

Analysis of the perception of the scientific research ethics by academics: A case study from the University of Parakou, Benin Republic

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ABSTRACT: University research for development requires ethical considerations. This research aims to understand the level of knowledge of ethics by the actors such as lecturers, researchers, and students at the undergraduate and graduate levels of the University of Parakou in Benin. For this purpose, an approach essentially based on a survey by electronic questionnaire was carried out among 95 persons. The results obtained reveal that research ethics is not well understood by a large proportion of university actors (50.5%), particularly students. The results show that men (51.59%) have a higher level of knowledge than women (28.42%) and that the higher the level of education, the greater the knowledge of ethical considerations. The type of the training institution determines the obligation of lecturers, researchers, and students to take into account the ethical rules related to their disciplines. It is the case especially in human health sciences.

KEYWORDS: Benin, ethical knowledge, integrity, moral conduct, research, university.

1 INTRODUCTION

Ethics has long been considered a topic of major importance in most scientific, technical, philosophical, and social fields [1]. This transdisciplinary concept could be defined as a theoretical study of the principles that guide human action in context where choice is possible [2]. Therefore, it calls for several rules of good conduct respectful of morality that apply to any individual in society, professional life, and even as a researcher. Thus, for a researcher, ethics is a central object of research [3]. However, addressing questions about research ethics in this case study seems to be an arduous process that researchers generally do not afford enough time [3]. Thus, nothing seems to motivate researchers to engage in ethics work within their discipline if they do not firstly identify the bottlenecks and requirements of the research. The lack of ethics in the conduct of scientific research projects is the root of a variety of problems that are commonplace in this "all-digital" era.

Indeed, problems of scientific frauds are regularly detected and are in most cases caused by the pressure to write a paper, publish an article or the race for prestige [3]. It is in this sense that Fort et al. assert that bibliometric pressure, that is, the obligation to publish a lot and to publish articles that are cited, is exerted on all researchers and especially on young researchers [1]. Within this framework [4] distinguishes many other breaches of scientific integrity namely, splitting data to increase publication numbers, omitting previously published results, and using inappropriate statistical tests.

Similarly, competition among researchers can lead to deviations in scientific ethics such as plagiarism and fudging of results [1]. This situation due to the lack of scientific integrity leads researchers to choose a more profitable research path even if it involves ethical risks. The hunt for funding, with the advent of project-based research funding are factors worsening it. This situation stipulates researchers increasingly disregard ethical issues in research, which represents, according [2], a special effort that the researcher is obliged to make, a responsible act of adapting to certain norms, in his or her own interest, those of his or her fellow human beings, and of social life. It is thus a question of scientific integrity and of the ethics of the researcher's practices. So, what needs to be done to get researchers to consider questions related to research ethics?

It is in response to this questioning that an author asserts that professional ethics are baseless in the absence of early, consistent, internalized ethics education through systemic learning, carried out in school [2]. Indeed, our choices are influenced

by education, by the ability to detect ethical priorities in concrete situations. So, it is imperative to see the state of knowledge of researchers.

So far as the highest level of knowledge is the university degree, it is necessary that this research focuses on the university community (students and lecturer-researchers), to understand the factors determining knowledge of research ethics. Thus, this article aims to analyse the perceptions of scientific research ethics in the Beninese academic world, because ethical research problems have increasingly been raised in Beninese universities. Therefore, this research aims at analysing the influence of the training system (training entity, level of training) on the understanding of research ethics and on the reasons that justify a diversity of levels and knowledge of research ethics by the university actors, specifically at the University of Parakou. To do so, we based our analysis on the theory of social perception and motivation. The social perception allows to explain the perception of the actors about a fact from a sociological point of view. She drew on cognitive sociology to show that selective attention is a socio-cognitive process and that there are filters that act on social perception through other social construction processes such as gender, race, or reality [5]. The theory of systemic motivation in the approach of [6] highlights that the dynamics of the motivation of an individual is determined by a permanent back and forth movement between the effectiveness of the actions undertaken and the objectives initially set by the individual. Thus, we can understand the dilemma faced by the researcher when he is confronted with the efficiency of his research (to produce a lot, to publish in renowned journals and/or to obtain a lot of funding) and the original mission of his discipline, which is to produce knowledge, to answer problems to propose morally and legally appropriate solutions to his community.

The conduct of this research assumes an appropriate methodological approach. The following lines describe the materials and methods used to build this study.

2 THEORETICAL BACKGROUND

Two theories have been chosen to serve as the theoretical framework for this study. They are the theory of social perception and motivation theory. Social perception (or person perception) theory explains how people form impressions of and make inferences about other people. The cognitive build of their impressions is as sovereign as possible with regard to the construction born of their education, their personalities and their environment. The theoretical approach developed by [5] emphasise the importance of selective attention. Referring to various authors, she shows that human attention is selective and that the mind selects what it needs to retain according to various criteria. The author completes this psychological dimension of her theory with a social dimension. That of social filters. Indeed, according to the author, the social construction of the reality implies the implementation of a mechanism of passage or blocking [5]. Thus, the analysis focuses on the dialectic of attention and inattention to explain the social perception of reality.

In conclusion, this theory emphasizes the capacity of the human mind to set up selective attention and filters to construct the social reality that surrounds it in order to extract perceptions. This theory is important for research in that it explains how the human mind proceeds to construct social perceptions in relation to ethical values for example in academic settings. This theory is complemented by the theory of systemic motivation.

The major assumption of theory of systemic motivation in the approach of [6] is that the dynamics of the motivation of an individual depend on a permanent back and forth movement between the effectiveness of the actions undertaken and the objectives initially set by the individual. This systematic motivation theory is a meta-theory which to focus on the nature and the importance of goals and feedback. About that there are cognitive, behavioural, and affective reactions to the goals and the feedback [6]. So, the role of attributions, expectancies, and goal hierarchies in determining those reactions.

This theory is important for the research because it gives us some conceptual framework to explain which parameters may be motivation for researchers to participate to the workshop and may conduce them to have an ethical behaviour in research.

It is important to determine that although it does not fall within the analytical framework of research, studies on research ethics explains this initiative. So, we have to clarify here the key concepts that underpin research ethics. Law as a discipline refers to the set of rules applicable in a society and whose respect is sanctioned by the authority. Morality, science of good and evil, closed system of norms of constraining behaviours and general principles. Based on these concepts, ethics is an individual disposition to seek the right decision in a given situation in connection with morality and law.

Contemporary societies are built around science, which is a central pillar. The democratic option of policies, modes of governance, technological progress, human health, food, security are all areas of my life in society whose axes are marked out by science. Given the magnitude of the resources mobilized internationally to fund scientific research, the requirements for researcher integrity and scientific quality of products are increasingly greater.

The question of the moral, professional, and legal responsibility of the researcher often arises in connection with his research object, his methodological approach, his research units, the conduct adopted to publish his work and often even with regard to the use that is made of the results of the research by the institution that finances it.

In this regard, there are several international provisions that govern research ethics. The first one is the European Code of Conduct for Research Integrity [7]. This code illustrates the principles of research ethics, including reliability, honesty, respect, and accountability. There are other international legal provisions such as: the Singapore Declaration on Research Integrity (2010), the International Ethical Guidelines for Biomedical Research involving human subjects of the Council for International Organizations of Medical sciences, the Code of Ethics of the International Sociological Association, the First Code of Ethics, World Archaeological Congress.

In West Africa, most countries are members of the African and Malagasy Council for Higher Education. This organization has a Code of Ethics that applies to all teachers-researchers in public and private universities recognized by CAMES. But in Benin, only local initiatives of universities are noted in terms of ethical rules in scientific research.

After the presentation of the theoretical framework of the research and the regulatory context of research ethics in Benin Republic in the lines below, the main findings will be presented.

3 MATERIAL AND METHODS

This study was conducted in the municipality of Parakou, department of Borgou. This municipality host the second largest public university, the University of Parakou in northern Benin. This university has several laboratories attached to specific entities. Among these laboratories is the Laboratory of Research on Innovation for Agricultural Development (LRIDA), which initiated this research from a workshop held in January 2020. Thus, a call was launched by the laboratory for participation in the workshop on the theme ‘research ethics. Initially, the call for participation in the workshop was drafted and launched. During the registration to the workshop, participants (invitees) must answer eight questions related to their introduction, their institutional linkage, and their knowledges about ethics in research to validate their registration. The registration form including the questionnaire was shared via social networks such as WhatsApp in various discussion groups for the University of Parakou. The survey conducted as part of the research took place online via a link that immediately redirects applicants to the questions. In total, 95 participants validated their participation in the workshop. These were mostly researchers and students. The characteristics of the participants are described in Table 1.

Table 1. Profile of different participants on research ethics workshop the 8th of January 2020 by an online survey posted during the previous fifteen days

Participant’s profile	Modality	Number	Proportion (%)
Sex	Male	59	62.11
	Female	36	37.89
Total		95	100
City of origin	Parakou	91	95.79
	Cotonou	1	1.05
	Other cities	3	3.16
Total		95	100
Entity of origin	Faculty of Agronomy (FA)	75	78.95
	Faculty of Letters, Arts and Human Sciences (FLASH)	12	12.63
	Doctoral School of Agronomic and Water Sciences (EDSAE)	07	7.37
	Faculty of Medicine (FM)	1	1.05
Total		95	100
Level of training	Bachelor	23	24.21%
	Master	49	51.58
	Doctorate / PhD	19	20
	Others	4	4.21
Total		95	100

The workshop on research ethics organized as part of the 2019-2020 academic year of the LRIDA laboratory of the University of Parakou, has attracted the interest of a significant number of people. A total of 95 individuals took part to it. Most of these participants are men and came from the city of Parakou. However, some participants came from Cotonou (500 km), Kandi (220 km) and Bembèrèkè (100 km). The participants to several entities of the University of Parakou. A strong mobilization of lecturers and students of the Faculty of Agronomy (FA) was observed followed by the participants of the Faculty of Letters, Arts and Human Sciences and by those of the Doctoral School of Agronomic and Water Sciences and by those of the Faculty of Medicine. The level of training of the participants shows a strong participation of students with a master's degree, followed by those with a bachelor's degree and finally by lecturer-researchers holding a doctorate degree. This diversity of level of training shows that ethics is a matter that concerns all actors of the university.

Various data were collected from this population. They include the participants' level of knowledge of research ethics, their motivation to participate in the workshop, and their knowledge of the definition of research ethics. These data were analysed using descriptive statistics, statistical tests, and discourse analysis. First, descriptive statistics consisted of calculating the frequencies of socio-demographic characteristics, motivations for participating in the workshop, and definitions of research ethics. Chi-square tests were performed to see the relationships between the level of apprehension of the ethical concept, gender, level of education, and the entity of origin. Similarly, a Chi-square test was conducted to understand the influence of individuals' level of education on their motivation to participate in the workshop at 5% level. Excel and SPSS software were used to perform these different analyses.

4 RESULTS

4.1 LEVEL OF UNDERSTANDING OF THE CONCEPT OF ETHICS ACCORDING TO GENDER, LEVEL OF EDUCATION AND ENTITY OF ORIGIN

4.1.1 PARTICIPANTS' SELF-ASSESSMENT OF THEIR LEVEL OF KNOWLEDGE ABOUT RESEARCH ETHICS

The participants have many levels of knowledge.

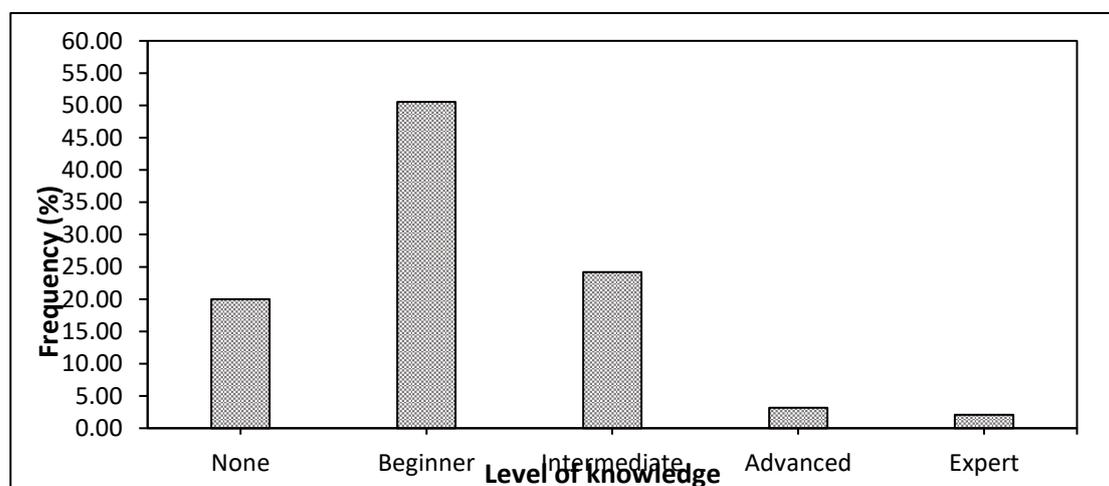


Fig. 1. Level of knowledge about the concept of research ethics

The analysis of Fig. 1 reveals that 50.5% of the participants think they have a beginner's level of knowledge about research ethics. Only 24.2%, 3.2% and 2.1% of the participants felt they had intermediate, advanced, and expert knowledge of the concept of research ethics, respectively.

4.1.2 RELATIONSHIP BETWEEN GENDER AND KNOWLEDGE OF RESEARCH ETHICS

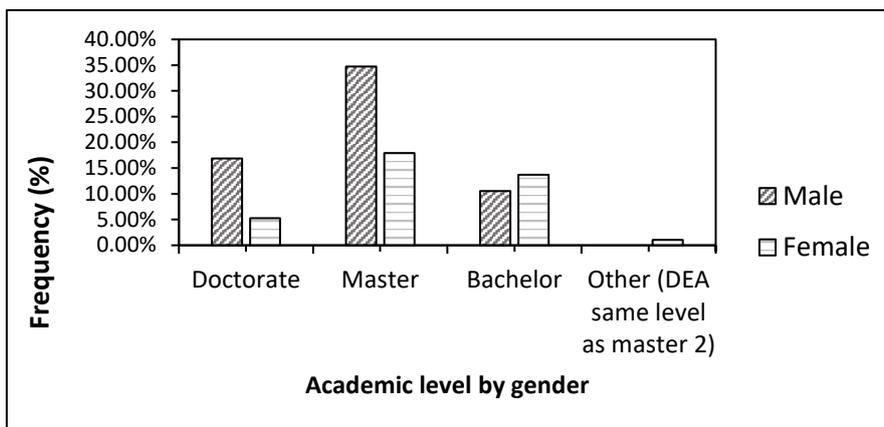


Fig. 2. Gender and educational level

Fig. 2 shows the distribution of participants according to educational level and gender. The analysis of Fig. 2 reveals that men have a higher level of education than women with 34.74% at the master’s level and 16.84% at the doctorate level, respectively. On the other hand, we noted that at the bachelor’s level, women exceeded men.

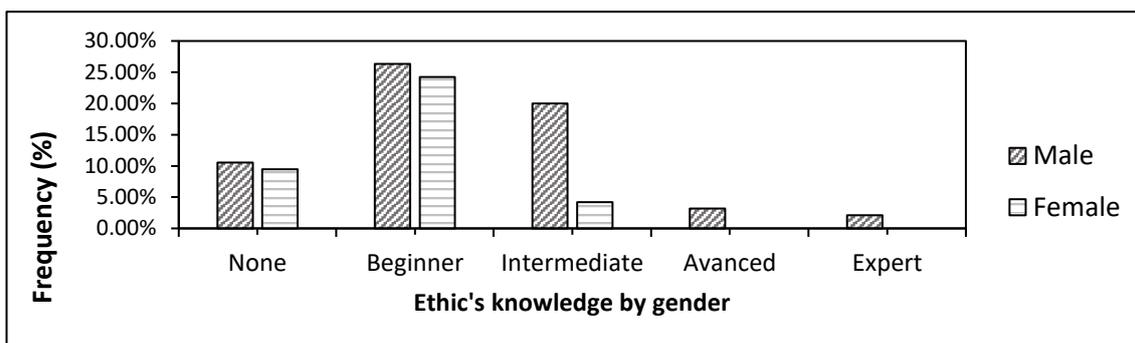


Fig. 3. Gender and level of knowledge about research ethics

In addition, gender by level of knowledge of research ethics is presented in Fig. 3. Men have a higher level of knowledge about research ethics. Indeed, 26.32%, 20.00% and 3.16% of men have a beginner, intermediate and advanced level of knowledge, respectively. While 24.21% of women have a beginner level of knowledge and only 4.21% have an intermediate level. Thus, we observe that there is a statistically significant difference at the 5% level of knowledge of ethics according to gender (Chi2 = 9.932; Degrees of freedom = 4; P = 0.042). This difference could be justified by the fact that men have a higher interest in the issue of research ethics than women. However, it should be noted that women who have a master’s degree and a doctorate have at least an intermediate level of knowledge about research ethics and are already inclined to reconcile both career prospects and family life.

4.1.3 RELATIONSHIP BETWEEN LEVEL OF TRAINING AND LEVEL OF KNOWLEDGE ABOUT ETHICS

The level of training of the participants in relation to the level of knowledge on research ethics are presented (Fig. 4).

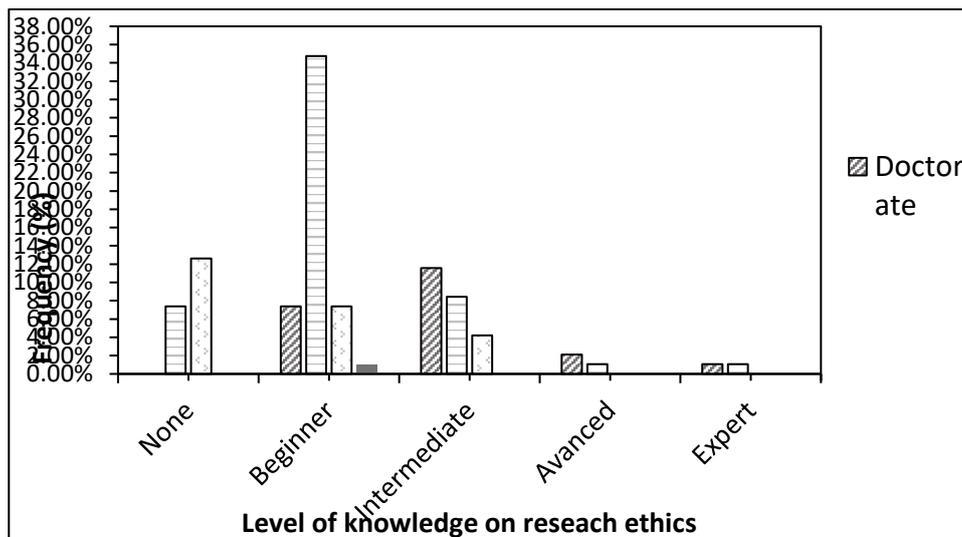


Fig. 4. Knowledge of ethics by level of education

After analysis, the figure shows that 34.74% of the participants with a master's level have a beginner's knowledge of research ethics. On the other hand, 11.58% of the participants with doctoral level have intermediate knowledge on research ethics. While 12.63% of participants holding bachelor's degree have no knowledge of research ethics.

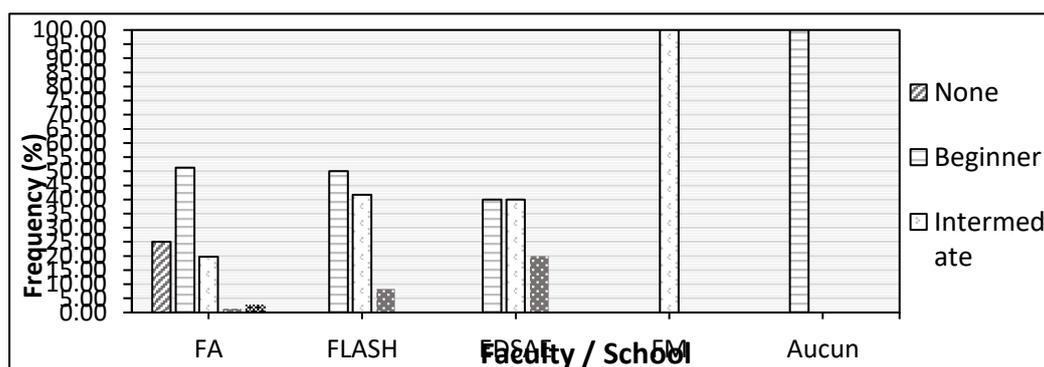


Fig. 5. Entité en fonction du niveau de connaissance de l'éthique de la recherche

In addition, Fig. 5 presents the level of knowledge of participants according to their entity of origin. The analysis of this figure reveals that, regardless of the entity of origin, the participants have a better level of knowledge of the concept of research ethics. This is confirmed by the statistical test that shows no statistically significant difference between the two variables ($\chi^2 = 18.016$; Degrees of freedom = 0.323; $P = 0.323$). Also, the figure 5 shows that all the participating students from the Faculty of Medicine have an intermediate level of knowledge about research ethics. Students from the Doctoral School of Agronomy also show a high proportion of knowledge of ethics (40%).

The second part of the results attempts to understand the motivation of participants to attend a research ethics workshop.

4.2 MOTIVATION TO PARTICIPATE IN THE ETHICS WORKSHOP

4.2.1 DETERMINANTS FOR ATTENDING THE RESEARCH ETHICS WORKSHOP

Fig. 6 presents the reasons for the participants for attending the ethics workshop.

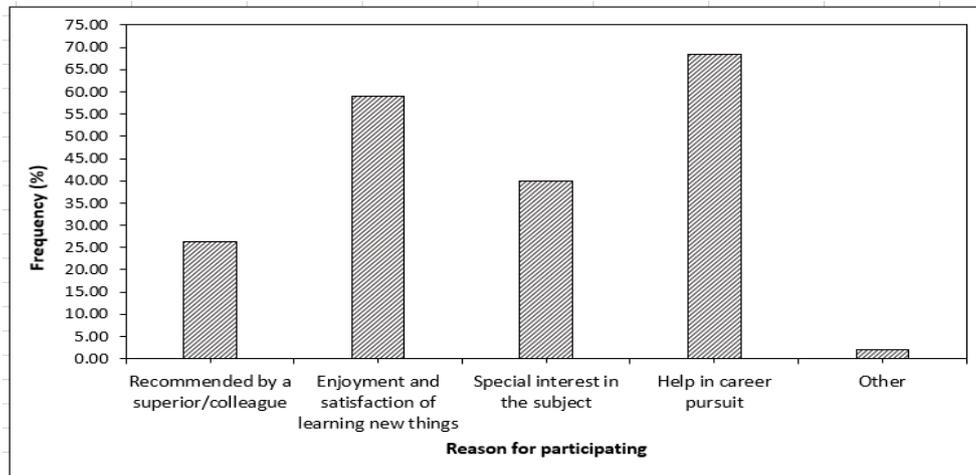


Fig. 6. Determinants of participation to the ethics workshop

Analysis of Fig. 6 reveals that 68.4% of the participants were motivated to attend the workshop because they believe it will be useful for them in their future careers. In addition, 58.9% of them were motivated by the pleasure and satisfaction of learning something new and 40% of participants found the topic particularly interesting. Also, some participants (26.3%) were recommended by a superior/colleague.

4.2.2 RELATIONSHIP BETWEEN REASONS FOR PARTICIPATION AND PARTICIPANTS' LEVEL OF EDUCATION

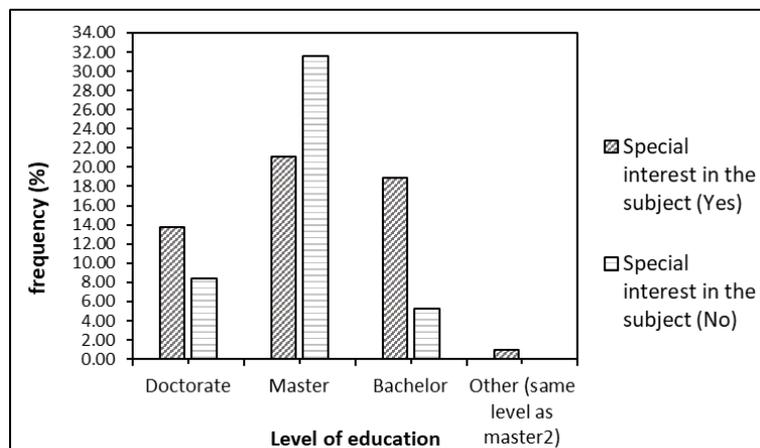


Fig. 7. Specific interest in the topic by education level

Fig. 7 shows the reasons for participation to the workshop according to the participants' level of education. Regardless of their level of knowledge, participants were motivated to participate in the workshop because they hope it will be helpful for their career. This is justified by the fact that the chi2 test does not show a statistically significant difference (Chi2 = 2.041; Degrees of freedom = 3; P = 0.564). Therefore, research ethics is a topic that concerns all actors in the academic world but especially those in the master's level expertise cycle.

4.2.3 RELATIONSHIP BETWEEN GENDER AND REASONS FOR ATTENDING THE WORKSHOP

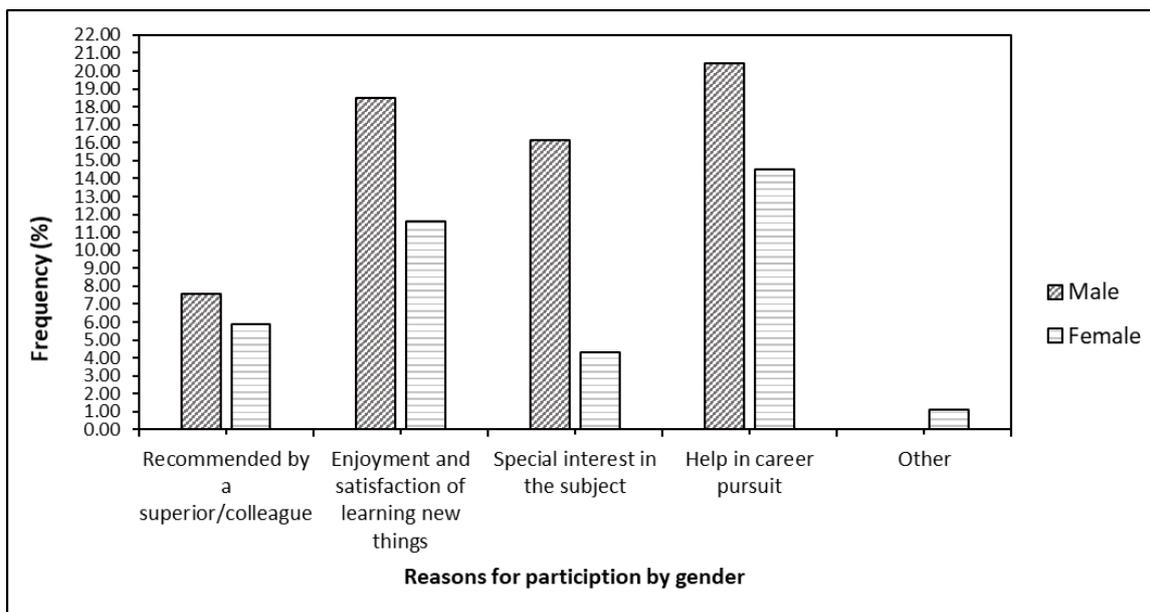


Fig. 8. Reasons of respondents' participation to the ethic workshop by Gender

Fig. 8 presents the relationship between gender and reasons for attending the research ethics workshop. The analysis of figure 8 reveals that both men and women were driven by the same reasons for attending the research ethics' workshop.

4.3 OVERALL UNDERSTANDING OF RESEARCH ETHICS

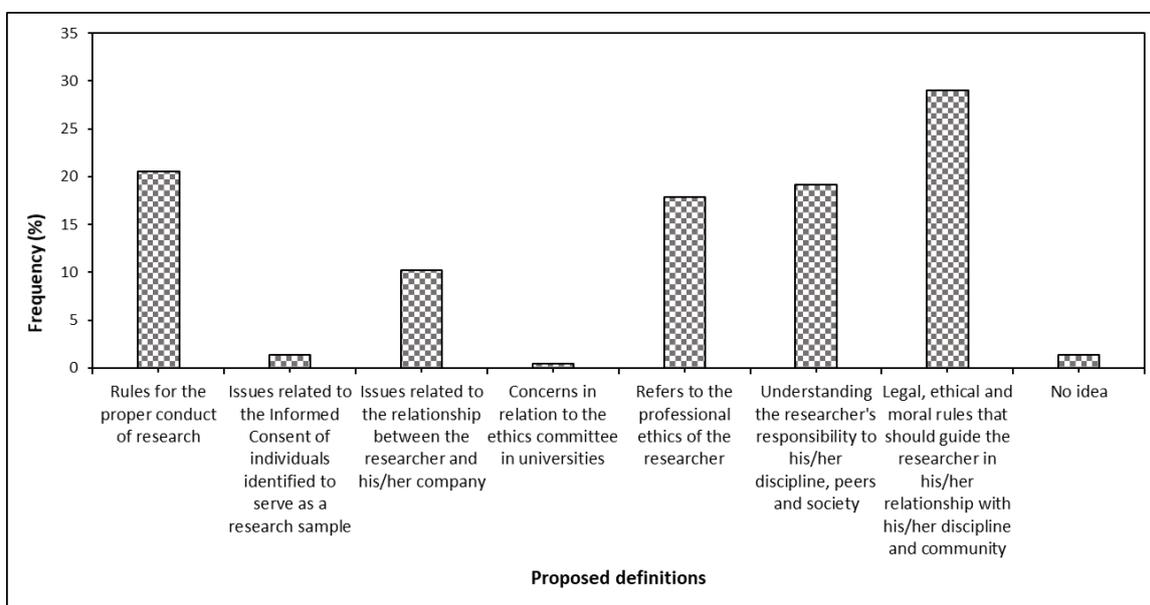


Fig. 9. Definition of research ethics

Fig. 9 highlights the different definitions of research ethics among participants. The analysis of figure 9 reveals that the definition that initially seems complete for the participants (29.01%) is the following: research ethics is 'the set of legal, deontological and moral rules that must guide the researcher in his relations with his discipline and his community'. This was followed by the definition that research ethics 'is everything that relates to ethics in research, i.e., the rules for the proper

conduct of research'. According to other groups of participants, 'ethics allows for a better understanding of the researcher's responsibility to his or her discipline, peers and society'. Finally, 17.85% of the participants thought that research ethics 'refers to the professional ethics of the researcher'.

Based on all these definitions, we can therefore retain that research ethics is perceived by the workshop participants as the set of deontological rules and moral values that apply to the researcher throughout the research process while strongly implying an understanding of the researcher's responsibility towards his or her discipline, peers, and society.

5 Research works should be divided into background, material and methods, results, discussion, conclusions, references.

6 DISCUSSION

This study analysed the level of knowledge of research ethics by the academics. Participants at the undergraduate, master's, and doctorate level showed different levels of research ethics knowledge (beginner, intermediate, advanced, expert, and none). Most of the respondents had a beginning level of knowledge of research ethics.

This can be explained by the fact that, firstly, apart from the philosophy courses taken in the second cycle of college where ethics and morals are taught, courses on research ethics are not taught at the undergraduate and master's levels, either professionally or as a research unit, although these notions are implicit in the research methodology courses. Secondly, the research methodology courses taught at the undergraduate level already specify what the researcher must do during his or her investigations, but do not specifically mention research ethics. Hence, many participants believe they have a beginner's level of knowledge. The second major trend that emerges is that many participants believe they have an intermediate level of knowledge. This is why [8], attests by saying that students in the humanities and social sciences who have taken courses in scientific research methodology, have a basis for judging the scientific value of information, but do not have knowledge about the ethical principles to be respected when conducting and using scientific research. Therefore, ethics should be considered as a foundation for learning programs [9].

Considering the level of understanding of research ethics according to gender, there is a significant difference between the level of training according to gender and the level of understanding of ethics. The observations show that there is a statistically significant difference at the 1% level of knowledge about research ethics according to the level of training ($\chi^2 = 36.961$; Degrees of freedom = 12; $P = 0.000$). This difference could be explained by the fact that as the level of education increases, the level of knowledge increases. In other words, the higher the level of education, the more knowledge one acquires in relation to research and more specifically on research ethics. Indeed, men have a higher level of education than women and therefore a higher level of knowledge about research ethics. According to [10], men are more strongly motivated by career prospects, their choice of study is more specifically in line with a logic of profitability and personal development; whereas women are more strongly motivated by a social commitment, they situate their choice of study more precisely in the context of a social problem. This is more noticeable notwithstanding those women are the majority among students (in bachelor's and master's degrees). As for the doctorate, their number decreases among lecturers and researchers and becomes a minority [11].

Furthermore, the level of education has a very significant influence on the level of knowledge of ethics. As the level of education increases, more advanced knowledge is acquired. Thus, education is a means of acquiring greater knowledge [12]. However, the observation made is that whatever the entity to which the academic belongs, his or her level of knowledge does not vary and is generally limited to a beginner or intermediate level. One of the reasons for this situation is the classical educational system in our universities, where the lecturer transmits a certain amount of knowledge that he or she filters and selects for the learners, which limits the student's ability to search for the relevant resources themselves to understand and react to the problems of daily and professional life [13].

The Chi-square test performed About the relationship between gender and reasons for attending the research ethics workshop is not significant at 5% level ($P = 0.069$). This shows that gender does not influence the reasons for participation. This could be explained by the fact that once men and women are enrolled for studies, they are already in a career perspective, so they are all driven by the same motivations to evolve in their study.

Individuals surveyed articulated several motivations for participating in the research ethics workshop. More than half of the participants were motivated to attend the workshop because they felt it would be useful for their career. For others it was for fun and satisfaction of learning something new ideas. At the same time, some participate attended it, because they find the topic particularly interesting. These differences can be explained by the fact that participants are intrinsically motivated to pursue a career in research and therefore need to be aware of the rules of good research conduct, the relationship between the researcher and society, and the responsibility of the researcher to his or her peers and community. In all cases, there is a real motivation for the respondents to pursue a career in research and thus to know the rules of good conduct in research, the

relationship between the researcher and society and his or her responsibility towards his or her peers. This alludes to scientific integrity, which involves good practices, behaviours to adopt in research and to promote in the laboratories [14]. Thus, several notions of ethics have been proposed. The definition that initially seemed comprehensive to the participants is that research ethics is 'the set of legal, deontological, and moral rules that must guide the researcher in his or her relations with his or her discipline and community' In the same sense, Toma M. asserts that research ethics is a responsible act of the researcher that consists of the researcher adapting to certain norms, deliberately accepted, for the benefit of himself, his peers and society [2]. This first definition is followed by a second one which states that research ethics refers to 'the professional ethics of the researcher' It is the respect of scientific integrity, that is, a personal reflection on the rules of good human conduct and the values on which they are based in society, in the profession and in the academic field [15]. On the other hand [3], argues that ethics is an everyday affair, not just a capacity to respect a set of norms regarding the good practices of the researcher, but also affects our habits and actions in society.

All of the above means that in order to get researchers, teachers, doctoral students and students to adopt the principles of research ethics, it is necessary to make them understand the effectiveness of the actions undertaken by them within the framework of respecting the rules of ethics and the objectives initially set in the framework of their research. Therefore, in the face of the regulatory constraints imposed by universities in terms of ethical rules and the dilemma that usually arises for researchers faced with the effectiveness of research and the original mission of his discipline, the choice of compliance with ethical standards is easier. The researcher's motivation is thus found in the choice of ethical rules. The researcher then perceives the ethics of research through the social construction of reality around him in the academic community and outside this community.

7 CONCLUSION

Considering the above, research ethics is a concept that is partially understood by most university actors, especially students. This explains why most of the respondents have a beginner's level of knowledge of research ethics. On the other hand, there is a significant difference between the level of training and the level of understanding of ethics. Also, the level of training significantly influences the level of knowledge of ethics. Therefore, as the level of education increases, more advanced and new knowledge is acquired. Furthermore, not all participants had the same motivation to participate in the workshop. Nevertheless, more than half were motivated to attend the workshop because they felt it would be useful for their future careers.

Science, with its diversity of explanatory truths about the world around us, places the academic actor at a crossroads between society's expectations of researchers and the latter's responsibility to make choices based on principles of integrity and morality.

The importance of an ethical approach in university research leads to certain questions: who carries out the act, what act is involved and what are the procedures? - Who should take responsibility for the research or its effects on society?

The answer to these questions raises some situations of lack of ethics in the university environment, the most recurrent of which is plagiarism. It appears that the practice of plagiarism in all its forms is on the rise. This is due less to dishonesty and more to an ignorance or limited level of awareness of research ethics. Therefore, more actions are required to sensitize researchers and to train students. These actions do not hinder the central role played by the University Pedagogy and Quality Assurance Centres in the promotion of good practices in teaching and research.

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REFERENCES

- [1] K. Fort, G. Adda and K. Bretonnel Cohen, "Éthique et traitement automatique des langues et de la parole: entre truismes et tabous", *TAL et éthique*, vol.57, no. 2, pp. 7-19, 2016.
- [2] M. Toma, "Repères sémiologiques dans l'éthique de la recherche (semiologic landmarks in research ethics)", *Agathos*, vol.8, no. 2, pp. 119-130, 2017.
- [3] M. Khamassi, R. Chatila and A. Mille, "Éthique et sciences cognitives", *Intellectica*, vol. 1, no. 70, pp. 7-39, 2019.
- [4] Wright, M., *Réflexion sur les fraudes scientifiques en sciences biologiques et médicales ou quelques problèmes d'éthique que l'on peut rencontrer au hasard d'une manip ! Ecole doctorale Biologie-Santé-Biotechnologie. Toulouse. 2016.*
- [5] Friedman, A., *La perception: une approche en sociologie cognitive. Éditions de la Maison des sciences de l'homme. Paris. 2019.*
- [6] H. J. Klein, "An Integrated Control Theory Model of Work Motivation", *The Academy of Management Review*, vol. 14, no. 2, pp. 150-172, 1989.
- [7] ALLEA, *The European Code of Conduct for Research Integrity*, 2017. [Online] Available: <https://allea.org/portfolio-item/the-european-code-of-conduct-for-research-integrity/> (January 5, 2021).
- [8] K. St-Denis, "Comment enseigner l'éthique Professionnelle et l'éthique de la recherche ?", *Pratique partagée*, vol. 30, no. 3, pp. 9-13, 2017.
- [9] Bouchard, N., Gendron, C. and Gagnon, M. *Pour faire avancer l'école un programme d'éthique et vivre-ensemble*, Groupe de recherche sur l'éthique en éducation et en formation. GREF-UQAM. Québec, 2020.
- [10] Gilbert, A.-F., Crettaz de Roten, F. and Alvarez, E., *Promotion des femmes dans les formations supérieures techniques et scientifique, Rapport de recherche et recommandations. Observation EPFL Science Politique et Société, Lausanne. 2003.*
- [11] Ministère de l'Enseignement Supérieur et de la Recherche, *Egalité entre les femmes et les hommes: chiffre clés de la parité dans l'enseignement supérieur et la recherche, Rapport France. Paris. 2013.*
- [12] F. Flahault, "Instruction, éducation et transmission entre générations", *Revue du Mauss*, vol. 2, no. 28, pp. 295-304, 2006.
- [13] F. Docq, M. Lebrun and D. Smidts, "A la recherche des effets d'une plateforme d'enseignement/apprentissage en ligne sur les pratiques pédagogiques d'une université: première approche", *Revue internationale des technologies en pédagogie universitaire*, vol. 5, no. 2, pp. 45-57, 2008.
- [14] Tessier C., Dauchet M., Froidevaux C., Ganascia J.-G. and Kirchner C., *Proposition de formation doctorale – Initiation à l'éthique de la recherche scientifique*, 2016. [Online] Available: http://cerna-ethics-allistene.org/digitalAssets/55/55709_Cahier_CERNA_FormationDoctorale 2018.pdf.
- [15] Tessier, C., Viallet, F., Mary, A., Bertrand, T., Baudouin, L. and al. 2017, *Formation Doctorale « éthique de la recherche et intégrité scientifique »*. Toulouse. 2017.