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BIBLIOMETRIC AND INTERPRETIVE ANALYSIS OF THE THESES OF THE BACHELOR OF PEDAGOGY AT THE NATIONAL PEDAGOGICAL UNIVERSITY, ACAMBAY REGIONAL CAMPUS, MEXICO

ANÁLISE BIBLIOMÉTRICA E INTERPRETATIVA DAS TESES DO BACHARELADO EM PEDAGOGIA DA UNIVERSIDADE PEDAGÓGICA NACIONAL, CAMPUS REGIONAL DE ACAMBAY, MÉXICO

ANÁLISIS BIBLIOMÉTRICO E INTERPRETATIVO DE LAS TESIS DE LA LICENCIATURA DE PEDAGOGÍA EN LA UNIVERSIDAD PEDAGÓGICA NACIONAL, SEDE REGIONAL ACAMBAY, MÉXICO

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ABSTRACT

This research was developed at the Universidad Pedagógica Nacional and analyzes the formal characteristics of the degree works to obtain the Bachelor's degree in Pedagogy, which the author believes will have a determining influence on the quality in the professional practice of the graduates as teachers. It is supported by the bibliometric analysis of the degree works presented by the first five generations of the Bachelor's degree in Pedagogy in the 2014-2018 graduation period. We show the number of graduates for each of the advisors, their professional training based on their academic degree, the subjects of the elementary and telesecondary curricula addressed, the topics on which the thesis students focused their interests, which were mostly proposed based on the educational problems they focused on during their social service and professional practices through a pedagogical diagnosis, the most common degree option and the modality of the basic education schools where the educational proposals emerged or were carried out. The patterns that explain the development of the aspects of the terminal works are presented, and at the end the idea that the UPN, whose motto is “Educate to Transform”, has built a pedagogical formation that reproduces the prevailing schemes in basic education schools and not its transformation as its motto suggests.

Keywords: Bibliometric Analysis. Pedagogy. High Education.

RESUMO

Esta pesquisa, realizada na Universidade Pedagógica Nacional, analisa as características formais das dissertações de conclusão de curso que levam ao grau de Bacharel em Pedagogia. O autor acredita que essas dissertações terão uma influência decisiva na qualidade da prática profissional dos egressos como professores. Baseia-se em uma análise bibliométrica das dissertações apresentadas pelas cinco primeiras gerações do programa de Bacharelado em Pedagogia durante o período de graduação de 2014-2018. São

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apresentados: o número de egressos de cada orientador, sua formação profissional desde o grau acadêmico, as disciplinas curriculares do ensino fundamental e a distância abordadas, os temas focados nos interesses dos alunos da dissertação, que foram propostos principalmente com base nos problemas educacionais que eles focaram em suas práticas de serviço social e profissional por meio de um diagnóstico pedagógico, a opção de curso mais popular e o tipo de escola de ensino fundamental onde as propostas educacionais surgiram ou foram implementadas. Também são apresentados os padrões que explicam o desenvolvimento de aspectos dos projetos finais e, por fim, levanta-se a ideia de que a UPN, cujo lema é “Educar para Transformar”, tem contribuído, no entanto, mais para uma formação pedagógica que reproduz os padrões vigentes nas escolas de educação básica e não para a sua transformação, como sugere seu lema.

Palavras-chave: Análise Bibliométrica. Pedagogia. Ensino Superior.

RESUMEN

Esta investigación se desarrolló en la Universidad Pedagógica Nacional y analiza las características formales de los trabajos de titulación para obtener el título de licenciado en Pedagogía, que el autor cree que influirán determinantemente en la calidad en la práctica profesional de los egresados como profesores. Se sustenta en el análisis bibliométrico de los trabajos de titulación presentados por las cinco primeras generaciones de la carrera de Licenciatura en Pedagogía en el periodo de egreso de 2014-2018. Se muestran el número de titulados por cada uno de los asesores, su formación profesional a partir del grado académico, cuáles son las asignaturas de los curricula de primaria y telesecundaria abordadas, los temas donde se centraron los intereses de los tesistas que fueron mayoritariamente propuestos en función de los problemas educativos por ellos focalizados en su servicio social y prácticas profesionales a través de un diagnóstico pedagógico, la opción de titulación más socorrida y la modalidad de las escuelas de educación básica donde emergieron o se llevaron a cabo las propuestas educativas. Se presentan también los patrones que explican el desarrollo de los aspectos de los trabajos terminales, y al final, se plantea la idea de que la UPN, cuyo lema es “Educar para Transformar”, ha contribuido, sin embargo, más a una formación pedagógica que reproduce los esquemas prevalecientes en las escuelas de educación básica y no su transformación como lo sugiere su lema.

Palabras clave: Análisis Bibliométrico. Pedagogía. Educación Superior.

1 INTRODUCTION

In 2010, the National Pedagogical University (UPN), Unit 151 Toluca, Acambay Regional Headquarters, incorporated the first generation of the Bachelor's Degree in Pedagogy Plan 1990, replacing the previous Bachelor's Degree in Educational Intervention, which was offered at this headquarters since 2002. The research addresses the initial analysis of the first five generations (2014-2018) of this new career through a bibliometric study of the degree projects, focusing the analysis from the formal aspects administratively determined by the UPN itself in the presentation of this type of work.

The Bachelor's Degree in Pedagogy, with the 1990 Study Plan, consists of eight semesters with various degree options for students, when obtaining the 332 credits corresponding to subjects. It is a career that specifically trains education professionals, not teachers of any specific educational level.

Bibliometrics is essentially focused on the calculation and analysis of the values of what is quantifiable in the production and consumption of scientific information (Spinak, 1996 cited in Ardunay, 2012, p. 5). In this sense, three trends have developed in this field of bibliometric research:

1. Scientific impact of researchers with citations in various publications.
2. The impact of specialized journals on certain scientific communities.
3. Bibliometric analysis adapted to undergraduate and graduate theses presented at various universities.

In the first case, platforms such as Google Scholar, Academia, Scorpus and others, despite being recent (Google Scholar emerged in 2004) have an increasingly important role in determining and evaluating the impact of academics and the research they produce; not only that, but bibliometric platforms also make available to diverse communities, relevant manuscripts for their insertion in research and their use for the evaluation of academic work (Marsicano & Nichols, 2022, p. 1007), which increases the possibility of greater impact of research, which would otherwise be difficult to know.

In the second case, the best example is Scorpus, which, among other things, allows the calculation of citations for a selection of articles, all articles by a specific author or all articles published by a specific journal in a year; it has a tool to evaluate the performance of a scientific journal, of which it provides three graphs that report on: total number of citations received each year, number of articles published in a period of time, total number of citations divided by the number of articles published (Ministry of Science and Innovation, n.d.).

In the third case, two subtypes of research have been developed: a minority one, which analyzes the products of the completed theses in relation to the standards or research nuclei

previously established in official institutional documents, in terms of when they meet or depart from these collectively established content criteria (Lagos, 2007, cited in Lagos and Pérez-Gutiérrez, 2007, p. 182).

On the other hand, the majority focuses on elements such as the fields of study or problems addressed, the methodologies used, the institutional and educational orientations, the privileged areas of study and the direction of the theses, among other elements (Pedagogical Research Commission, 2004, p. 129) as well as the structural and methodological characteristics: scope of the research, type of design, temporality and instruments, and type of sampling (Zapata *et al.*, 2021, pp. 75-77)

In this same sense, the bibliometric analysis carried out with the postgraduate theses in Education in Mexico, alludes to the topics, levels and educational modalities addressed as areas of study, shows that in this type of postgraduate degree, the master's degree students carry out their theses at the school levels and institutions where they work, as a possibility of teacher training through research processes in the work environment itself that promote a systematic reflection on their own teaching practice (Gutiérrez & Barón, 2008, p. 79). However, this is the first work prepared by a regional headquarters of the UPN, with respect to five generations of Pedagogy.

2 METHODOLOGY

It was a retrospective qualitative research where a study and bibliometric analysis was carried out with the formal data contained in the institutional covers: specific topics, subjects, type of schools, names and degrees of the advisors, type of final project, sample that corresponded to the years from 2012 to 2019, that is, the first five generations of the Bachelor's Degree in Pedagogy at this headquarters. These data were recorded in a database in the Excel program and grouped using absolute and percentage frequencies.

In addition, the results obtained were interpreted in view of the fact that the author is an academic member of the institution of analysis, so he linked the teaching logic of the plan and programs implemented by the educational authorities of this campus with the derivations obtained through bibliometric analysis.

3 DISCUSSION

The following table presents the initials of the advisors, as well as the number of theses supervised per year and the total at the end of the five-year period from 2014 to 2018.

Table 1

Advisors and number of theses advised per year, 2014-2018

ADVISER	2014	2015	2016	2017	2018	TOTAL	%
AFG*	3	7	13	7	9	39	**21.1**
JAS*	2	3	5	5	1	16	**8.6**
AAAA**	2	3	4	3	1	13	**7**
VRM**	1	2	4	1	5	13	**7**
CMR****	1	3	3	2	3	12	**6.5**
JCC**	1	2	4	1	3	11	**5.9**
EMM***	1	3	3	2	2	11	**5.9**
UARH**	1	1	6	--	1	9	**4.8**
MAM**	1	1	3	1	1	7	**3.8**
VVB****	--	--	4	1	2	7	**3.8**
EAF**	--	--	2	2	2	6	**3.2**
JNAB**	--	3	2	--	1	6	**3.2**
XVMM****	--	--	2	2	2	6	**3.2**
EHG**	2	--	--	2	1	5	**2.7**
LGP**	1	1	1	1	1	5	**2.7**
MAI***	--	--	1	2	2	5	**2.7**
RHG****	--	1	1	1	1	4	**2.1**
ADL****	--	--	--	--	2	2	**1.08**
AJR**	1	--	--	1	--	2	**1.08**
CLF***	--	--	--	1	--	1	**0.54**
BUT**	--	1	--	--	--	1	**0.54**
AEOP***	1	--	--	--	--	1	**0.54**
IGP*	1	--	--	--	--	1	**0.54**
HRH**	--	1	--	--	--	1	**0.54**
TOTAL	**19**	**32**	**58**	**35**	**40**	**184**	**100**

Source: Authors. Traditionally, bibliometric analysis research contains the full names of the thesis advisors; however, in Mexico there is a federal law that protects personal data in the possession of individuals (Chamber of Deputies of the H. Congress of the Union, Mexico, 2025, p. 1).

Table 1 does not allow us to determine the three working conditions of the 24 teachers who participated in one or more degrees in these five years: *) those who had been basic education teachers but in this period were administratively full-time at the UPN or, at least, part-time; **) teachers active in Basic Education (primary and secondary; ***) some in Upper Secondary Education (EMS), graduates of universities or technological institutes, who covered only part-time, generally, but not exclusively in the afternoon shift (six, eight or ten hours). And finally, ****) the professors graduated from universities who did not have hours at

other educational levels and who, with different labor regimes, exclusively worked at the UPN Regional Headquarters

Table 2

Academic degree of the advisors.

EDUCATIONAL LEVEL OF THESIS ADVISORS	TOTAL NUMBER OF TEACHERS	%
Degree	9	37.5
Mastery	13	54.1
Doctorate	1	4.1
Not determined	1	4.1
TOTAL	**24**	**100**

Source: Authors.

The table above reveals that 37. 5% of the professors at the University officially had a bachelor's degree, although they could be interns for a master's degree, but legally they did not have a postgraduate degree. Those with a master's degree represented 54% and with a doctorate only 4%. Traditionally, professors with master's degrees have prevailed in this Regional Headquarters, but their activities have been quite unequal in degree and research. This indicator shows that the regulations of the academic staff of the UPN were not followed to the letter, since the minimum degree of the professors indicated that the master's degree was necessary to teach in Higher Education.

Table 3

Number of theses advised by academic degree of the tutor.

THESIS ADVISED BY ACADEMIC LEVEL OF THE SUPERVISOR	TOTAL	%
Degree	**92**	**50**
Mastery	**85**	**46.1**
Doctorate	**6**	**3.2**
Not Determined	**1**	**0.5**
Total	**184**	**100**

Source: Authors.

The results of the above table are very interesting because they show that teachers who have only a bachelor's degree are the ones who graduate the most with 50% of graduates, something that is contradictory to the educational policies at the HE level that establish the minimum level to be teachers at this level is the master's degree. which would seek a greater deepening in the treatment of theoretical and methodological information and

in the analysis of empirical data, while most of the master's degree students studied postgraduate studies in Education and Education Sciences, in various public and private universities.

The contrast of this difference is more pronounced when undergraduate professors are fewer, but graduate more, with the average being 10.3 students per professor, while the average of master's professors is 6.6 students per professor. It is very evident that there is a clear disadvantage in the degree processes for professors who have a postgraduate degree.

Table 4

Type of degree option

TYPE OF DEGREE OPTION	2014	2015	2016	2017	2018	TOTAL	%
Pedagogical proposal	16	28	55	34	36	**169**	**91.8**
Essay (Dissertation)	2	--	1	1	2	**6**	**3.2**
Thesis	1	4	--	--	--	**5**	**2.7**
Proposal for intervention Pedagogical	--	--	3	--	1	**4**	**2.1**
TOTAL	**19**	**32**	**58**	**35**	**40**	**184**	**100**

Source: Authors.

The table above presents the different options most commonly used for the preparation of degree projects. The pedagogical proposal is the most popular, since it involves the development of a didactic plan, generally elaborated with three didactic sequences (with the phases: beginning, development and closure) and on rare occasions, projects or Problem-Based Learning (PBL). The other options (essay, thesis, intervention proposal) are not very helpful, because the directors of the institution decided that some didactic strategy with a specific content should be applied so that the student would have an approach to the work they would do in the workplace.

Table 5

Type of Basic Education School where the degree work was carried out

TYPE OF SCHOOL	2014	2015	2016	2017	2018	TOTAL	%
Complete primary school	19	29	55	29	38	**170**	**92.3**
Multigrade Primary	--	3	3	5	2	**13**	**7**
Telesecundaria	--	--	--	1	--	**1**	**0.54**
Preschool	--	--	--	--	--	**--**	**--**
TOTAL	**19**	**32**	**58**	**35**	**40**	**184**	**100**

Source: Authors.

The institutions where the intervention processes for the degree were carried out the most were by far the entire primary schools, which in Mexico means that a teacher works with only one group per grade. Multigrade primary schools are those in which one teacher attends to the six groups and the management function (unitary primary), there are two teachers and each one attends to three or three and the management; three-teacher, two teachers attend one three groups, but one is also in charge of the direction. And other combinations, but the generality is that these are schools with a low child population and issues of high poverty.

It is striking that a single student who graduated through an experience in Telesecundaria, which in Mexico means that a teacher teaches in the 12 or more subjects with specific television programs and a textbook for each subject. With respect to the fact that there are no graduates at the preschool level, it is not surprising because the previous career offered by this regional headquarters was the Bachelor's Degree in Educational Intervention, which was aimed at training personnel for this educational level.

Table 6

Number of degree topics by subject

SUBJECTS	2014	2015	2016	2017	2018	Total	%
Spanish	10	19	36	16	11	92	**50**
Mathematics	4	10	17	14	24	69	**37.5**
Civic and Ethical Training	1	3	2	--	1	7	**3.8**
Not specified	2	--	1	3	--	6	**3.1**
Natural sciences	--	--	2	2	2	6	**3.1**
English	2	--	--	--	1	3	**1.6**
History	--	--	--	--	1	1	**0.5**
TOTAL	**19**	**32**	**58**	**35**	**40**	**184**	**100**

Source: Authors.

As can be seen, the subject of Spanish (50%) is the one that most interested students to graduate, and to a lesser extent (37.5%) that of Mathematics; the sum of the theses presented in Spanish and Mathematics represents 87.5% of the total, an excessive concentration in these subjects. Civic Education and Ethics occupies third place, and below it is Unspecified (works that in the title of the degree work do not indicate which subject, but spoke of learning or teaching some subject in general) along with Natural Sciences, and History, which attract little attention from thesis students, they add up to 12.5% of the total number of theses, for reasons that will be discussed later.

But in this table it is notable that, in 2014, 2015 and 2016, the percentage of degree projects, those of Spanish are almost double that of Mathematics, while in 2017, it is almost the same amount (16 of Spanish to 14 of Mathematics) but in 2018 the proportion was completely reversed (11 of Spanish to 24 of Mathematics). a trend that is believed to have continued in the following years. How to explain this change? There are no elements available to support the change of priority from Spanish to Mathematics; Perhaps through interviews with the graduates some reason for this important change can be obtained.

Table 7

Topics of the degree of the subject of Spanish

SPANISH	2014	2015	2016	2017	2018	TOTAL	%
Reading comprehension	4	7	14	8	6	**39**	**42.3**
Reading and writing	--	2	9	1	3	**15**	**16.3**
Literacy	2	1	3	3	1	**10**	**10.8**
Reading	2	--	2	4	--	**8**	**8.6**
Writing	--	5	2	--	--	**7**	**7.6**
Written language	--	2	1	--	1	**4**	**4.3**
Spelling rules	--	--	4	--	--	**4**	**4.3**
Oral and written expression	--	2	--	--	--	**2**	**2.1**
Oral language	--	--	1	--	--	**1**	**1**
Reading competence	1	--	--	--	--	**1**	**1**
Spanish Focus	1	--	--	--	--	**1**	**1**
TOTAL	**10**	**19**	**36**	**16**	**11**	**92**	**92**

Source: Authors.

Of the subject of Spanish, the topic that concentrates the largest number of theses is reading comprehension with 40%, but if we add the topics with the reading label such as Reading and writing, Reading and Writing, they reach almost 77%. On the other hand, Writing added to other topics with the same label (literacy, text writing, written language, spelling rules, etc.) has 50.5% (while topics such as reading and writing and reading and writing are shared). The subject that most attracts students is reading, which is probably a collective projection of the thesis students towards their own difficulties, in the sense that many of them did not present adequate reading comprehension as they demonstrated in their school career at the University.

Table 8

Topics of the degree of the subject of Mathematics

MATHEMATICS	2014	2015	2016	2017	2018	TOTAL	%
Multiplication	1	3	7	5	7	**23**	**33.3**
Sum	1	2	1	--	5	**9**	**13**
Problem Solving	1	2	2	1	2	**8**	**11.59**
Basic Operations	1	--	2	1	2	**6**	**8.65**
Addiction and Abduction	--	--	1	2	1	**4**	**5.7**
Multiplication and division	--	--	1	1	1	**3**	**4.3**
Natural Numbers	--	1	1	--	1	**3**	**4.3**
Addition and subtraction of fractions	--	--	--	3	--	**3**	**4.3**
Mental Calculation	--	--	--	--	2	**2**	**2.8**
General (didactic)	--	--	1	--	1	**2**	**2.8**
Fractions	--	--	--	--	1	**1**	**1.4**
Sum of fractions	--	--	--	--	1	**1**	**1.4**
Subtraction of fractions	--	1	--	--	--	**1**	**1.4**
Logical-mathematical thinking	--	1	--	--	--	**1**	**1.4**
Division of fractions	--	--	1	--	--	**1**	**1.4**
Multiplication of fractions	--	--	--	1	--	**1**	**1.4**
TOTAL	**4**	**10**	**17**	**14**	**24**	**69**	**100**

Source: Authors.

The theses of the subject of Mathematics seem to be contradictory, since the most useful topic in this field is that of multiplication, which could indicate that this topic is the one that presents the greatest problems in the field of its teaching, in clear contradiction of the assumption that the most difficult operations to teach and learn are those of fractions (addition and subtraction, but above all division and multiplication of fractions). However, in this case, it may be that due to the complexity of these last topics even for thesis students, they tend to select situations of basic operations that are easier to address than operations with fractions, so it is suggested to take these indicators with caution.

Table 9

Natural Sciences Works

NATURAL SCIENCES	2014	2015	2016	2017	2018	TOTAL	%
Care and protection of the environment	--	--	1	--	--	**1**	**12.5**
ICTs as an element of instruction in the Environment	--	--	1	--	--	**1**	**12.5**
Experimentation in NC	--	1	--	1	--	**2**	**25**
Graphic Organizers for Learning N.C.	--	1	--	1	--	**2**	**25**
Discovery for learning of C.N.	--	--	--	--	2	**2**	**25**
TOTAL	--	**2**	**2**	**2**	**2**	**8**	**100**

Source: Authors.

With respect to the theses of natural sciences, which are in third place in the preferences of the subjects, far from the first two, with only 3.22% of the theses presented, only one properly addresses an environmental issue: care and protection of the environment, while the remaining four refer to methods for the teaching of Natural Sciences: ICTs, experimentation, graphic organizers and discovery. In general, being a country of notable ecological variations, it is a subject that is lost with respect to Spanish and Mathematics.

Table 10

History degree projects

HISTORY	2014	2015	2016	2017	2018	TOTAL	%
Artistic resources teaching-learning in History	1	1	--	--	--	**2**	**40**
Teaching strategies	1	--	1	--	1	**3**	**60**
TOTAL	**2**	**1**	**1**	**--**	**1**	**5**	**100**

Source: Authors.

The subject of history is another subject left aside by the subjugation of the two main subjects as already mentioned. As with the Natural Sciences, the contents of the curricula are not addressed with specific historical topics but with proposals for methodological issues such as the use of artistic resources and didactic strategies for their teaching.

Table 11

Topics of the degree of the subject of English

ENGLISH	2014	2015	2016	2017	2018	TOTAL	%
Communication skills	1	--	--	--	--	1	**33.3**
Teaching resource	1	--	--	--	--	1	**33.3**
Teaching resource software	--	--	--	--	1	1	**33.3**
TOTAL	**2**	**--**	**--**	**--**	**1**	**3**	**100**

Source: Authors.

English is not one of the subjects that attract thesis students. Although they have English as a mandatory in primary and secondary school in Mexico, in rural areas, teachers at these basic educational levels address very little, so students arrive at university with almost no knowledge of the three students who took part in this subject for their degree process because they mastered English with a level above 60% in both speaking and listening and less than 50% of writing. In these cases, the knowledge prior to entering the university was more important, which was complemented by what was seen in it, which determined the topic of the thesis at the university.

4 DISCUSSION

The data in Table 1 not only allow us to observe the variety of working conditions: professors who served as advisors in the production of theses in these five years analyzed. It is surprising that the average of the three professors who came from the primary level, but had in these five years all their working time assigned to the UPN, since on average it was 18 theses per year, while those who worked in both Basic and Superior, was 6.8 theses, three times less than the first teaching category. The remaining two categories showed the following percentages: EMS and HE professors are, respectively: 6 theses and 6.2 theses on average.

As can be seen, the predominance in the participation of Basic Education (BE) teachers over other teachers of other educational levels (EMS and ES) in the degree process is quite notorious, with almost three-quarters of the total number of degrees in the five years studied. Analyzed from this point of view: those who came from primary school, but were already full-time at the UPN had 29% in the thesis supervision; while those who continued to be teachers in Basic Education (primary and secondary) and in higher education, under the regime of hours in the latter reached 44%.

On the other hand, those who were basic teachers in Upper Secondary and Higher Education had 9.6% of the total degrees while those who were dedicated exclusively to the

field of Higher Education had 16.6% in participation in these processes. As the institution under study is HE, it was to be expected that the professors assigned to this level would predominate as thesis tutors, which is not the case in this case.

If we add the percentages of theses advised by the educational levels where the University's professors began and/or worked, the percentages are as follows: EB represented 73% of the total. EMS teachers had 9.6% while teachers exclusively of HE reached 16.6%. The percentages indicated shed light on the importance of the educational level at this site, in the field of the degree, where the professors worked in the distribution of thesis students, which was fundamentally that they worked in Basic Education.

In Table 2, there are three elements of analysis: the professor who graduated the most was the highest administrative authority in these five years at the Regional Headquarters. The second element is the lower participation of university level professors in this degree process. And the third, the low participation of teachers of exclusively university origin, that is, who had not taught in primary education. Of these, one had carried out published historical research and a master's thesis in history education in primary school, but he was one of the ones who directed the fewest theses in this period, with four theses in five years.

This leads to reflect on whether it was the work experience in front of primary school groups, the highest ranking position at the headquarters or having only the undergraduate degree, the most important aspects or that greater consideration in the choice of thesis advisor than any other aspect such as hours of appointment at the university, academic preparation and degree and the experience of educational research with scientific publications.

In Table 3, the data collected show that, although teachers with master's degrees are more numerous (13 master's degrees compared to nine bachelor's degrees), they graduated, on average, fewer students in these five years. In fact, professors with a master's degree graduated, on average, 6.6% of students and those with a bachelor's degree did so with 10.3%, while a professor with a doctorate did so with 6%. The above data clearly show that professors with undergraduate degrees graduated more students than those with postgraduate degrees, while professors with doctorates, on average, graduated almost the same number of students from professors with master's degrees. This raises the issue of what role the most qualified personnel have in the initial training of students at the UPN.

With respect to Table 4, as can be seen in the results presented there, the most popular option is that of a pedagogical proposal. Although in this sense, the UPN Ajusco, to which the Acambay Regional Headquarters academically belongs, offers more possibilities in terms of the form of degree, the greater number of teachers who are or who come from Primary

Education skews the degree options mostly to the option of pedagogical proposal, in the sense of proposing a probable solution to an educational problem detected. through a pedagogical diagnosis, in EB schools, during the period of both social service and professional internships, carried out in the last semesters.

Although the UPN's regulations in force in those years indicated other options, the most useful were the four mentioned there. Although the respective regulations indicate certain differences between these modalities (with and without diagnosis, some do not have a proposal, such as the test; another involves the preparation and application of an intervention project and another only the design, without application), when briefly reviewing the content, almost 96 or 97% have the same sections:

a) Diagnosis (without indicating whether it is pedagogical or educational)

b) Legal framework (with constitutional articles, secondary laws such as the General Education Law of the Ministry of Public Education, of 1993, although amended in various articles).

c) An intervention project applied with learning activities (generally didactic sequences with three activities: beginning, development and closing).

d) Conclusions.

e) Bibliography.

The difference that was noticed between one and the other was only the number of pages of each option; For example, an essay had these sections, but in 25 pages, while the intervention proposals have between 50 and 60 pages, the thesis has the same page, and the ones that reach an average of 80 or more pages.

As a result of the above, it is a quasi-institutional criterion that a good percentage of graduates requested, in these years, almost exclusively, their entry as Basic Education teachers. For this reason, at the Acambay Campus, the number of pedagogical proposals was very high.

In Table 5, in addition to the influence of UPN teachers who came from and/or worked in basic education, mainly primary education, it is necessary to say that the working conditions of each educational level in Mexico were very different in 2012: at the preschool level, a teacher works five hours per day (from eight in the morning to one in the afternoon). while, in primary school, the working time is 20 hours distributed over five days (DOF, 2011), but at both levels, the teaching working time was a little longer.

The situation changed drastically in secondary education where there was the possibility of full-time work for 40 hours in telesecundaria schools, but the conditions were not optimal because it implied working on all the subjects in a group of one grade and

sometimes even a group, but of the three grades. And regular high schools involved contracts of four, eight, twelve hours, up to 40 hours a week, so they would have to wait several years to reach full time. In some cases, family influence was also present because they were children of primary school teachers. For these reasons, they preferred to prepare their degree projects at the primary school level.

Table 6 indicates the two subjects where the largest number of theses are concentrated: Spanish (50%) and Mathematics (37.5%), which together account for 87.5% of the total number of theses, an overwhelming percentage that shows where the efforts of the thesis students of this period were directed. The concentration of the theses in the two subjects privileged by the Mexican educational system to comply with national and international evaluation standards such as IDANIS, ENLACE, EXCALE, PLANEA, SisAT, PISA and others, in those years, forgetting or underestimating the other subjects, as important as the two mentioned above.

A new phenomenon that seemed in the preparation of theses was the change between 2017 and 2018 regarding the predominance of the subject of Mathematics over Spanish. There is no conclusive answer to explain this transformation; it was probably due to a weakness in terms of learning mathematics among students who studied pedagogy, which was accentuated in the final years of the second decade of this century. This would require research focused on interviews with graduates of these years, to find a solid reason for this novelty.

The strong predominance of the Spanish and Mathematics theses at this Headquarters is explained by the policies in force in Primary Education in terms of evaluating, through standardized tests that were constantly applied in these years, the knowledge achieved by students, mainly Spanish and Mathematics, of various grades throughout Mexico. The following are the standardized tests applied from 1989 to the year covered by this study, 2018.

Table 12

Standardized tests applied from 1989 to 2018.

TEST ARE-DARIZA-DA	YEARS OF APPLIC ATION	GRADES OR EDUCATIONAL LEVEL WHERE IT WAS APPLIED	MOMENT OF EVALUATION	KNOWLEDGE EVALUATED
Diagnostic Instrument for New Secondary Students IDANISa	1989-2020/ 2021	6th year of primary school	At the end of primary school to determine entry to secondary school. All students.	Basic skills in the areas of verbal, mathematics and reasoning. Reading comprehension, sentence completion, Arithmetic, Geometry and Figure series. It is not a test of knowledge
National Standards Testingb	1998	Primary and secondary terminal grades. Sample of students.	End of the 6th grade. primary and 3rd, secondary. June.	Level of development of skills in Spanish and Mathematics, with emphasis on the fundamental competencies in school work: *Reading Comprehension* and *Mathematical Ability.*
National Assessment of Academic Achievement in Educational Centers LINKc	2005-2014. It was initially applied in 2006.	Third, Fourth, Fifth and Sixth Primary and Third Secondary.		To assess the academic achievement of students, mainly in reading and mathematics, although in certain periods, it also evaluated Natural Sciences and Social Sciences on a rotating basis.
Examinations of Educational Quality and Achievement (EXCALE)d	2005-2014	Representative samples of students in a grade each year, with each student answering only a portion of the questions, closed or open-ended. they do	End of May and beginning of June each year.	Its purpose is to assess the degree to which that students achieve the learning established by the curricula and programs.

		not seek to give individual results, but of the educational system as a whole, so that are applied to representative samples of students in a grade each year, and each student answer only a part of the questions, closed or open.		
National Plan for the Evaluation of Apprentices PLAN	2015-to the present.	Students in the third year of preschool, sixth grade of primary school, third year of secondary school and last grade of Upper Secondary Education	At the end of the corresponding school year, since it is considered that the achievements at the end of the corresponding cycle are a good indicator of the effectiveness of the respective educational level that is evaluated.	Achievement of student learning in two areas of competence: Language and Communication (reading comprehension) and Mathematics.
Early Warning System (SisAT)f	2013- to the present.	Students in targeted Basic Education schools, schools where less favorable educational results are recorded.	The examination is applied at two times of the school year and the rest of the data is recorded at the end of each two months.	Students who are at risk of not achieving key learning or even dropping out of school. Its indicators account for the progress of students in basic components of reading, writing and mental arithmetic.
PISAg	2000-2018	Students of 15 years old.	Its objective is to evaluate the training of students when	The assessment covers the areas of reading, mathematics and scientific competence. The emphasis of

			they reach the end of the stage of compulsory education, around the age of 15.	evaluation is placed on the mastery of processes, the understanding of concepts and the ability to act or function in various ways. Situations within each domain

Source: Authors' elaboration based on data from: a) Institute of Basic Education of the State of Morelos (n.d.), b) INEE (2005), c) Coneval (2015), d) Rodríguez-Cristerna and Ruíz Cuellar (2021), e) INEE (2018), f) SEP (n.d.), g) OECD (n.d.).

Table 7 shows that in the subject of Spanish, reading comprehension was the most addressed topic, but adding the topics that include other aspects of reading (reading, writing, etc.) reach 77%, while writing and its derivatives, reach 50.5%. Although a very quick reading of some theses showed serious deficiencies in the educational diagnosis, the problem was real (perhaps deeper than these percentages indicate), in the schools where diagnoses were carried out. It indicated a profound mechanization of reading mechanisms that hindered the processes of learning oral and written language, such as the use of the least effective methods: alphabetic, phonetic and syllabic.

The percentage of this topic illustrates the failure of the methods used by the Basic Education teachers of those years. However, these practices have proven difficult to eradicate from Mexico's public schools, despite several reform programs for initial training and many others for refresher training. However, traditional methods continue to dominate even in a university not specifically intended for teacher training.

Table 8 shows the solid presence of a topic in the Mathematics theses: of the total, 35 are on the topic of multiplication (33.3%) of those presented in this subject. If we add the titling works of the other basic operations, the total corresponds to 56.7%. It is somewhat surprising that the subject of basic operations concentrates the greatest attention of thesis students, probably because it is the basis of other more complex operations such as operations with fractions.

In relation to fraction work (addition and subtraction of fractions, fractions, sum of fractions, subtraction of fractions, multiplication of fractions, division of fractions) there are eight works, a far cry from the 45 corresponding to basic operations.

On the other hand, the topics that require greater abstraction and reflection of thought, such as logical-mathematical thinking and mental calculation, were only two. This leads us to question what kind of proposals and levels of thought were generated in these five years, and

what impact this type of work could have had on the initial training of teachers but, above all, on their subsequent professional performance as teachers in front of a group.

With respect to Table 9, the thesis students addressed methodological paths such as aspects such as ICTs, graphic organizers and learning by discovery as ways to access the knowledge of this subject. They did not take advantage of the local conditions where most of the primary schools where they carried out their research for the degree are located, since a large number of them are located in semi-rural or practically rural areas, with strong problems of pollution, especially aquifer, destruction of forests and use of transgenic seeds.

In Table 10, with respect to History theses, pedagogy graduates did not find robust reasons to carry out work in this subject, largely due to the fact that they did not have the opportunity to develop pedagogical diagnoses because History classes are hardly carried out in primary school because, as has already been said, the teaching of Spanish and Mathematics in Mexican primary schools is privileged. This fundamentally determines that on average one thesis has been written per year, despite the fact that among the teaching staff there was a historian by profession, with historical and educational research in the development of historical thought (with primary school students) published, but with little interest from students in this topic.

Table 11 shows the difficulties in the cultural zone where the Regional Headquarters is located, which is partly semi-rural with the presence of a population that still speaks native languages (Mazahua and Otomi), especially in adulthood, and where the vast majority of Basic Education schools do not have sufficient personnel and are really prepared to teach foreign language classes (English). Under these conditions, it was difficult for students to decide to carry out intervention proposals with this foreign language.

In general, as a result of the analysis, it is important to point out that the two professors who advised almost 30% of theses were, respectively: the coordinator of the headquarters (39 theses) and the head of the degree section (16). This situation, where the main managers concentrate the degree of many students, has also been found in other Latin American universities: three professors concentrated 33% of thesis production in a Veterinary School (San Martín & Pacheco, 2008, p. 87) and two professors with more than 20% of graduates (the highest percentages) from a Chilean university (Reyes et. al., 2020, p. 81), although in the latter study the research period was 10 years, not five.

On the other hand, the analysis of the assignment of tutors showed that initial training, postgraduate studies and experience in educational research did not play a fundamental role in this aspect, since as already mentioned, the profile of each of them was not taken into account, nor the research experience or postgraduate degrees of the professors. which

notoriously decreased the educational quality of the theses presented. Of the five history theses presented in this period, none was assigned to the professor with professional training, postgraduate studies and publications in this discipline.

5 CONCLUSION

The dynamics of basic education schools, mainly primary schools, have permeated to a large extent in the academic functioning and the process of preparing degree projects at the UPN, especially at the Acambay Regional Headquarters. The application, from the primary, secondary and even high school levels, of a series of standardized exams, mainly focused on the subjects of Spanish and Mathematics, resulted in the elaboration of degree projects of future teachers, will focus precisely on these two subjects permanently evaluated in the last three decades.

This is demonstrated in the large number of degree projects in these subjects: Mathematics represent 36% of the total while Spanish 51%, which together represent 87.6% of the total degree works presented in the five years analyzed.

Under the logic that guided the graduation process in these five years, the institution reproduced logics of the predominant school culture in primary schools that do not allow the transformation of the teaching practices of those years. In this sense, the titles and topics of the theses are extremely fragmented, broken down into reduced topics, without leading to an understanding of the mathematical discipline; in Mathematics: addition and subtraction, addition and subtraction of fractions, the four basic operations, but not mathematical logical thinking, as the concept that encompasses all of the above. In the first case, this fragmentation of mathematical knowledge does little or nothing to promote the development of mathematical logical thinking.

In this sense, what was found in this work coincides with what happens in other universities where a small number of professors appear as advisors in many theses and the others with few (Pedagogical Research Commission, 2004, p. 132). In this case of the UPN, it was brought together in a single person to be the main authority of the headquarters and to be the professor with the largest number of graduates. Although there is no evidence in other bibliometric studies, in this case studied here, the institution grants a not very strong economic benefit due to the number of advisors, as well as readers/reviewers of theses that, adding both categories, did represent a good economic stimulus for this and other professors.

All of the above leads to reflection on whether the training provided at the UPN Acambay Regional Headquarters was really aimed at the transformation of education or, at least, the questioning of it, or was reproducing an education focused on the accreditation, by

students, of the different standardized tests applied nationally and not focused on students obtaining the necessary learning to face the challenges that were posed to living in an extremely complex society of that time and even of today.

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