two variables is statistically significant. As such, the independent variable has significant influence on students' performance (See table 6).

Table 6
Pearson correlation analysis (IRB/EDM)

Variable	Mean	SD	Correlation
IRB	3.55	0.922	
EDM	3.35	0.84	0.679 [**]

5. Discussion

The data collected from the cross-sectional survey provide useful insights into the knowledge levels, attitudes, and practices of Moroccan doctoral students regarding research ethics. The results show that there was statistically significant difference in the attitudes of postgraduate students towards misconduct practices. The findings obtained are in conformity with the reviewed literature on research ethics among student researchers. The results are also in line with the formulated hypotheses that ethical research training and institutional review boards have a positive impact on doctoral students' ethical decision making. The null hypothesis is disproved to a statistically significant degree. The P value obtained from significance testing revealed a positive correlation between the dependent and independent variables.

The findings also reveal that postgraduate students have basic understanding of the guidelines for the responsible conduct of research. Whilst most students reported limited adherence to ethical standards, they revealed concerns about the unregulated field of research ethics within their institution. Being knowledgeable about information ethics does not imply compliance with its practices. The low level of awareness and knowledge of ethics in academic research and of the guidelines within the fields of expertise of the respondents might be attributed to the lack of formal training on research ethics and the inactive role of IRBs as is evidenced by the findings. These dynamics can undermine students' ability to take informed decisions. Furthermore, a sizable number of respondents have a basic understanding of their institution's code of practice on research integrity.

A fair majority of student researchers are vulnerable to research misconduct practices due in large to limited training opportunities on research ethics and the non-availability of institutional review boards within their institution. Faced with various aspects of ethical

issues, doctoral students find it overwhelming to discern ethical from unethical practices. Exposure to a barrage of issues prompts students to rely even more heavily on heuristics or mental short cuts to make ethical decisions. As such, they tend to adopt a superficial and impressionistic interpretation while processing information.

Unethical and unregulated research practices are commonplace in institutions that do not provide regular formal training/ethical instruction or require IRB applications involving human subjects. This is further exacerbated by providing insufficient ethical instruction as part of the curriculum. Research ethics are often scarified to research methodology which seems to occupy central stage in doctoral studies among students. To compensate for such inadequacies, doctoral students seem to consult their supervisors for guidance and reflection on ethical dimensions throughout their research project.

Despite being cognizant of the centrality of research ethics for the completion of doctoral dissertations, some student researchers have reported experiencing disturbing cases of research misconduct throughout their postgraduate studies. According to the research results, inappropriate citation and referencing, data manipulation, and double publication were the most prevalent instances of research misconduct reported by student researchers. A significant number of survey takers reported not obtaining informed consent from participants, coercing study participants to participate in research, manipulating and fabricating data, and submitting a manuscript to more than one journal.

In their response to self-reported attitudes towards identifying acts of plagiarism, paraphrasing/summarizing a text without acknowledgement, submitting a manuscript to more than one journal at the same time, selecting only those data that support the research hypotheses and writing more than one article using the same data are not perceived by a sizable number of respondents as serious acts of plagiarism. A major finding of this research reveals that unlimited access to online content is often cited as the main reason driving plagiarism. Students who reported being involved in questionable research practices place part of the blame on the pressure to publish scholarly articles to successfully complete the requirements of the doctoral program and on research methodology which takes precedence over research ethics in doctoral studies.

Participants indicated that current research ethics training curriculum is lacking depth and specific instruction on ethical principles and how to integrate them into research practice. On the other hand, they obtained sufficient support from their supervisors who impacted their

knowledge and perceptions of ethical practice. This suggests that the quality of the ethical conduct adopted by students is highly dependent on the various supervisory practices encountered throughout their doctoral studies. The findings also suggest that a dynamic supervisory relationship is a prerequisite for excellence in the research supervision process. This is further corroborated by previous studies (Fisher et al., 2009; Richards, 2010) which indicate that learning is most effective when supervisors provide direct instructions, practical guidance, and integrate ethics into supervision. Learning ethical codes of conduct is a central part of researcher development. The supervisory relationship provides a context for developing ethical problem-solving embedded in the supervision activities. As such, supervisors play an instrumental role in promoting quality research that is conducted with integrity.

The obtained findings align with a growing body of research underscoring the educational significance of ethics instruction. Results demonstrated a significant relationship between ethics education and the development of students' moral reasoning and ethical-decision making. Within the same line of thought, McDonald et al. (2011) indicated that academic institutions need to invest more resources for the education of research ethics and that appropriate research training can mitigate some of the difficulties that student researchers face during the research process.

6. Implications, Recommendations and Conclusions

This paper set out to examine the knowledge levels, attitudes and, practices of Moroccan doctoral students regarding research and publication ethics. The paper reviewed a significant body of existing literature to establish a foundational understanding of the dynamics governing research ethics practices in higher education. It adds to the body of knowledge on research ethics in the humanities and social sciences and stimulates reflection and discussion on research integrity and research misconduct from students' perspectives. The study findings confirmed the hypothesis that ethical research training and institutional review boards have a significant positive influence on doctoral students' ethical decision making. The obtained findings set the stage for a more extensive discussion of academic integrity in higher education.

Findings from this study contribute to the limited existing literature on postgraduate students' conceptualization of research ethics and provide useful insights for further research. The findings identified existing gaps in ethics education and training among doctoral research

students. This study advanced the argument that students will be better equipped to evaluate the ethicality of their research project only when they have received appropriate instruction and training. This study also provides evidence of the need for conceptualization of the research supervision process.

The findings have important implications for higher education. It is in the interest of the entire research community to join efforts to assure that its members adhere to high standards of ethics and integrity. The university, as a research-led institution, has an institutional responsibility to ensure integrity and ethical practice in the conduct of research. There is an urgent need to develop a strong framework for ethical research practice on human participants. Training on research ethics has to be embedded in the curriculum of graduate students. It is about time information ethics is taught as a stand-alone course.

Embedding ethics into the entire research process, from topic selection and information collection to data interpretation and publication of findings, is critical to ensuring ethical research practices. Doctoral students admitted to doctoral education shall undergo a course in basic research ethics. The student researchers need to develop a sound understanding of fundamental theories, principles and guidelines of research ethics, and reflect on ethical aspects of their own research. Research students may be responsible for preparing the research ethics application for their own research projects under the direction of their supervisors.

7. Limitations & Directions for Future Research

The present study was limited in scope to only a single higher education institution. Further studies should be undertaken in other universities in Morocco to ascertain the perception of students towards research misconduct. Another limitation of this study is the low response rate of the survey takers. The sensitive nature of the topic may inherently hamper attempts to generate higher response rates. The triangulation of multiple data sources would help generate more data and validate research findings. Future research is required to define the type of ethics content to be covered in curriculum in order to meet the needs of the student learners. Additional research should also be carried out at the undergraduate levels to prepare students for advanced courses on research ethics.

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