

The statistics discipline in the pedagogy course at USP: a historical approach

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Abstract

This article presents a historical approach to the statistics discipline in the pedagogy course at Universidade de São Paulo - USP (1939-1999). The aim was to investigate the origins of the discipline, its content, methods and role in the training of pedagogues. Document analysis and oral history were used as methodological resources. Based on the history of the curriculum, the research dialogued especially with the central ideas of Ivor Goodson, understanding the curriculum as a social construct and investigating how and why certain knowledge is (or is not) taught in a particular historical context. It was found that the statistics discipline was considered very important for the education field in the first half of the twentieth century, since it contributed to the production of diagnoses for the planning of public policy, to the work of school inspection and the classification of students. Originating in undergraduate school management courses of Instituto de Educação, Universidade de São Paulo in the 1930s, the statistics discipline gained ground in the pedagogy course, created in 1939, remained in the curriculum, although it underwent several curricular changes. Since the 1980s, it began to suffer limitations in the educational field, due to the focus of educational research, which gradually lost its quantitative nature, or due to the redefining of the pedagogy course, which started advocating for teaching as the basis for the training of pedagogues.

Keywords

Pedagogy course – Teaching of statistics – History of Education – History of the curriculum.

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A disciplina estatística no curso de pedagogia da USP: uma abordagem histórica

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Resumo

Este artigo apresenta uma abordagem histórica acerca da disciplina estatística no curso de pedagogia da Universidade de São Paulo – USP (1939-1999). O objetivo foi investigar as origens da disciplina, os conteúdos e métodos propostos e seu papel na formação do pedagogo. A análise documental e a história oral foram utilizadas como recursos metodológicos. Fundamentando-se na história do currículo, a pesquisa dialogou especialmente com as ideias centrais de Ivor Goodson, ao compreender o currículo como construção social e investigar como e por que certo conhecimento é ensinado (ou não) em determinado contexto histórico. Constatou-se que a estatística foi considerada muito importante para a área educacional na primeira metade do século XX, por contribuir com a produção de diagnósticos para o planejamento de políticas públicas, com os trabalhos de inspeção escolar e com a classificação de alunos. Com origem nos cursos de administradores escolares do Instituto de Educação da Universidade de São Paulo nos anos 1930, a estatística ganhou espaço no curso de pedagogia, criado em 1939, mantendo-se presente no currículo, ainda que tenha passado por várias reformulações curriculares. A partir dos anos 1980, começou a sofrer limitações no campo educacional, seja pelo enfoque das pesquisas educacionais, que perderam gradualmente o cunho quantitativo, seja pela redefinição do curso de pedagogia, que passou a defender a docência como a base da formação do pedagogo.

Palavras-chave

Curso de pedagogia – Ensino de estatística – História da educação – História do currículo.

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Introduction

With over 70 years of existence, the pedagogy course went through some curricular changes and the professional profile of the pedagogue has been redefined through time. This paper is part of a post-doctoral research that aimed to examine the historical background of mathematics education in the curricula of pedagogy courses of higher education institutions in the state of São Paulo (University of São Paulo - USP, Pontifical Catholic University of São Paulo - PUC-SP and State University of Campinas - Unicamp) and identify the disciplines of mathematics education that attended the trajectory of that course (1939-1999), as well as the role they played in the formation of the pedagogue. The focus of the present paper turns to the discipline of statistics at the pedagogy course at the University of São Paulo (1939-1999), and it is investigated the origins of the discipline, the contents and methods proposed and the role played by it in the formation of the pedagogue.

The research is based on the studies in the curriculum history, an area that has turned itself towards the issues involving the history of curricular thought, the history of reforms and curriculum proposals, the history of curricula of courses and the history of the disciplines (MACEDO, 2001). The theoretical basis was supported in the ideas of Goodson (1990, 1997, 2001), due to the author seek to understand how and why certain knowledge is taught in a particular historical context, as well as the status of the subject in the curriculum, and to investigate why some areas of knowledge are transformed into disciplines.

Goodson (1997) identifies three important ideas: the disciplines are not monolithic entities, being changeable by groups and traditions that influence those changes; to consolidate itself in the curriculum, the discipline goes from a utilitarian to an academic pedagogical tradition; and the maintenance of a discipline in the curriculum involves conflicts and struggles by different groups who are looking for status,

resources and territory. While some studies address the curriculum as timeless, that author understands it as a social and cultural artifact that should be understood broadly, as it has its own history. He conceives the genesis of a discipline as related to its immediate social need, that is, its origins and its operation should be read according to the social context of the time.

The document analysis and the oral history were used as methodological resources. It is important to note that Goodson (1997) attaches importance to investigations about the written curriculum in the studies of curriculum history. Macedo (2001) highlights the document as a crucial source for historical research. In the case of the documental analysis, the educational laws, the curricula, the teaching programs and the yearbooks and teaching reports were used as documents, all collected in libraries and sector archives, a fact that allowed a perception about the written curriculum.

The oral history relied on the testimony of three former students from the pedagogy course at USP, each for a specific period: Bernadette Angelina Gatti studied pedagogy at FFCL-USP (1959-1962), has taught statistics in the pedagogy course between 1966 and 1985 and is currently a retired professor of the Department of Statistics, Institute of Mathematics and Statistics at USP; Helena Coharik Chamlian studied pedagogy at FFCL-USP (1965-1969), took part in the reformulation of the pedagogy course in the 1980 and is a retired professor of the Faculty of Education at USP; Natalia Lacerda Gil studied pedagogy at the Faculty of Education at USP (1995-1998), researched the history of official statistics in educational field in her master and doctorate courses and is currently a professor at the Faculty of Education at the Federal University of Rio Grande do Sul .

The purpose of this study was to present the accounts of people who had their experiences as students at three different times of the course and, thus, to work with oral history meant to bring "social actors who experienced certain contexts and situations" (GARNICA, 2004 p. 155).

The importance of statistical knowledge for the educational field

In the first half of the twentieth century, some areas of knowledge were needed to build the professional of the field of education. The statistics discipline represented the possibility of measurement and control, necessary to the state regulatory purposes, whose goal was directed towards the production of social and educational diagnostics, aiming to plan public policies. In the field of educational psychology, statistical knowledge served as a tool for classification of students, with the variations and deviations of individuals (NUNES, 2000). The infallibility of the statistic would not admit failure, and its function was “to observe, ask, ascertain, describe, account, group, sort. In other words, to control and rank” (NUNES, 2000, p. 352).

Trying to understand the reality in multiple directions and map the city and all that was presented in it, the statistics was designed as a powerful and effective tool. Widely used by governments, it brought visibility to school education and to the problems by obtaining quantitative data (BICCAS; FARIA FILHO, 2000).

In the 1920s, the new school movement showed great concern for the organization of numerical data (GIL, 2008, p. 494). With the creation of the Ministry of Education and Health in 1930, the concern with the production of educational statistics grew, a fact that was achieved the following year with the establishment of the General Directorate of Information, Statistics and Dissemination, an agency that would have the function of producing diagnostics. In the same context, the creation of the National Statistics Institute, later known as the Brazilian Institute of Geography and Statistics (IBGE), has highlighted this area of knowledge.

The vast size of the country presented itself as a difficulty in the production of educational statistics. Thus, it became increasingly necessary to collect data about the situation of the schools, that was a task of the

cities, which sent their data to the central agency to obtain the required numbers. Supporter of the new school movement, Lourenço Filho (1947) highlighted the importance of statistics for education, because, according to the author, it presented the essential elements for the reconstruction and redirection of the State about the census and the school inspection.

The new school movement led to the introduction of new educational principles, being remarkable the work by Helena Antipoff in the School for Improvement of Minas Gerais. She came from Geneva at the invitation of the Minas government to renew the teachers' formation, assuming that they should know the child in all its psychological aspects by means of testing (LOPES, 1989). The introduction of the teaching of statistics in the educational field was linked to the scientism vision arising from its employment in psychometry and sociometry, to the technocratic treatment to deal with educational issues, as regards the planning and teaching, and especially to the naturalization of educational sciences and related fields, such as psychology and sociology, influenced by the scientism model of the nineteenth century (LOPES, 1989).

The economic and cultural transformations that occurred in the early decades of the twentieth century would have designed the school as the institution responsible for the development of the country. The demand for schooling accelerated the formation of teachers to work in the elementary school, hence implying the training of teachers to exercise their function in Normal Schools, where the teachers for elementary school were prepared (BRZEZINSKI, 2010).

The teacher preparation was presented as a priority in reforms in several Brazilian states (MIGUEL; VIDAL; ARAÚJO, 2011). The consolidated experiences in other countries like United States, France, Belgium and Switzerland served as reference for the formation of a model of teacher training in Brazil. Such experiences, assimilated and adapted to Brazilian genre, originated the School Improvement of Minas

Gerais (1929), the Institute of Education in Rio de Janeiro (1932) and the Institute of Education of São Paulo (1933), which contributed to the flowering and the consolidation of new educational proposals.

Origins of the discipline

In the educational field, the history of statistics course has its origin at the Institute of Education of São Paulo, an institution that emerged in the Normal School of São Paulo, transformed into the Pedagogical Institute in 1931, and later in the Institute of Education in 1933 (monarch, 1999). In 1934, with the creation of USP, the Institute of Education of São Paulo was incorporated as a unit. The goal of the Institute of Education, University of São Paulo (IEUSP) was to provide preparation for primary school teachers (two years), teacher preparation for secondary teachers (one year) and preparation for school administrators (two years), plus extraordinary courses (EVANGELISTA , 2002).

The statistics discipline was proposed in the course of school administrators, in 1933, under the responsibility of Professor Milton Rodrigues da Silva, along with other subjects like school hygiene and educational psychology (offered in the first year), educational sociology, philosophy of education and compared education (offered in the second year). The discipline administration and school legislation was offered in the two years of the course. From 1936 to 1938, the IEUSP graduated 75 school administrators (EVANGELISTA, 2002). Before the creation of these courses, the principals of primary schools were recruited from among teachers with more teaching experience or by indication of local politicians, without the need for other preparation beyond the Normal Course. Such courses started to offer specialized preparation, becoming an opportunity for the primary teachers to continue their studies (CASTRO, 2007).

Milton Rodrigues da Silva presented the program of statistics (1936) from a list of contents that branched the definition and the field of statistics, data collecting and analysis, measures of central tendency (mean, median and mode), measures of variability, notions of probability, measures of precision, study of marches or movements and correlations. Just one point of the program showed relationship with the educational issues: “Applications to Education: a) issues of psychometrics; b) issues of organization and administration of education; c) hygiene issues “(USP, 1936). The literature indicated seven books, mostly in a foreign language.

With the advent of the New State (1937-1945), the IEUSP was abolished in 1938, becoming the Education Section of the Faculty of Philosophy, Sciences and Letters of USP, and its faculty members was absorbed by the institution, scrapping the project of Fernando de Azevedo and other reformers involved (BONTEMPI JR, 2011).

The creation of the pedagogy course at USP and the consolidation of statistics in the curriculum

The pedagogy course was being planned in the educational field from the renewing experiences at the University of São Paulo, the University of the Federal District and the University of Minas Gerais, in addition to the intervention of the Catholic Church that aimed at the creation of a Faculty of Education in the Catholics molds. That course was officially created in Brazil in 1939, structuring itself “in the wake of centralizing acts that took place in full Vargas dictatorship” (BRZEZINSKI, 2010, p. 40).

Originating in the organization of the National Faculty of Philosophy (Decree-Law n. 1,190/39), the pedagogy course has established itself as a federal standard for all institutions of higher education in the country. By choosing research as a guideline, the National Faculty of

Philosophy (FNFi) aimed at improving science; and teacher preparation was presented as a secondary purpose, with the priority purpose of filling the gap of teachers for secondary education (BRZEZINSKI, 2010).

Created from a curriculum of eleven subjects, the pedagogy course was designed as a bachelor's degree, similar to the other of that institution, and its primary function was to prepare technicians for working in the administrative positions. With three years in duration, its curriculum offered Complements of Mathematics (first year), History of Philosophy (1st year), Sociology (first year), Biological Foundations of Education (1st year), Sociological Foundations of Education (2nd year), Educational Statistics (2nd year), Comparative Education (3rd year) and Philosophy of Education (3rd year). Other disciplines occupy a larger space in the course load, being offered in more than one school year, such as the disciplines History of Education (2nd and 3rd years) and School Management (2nd and 3rd years). The Educational Psychology was present in all years of the course.

Another highlighting feature of the pedagogy course was the teachers' preparation for the normal schools. The didactic course lasted for one year and consisted of six subjects (General Didactics, Special Didactics, Educational Psychology, School Administration, Biological Foundations of Education and Sociological Foundations of Education). Such structure of teaching became known as scheme 3 + 1, emerging, then, the concept of licensed: the bachelor who studied the group of subjects of the didactic course, getting the license for secondary teaching and graduating by the College of Philosophy, Science and Letters (CASTRO, 1973).

With its activities starting in 1940, the pedagogy course at the University of São Paulo was the first to be offered in the public sphere in the state of São Paulo as a bachelor's program, in accordance with the federal law. Initially it counted with the work of some chair professors of

the extinct IEUSP. It was linked to the Pedagogy Section of the Faculty of Philosophy, Sciences and Letters (FFCL-USP) and started with five students (Maura Negrao, José Severo Pereira de Camargo, Maria José Barros Fornari, Anita Buchalla and Milton Lourenço de Oliveira). Its regulation occurred after the start of the activities (KATSIOS, 1999). When created, the course would have corresponded to the second phase, as the first occurred in the development of the IEUSP activities, with the availability of university education for primary and secondary teachers and educational technicians (KATSIOS, 1999).

In the first decade of operation (1940-1951), the course had a predominantly female audience (157 women and 37 men), of which 99 students were graduates of Normal Schools, while 71 had only a high school diploma (KATSIOS, 1999).

According to the federal law, the pedagogy course offered two disciplines related to mathematics preparation: Complements of Mathematics (first year) and Educational Statistics (2nd year). The discipline Complements of Mathematics was confined to reviewing the content of high school, in order to provide a mathematical basis for the freshman students of pedagogy and facilitate the realization of future calculations of statistics. Although the federal legislation indicated the supply of Educational Statistics only for the second year, the pedagogy course at USP offered this discipline in second and third years. As a legacy of IEUSP, Milton Rodrigues da Silva was the first Professor of Statistics in Educational pedagogy course in FFCL-USP. In the 1943 program, according to the Yearbook, there was only one point that linked the common contents of statistics with the educational issues: "Specialized techniques of educational research and Registration of the school movement, its organization in Brazil" (USP, 1943, p. 291). If compared with the IEUSP 1936 program, it is identified that the 1943 program was more extensive, with 36 points, for the two years of course, accomplishing contents as descriptive statistics, probability, sampling, correlation and linear regression and it does not

present bibliography, a fact that would permit comparison with the 1933 program.

In the 1940s, the chair of Educational Statistics in FFCL-USP also included assistant professors and assistants. Later, some of them became professors of the Institute of Mathematics and Statistics, University of São Paulo (IME-USP), such as José Severo de Camargo Pereira and Lindo Fava, licensees, respectively, in Pedagogy and in Social Sciences by FFCL-USP. Some normal schools teachers also appeared as assistant professors, as Josephina de Souza Talmadge, Judith Hallier and Maria da Conceição Almeida Dias Batista, linked to the work of the discipline of Educational Psychology.

In this initial phase, the training of teachers of statistics was varied, with licensed teachers in the FFCL-USP courses that presented statistics in their curricula, generally, Education and Social Sciences. The Social Sciences course offered General Statistics in 2nd year and Applied Statistics in 3rd year in, plus Mathematics Complements in first year. In this context, the bachelor's program in Mathematics did not offer Statistics in its curriculum.

In the first two years of teaching activity, the professor Lindo Fava had taught classes of practical pedagogy for the pedagogy course:

At that time, the duration of the Basic Statistics course was of two years and the notions regarding Statistical Inference were given only after a year of Descriptive Statistics (FAVA, 1972, p. 5).

Being PhD (1948), Lindo Fava became responsible for teaching a special part of the statistical pedagogy course. The main topics covered were: "1. Application of the normal distribution to educational problems; 2 Relative difficulty of the items of a test; 3 Construction of scales of schooling" (FAVA, 1972, p. 5). Apparently, there was a concern to relate statistical knowledge with pedagogical practice.

Bernadette Gatti portrays, in her testimony, her experience as a former student

of the pedagogy course at FFCL-USP (1959-1962) and also her performance as a professor of the Department of Statistics, Institute of Mathematics and Statistics, University of São Paulo (IME-USP) between 1966 and 1985. As regards the pedagogy course, Gatti (2012) highlights the characteristic of the strong theoretical density and the use of bibliographies in English and French (GATTI, 2012). This is also confirmed by the literature, which indicates that the initial phase of the pedagogy course was marked by the traditional character, with theoretical multiplicity focused in the classical educational studies and in a predominantly foreign bibliography; furthermore, it defended the habit of study in groups, the prevalence of lectures, the works on text comprehension and oral and written tests (CRUZ, 2011).

As a student of the discipline of Educational Statistics by professors José Severo de Camargo and Milton Pereira da Silva Rodrigues, Gatti (2012) points out that statistics was a very arduous discipline in the pedagogy courses:

The class suffered, right [laughs]. [...] The students suffered both in Complements of Mathematics and in Statistics. The Statistics was even more painful because it was heavier. All the demonstrations were given... shall we say ... all the probabilistic part, with all the demonstrations. But, above all, because the tests were very difficult! The tests involved a few questions that you answered by concepts, but, for most items, you had to master the fundamentals of Statistics and try not to get lost. Had a lot of catch, to tell the truth! (GATTI, 2012, p. 3).

The amount of exercises as well as the adoption of the textbook of Professor Milton Rodrigues da Silva were the marks of the discipline:

In the professor Severo class, we wrote down the entire class because it was a true compendium. He did not adopt any book.

It was him, and we organized the whole theme. I had notebooks and notebooks with all the content. [...] We had to deal with it, and the professors did not have much concern. They gave the classes and then applied the tests. So, you had to study! You had to improve yourself, one way or the another! (GATTI, 2012, p. 4).

The discipline scored a high failure rate to the point that the students had to attend it for several years, even to the final year of graduation. In her testimony, Gatti (2012) noted that students who took low notes were subjected to an evaluation (oral examination) and had to face a situation surrounded by certain sadism of the professors, as she reports: “It was learn or learn” (GATTI, 2012, p. 5).

The methodological approach of teachers leads to the conclusion that there was interest to confer prestige to this discipline, reinforcing the need to study it diligently, especially the considerable workload of the curriculum. In the early years of the FFCL-USP activity, there was a fight for space among professionals from different fields who sought to establish themselves as academic professors, taking into account the low prestige of the pedagogical disciplines in comparison to the scientific disciplines (BONTEMPI JR, 2011). It confirms Goodson (1997) perspective, in this case, that, within institutions, disciplines can not be considered homogeneous because they undergo conflicts, struggles and negotiations to legitimize themselves in the academic field (GOODSON, 1997).

The curricular reforms in the pedagogy course

After its initial configuration, the pedagogy course went through two curricular reforms in the 1960s: the CFE Opinion n. 251/62 and the CFE Opinion n. 252/69. The 1960s was marked by the unrest in the political, economic and social fields, showing strong demands around

the national education. Due to the adoption of the first Law of Guidelines and Bases (LDB n. 4,024 / 61), the Federal Council of Education (CFE) was created and, among other attributions, establishes the minimum curriculum and the duration of undergraduate courses.

The first curricular reformulation integrated baccalaureate degree to license degree in the course of Pedagogy, with the propose of four years and the core of compulsory subjects (Educational Psychology, Sociology and General Education, History of Education, Philosophy of Education, School Administration and Didactics) and other diversified core (Biology, History of Philosophy, Statistics, Methods and Techniques of Educational Research, Brazilian Culture, Comparative Education, School Hygiene, Curricula and Programs, Education Audiovisual Techniques, Theory and Practice of Primary School, Theory and Practice of High School and Introduction to Educational Guidance). The Opinion n. 251/62 addressed the fragility of the course and brought the discussion to its continuation or termination due to lack of proper content. It can be noticed, by the legislators, an initiative to form the primary teacher at the college level, reinforcing the shift of the specialist preparation for graduate studies: “The Pedagogy course must then be redefined; and it seems that in it will rely the first essays of higher education of the primary teacher “(BRASIL, 1963, p. 61).

In the first recasting, the discipline Complements of Mathematics ceased to be offered and Educational Statistics lost the condition of compulsory subject, becoming part of the core of diverse disciplines, changing its name to only Statistics. Directed to the second year of the course, the program in 1967 suggested only contents of a course in General Statistics: Statistics purposes, concepts of General Statistics and Applied Statistics, data collection, discrete and continuous quantities, function, measurements of position, measures of dispersion bidimensionais distributions, average and marginal variances, statistical dependence,

random event, definition of mathematical expectation for the discrete case, population and sample design for a survey, flotation samples, casual and bias error, random sample, sampling distributions, accuracy, precision and bias, hypothesis tests, distribution of the arithmetic mean of the sample (USP, 1967).

Attending the pedagogy course between 1965 and 1969, Professor Helena Chamlian recalls her good experience with statistics applied to the educational field.

José Carlos [Dias], I think that was his name ... died early. He turned that Statistics at a party, teaching very well. Statistics transformed into a very light thing. It was applied to Education, and everyone learned everything. Very simple, very elementary, but wonderful. Everyone loved [...] I remember the comparative tables. I realized that I had meaning in the area of research (CHAMLIAN, 2012, p. 4).

The strong presence of statistics in the course gave support to the discipline as regards the preparation of the pedagogy bachelor:

[...] The Statistics and Methods and Techniques of Educational Research, both capable of powerfully enrich the instrumental assumptions of vocational training, even more in baccalaureate (BRAZIL, 1963, p. 64).

The second curriculum reform (CFE Opinion n. 252/69) sought to adapt the pedagogy course for 1968 University Reform (Law n. 5,540 / 68), which had the function to impregnate “the principles of rationality, efficiency and productivity” (SILVA, 2003, p. 25) into higher education, integrating the educational field to the developmental project of the military government. The 1968 University Reform abolished the Faculties of Philosophy, Sciences and Literature, and the Pedagogy courses began to be offered by the Faculties of Education.

The CFE Opinion n. 252/69 fragmented the curriculum, proposing a common core of compulsory subjects and another core of diversified subjects to meet the demands of the five qualifications: Teaching of Disciplines and Practice Activities in the Normal Courses, School Counseling, School Administration, School Supervision and School Inspection. This reform was marked by the formation of education specialist, thus characterizing the technicist tendency.

The pedagogy course at USP incorporated the five qualifications. Enabling for the Magisterium of the Normal School became mandatory in the preparation of the pedagogue. In the common core, Introduction to Probability (MAE 121) and Introduction to Statistics (MAE 122) - both proposed by IME-USP - and Statistics Applied to Education (EDF 291), provided by the Department of Foundations of the Faculty of Education at USP (USP, 1973), emphasizing the statistical knowledge in the 1970s.

The Statistics Applied to Education (EDM 291) discipline was presented with the goal of providing the student with:

[...] The understanding and necessary technique to perform safely and accurately, making use of sets of data related to the education the three phases of statistical work: a) data collection; b) data presentation; c) data analysis (USP, 1972).

The program of this discipline provided measures of variability, measure of statistical dependence, normal curve, notions of sampling, sample and statistics, sampling errors, sampling types, and its teaching methodology indicated the lecture method, including the realization of a large number of exercises for learning fixation (USP, 1973). Its bibliography also indicated the book of Rodrigues (1934) as well as the use of handouts of IME-USP. The book of Milton Rodrigues da Silva, the first professor of statistics in the pedagogy course, was presented

in the program of the 1970s, becoming a reference in the teaching of the discipline.

Being invited to teach as an assistant professor in the Department of Statistics at IME-USP, Gatti (2012) recalls her early years of teaching activities in higher education as a reproduction of the model used by her professors during graduation, both in their methodological approach as in the use of teaching materials:

I realized that the first group had many difficulties because I worked “mimicking” my professor, not as deep as him, but supporting me in him. But I saw that there were students who stumbled on the logic, on the demonstrations and on fraction, for instance. And I did not think it was fair not to grade the student because he stumbled in the operations or had difficulties with algebraic proofs [...]. But for the people of Pedagogy, you had to adapt. [...] So I've changed! In the first month, I gave Arithmetic for them. An arithmetic basis. For a month, I discussed a little of the sense of Statistics and said, “Look, we'll have to do the calculation, so we'll make an introduction to Arithmetic”. And they loved, because they did not remember those operations any more (addition, subtraction, fraction, decimal, those rules). [...] But I think kept changing my way of teaching Statistic. I went to teach both for Social Sciences and Psychology as well. The content was the same, but what changed were the examples. The Statistics does not change, but the logic to whom you are speaking is different (GATTI, 2012, p. 10).

The testimony reinforces the view that much of the knowledge that professors have about teaching and their teaching role originates in their own life history, and especially in their school life history, because before they became teachers, they were students, and that learning is reflected in the professional practice. Many

teachers go through the initial preparation courses and fail to modify their beliefs about teaching. Thus, professional knowledge are acquired by the professional experience itself.

The professional knowledge is also temporal in the sense that the first years of professional practice are crucial in acquiring the feeling of competence and establishing work routines, that is, the structuring of professional practice (TARDIF, 2000, p. 14).

Gatti (2012) also taught Psychometrics and Sociometry, elective disciplines offered to the courses of Pedagogy, Psychology and Social Sciences. Co-authored with Nagib Lima Feres, licensed in Social Sciences and professor of IME-USP, professor Bernadette Gatti published *Basic Statistics for Social Sciences* (1975), a work widely known and indicated for the discipline of Statistics in the humanities' courses.

Regarding the role of Statistics in the pedagogue preparation, Gatti (2012) points out that its function is related to experimental pedagogy and withdrawals of educational demographics and educational indicators:

And the educational demographics? And the educational indicators? You need Statistics to understand that! I worked with it in Descriptive [Statistics]. Then the Descriptive [Statistics] gives base for you to work demographics a little. And the Descriptive [Statistics] gives you the basis to think of Inference. [...] I think I was evolving in that direction, to work more conceptually with examples and less with demonstrations and calculations (GATTI, 2012, p. 12).

Another point made by the deponent refers to the assessment of students that was done through tests, besides individual and group work. The teacher sought to use the tests in classes, making their corrections and explaining the resolution of the problems used in the evaluation.

Linked to the Educational Guidance qualification, the discipline Educational Measures also gained prominence by supporting on the statistical knowledge (GATTI, 2012). The query to the syllabus corroborates the testimony from Gatti (2012), whose aim was “to teach the necessary ideas to understanding the concept and the essential characteristics of a good test, showing the implicit statistical processes in its construction and correction” (USP, 1973, p. 48). The program included the history of quantitative methods in education, test concept, reliability or accuracy, interpretation of test results (including percentiles, mean and median, semi-interquartile range, standard deviation, correlation, quotients and standards) and general principles of construction of a test (planning, preparation, implementation and evaluation).

Redefining the pedagogy course: the teaching as preparation basis

The fragmentation of the pedagogical work, advocated by CFE Opinion n. 252/69, triggered criticism to the pedagogy course in the late 1970s. The course, with reductionist and technicist tendency of school, went on to “forming leaders and carrying for educational sciences the model of industry or production company” (Unicamp, 1980, p. 19). Then began the defense of a national common basis for the formation of the pedagogue. From these discussions, the pedagogy courses around the country began the curricular reformulation.

With the support of the National Association for the Preparation of Education Professionals (Anfope) and the Federal Council for Education (CFE), the courses were incorporating new skills to the curricula, turning, mainly, to the field of teaching (CHAMLIAN, 1996; XAVIER, 2009), giving privilege to those relating to work over the early years of elementary education, child education, youth and adult education, and special education (CRUZ, 2011).

The pedagogy courses were preparing teachers for the early years of elementary school, without necessarily being instrumented. The incorporation of the Magisterium qualification for Teaching High School (CFE Opinion n. 252/69) encouraged the work for teaching, although such qualification was focused on teacher preparation for the normal school. There was an effort to expand the disciplines of instrumentation:

[...] diversifying them to cover the various curriculum components of the early years of schooling (methodology of mathematics teaching, social studies, literacy, arts) (TANURI, 2000, p. 84).

According to Chamlian (2012), the active participation of teachers from the Faculty of Education at USP in discussions on regional and national levels contributed to the curricular reformulation of the pedagogy course in 1987. The reform proposal was to form an educator in the broadest sense. Until then, what happened before was just the addition of disciplines or changes in programs (CHAMLIAN, 1996). The curriculum was characterized by a minimum of four academic years, enabling the pedagogue to the teaching of first and second degrees. The curriculum was divided into three phases: the first comprised the basic preparation (first, second and third semesters) and turned to the study of the foundations of education; the second (fourth, fifth and sixth semesters) divided into two optional fields (area I or II); the third comprised the license for teaching, compulsory to all students (CHAMLIAN, 1996).

As a student of pedagogy at USP between 1995 and 1998, the testimony of Natalia Lacerda Gil explains the organization of the curriculum she had chosen:

At the time, when we got to the fourth semester, we had to choose an area of concentration, which means that there was at that point a “fork” in the curriculum. Who chose the “area

1”, that was my case, attended disciplines supposedly more focused on performance in the classroom, who chose the “area 2” had a more directed course to working in school administration. (GIL, 2013 , p. 1-2)

The 1987 curriculum was geared to understanding the debates in the education field, giving more emphasis to subjects in the area of foundations of education and the production of educational research than, necessarily, for the preparation facing classroom issues:

I think that allowed us to understand the epistemological aspects of approaches to the pedagogical reflection and political-academic discussions about teaching, teacher education, educational policies, but did not gave us instruments for professional practice. (GIL, 2013, p. 1)

Regarding the emphasis in the disciplines of foundations of education, Chamlian (2012) points out that there were negotiations with the department to decrease the workload of some disciplines to introduce others. Being a curriculum consisting of disciplines offered by the three departments of the Faculty of Education (Administration, Fundamentals and Teaching Methodology), the negotiation between departments was really needed. According to the testimony, it is clear the atmosphere of dispute and negotiation for the permanence and / or supply of new disciplines, confirming the approach of Goodson (1997) already discussed:

Then, there was a real trading. It was a political negotiation. The History and the Philosophy of Education, which had great weight, lost space. [...] The Histories and the Philosophies of Education were quite diminished. Practically, we studied the entire History of Education and the entire Philosophy of Education. That was a great contest. We dealt with professor José Mário [Pires Azanha], who was head of the

Department of Foundations. And in that negotiation, he also made some proposals, and we negotiated and condensed the curriculum. (CHAMLIAN, 2012, p. 7)

Even with the negotiation, Statistics remained present in the reformed curriculum in 1987 by the offering of two disciplines: Introduction to Probability and Statistics (MAE-113) and Statistics Applied to Education (EDF-291). The first, offered by the Department of Statistics at IME-USP, suggested an introductory preparation related to basic concepts of statistics and the second proposed a preparation that was complementary and applied to educational issues. As regards the first discipline, Gil (2013) recounts her experience as a former student:

There was a discipline of Statistics which was given by a professor of the Institute of Mathematics and Statistics and we took it in classrooms of the building of Poly (Engineering). Along with the students of Pedagogy, it was attended by students of Geography, Speech Therapy, or something similar. It was given by professors who clearly hated having to teach to students who they considered incapable, slow, or anything like that. In turn, it is true that students were not at all interested in the subject and had no facility to follow lessons. It was common the abandonment and / or failure in this discipline. (GIL, 2013, p. 3)

Although it was related to the Department of Foundations, Faculty of Education, the second discipline was also offered by teachers of IME-USP that, according to Gil (2013), worked with the same methodological approach of those of the discipline previously given, seeking to relate the contents of statistics to educational area, which ceased to have meaning for students because “[...] it was evident that they did not know about education and not even about the use of statistics in educational research” (GIL, 2013, p. 4).

The testimony of Gil (2013) is in the same direction as the testimony of Gatti (2012), when she points out that the statistic ending in some undergraduate courses curricula would be related to the fact that there were no teachers qualified to make the proper application, that is , to learn to relate statistical knowledge to specific knowledge of the course:

And there was no way to go forward because the people who were giving [the discipline] were playing dice. They gave that generic Statistics. And then, of course, both professors and students saw no interest in that. “Oh, let’s do the Probability! Play dice ... “That did not make sense. They gave no direct application [...]. He goes there with his authority and he gives the Statistic that he thinks he has to give. So, it is very hard! That’s a pity! [...] And there was a move I say it is mutual: on one hand, the Statistics just getting extremely theorized, and on the other side the applied saw no utility in it. That happened in Pedagogy, happened in Medicine [...] Then it happened: each department go taking its statistics, you know? Only that a few have taken and reassembled with their specialty, and others (such as Pedagogy and Social Sciences) simply took it off (GATTI, 2012, p. 15).

The Statistics discipline remained in the curriculum of pedagogy at USP until the second half of the 1990s, a time when there was a new curriculum reform.

Final thoughts

The teacher profession began to gain visibility in the first decades of the twentieth century, when there was demand for schooling, accelerating the process of teachers’ preparation. The pedagogy course arose in the country in a context of pedagogical renewal, in which it was aimed the preparation of educational technicians for working in administrative

positions and teachers for normal schools. Professional practices focused in the census, in the administration, in school inspection, in classification and selection of students.

In the educational area, the Statistics discipline had its consolidation during the movement of pedagogical renewal, coinciding with the period in which it was aimed that modern, urban, industrial society had access to that science. The statistical knowledge was conceived as a fundamental knowledge for modern life, being surrounded by two basic functions: to produce diagnostics for the planning of public policies and classify students by the application of psychological tests. Moreover, it gained a prominent role in the curriculum, given that the pedagogy course turned to the academic and scholastic preparation, and the statistic was presented as an infallible guide to understanding the educational reality tool, getting linked to the production of educational research. Statistical established itself as, but limited to a few students due to the difficulty imposed by the methodological approach of its professors.

Even having been consolidated in the educational field in a context of pedagogical renewal in the 1930s, aimed to mapping the educational reality, the Statistics gained prominence in the 1970s, the height of technicist movement in Brazil. The Statistics Applied to Education was preceded by two other subjects who had intended to provide an introduction to its knowledge, giving status to that area.

As a discipline in higher education, the statistic was offered initially in the Pedagogy and Social Sciences courses, and some teachers licensed in these courses became professors of this subject. Later, with the creation of the undergraduate course in Statistics and, subsequently, the development of its graduate courses, that discipline turned to probabilistic theories and its theorization, getting impaired the Applied Statistics (Gatti, 2012).

From the 1980s on, the statistical began to suffer limitations in the educational field.

For Lopes (1989), those limitations were related to the gradual loss of the quantitative nature in educational research. To Gil (2013), from the 1990s on, the research in education began to experience a backflow of quantitative methods, getting highlighted the qualitative approach, such as the historical, ethnographic research. Moreover, the gap between the need of the researcher and the proposed curriculum of discipline made it difficult to understand the usefulness of this knowledge.

The new demands of teacher preparation turned to the field of teaching, with the offer of specific didactic process, disciplines related to the conceptual and theoretical-methodological field of knowledge that would be taught in the early years of primary school, as well as the emergence of other subjects which expanded the concepts of education, leading consequently to a secundarization of Statistics as pure science.

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