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WHAT MODELS OF INTEGRITY SHOULD DOCTORAL SCHOOLS APPLY?

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Abstract

The counterpart of academic freedom and scientific autonomy is personal and collective responsibility. This responsibility must be based on contractual foundations in relation to the objectives of knowledge. Ensuring scientific integrity therefore requires the institutionalisation of integrity practices, rather than a mechanical incentive to ethical behaviour. This implies first sharing a reference framework with all actors, and then setting up action mechanisms. The following chapter emphasises the importance of initiating integrity procedures in institutions through the certification of doctoral schools: it presents the various types of action to which institutions must respond in the face of possible breaches: guiding principles, involvement of managers, communication, monitoring and control, training, handling of complaints and sanctions.*

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1. Introduction

In just a few decades, the rapid development of information and communication technologies and the increase in international contacts and economic standpoints have changed the world of knowledge and, consequently, the attention paid to fraud risk requirements.[101] These changes demand scientific approaches consistent with current conditions and everyday practices. All academic institutions build their image and ensure their attractiveness, nationally and internationally. Therefore, they must be able to exhibit their credibility, the quality of their teaching, the distinction of the degrees they award, and the excellence of their researchers.[102] This quest for quality and recognition is particularly clear-cut in graduate training and doctoral schools, which are the first step in autonomous knowledge production: they guarantee both the training of students and the preparation of future professors and research professionals.

In the face of the various ethical scandals that have shaken different countries over the past few years, the requirement for transparency was first imposed on companies via corporate social responsibility (CSR).[103] It is now inescapably required of universities and schools in what I would call university social responsibility (USR), if not, more broadly,

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[101] P.-J. Benghozi and M. Bergadaà, 'Métier de chercheur en gestion et web: risques et questionnements éthiques', *Revue francaise de gestion*, 220(1) (2012), 51-69.

[102] L. Granget, 'La responsabilité sociale des universités à l'heure du savoir comme marchandise. Le discours des universités françaises sous l'angle de la communication marketing: Entre utilité publique et séduction marchande', *Communication et organisation. Revue scientifique francophone en Communication organisationnelle*, 26 (2005), 127-47.

[103] A. Acquier, T. Daudigeos, and B. Valiorgue, 'Corporate Social Responsibility as an Organizational and Managerial Challenge: The Forgotten Legacy of the Corporate Social Responsiveness Movement', *M@n@gement*, 14(4) (2011), 222-50.

academic social responsibility (ASR). Contemporary forms of research production increase interactions between individuals who have very different capacities, depending on their position, to take advantage of the new context: accordingly, we observe a broadening of individual strategies in knowledge-based organizations and economy.

One of the paradoxical consequences is that researchers and research structures no longer appear only as backers of progress and caretakers of indisputable truths: they also appear as advocates of their own interests in a science market influenced by increasing individualization and mediatization. Yet in applying academic responsibility, researchers should know how to act in the interest of knowledge, notwithstanding the shortcomings of a system that allows personal interest to come first. As Bouquin notes, being responsible means plugging the gaps in an organizational system that cannot anticipate and control everything. All the more so as such gaps are essential since they help foster researchers' creativity and professors' pedagogical freedom.[104]

1.1 What frameworks and guiding principles should an academic integrity program have?

In the classical approach to management, the definition of objectives follows specified principles that delimit the manager's responsibility. Very early on, Fayol noted that 'responsibility is a corollary of authority, its necessary counterpart'.[105] The higher one rises in the corporate hierarchy, the more complex the operations, the greater the number of players involved, the more distant the final result, and the more difficult it is to identify the role played by the initial act of authority in the effect produced, and to establish the degree of responsibility the manager has. If scientific communities fail to define and take charge of such issues

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[104] H. Bouquin, *Les fondements du contrôle de gestion* (4th ed.) (Paris: Presses universitaires de France, 2011).

[105] H. Fayol, 'Administration industrielle et générale', *Bulletin de la Société de l'Industrie Minérale,* 10 (1916), 5-164.

themselves, there is a risk of creating an 'administrative responsibility' that shrinks scientific responsibility and control.[106] Consequently, new managerial doctrines advocate an obligation for researchers, as for all public stakeholders, to be accountable for their actions and performance, and face the possibility of sanctions.[107]

Universities are not the only ones facing such challenges. When it comes to social responsibility, the word 'accountability' is becoming increasingly common in both private and public organizations. It is therefore not surprising that we must consider the management of integrity issues from this angle in universities as well: it combines the need for transparency and the responsibility of stakeholders. Garfinkel emphasized that the accountability for action in society is both, and simultaneously, the result of an operation and this operation itself, the end and the means.[108]

Self-affirmation of excellence is no longer enough. Now that their competence and their scientific and technical legitimacy are being questioned, researchers have to explain how they work and are sponsored.[109] Science must now accept accountability as a key dimension of its mission, in terms of research choices as well as the integrity of its practices. It is therefore imperative for all institutions of higher education to anticipate the current trends by committing to transparency and introducing structured academic integrity programs. Responding to these challenges must therefore be part of the strategic

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[106] To situate the responsibility of managers, the theory of management control distinguishes between two terms: *accountability* means the obligation to report and give an account, *responsibility* implies being the backer (and answerable) for a result, assuming that some form of assessment exists.

[107] P.-J. Benghozi, *Accountability in Research*, EIASM Symposium, Brussels, 2005.

[108] H. Garfinkel, *Studies in Ethnomethodology* (Englewood Cliffs, NJ: Prentice-Hall, 1967).

[109] For example, the questioning of the work carried out on GMOs.

orientation of all institutions. This approach establishes sense, trust, and motivation, internally, and contributes to the institution's reputation and attractiveness, externally.

But in a context of risks and uncertainties, no formal criterion can perfectly measure the quality and integrity of a research study. The counterpart of academic freedom and scientific autonomy is personal responsibility. This responsibility is therefore based on contractual foundations with respect to the aims and objectives envisaged in science. Hence, it calls for thinking about integrity in terms of mechanisms and not just of major ethical principles. Ensuring scientific quality and integrity implies an institutionalization of this capacity for self-evaluation, rather than a routine incentive for ethical or responsible behavior, focused solely on the formal or quantitative evaluation of results.

Such an institutionalization of integrity practices implies a two-step approach. First, it means affirming a doctrine, or 'sense making and providing meaning', as some authors would say: this contributes to creating and sharing a reference framework with research practitioners' institutional environment. The next step is to implement practical and management solutions based on these principles of action and regulation.[110]

1.2 Scope: Integrity violations

An integrity program must prevent practices that are contrary to academic norms. The first requirements are thus to define guiding principles and make them explicit. Unacceptable practices can be engaged in by students, supervisors, and researchers: from fraud and plagiarism to harassment and negligence in the monitoring and control

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[110] P.-J. Benghozi and M. Bergadaà, 'Publications et plagiat à l'ère d'Internet: Réponses collectives à de nouvelles pratiques', in *Le plagiat de la recherche scientifique,* ed. by G. Guglielmi and G. Koubi (Paris: LGDJ Éditions, 2012), pp. 207-21.

of theses. This is particularly true in doctoral schools, where researchers are trained; difficulties and tensions arise daily and call for intervention. Some are directly linked to the attitude of doctoral students, others to the thesis supervisor, and still others to the changes in management indicators and the definition of certain behaviors as misconduct that were previously considered acceptable.

As Bergadaà notes, an attitude of integrity or, conversely, practices of academic delinquency take root during the doctoral years.[111] Therefore, a program must establish preventive policies to reduce students' temptations to engage in fraud or bad practices in their research and publication activities. For supervisors and researchers, it is then a matter of establishing preventive, remedial, and punitive mechanisms to promote good practices in the supervision and training of doctoral students, as well as to reduce as much as possible the risks of plagiarism in their own work. Most of us have had to deal with multiple cases and situations. In the box below, we present a non-exhaustive list of the main problems or difficulties that doctoral schools and institutions must recognize and be able to respond to.

The most common breaches of integrity in doctoral schools

Fraud in the production of scientific knowledge[112]

Invention of research results; invention or intentional falsification of quotations or data; intentional misrepresentation of research results; exclusion of source data without reporting it; concealment of conflicts of interest, financial arrangements, or collaborations that could influence scientific results; collaborative arrangements that do not preserve the

[111] M. Bergadaà, *Le plagiat académique: Comprendre pour agir* (Paris: Éditions L'Harmattan, 2015.

[112] Some points are taken from the ULiège Ethics and Scientific Integrity Charter: preventive aspects aiming to guarantee scientific integrity—procedure to follow in case of a breach of scientific integrity—constitution of the Ethics and Scientific Integrity Council.

supervisor's and/or doctoral student's independence of judgment, restrict the freedom to publish, or impose on the supervisor or doctoral student a right of review of publications beyond what is reasonably required to protect intellectual property rights; appropriation of results, analyses, data, and ideas in an abusive and/or unsourced and undocumented manner; sabotage of the work of other doctoral students or colleagues; abusive complaints against colleagues, the supervisor or other researchers; lack of protection of doctoral students from theft of their work (within the institution or at conferences or seminars).

Publication fraud[113]

Submission of a thesis or parts of a thesis purchased from others or done by proxy (dissertations purchased online, making use of paid authors, etc.); publishing under one's own name the results of work and discoveries made by others (plagiarism); claiming or accepting the status of co-author of a publication without having made essential contributions; deliberately omitting the names of other authors or collaborators in the project who have made essential contributions; intentionally listing a person as a co-author when they have not contributed to the project; intentionally misquoting the existing or purported work of others; misrepresenting the status of one's own publication.

Abuses in thesis supervision

Lack of responsibility on the part of thesis supervisors who leave their students to their own devices: lack of guidelines on the management of their project and the development of their theses, lack of follow up on the quality of the work done and the research methods adopted, lack of support or advice in the various stages (communications in conferences, methodology, readings, etc.); overly directive attitude in supervision, systematically preventing students from becoming

[113] See IRAFPA, Responsible Site; M. Bergadaà, *Responsable / Accueil,* 2020.

independent, and requirement to carry out tasks unrelated to the thesis; discouragement of any attempt at innovation in the analyses; harassment practices (moral or sexual); recruitment of incompetent doctoral students (to increase research grants); participation in inadequate and/or overly lenient thesis defenses; appropriation or theft of doctoral students' work; failure to support doctoral students confronted with unethical practices.

1.3 Academic integrity program for graduate schools

Higher education institutions must set academic integrity guidelines and take action to address these various problems. Doctoral programs play an important role in this challenge. It would, of course, be impossible and illusory to provide assurance that a doctoral school will never be exposed to a case of plagiarism and scientific fraud. However, the implementation of basic policies and procedures helps to prevent such abuses as much as possible: whether they are committed by the doctoral students themselves, their supervisors, or the supervisory staff, or result from issues external to the institutions. Fortunately, there are signs of growing awareness internationally. The work carried out within Institute of Research and Action on Fraud and Plagiarism in Academia (IRAFPA), especially at the institutional level, indicates what the guiding principles should be, for example, and what types of mechanisms should be promoted. From this perspective, the implementation of labeling or recognized certification systems provides an opportunity to distinguish which academic institutions have reached the best levels of maturity in this area.

Promoting integrity certification approaches

Public stakeholders encourage teaching and research institutions to adopt certified quality management procedures and to increase exchanges of information among them: more broadly, they aim to establish a framework for the dissemination of good practices. At the

European level, we see the European Network for Quality Insurance (ENQA), created by the European Commission in 1999; at the Francophone level, there is the Agence universitaire de la francophonie (AUF); and at the global level UNESCO is in charge.[114] Engwall notes that these movements, along with other pressures to imitate existing measures, are powerful drivers of conformity with uniform practices.[115] Professional structures and scientific journals also participate in this drive toward the creation of standards and the sharing of best practices. In the case of business schools, for example, this has led to the European Quality Improvement System (EQUIS), the Association to Advance Collegiate Schools of Business (AACSB), and the Association of Masters of Business Administration (AMBA).[116]

Beyond integrity issues, the current competition between institutions is to a large extent arbitrated by evaluation and ranking bodies that legitimize reputations and promote certain institutions over others. But regardless of the scientific discipline, there is no label for integrity other than that provided by IRAFPA. However, when it comes to ethics and academic integrity, there is no such thing as 'cultural relativism', which would make particular practices acceptable in different countries or disciplines. The principles and approaches put forward must therefore be the same for all academic institutions, regardless of their geographic location or specific field of practice. Nonetheless, a certain pragmatism must be applied when it comes to respecting national and regional policies and sensitivities. Scientific integrity programs must be adapted to the specific reality of the institutions that want to be recognized as

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114 https://enqa.eu/; https://www.auf.org/; http://www.iiep.unesco.org/en/integrityforum.

115 L. Engwall, 'Excellence in Management Education', in *Excellence in Higher Education: 82*, ed. by E. de Corte (London: Portland Press, 2003), pp. 159-73.

116 https://www.efmdglobal.org/accreditations/business-schools/equis/equis-governance/; https://www.aacsb.edu/; https://www.association ofmbas.com/.

'responsible'. In this context, implementing integrity processes through doctoral schools has several advantages. Certification of doctoral schools is simpler because of its more limited scope and the greater homogeneity of the activities it covers. A working group carrying out the project and the involvement of an integrity program manager will be easier to establish. Of course, because of doctoral programs' integration into and dependence on a larger institution (university, faculty, school, department), implementation may pose difficulties related to the degree of autonomy and the actual capacity to modify internal regulations or more general procedures. However, since doctoral schools occupy a unique place in higher education, they could present a model of integrity and a driving force.

The design of such an integrity program must then target several levels. The first issue is to determine what kind of problems are likely to be encountered in the preparation of a thesis: from the selection of doctoral students to the defense of theses and the professionalization of young researchers. To whom are the rules of the doctoral school addressed and how? What actions should be taken with respect to doctoral students? What actions should be taken regarding thesis supervisors and colleagues in the research units where the theses are completed? A second level involves determining what kind of organization and strategy to adopt according to the specific features (size, discipline, location) of the doctoral school? What responsibilities (or autonomy) should universities assume (or delegate) with respect to their doctoral schools? Finally, the last level of questioning concerns the instrumentation and the definition of the procedures and pedagogical tools to be put in place.

2. Developing a doctoral school integrity charter: the basics

Faced with these questions, our experience as a management researcher and academic supervisor is useful for going beyond the mere assertion of broad principles and thinking concretely about the nature of such a program and the means of making it operational. The purpose of such a program should be not to ensure a minimum quality of results but to accompany the process of learning to do research, by explaining what behaviors and decisions should be taken in given situations: far from a routine performance problem.

The objective of the integrity charter for doctoral schools is to set out the institution's guiding principles in terms of integrity, to indicate the guidelines for good practice in thesis management, supervision, and research training, and finally to provide the broad outlines of the framework for implementing action. This charter is intended for doctoral students, thesis supervisors, and all people contributing, in one way or another, to the supervision of theses (supervisors and colleagues, researchers, documentalists, other doctoral students, and postdocs).

This charter must be precise and explicit: prohibition of fraudulent behavior, absence of plagiarism, authenticity of the work produced, respect of the collaborators and their contributions. Thus, it might include the following elements:

- Definitions of terms and clarification of integrity rules and terms (plagiarism, self-plagiarism, fraud, etc.).
- Actions to prevent plagiarism and scientific fraud and provide information on the topic.
- Policy regarding monitoring, training, or sanction.
- Roles of the various advisory and administrative bodies involved in the handling of complaints, the investigation of alleged misconduct and the sanctions process.

- Investigation procedures in cases of alleged misconduct and the specific arrangements (duration of the investigation, confidentiality, method of compiling files, etc.).
- List of penalties applicable.
- Procedures—at the beginning of each academic year—to inform students and publicize the requirements in the charter.

Since institutions must present a clear, determined policy, the time frame for this implementation should be reasonably short: one to two years.

2.1 Involving governing bodies

To support the credibility and effectiveness of their implementation, integrity policies, charters, and associated action programs require the full commitment and support of the doctoral school's governing bodies. That entails any person occupying a high-level decision-making and representative position at the doctoral school and at the reference entity (university, faculty, department): president, chancellor, rector, dean, laboratory director, chair of the board, or other decision-making body. Their mission is to define the operating procedures of the doctoral school, as well as to certify the validity of the degrees awarded, the relevance of the skills acquired by the doctoral students, and the equity and fairness of the evaluations issued. The governing bodies must commit to setting up an action program that respects a cross-cutting approach covering communication, training, support, and sanctions. They must have the human, economic, and legal tools to investigate cases of alleged integrity violations and to decide on sanctions proportionate to the fraud. This implies allocating a budget and the tools to deal thoroughly with the different courses of action. The governing bodies should also be involved in the public communication of their integrity programs (via the website or any other communication medium of their choice).

In addition, the doctoral school's integrity policy must involve all members of the academic community who contribute, to a greater or lesser extent, to the supervision of doctoral students (research assistants, librarians, professors, other students, etc.). They are committed to communicating and enforcing the integrity charters within the scope of their responsibilities. These commitments should first be expressed in the signature of the integrity charter (or thesis agreement) by each person, and then take more specific forms for the different categories. For instance, there should be an explicit reminder in the forewords of dissertations and doctoral theses that the work is in accordance with the rules adopted by the institution in terms of integrity. An equally categorical commitment (not calling for formal mention in articles) should be made in respect of research and publications by thesis supervisors, researchers, etc.

2.2 Appointing an 'integrity officer'

Within the doctoral school, an 'integrity officer' must be designated and clearly identified, who can also act as mediator or ombudsperson. Of course, the competences of these different roles are distinct, but the size of doctoral schools generally leads to their being entrusted to a single person. Let us specify the necessary conditions for this position.

First, the profile of the person in charge must correspond to the following criteria: seniority in teaching and research, proven experience in supervising theses, cross-disciplinary commitment to the organization (beyond just acting as a researcher), empathy, listening skills and human sensitivity, openness to interdisciplinary approaches, and autonomy.

Then, the person in charge of integrity has to coordinate the overall development of the integrity program within the doctoral school and the supervision of its application and implementation. In particular, this person must have direct access to the heads of the doctoral school and, when such a position exists, to the integrity officer of the institution to which the doctoral school belongs (university or faculty). The integrity officer must alert them in case of problems and cooperate in the implementation of preventive measures, the defense of doctoral students, or the management of presumed cases of misconduct.

Next, the integrity manager must be able to rely on a team because a change in the habits and processes of an academic institution cannot be imposed top-down or depend only on the will of a dedicated manager. It is therefore essential to have a team with complementary profiles, who are not simply installed because of their positions in the hierarchy. Since academic integrity is a strategic commitment for the doctoral school and its home institution, the team ought to be composed of researchers, thesis supervisors, and representatives of the doctoral students. These people should not be simply anyone who volunteers; they must familiar with the workings of the academic world and its stakeholders.

This team must have several assignments. First, it must define good practices, develop an integrity charter for doctoral students, and ensure that this charter is respected and updated. Then, it must ensure that the doctoral students commit to respecting the charter. Then again, it will coordinate communication and training. Subsequently, it must determine the applicable procedures, in agreement with the players concerned, set the required timetable for their application, ensure their operational implementation, and report to the governing bodies and other stakeholders of the doctoral school. This means keeping an ongoing statistical record of the cases reported and processed. Finally, it is important to suggest improvements to the program, as and when needed, based on the experience with past cases.

2.3 Communicating about scientific integrity

Raising awareness of the issues of integrity and—at the same time—of fraud is an essential step in gaining the understanding, support, and conviction of everyone involved in a doctoral school. Communication is therefore one of the first steps to be implemented in the integrity program. Communicative actions must focus on the various players of the doctoral school and its environment: potential future doctoral students, researchers likely to serve on thesis juries and to recruit graduates later, etc.

Internally, communication defines the key priority messages. These messages must be adapted to the doctoral school's situation and the problems it may face, while remaining consistent with the institution's overall strategy. This includes organizing discussion forums and events on the topic of plagiarism and academic integrity (conferences, workshops, demonstration of anti-plagiarism software), based on the annual activity reports of the integrity commissions, and contributing to the publication of reports on the issue. This also implies the development of an online information campaign, including the promotion and documentation of good (or bad) practices: creation of an informative website, newsletter, and/or emailing of relevant information to PhD supervisors and researchers on plagiarism by PhD students, representative cases of integrity violations in research or publications, legislation in force concerning copyright and personal data protection, and experience reports from other institutions.

Externally, fighting plagiarism and scientific fraud must be part of the doctoral school's public communication strategy. The doctoral school's reputation and image are decisive in ensuring the quality of the doctoral students it recruits, attracting the best experts to its juries, guaranteeing the excellence of the theses it delivers, and supporting the best placement of its graduates. The doctoral school's website must therefore include a section about its integrity policy and certain information taken from its internal communications, including the charter and links to the relevant pages on the home institution's website.

2.4 Monitoring and controlling regularly

The main integrity problems raised by PhD theses are generally of four types: plagiarism, research fraud, insubstantial theses, or theses by proxy. Their consequences can be dramatic for the doctoral school as well as for the various parties involved (doctoral student, thesis supervisor, members of the jury), at the interpersonal, interinstitutional, and even international levels, in the case of jointly supervised degrees. The complexity resulting from the diversity of these situations calls for specific treatments.

The real control is, in the first place, the responsibility of the thesis supervisor who must substantiate the quality and authenticity of the texts and work that she receives from her doctoral student. Again, then, it is a matter of making the supervisor responsible upstream. The quality of this control depends on two very different approaches. On the one hand, it is a matter of verifying, on the spot, the relevance of the documents provided by the doctoral students: absence of plagiarism, validity of the data, authentic sources of the material, laboratory notebooks, etc. This control is naturally carried out thanks to the expertise of the supervisor, who can also rely on various tools (anti-plagiarism software or search engines, in particular) that the doctoral school will make available. This control will be deepened, of course, on the final manuscript submitted for the thesis defense. On the other hand, the best way to control the integrity of doctoral students' work remains the quality, frequency, and regularity of their supervision: from the formulation of the research question and the progressive development of the results to the writing. In addition, thesis supervisors, host laboratories, and research teams are responsible for training (see section 2.5) and setting an example. Setting an example means that the members of the doctoral school must contribute to good academic practices in compliance with the integrity charter. In case of doubt about the authenticity of a thesis or the conduct of a doctoral student, thesis supervisors or colleagues have a duty to inform the integrity officer of the doctoral school or the home institution.

While technology has facilitated plagiarism on a large scale, it has also opened up new opportunities for fraud detection. Anti-plagiarism software is not a quick fix, but it provides preventive support and should be one of the functionalities provided in institutional educational platforms or toolkits. In particular, doctoral schools should systematically subject theses to a similarity detection protocol before the defense, jury deliberations, and graduation take place. It is important to note that the doctoral school's integrity and control policy cannot, under any circumstances, be based solely on these detection tools. Existing software applications have many limitations and are unable to identify certain kinds of fraud: slavish translations of texts from another language, simple reformulations of a plagiarized text, data copied in other formats, reformulation of original thoughts, etc. Software can only support the experience of a thesis director or an expert in the field who is able to identify the origins of certain contributions, spot the absence of certain sources, and detect differences in the style or nature of the writings.

2.5 Training supervisors and students

In the end, the responsibility of thesis supervisors, host laboratories, and, more broadly, the doctoral school is to train doctoral students in good integrity practices. This training is based, on the one hand, on the clarification of the terms and concepts covered by integrity programs and, on the other hand, on actions targeted at students and at thesis supervisors.

The first phase of the training courses must make the definitions of integrity-related concepts clear and promote their appropriation. This work must be carried out according to the specific characteristics, especially disciplinary, of the doctoral school. Hence, depending on the scientific field, the magnitude and prominence of the various fraudulent actions may differ: plagiarism and self-plagiarism, data smoothing, 'salami slicing' *of* results in order to obtain the greatest possible number of articles (and thus increase the number of citations), and so on. Mastery of the supervision of doctoral students and thesis direction is often taken for granted as one progresses in an academic career. However, it does not always occur and the policy against plagiarism and scientific fraud must include the organization of training sessions (voluntary or during onboarding) for thesis supervisors and researchers.

Training seminar for supervisors

As far as the training of supervisors is concerned, it can take place on several supports but will always include the same basics. The face-to-face seminars and the appropriation of reference guides on best practices or online resources (FAQs, tutorials, etc.) must include the following elements:

- good practices of integrity in research and educational matters;
- rules of exemplary behavior to be respected and transmitted to students regarding plagiarism, intellectual property, and exam fraud;
- good practices in thesis project management, supervision, and follow-up (managing the relationship with a doctoral student, organizing the work and supervision of the doctoral student, verifying the quality and authenticity of a document, setting up a committee and a thesis jury);
- keeping up to date on emerging uses of the Internet in order to understand the new plagiarism practices used by students and know how to detect these methods.

From the very first discussions with their doctoral students, thesis supervisors must introduce awareness and information on plagiarism and the good practices to be respected, as well as on the institution's academic integrity policy. They must also remind their students of the quality criteria for evaluating a thesis: it is not the number of references or the number of pages submitted that is evaluated, but the knowledge and methods acquired. Ultimately, they must be open to answering their students' questions about plagiarism or fraud.

Doctoral students are often ill-prepared by their previous studies for documentary research and state-of-the-art academic reviews. Sometimes, they have only partial knowledge of referencing and citation etiquette. Often they have relied on the Internet in their earlier classes, mistaking tinkering with copied and pasted texts for an authentic intellectual production. They need to be taught how to conduct a literature search using databases and the Internet, how to cite, how to respect copyright, how to be critical about sources, and how to be ethical about citing documents. The institution must therefore provide mandatory courses on how to review the literature, bibliographic research workshops with library managers, and training in similarity detection software available to doctoral students.

2.6 Dealing with complaints

All stakeholders must be able to easily consider filing a complaint or a request in case of suspected fraud. Consequently, the institution must establish and publish information about whom to contact, the nature of the procedures involved, and the steps to be taken. In order not to discourage allegations of fraud or plagiarism, this information must be clearly described by the doctoral school in the event of a dispute or integrity issue. It is therefore essential to publicize the rules adopted to fight against plagiarism and scientific fraud and explain how they are enforced: how to report a suspected case of plagiarism and scientific fraud and how the investigations will be carried out and sanctions may be decided on.

To this end, the institution must open a privileged and confidential communication channel (email, contact person, etc.) for people who wish to report, in good faith, a suspected case of plagiarism or scientific fraud. All reports of integrity-related issues, regardless of the status of the whistle-blower, will be forwarded to the integrity officer in order to launch an investigation under his responsibility. At the same time, it is important to protect people who report, keeping their identity confidential as much as possible. The integrity officer will ensure that this examination is conducted with the appropriate degree of confidentiality in order to protect the rights and legal status of the complainant as well as those of the person suspected of plagiarism. In particular, the potential whistle-blower should be protected from retaliation of any kind.

Specifically, four specific conditions must exist in order to proceed:

1. The complaint must be documented and demonstrate harm to an author, person, academic journal, institution, or other party, including the reader.
2. The complainant must provide, in electronic format, a case file containing all the elements supporting the request.
3. The complainant must specify their expectations regarding the outcome of the request.
4. The doctoral school must disclose the possible fraud to the denounced party, in order to give them the opportunity to respond within a reasonable time.

Organizing an investigation

- In case of plagiarism committed by a doctoral student, the person in charge of integrity will appoint an investigation committee. It should include one or two people specializing in the disciplines in question, who are unbiased and free of any risk of collusion with the alleged offender or their thesis supervisor. During the investigation, the doctoral student must be heard by this investigation committee or by a person it appoints. The thesis supervisor can, of course, be heard but must remain outside the investigation procedure. It is important that this investigating committee consist of at least two persons who are independent of any pressure—from the plagiarist, the complainant, the research colleagues, or the responsible authorities. Depending on the seriousness of the alleged case, and especially when the thesis is close to being defended or has already been delivered, the integrity officer may appoint an investigation committee made up, in whole or in part, of people from outside the institution.

- In the case of plagiarism or scientific fraud committed by the doctoral student's supervisor or a member of the research team, the integrity officer may attempt mediation. If such arbitration is not possible, or if it fails, she must set up an investigation committee composed of at least one specialist in the field concerned and two people who are experts in the problem at issue. If all the members cannot be external to the institution, the committee should, at least, be chaired by someone from outside the academic institution. In all cases, to ensure fairness and protect those involved from any future accusations of conflict of interest, there should be no hierarchical relationship between committee members and any of the parties. It is important that the investigating committee be neutral and free of pressure—whether from the plagiarist, the complainant, other faculty members, or the responsible authorities.

Nonetheless, formal procedures for investigation and sanctions are not the be-all and end-all. The doctoral school also needs to introduce a mediation mechanism. Such a tool is indispensable to encourage the speedy handling of problems or complaints. On the one hand, it simplifies the resolution of disputes in the case of fraud that is manifest and/or acknowledged by its author. On the other hand, when possible, the use of mediation avoids increasing tensions within research teams or between the thesis director and the doctoral candidate. Unlike situations of plagiarism between peers, for example, the asymmetry of the supervisor/doctoral student relationship often makes it difficult to open an investigation. Mediation can be provided by the person in charge of integrity, by an ombudsperson, or, if necessary, by a designated expert.

2.7 Establishing sanctions

The rules of fairness of any juridical process presuppose the separation of the investigating and sanctioning bodies. This is also the case in academic issues. Consequently, once the investigation has been completed, the integrity officer must inform the competent body (doctoral school management, scientific council, president of the home institution) of his conclusions for their information and to trigger possible sanctions. This presupposes that the doctoral school or institution has previously defined a penalty scale in case of integrity violations and the conditions of their enforcement in terms of possible legal consequences. As in any investigation and sanction procedure, all parties must be heard and the possibility of appealing to the governing bodies (presidents, rectors, deans, directors, etc.) must be offered. The appeal must be formulated within a short period of time and its examination must be rapid.

For doctoral students, the scale of applicable sanctions can range from a simple reprimand or reminder of good practices to suspension from the university or, if necessary, the cancellation of the doctoral degree and the prohibition of re-registration. If the fraud is proven, a dedicated council or sanctions committee will have to decide on the measures to be taken. As a suggestion, in case of a minor fault (partial plagiarism, cherry picking of data), the obligation to redo the work concerned (research, surveys, analyses, data collection), the submission of a new version of the work, or the postponement of the thesis deadlines may be decided upon. In case of major fraud (thesis by proxy or major plagiarism), the penalty can go as far as suspension or permanent exclusion from the institution.

In the case of proven misconduct on the part of members of the faculty (including thesis supervisors, professors, or associate members of the research department), one difficulty is that these people have different employment statuses and report to different hierarchical authorities. Consequently, sanctions must be imposed by the highest authority of the institution concerned. These sanctions have to be defined in relation to the exemplary behavior expected of supervisory and research training staff and the importance of the fraud: they can range from a prohibition against supervising theses to exclusion from any research body or any activity within the institution.

But setting penalties and sanctions should be only one aspect of dealing with fraud. In addition, measures to compensate the victims must be taken. They may consist, for example, in an apology to the victim(s) or in the reimbursement of any expenses incurred by the procedure. In any case, publications by authors convicted of plagiarism or scientific fraud should no longer be accessible for consultation and, in some cases, should be destroyed.

In the event of a breach of integrity and the issuance of a sanction, the institution should make a fair decision on what information should be communicated to stakeholders after all remedies have been taken. Unless there is a valid reason, the anonymity of the persons involved should be preserved in public communications. On the other hand, it is essential that the institution guarantee that no direct or indirect retaliatory measures will be taken against the complainant, the whistle-blower, or the witnesses who may be affected by the sanctions.

3. Conclusion

While the guiding principles of academic integrity naturally remain immutable, the doctoral school's charter and integrity program are not tables of the law that are intended to be set in stone. The rapid evolution of teaching and research practices (good and bad), regular innovations in the tools, methods, and technologies used, and the unprecedented nature of the conflicts or frauds that occur in the academic world call for periodic adaptation of the charter and the action programs. This kind of adjustment and updating assumes the transparency of the measures implemented, including those related to investigations for fraud or proven plagiarism.

Moreover, they require public communication of the results of these actions. This could be done through dedicated internal working groups or external opportunities (seminars, workshops, publications). This sharing and dissemination of information contributes to open debate among the stakeholders of the doctoral school and play a role in a collective evolution of rules and practices. Based on experience and the data collected on integrity issues, the institution should therefore support a virtuous change by embedding a culture of integrity.

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