

REVIEW ARTICLE

Good practices in the preparation of PhD theses

ABSTRACT

The purpose of this article is to provide some reflections and considerations in relation to the way in which universities carry out postgraduate thesis advising, considering that the completion of a PhD thesis requires rigorous work both by the PhD student and by the advisors, with the academic unit in charge of the postgraduate program being responsible for the latter. In this regard, the aim of the article is to identify practices in the preparation of PhD theses in Peruvian universities in order to propose good practices in thesis advising, adopting measures to regulate the procedure and to ensure that the PhD student receives adequate guidance to achieve the objective of graduation with a high-quality academic paper through good practices. This is motivated by the fact that there are often different criteria not only among schools, but also among universities, regarding the way to guide the preparation of doctoral theses, added to the absence of research policies, lack of development of research lines by the universities according to their area of influence and, occasionally, poor tutor preparation. In this order of ideas, university or academia, as it is rightly called today, has a great social responsibility that goes beyond its public, private or associative nature toward national development. As a result, rather than being limited to professional training, its contribution should comprise the development of technological knowledge to meet social needs.

Keywords: good practices; advising; doctoral thesis.

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INTRODUCTION

The PhD thesis represents the crowning achievement of the highest level of studies carried out at the university and is expected to be a valuable contribution to scientific knowledge. Hence, the need to establish procedures that adequately guide its execution, so that PhD students are able to put their knowledge of research into practice and apply it to scientific development in a particular field of reality.

There are several aspects that good practices should take into account. It is necessary to consider that the establishment of such practices does not imply preparing cumbersome regulations that waste resources in administrative procedures and that, instead of facilitating the proper development of the thesis create bureaucratic hurdles that hinder its completion. Above all, good practices should address aspects related to the project approach, methodological and thematic advice, proper application of research methodology, the way in which critical remarks are addressed, and the subsequent writing of the thesis.

PURPOSE OF THIS PAPER

The purpose is to identify practices in the preparation of PhD theses in Peruvian universities in order to propose good practices in counseling, for the successful completion of research.

ARGUMENTATIVE REVIEW

Background

Jiménez-Contreras *et al.* (2014) emphasize the dual nature of the PhD thesis, referring to its certainty and originality and to the fact that it is a requirement for earning a PhD degree. The authors highlight the importance of the substantive contribution that the PhD thesis should provide and the research character that it attributes to the author. They emphasize the “master-disciple relationship” and the inclusion of the PhD student in the system as a researcher in training.

In their study on the quality of PhD theses, Valiente *et al.* (2018) found poor scientific argumentation, deficiencies in the quality of writing, shortcomings in the methodological procedures to demonstrate their scientific contributions,

and lack of quality in the way conclusions are stated with respect to findings, as well as to theoretical and practical contributions, along with limitations in the scope of the generalizations they outline.

In his PhD thesis *Doctoral theses in education in public universities from the central region of Peru 2010-2015*, an applied and descriptive study, Cencia-Crispín (2017) set the goal “to understand the level of scientific relevance of PhD theses in education in public universities” (p. 81). In his conclusions, the author considers that the theses of the region under study are at:

A good level: Despite this quality, scientific evidence is very limited and sometimes subjective when it comes to assessment, requiring greater rigor in the instruments and their assessment process; they are of current scientific relevance, characterized by their relevance, originality and clarity; they demonstrate an adequate command of the research methodology; they generally exhibit a deficient presentation, in aspects related to comprehensibility, significance, novelty and usefulness; in addition, little impact of the research on the problems studied was found. (pp. 91-92)

University and society

University is a product of the expression of the population’s needs in the face of a complex problem that spans the various aspects of social life, which is why it requires higher education institutions to provide professional development of the highest quality in the various scientific and humanistic disciplines.

After the Spaniards conquered the Inca Empire, during the following colonial times they saw the need for an institution that would provide professional training for the children of the conquistadors. Thus, in 1551, by Royal Decree dated May 12, 1551, the Universidad de Lima was created, today called Universidad Nacional Mayor de San Marcos, the oldest in the American continent, with five schools. Subsequently, the Universidad de San Cristóbal de Huamanga (Ayacucho) was created in 1677; the Universidad de San Antonio Abad, in 1692;

and the Universidad de San Ignacio, in 1621, in Cusco.

As can be seen, all the universities mentioned above were founded during Spanish rule, which demonstrates the importance that universities had in the society of that time. The other universities were created during the Republican Era, bringing the current total to 143, of which 51 are public and 92 are private, although the number will decrease in two years as those that failed to obtain a license from the Superintendencia Nacional de Educación Superior Universitaria (SUNEDU) will be closed. In spite of the large number of universities, the number of young people who aspire to earn a university degree is on the rise, with more and more young people graduating at an increasingly younger age and turning their aspirations to postgraduate studies, which are currently enrolling younger students.

The facts described in the preceding paragraph show that Peru is experiencing a trend of continuous improvement among young people, which challenges the role of universities given that the growing number of applicants to higher and advanced studies is putting pressure on the capacity and quality of the education offered.

Technology has been strongly integrated into higher education, to such an extent that many degree programs are now offered virtually, a fact that, due to its novelty, has not been properly evaluated in terms of quality.

However, the COVID-19 pandemic has forced a worldwide shift in the way classes are taught at all educational levels, especially affecting technical and university education due to the need to complete pre-professional internships.

In Peru, the increase in the number of universities has given rise, in turn, to the existence of new faculties and, consequently, of Master's and PhD programs, with a great variety of majors.

Furthermore, the requirement to hold a master's degree in order to teach has contributed to an increasing number of teachers with a master's degree, while the number of teachers

with a PhD degree has also increased. While such increases favor higher education and society, in a sequence of continuous education it is important to pay attention to the work of academics in providing better services to the community.

Within this trend, it has recently become apparent that there is a need to carry out what is known as "good practices," with special emphasis on research work aimed at obtaining master's and PhD degrees. This occurs within a globalization context that tends to create national and international integration networks in education, which are boosting university studies in a significant way.

According to Castillo (2015):

The international community considered a series of requirements to qualify a practice as good, including the following: having a verifiable and tangible impact on improvement; resulting from the joint work of the different sectors that act and coexist; having a sustainable and lasting impact; and contributing to strengthening the community and its organizational capacity. (p. 55)

From colonial society to today's society, political, social and economic changes have occurred at a dizzying pace, whose speed is enhanced by scientific and technological advances. Also, social needs have evolved in a radical way too, and the university has to deal with such changes. In other words, the university is faced with changing situations to which it must constantly adapt, revising its processes and renewing its approaches and methods.

In the current pandemic context, the need for medical research has intensified dramatically, but the pandemic has also triggered efforts for scientific development in the labor, legal, psychological, social, anthropological and educational fields, among others. From this perspective, postgraduate studies become of paramount importance due to their link with research, an activity that constitutes one of the pillars of development and has become a cross-cutting axis of professional university training.

SUNEDU (2020) states that, while 40% of researchers in private universities have a PhD degree, in public universities 45% of researchers have a master's degree. Moreover, there is a difference in terms of the category of teaching staff with respect to the degree. Thus, in public universities "58.3% of full-time or tenured professors have a master's or PhD degree", while "in private associative universities this percentage stands at 57.1% and in corporate universities at 42.6%" (p. 54).

Policies and regulatory framework for research in Peru

The Consejo Nacional de Ciencia y Tecnología (CONCYTEC by its Spanish initials), in the National Policy for the Desarrollo de la Ciencia, Tecnología e Innovación Tecnológica (CTI), approved by Decreto Supremo N° 015-2016-PCM, states that "The diagnosis of the national system for science, technology and technological innovation reveals a weak and inefficient system" (p. 3). This executive order establishes that science, technology and technological innovation constitute the "fundamental means to achieve human development and welfare for the population and not as an end in themselves" (p. 6). To this end, it deems it necessary to develop public policies seeking private participation.

Through said instrument, the Presidencia del Consejo de Ministros criticizes educational research in universities because of its alienation from the needs of society and its "scarce contributions to the solution of problems" (Decreto Supremo N° 015-2016-PCM, 2016, p. 13). In relation to the "critical mass of qualified researchers and human resources", it points out that this can be explained by deficiencies in the "attraction and retention of talent" (p. 12), but also by deficiencies both in the programs and in the quality of training in basic education.

CONCYTEC, however, primarily addresses research in the field of technological innovation while neglecting social research, whose importance is undeniable, especially in the current circumstances of the pandemic, in which social problems have worsened.

On May 2, 2019, Ley N° 30948 was enacted, which promotes the development of scientific researchers. This law states that it aims to

"promote the work of highly specialized scientific researchers, selected through competitive and transparent processes, providing a platform for scientific and technological development for the benefit of the country" (art. 1). In addition, it establishes that the minimum requirements are holding a PhD degree, obtained in a face-to-face setting and recognized by SUNEDU, conducting research published in indexed journals, as well as holding a record of publications.

As can be seen, in general the state does not give importance to humanistic research, which is difficult to understand from our point of view. The need for technological development cannot be denied, but if the purpose of such development is to meet society's needs, the social factors that affect it are also of key importance.

Graduate studies in Peruvian university legislation

The repealed Ley N° 23733, Ley Universitaria (1983), authorized universities to organize their "Graduate School or divisions of equal nature in one or more schools", "aimed at the training of lecturers, specialists, and researchers" provided that it had "the necessary faculty, facilities, and services". The studies pursued "lead to master's and PhD degrees" (art. 13). It also established an order of succession between the bachelor's, master's and PhD degrees, specifying the number of semesters and the requirements for obtaining each of these degrees.

The current Ley Universitaria N° 30220 (2014), states in Section 43 that "graduate studies lead to diplomas, master's degrees and PhD degrees," specifying that master's degrees can be of specialization, geared to professional in-depth training, and research or academic work, based on research. It also preserves the distinctly academic nature of PhDs, assigning them the role of "developing knowledge at the highest level."

As can be appreciated, the new law brings the purposes of graduate studies closer to social needs, without affecting university autonomy. It should also be noted that second major studies are no longer considered. Professional master's degrees seem to replace this modality,

offering the advantage of more demanding and higher quality training.

Guidance on research work during studies

Although the new Ley Universitaria clearly states the types of graduate studies, Peruvian universities have not substantially changed their master's degree programs, with many of them bearing names that suggest that they are specialization programs, even though they are still delivered as research-based programs, a situation that may be explained by the need for good marketing in order to attract a greater number of students.

In the case of PhDs, it is becoming customary to name them as if they were specialties, which, in our opinion, is not advisable because this would be a departure not only from the provisions of the law but, especially, from the purpose of a PhD.

A deficiency that has been noted is that, for graduate studies, some universities do not prepare a prospectus providing a detailed explanation of everything related to the requirements, costs, evaluation and other aspects that may fulfill the applicant's right to information. As a result, it is not uncommon for complaints to be filed with universities or even with the Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual (INDECOPI) due to lack of adequate information which, in the opinion of students, affects their rights.

This is emphasized because this lack is not the only deficiency in terms of information. While studying, especially during the development stage of the research project, it often happens that the faculty who alternate their participation during the study programs change the rules of the game; as a result, what was approved in one semester ends up being rejected in the next. This suggests a lack of academic criteria or training on the part of some faculty with respect to research.

Despite the fact that all universities have a guide for the preparation of research projects and theses, in some cases such documents may fail to explain clearly what is expected of students in each of the parts they are expected

to develop. In fact, there are only few cases in which universities provide concepts that help students understand what is expected of them in the development of the project or in the face of critical remarks made by advisors.

Practices in PhD research

In our view, one of the most sensitive and worrying aspects is the lack of coherence in the development of the project and the swings that occur in the opinions of the faculty, as already mentioned. More worrying, however, is the fact that once the project has been approved by means of an official act that constitutes a standard, it is modified by the advisor or the informants, not only from a formal point of view, but also in terms of substance, which means that the institution itself is disregarding its initial opinion.

Not all universities go to the lengths of assigning a methodological advisor and a thematic advisor to each PhD student, who will guide him or her through the development of the project. Even when such appointment occurs, it often happens that one of the advisors invades the field of the other; as a result, what was approved by the methodological advisor, for example, is questioned by the thematic advisor, causing uncertainty and wasting the PhD student's time. Such a fact constitutes a disavowal of the advisor who approved what they were responsible for, and affects not only the authority but also the dignity of the questioned advisor.

Another shortcoming in advising is that it is often the case that the critical remarks made to the student are vague and imprecise. A critical remark should be precise and explain the reason for the criticism, so that the student knows what exactly the advisor is referring to and why the remark is being made. In this regard, the graduate school authorities should take into account that the fact that a faculty member holds a PhD degree does not necessarily mean that he or she is qualified as a researcher.

Although the completion of a PhD thesis is an enormous effort, it may be that such effort is sufficient only to earn the degree, but not

necessarily to turn the faculty member into a research specialist.

In order to raise the academic level of graduate studies, it would be advisable that the faculty assigned to teaching and thesis advising be recognized as researchers in the Registro Nacional de Investigadores de Ciencia y Tecnología (REGINA) of CONCYTEC.

Thus, for example, in its good practice guide for the guidance of doctoral theses, Universitat Politècnica de València (2012) provides for the assignment of a director to the student, specifying that the tutor must have “accredited research experience.”

On the other hand, Universidad de Nebrija (2012) requires the tutor to hold a PhD degree with a specialization in “one of the disciplines of the PhD program, a permanent professor at the university and a researcher in the relevant university research groups, who assists the PhD candidate and his/her director in the administrative aspect of tutoring” (p. 3).

Moreover, it is necessary for the Graduate School to develop regulations for thesis advising, where the advisors’ functions are adequately outlined, so that the work by one advisor does not encroach on the work done by the other, thus avoiding confusion in the PhD student.

It should also be considered that project reviews may give rise to critical remarks. Once those remarks have been addressed by the PhD students, there should not be any new remarks that could extend the wait for approval ad infinitum. This situation is related to the periods of time available to advisors for reviewing projects, which become excessively long when there is a long succession of critical remarks.

PhD student advising

Graduate programs must establish practices that allow the PhD student to receive scheduled assistance during the development of his/her project, attending mandatory advising and supervision sessions, for which the advising faculty member should fill out and sign, along with the PhD student, a form certifying the act of advising. The PhD candidate would be obliged to

attend at least 75% of the sessions as a complement to the approval of the project, in order to ensure a high-quality project.

This approach, implemented at the Faculty of Education at the National University of San Marcos, for example, would avoid a long succession of critical remarks the doctoral student must undergo when the advisors do not notice deficiencies in the project’s first review and make new remarks in a second review.

Another problem faced by PhD students is the lack of time to attend advising sessions, even more so when the number of candidates is high and they must await their turn to be seen. Currently, technology allows for fast and effective communication through the Internet, so the university should use this resource to provide effective assistance.

Ethical aspect

Faculty members should pay special attention to ethical aspects in their performance, as should PhD students in the development of their projects. Plagiarism, although a serious offense, is not the only problem in the preparation of the thesis. The application of the methodology should also be considered, since it may happen that PhD students make adjustments that may affect the veracity of the information processed, with the purpose of proving their hypotheses.

CONCYTEC (2019) has established the Código Nacional de la Integridad Científica, with one of its purposes stated as “promoting the adoption of good practices and integrity in scientific research, technological development and/or technological innovation in the Sistema Nacional de Ciencia, Tecnología e Innovación Tecnológica (SINACYT)” (p. 2), defining scientific integrity as “the result of adherence to values and good practices to guide and apply the results of scientific endeavor” (p. 4).

CONCLUSIONS

- The role of universities in national development requires these institutions to adopt new strategies aimed at significantly increasing the impact of knowledge, especially considering that the new Ley Universitaria

N°30220 sets out that research is a crosscutting axis at the core of professional training.

- The provisions of the current Ley Universitaria create new conditions that should be leveraged by universities, considering that undergraduate students will receive extensive research training as a prerequisite for graduate studies.
- Thus, young people who access master's and PhD studies will be better qualified to contribute to knowledge through their respective theses.
- However, it is up to the university to adopt good practices to ensure that graduate thesis advising is carried out in a systematic and motivating manner, so that degree candidates stay interested and focus on their project with proper guidance.
- To this end, it would be advisable to carry out a series of actions such as setting up procedures for advising, appointing highly qualified advisors, scheduling face-to-face advising or using technology, establishing coherent standards that do not contradict previous provisions regarding projects and, above all, guaranteeing the PhD students' ethical behavior.

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Competing interests

The authors declare that there is no conflict of interest.

Authors' Contribution

Luis Alonso Castro Pérez (lead author): Conception and design of the work, conception and design of the work, writing of the manuscript, approval of its final version.

Félix Armando Rivera León (co-author): Analysis and interpretation of data, critical review of the manuscript, approval of its final version.