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Distance Education and National Teacher Training Policies: Implementation Evidence in a Multi-level Perspective[1]

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Abstract: The *Programa Nacional Escola de Gestores* (PNEG) integrated the national teacher training policy and was financed by the Brazilian government. Ended in 2017, was part of a set of programs that elected distance education (DE) as its main strategy. The PNEG was designed to strengthen public school management. Based on graduates and PNEG instructors' perceptions of this program at one federal university, this article provides evidence on multi-level administrative and educational decision-making processes in distance education. Mixed methods were adopted. Data was collected through a survey applied to 216 graduates and 29 interviews with the PNEG team entailed five dimensions: (i) the training and pedagogical design implemented; (ii) the polyteaching training team; (iii) distance education and the use of digital information and communicational technologies (DICTs); (iv) the resources and infrastructure provided by the local support center; and (v) the interaction between the graduates and the polyteaching team in the PNEG training process. The analyses reveal that, in DE, pedagogical planning, the use of technologies, and the combination of resources that stimulate interaction among the actors play a decisive role in this process. Team

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supervision is another mandatory aspect. Mediated by technologies, DE teacher training programs funded by the federal government have redesigned curricular trajectories, tried out different pedagogical strategies, and proposed new skills to students and trainers.
Keywords: distance education; public policies for teacher training; educational policy implementation; technology

Educación a distancia y políticas nacionales de formación del profesorado: Evidencia de implementación en una perspectiva de varios niveles

Resumen: El *Programa Nacional Escola de Gestores* (PNEG) integró la política nacional de capacitación docente terminado en 2017 por el gobierno brasileño. Parte de un conjunto de programas que eligieron la educación a distancia (ED) como su estrategia principal, el PNEG fortaleció la gestión escolar de las escuelas públicas. Este artículo analiza la percepción del alumnos y maestros del PNEG sobre la capacitación ofrecida en una universidad federal. Tambíen proporciona evidencia sobre la implementación multinível en la ED. Con método cuanti/cualitativo, el artículo analizó datos de un cuestionario aplicado a 216 concluyintes y 29 entrevistas con el equipo de PNEG. Los datos cualitativos fueran combinados en cinco dimensiones: (i) el diseño formativo y pedagógico implementado; (ii) el equipo de formación de la politenseñanza; (iii) educación a distancia y uso de Tecnologías Digitales de Información y Comunicación (DICTs); (iv) el centro de apoyo local: recursos e infraestructura y (v) la interacción entre los egresados y el equipo politenseñanza en el proceso de formación del PNEG. Los análisis revelan que la planificación pedagógica, el uso de tecnologías y la combinación de recursos que estimulan la interacción juegan un papel decisivo en este proceso. La supervisión del equipo es otro aspecto importante. Mediados por las tecnologías, los programas de formación docente a distancia financiados por el gobierno han rediseñado las trayectorias curriculares, probado diferentes estrategias y propuesto nuevas habilidades para estudiantes y formadores.
Palabras-clave: educación a distancia; políticas públicas para la formación de docentes; implementación de políticas educativas; tecnología

Educação a distância e políticas nacionais de formação de professores: Evidências para implementação em perspectiva multinível

Resumo: O Programa Nacional Escolas de Gestores (PNEG) integrou a política nacional de formação de professores extinta em 2017 pelo governo brasileiro. Parte de um conjunto de programas que escolheram a educação a distância (EaD) como estratégia principal, o PNEG fortaleceu a gestão escolar das escolas públicas. Este artigo analisa a percepção de alunos e professores do PNEG sobre a formação ofertada em uma universidade federal. Também fornece evidências sobre a implementação multinível em EaD. Utilizando método quantitativo/qualitativo, o artigo analisou dados de um questionário aplicado a 216 concluintes e 29 entrevistas com a equipe de formação do PNEG. Os dados qualitativos foram categorizados em cinco dimensões: (i) o desenho formativo e pedagógico implementado; (ii) a equipe polidocente de formação; (iii) educação a distância e uso de Tecnologias Digitais de Informação e Comunicação (TDICs); (iv) polo de apoio presencial: recursos e infraestrutura e (v) a interação entre os cursistas e a equipe polidocente no processo de formação da PNEG. As análises revelam que o planejamento pedagógico, o uso de tecnologias e a combinação de recursos que estimulam a interação desempenham um papel decisivo nesse processo. O monitoramento da equipe é outro aspecto importante. Mediados por tecnologias, programas de formação de professores a distância financiados pelo governo redesenharam trajetórias curriculares, testaram diferentes estratégias e propuseram novas habilidades para alunos e formadores.

Palavras-chave: educação a distância; políticas públicas de formação de professores; implementação de políticas educacionais; tecnologia

Distance Education and National Teacher Training Policies: Implementation Evidence in a Multi-level Perspective

This article analyzes the perception of graduates and instructors about the training promoted by the *Programa Nacional Escola de Gestores* (PNEG) at the Federal University of Ouro Preto (UFOP). This discussion is the result of broader research whose objective was to evaluate the effects on the school principal's work in the municipalities served by the University in the state of Minas Gerais, Brazil[2].

Stimulated by the need to offer continuous training for public school principals, the Ministry of Education (MEC) created the PNEG in 2004. Part of a set of national teacher training policies and programs that elected distance education (DE) as its main strategy, the program was implemented nationwide by the public universities network in different states, cities and regions, up to 2018.

As stated by to Moore (2017), in DE, pedagogical mediation takes place according to the needs of each student, without geographical displacement, expanding qualitatively and quantitatively the possibilities of training. The author states that the pedagogical strategies articulated and organized by employing digital resources mediate the interaction among subjects. There are, therefore, several asynchronous and synchronous technologies and tools that subsidize and enhance the collaborative work of production, interaction, and reflection of the individuals involved in this dynamic, contributing to the process of knowledge construction.

The implementation of the PNEG depended on the adhesion of the Brazilian public universities, notably the federal ones (FUs). Financed by the MEC, the 38 FUs, present in all 27 states of the federation, have coordinated, together with the Ministry, a multilevel federative network that articulates the state, municipal, other governmental and non-governmental institutions and entities, mobilizing knowledge, resources, and actors that transit in the field of education.

Based on to Matland (1995) and Hill and Hupe (2003), the more layers and levels within a policy, the greater the complexity of the execution caused by the diversity of spaces and interactions that promote its implementation. The authors affirm those layers modify the implementation process. Concerning the multilayers induced by Brazilian federalism, there may be variations in the degrees of conflicts and ambiguities that the policy goes through, allowing its reinterpretation and adaptation to the different contexts and the variation of the results. In this case, it is necessary to think of solutions that make it possible to guarantee the implementation of the policy, such as regulating discretion, standardizing the design, creating incentive and adherence systems, intergovernmental cooperation strategies, increasing negotiation spaces, among others.

UFOP was one of the participants of federative this network in the state of Minas Gerais. Between 2012 and 2017, the program certified, throughout this period, around 1032 education professionals in 16 local support centers, serving over 180 municipalities in the state. In analyzing the perception graduates have about the program, we understand, based on Vedung (2009) and Worthen et al. (2004), that the course participants evaluated a national teacher training policy implemented by a public university, both financed by the Brazilian federal government. It is not, therefore, a question of evaluating an isolated course.

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[2] Minas Gerais is the fourth largest state in the federation. Located in the Southeast region of Brazil, it has 21 million inhabitants. Its economy is characterized mainly by mining, agricultural and industrial activity.

Although the research has limitations in scope for having analyzed only one federal institution, the paper provides evidence to assist decision-makers involved in the formulation and implementation processes of distance education (DE) programs in two major perspectives: (1)to improve the implementation of top-down DE policies and programs at the local level; and (2) from a bottom-up perspective, it draws attention to pedagogical and administrative dimensions that must be considered by public institutions when designing and planning multi-level DE programs.

Program evaluation focuses on the processes, results and effects, impacts, participants, and recipients of actions. In this research, the PNEG was evaluated based on the perceptions of the subjects involved in the implementation process – the graduates (E), the trainers (AT; PT) and the supervisory team (S) – articulating the following aspects: effects and results; design and management of administrative and pedagogical processes; design and performance of the training team; the University, its performance and infrastructure; the local support centers and their infrastructure; technologies and resources; and difficulties and challenges experienced. According to Davidoff (1987), perception is the process of organizing and interpreting sensory data received to develop an awareness of oneself and the environment. Thus, perceiving makes individuals aware of the world as something that is this or that way, based on references that will conform to more ordered understandings. Perceptions can, then, be a useful approach for program evaluation.

This article has four primary sections. The first section presents a set of issues that conform to the agenda of teacher education in Brazil. It describes the course of training actions, from the government of Fernando Henrique Cardoso (1995-2001) to the government of Jair Bolsonaro, which began in 2019. It articulates the emergence of DE as a strategy to expand teacher training at the national level as a vector for internalizing practice, promoting local development, and reducing regional inequalities. Such elements are not detached from a global agenda, recognizing the importance that public education has for socialization, opportunity generation, growth, and sustainable economic and social development.

For this reason, section 2 presents the institutional outlines of the PNEG. The second part of the section describes the conceptions that oriented the pedagogical strategies adopted by a federal university that offered the program – UFOP.

Section 3 presents the quanti-qualitative methodological path adopted. A survey was sent by e-mail to 216 graduates of the third class of the PNEG at UFOP (2015-2017). The rate of respondents was 34.25%. Then, 29 interviews with eight-course participants (four directors, three vice-directors, and one pedagogical supervisor) and 21 members of the team were made. The interview script included 28 questions, held between June and July (2018) with state and municipal public-school managers. The interviews were analyzed with NVivo®, a software that enables the reading and classification of sources.

In section 4, the combined data is analyzed observing five dimensions: (i) the training and pedagogical design implemented; (ii) the polyteaching training team; (iii) distance education and the use of digital information and communicational technologies (DICTs); (iv) the local support center, and its resources and infrastructure; and (v) the interaction between the graduates and the polyteaching team in the PNEG training process. As social and economic inequalities, asymmetries in access to technologies, and difficulties inherent to the use of these resources still prevail in the country, this discussion reveals elements that must be taken into consideration when offering training actions in the distance modality, especially when the regions served are distant from the major centers and/or turn to the peripheral areas of cities.

Strategies for Public Training Teacher Programs and Distance Education in Brazil

In Brazil, the social right to public education is guaranteed by Article 5 of the 1988 Federal Constitution, which states that education is a right of everyone and must be provided by the state. The Constitution assures it must be fostered and promoted with the cooperation of society, in the search for integral development, for qualification for work, and the exercise of citizenship. In 1996, the government of Fernando Henrique Cardoso (FHC; 1995-2002) enacted the Guidelines and Bases of National Education Act (LDB 9,394/1996), which defines the bases of national education, based on the constitutional precept.

Among the several dimensions regulated by the referred Act, the federative competence by education level stands out, delegating to the municipalities the responsibility for the provision of Early Childhood Education and Basic Education. The states must ensure primary and secondary education. The Union is responsible for maintaining the federal education system, including public higher education.

These frameworks defined and induced the educational agenda and its implementation over the next decades. Under the FHC government, this government also created the *Fundo de Manutenção e Desenvolvimento do Ensino Fundamental e de Valorização do Magistério* (FUNDEF) [Fund for the Maintenance and Development of Elementary Education and the Valorization of Teaching], established by Constitutional Amendment 14 of September 1996. FUNDEF modified the funding matrix for primary education, introducing new parameters for the distribution and use of budgetary resources. By linking the revenues transferred to states and municipalities to the number of students enrolled in each educational network, the federal government decentralized the supply of vacancies and deconcentrated resources, inducing subnational entities to provide primary education. Thus, the Ministry of Education reinforced its strategic role in the formulation of educational policy at the national level. On the other hand, by redefining the basis for funding through federal transfers, the MEC delegated policy implementation to other units of the federation, which also began to organize and manage their networks.

The change in legal frameworks, both at vacancy provision and the budgetary levels, produced essential movements in the country, broadening the debate on access to school, on the permanence of students, on the quality of public education and the performance of students and networks, even in the late 1990s. Influenced by the liberal agenda defended by international organizations and the models in force in other countries, the federal government strengthened the National Institute for Educational Studies and Research Anísio Teixeira. (INEP), a federal agency linked to the MEC responsible for external evaluations and the production of educational indicators.

According to Veiga (1998), it is in this context that the government formulated a set of strategic policies and programs to raise the levels of quality and performance of students. Thus, the MEC implemented the *Programa Formação de Professores em Exercício* (Proformação) [On-the-job Teacher Training Program], whose objective was to offer distance learning courses at the secondary level, with teaching qualifications, aimed at teachers who taught in elementary school and for youth and adult education classes. As state by Gatti and Nunes (2008), more than 50,000 teachers were served by the program until 2006.

Elected in 2002, Luiz Inácio Lula da Silva (2003-2010) instituted, in 2004, the Teacher Training Network, focusing on Basic Education. Its objective was to improve teacher education through actions to train primary teachers in public education systems, covering the areas of training in mathematics and science, literacy and language, the teaching of human and social sciences and arts.

In 2006, the MEC created the Open University of Brazil (UAB) to expand the offer of courses and programs of higher education in Brazil exclusively by DE. In accordance with Segenreich (2009), the UAB seeks to expand and internalize courses and programs of initial and continuing education for school professionals, prioritizing peripheral regions and those with higher social inequalities. The UAB is an essential policy because it contributes to reducing disparities in supply and concentration of places in higher education and democratizing access. By developing a broad national system of higher distance education, through a set of training actions, the Ministry of Education elected DE as a strategic modality to reach students and teachers at a national level, in the different regions of the country. Public universities have become part of this network, as they have become the main ones responsible for the pedagogical and administrative management of the courses offered at the local level.

In 2007, the MEC instituted the Education Development Plan (PDE), providing tools for evaluation and implementation of policies to improve the quality of education. As a strategic program of the PDE, the Ministry instituted the Articulated Actions Plan (PAR) by Decree no. 6,094/2007, aiming at the management of the government's goals, collaborating in the structuring of a national education system to expand the supply, improvement, and permanence of students and schools.

That same year, the federal government created the Basic Education Development Index (Ideb). The Ideb is an indicator that evaluates the results of the quality of education, through the averages of performance in the *Sistema de Avaliação da Educação Básica* (SAEB) [System of Evaluation of Basic Education] and the data on school approval, obtained through the School Census. By creating an index that combines several variables and databases, external evaluations have become central to the debate on the quality of education, becoming an essential driver of state action.

In 2007, the Ministry also instituted the National System for Teacher Training. The system aimed to guarantee DE on-the-job teacher training in public schools, integrating primary education with higher education. By offering a set of initial and continuing education actions through the UAB in partnership with public universities, the Secretariats of Basic Education (SEB) and Continuing Education, Literacy, Diversity and Inclusion (SECADI), linked to the MEC, began to articulate states and municipalities to offer vacancies to teachers and other education professionals.

In 2009, the MEC implemented the *Programa Nacional de Formação de Professores da Educação Básica* (Parfor) [National Program for the Training of Basic Education Teachers]. Linked to the UAB, the program fostered the provision of public higher education for teachers in the primary education networks, so that such professionals could obtain the training required by LDB, according to the specificities of each network. Thus, through DE, the federal government expanded the scope of initial and continuing teacher training programs and mobilized education departments in the states and municipalities, associated entities, and higher education institutions to form a teacher training network, articulated by the State Continuing Education Forums.

With the presidential succession in 2010, Dilma Rousseff's government (2011-2016) continued the educational expansion actions initiated by the Lula administration. Regarding the training of teachers, the MEC implemented, in 2012, the *Programa de Alfabetização na Idade Certa* (PNAIC) [National Plan for Literacy], in partnership with the state and municipal Secretariats of Education. The program aimed to teach all children enrolled in municipal and state, urban and rural public schools to read and write Portuguese and Mathematics until they reached the end of the literacy cycle. Implemented by public universities, which combined distance learning with face-to-face training, PNAIC trained literacy teachers who worked in the basic education cycle.

In her second term, Dilma Rousseff faced successive political and economic crises. Under pressure, the government began a process of fiscal adjustment, which included reducing funding for continued initial teacher training. In 2016, Dilma underwent an *impeachment* process, and the vice

president, Michel Temer, assumed the presidency. With a liberal bias, the Temer administration approved a Constitutional Amendment that froze federal government spending until 2037. Anchored by severe budget cuts, the amendment worsened fiscal adjustment. Consequently, based on Oliveira et al. (2017), the initial and continued training of teachers was mostly discontinued.

In 2019, Jair Bolsonaro assumed the Presidency, committed to a conservative agenda, but liberal in the management of the macroeconomic policy. Concerning DE, the MEC issued Ordinance No. 2,117 of December 6, 2019, which allows higher education courses (except those in medicine) offered in the face-to-face mode to offer up to 40% of their total workload through the distance learning mode, conditional on compliance with the National Curricular Guidelines for each course.

This itinerary, although superficially presented, contributes to contextualize DE in the country. In describing the actions linked to this modality, we understand how DE has emerged in the last 15 years as a strategy to consolidate both policies for entry to higher education and graduate studies, as well as initial and continuing teacher training programs at the national level. By articulating, in cyberspace, technologies (digital information and communication technologies), institutions, subjects, times, processes, resources and pedagogical designs, DE relativizes the issue of space and time, increasing the possibilities of access to training.

As state by Morrison et al. (2004), DE is a teaching modality that allows greater access for students, in different territorial locations, exploring different learning spaces. The authors affirm that DE has shown strong growth and popularity especially in higher education, where many educational institutions will explore digital information and communicational technologies (DICTs) to reach larger and distant markets and students, merging different and virtual mechanisms and pedagogical designs.

Traxler (2017), argues that digital technologies reduce the distances that separate people from educational opportunities, which can be socioeconomic, cognitive, cultural, or physiological distances, representing the differential of DE´s reach, as an instrument of emancipation. For Wang (2009) and Moore (2013), there is an orientation increasingly focused on market demands for higher education, driven by neoliberalism, which corresponds to the call for graduates to be qualified for the job market. According to Olssen and Peters (2005) and Hill and Kumar (2012), another great global pressure is the ability to finance the continuous growth of distance learning and digital technologies within this teaching modality.

Regarding the expansion of DE, as an instructional strategy in higher education, Portway and Lane (1994) affirm that the validation and efficiency of distance learning courses correspond to the growing demand for students in this modality, driving the expansion of open universities worldwide. In this sense, in a perspective for the future, the authors affirm that the changes that are happening in the society, mediated by the technologies and networks, are of such amplitude that will promote the reinvention of the education as a whole, in all the levels and all teaching modalities.

By locating DE in this context, Peters (2003) states that the modality mobilizes, in cyberspace, institutions, instructors and students, in different times and dynamics. Cyberspace is, therefore, the place for networking, online interaction and virtual connections. For Castells (2009) and Levy (2010), the dynamics in a networked society mediated by these technologies amplify and modify online social interactions, adding spaces and times, besides promoting virtual communities. In this direction, Silva et al. (2012) and Oliveira et al. (2017) affirm that navigation through cyberspace establishes a network of information exchange, offers and claims, extrapolating the limits of time, the demarcations of borders, the interactions between subjects and the idea of presence – DE lexicon.

Data from the last EaD and Higher Education Census released in 2018 (INEP, 2018) show the increase in enrollment in EaD courses, consolidating it as a training option. The number of enrollments in distance courses has grown substantially, doubling its participation, from 20% in 2008, to 40% in 2018. For the first time, in the historical series, the number of students taking distance courses was greater than that of students linked to on-site courses. Of the total number of students in the modality in 2018, the public sector accounts for 11% of enrollments, while 45.7% are in the private sector. The data also show that 61% of future Brazilian teachers are being trained in this modality. Thus, the data reveal that most students enrolled in Pedagogy courses and in other undergraduate courses aimed at teacher education are in this modality, which is why EaD has played a strategic role in this field.

School Management and the *Programa Nacional Escola de Gestores*: The Experience of the Federal University of Ouro Preto

As the Brazilian state has undergone profound changes since the 1990s, the educational system has also suffered profound changes, as revealed by the changes in its curricula, forms of evaluation, and school work. In accordance with Oliveira (2009), as part of these transformations and demands, the federal programs analyzed in the previous section promoted a process of administrative, financial, and pedagogical decentralization that resulted in a significant transfer of responsibilities to the local level, culminating in the removal of actions and implementation of educational programs, especially to municipalities.

In this context, at the heart of educational reforms governed by decentralization and political-administrative autonomy, external evaluations have gained centrality. For Brooke and Cunha (2011), the federal government expects its results to be translated into guidelines for educational policymakers to make decisions that, translated into pedagogical efforts in schools, are capable of raising student performance and ensuring solid knowledge of content skills on the part of students. Oliveira et al. (2017) highlighted the opportunity to strengthen the autonomy and decision-making power in school units, financial and administrative decentralization, and accountability for the performance of the student measured by quality indicators, and, consequently, to the role of the principal.

It is in this context that the PNEG applies. Formulated in line with this management concept, committed to the principles of the public school and the promotion of citizenship, the MEC implemented the program in 2005. According to Oliveira et al. (2017), the PNEG was structured around themes linked to pedagogical actions and the work of professionals working in schools, committed to the principle of democratic management, and oriented to improving school performance. As a way of enabling the training of school managers in the various regions of the country, the public universities responsible for implementing the PNEG have pedagogical autonomy, subject to compliance with the workload defined by the MEC and the articulation of the three curricular axes that structure the program: (i) the right to education and the social function of the school; (ii) policies of education and democratic management and (iii) the Pedagogical Policy Project and Democratic Practices in School Management.

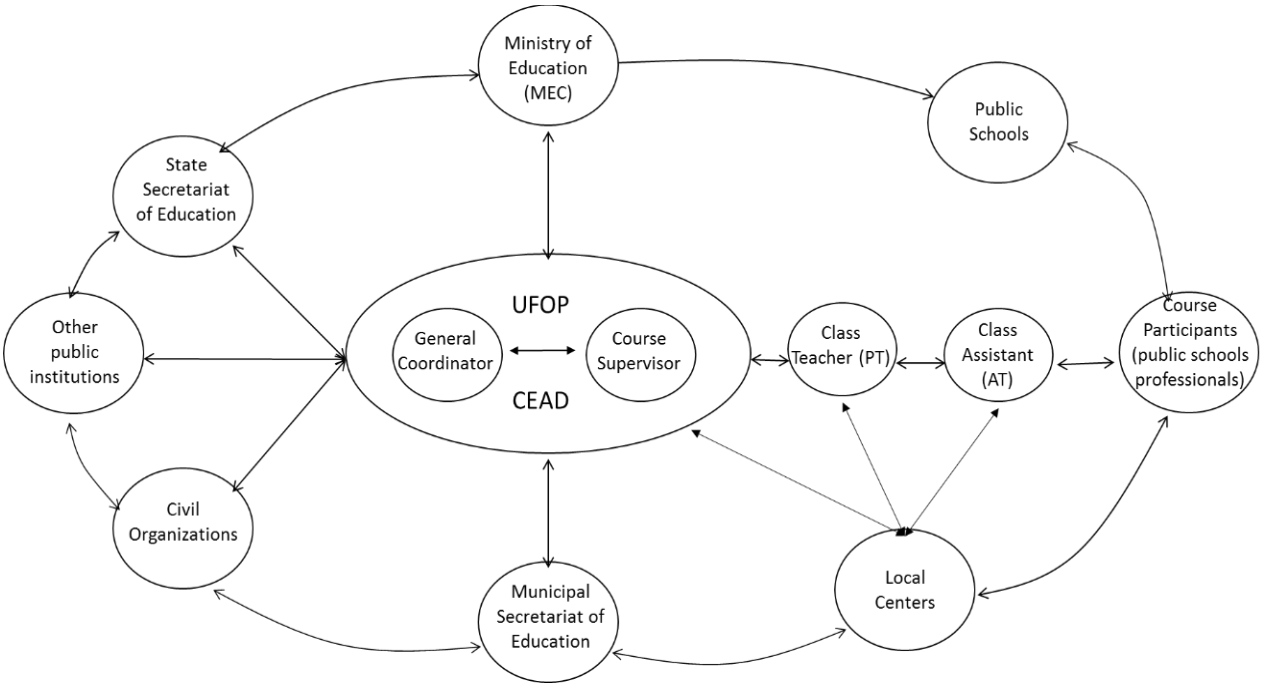
UFOP started implementing the program in September 2011 and discontinued it in 2017. The main goal of the PNEG at UFOP was to train specialists at the graduate level in school management to work in public units in the State of Minas Gerais. Figure 1 presents the model implemented by the University and the multilevel network mobilized. The support local centers were defined based on the regionalization already existing at UFOP for the distance courses offered by the UAB. Partnerships were established with the municipal education departments of these localities. There were 400 vacancies per class, offered over three years – the first between 2012 and 2014; the

second between 2013 and 2015, and the third between 2015 and 2017 – counting, throughout this period, 16 local centers[3] and 1032 certified educators.

The enrolled students were accompanied by a polyteaching team composed of two coordinators (doctors); class instructors [PT] (masters); class assistants [AT] (specialists), teacher educators, and supervisors of course conclusion papers, belonging to the teaching staff of CEAD, at UFOP, or other higher education institutions, directly responsible for the teaching and learning process, in terms of a multi-teaching course.

Figure 1

Multilevel Network and the PNEG Polyteaching Team – UFOP



Source: Elaborated by the authors.

Mill (2012) states that a polyteaching team is one whose educators and advisors mobilize the knowledge of a teacher: the specific experience of the discipline, the didactic-pedagogical expertise of the teaching exercise, both to organize the knowledge of the subject in the teaching materials and to accompany the students; and the technical expertise, for handling the artifacts and process technologies, to promote the learning of knowledge by students.

For the author, the entire work team at DE is polyteaching: instructors, virtual tutors, educational designers (or instructional designers), on-site tutors, multidisciplinary and coordinating teams. By acting collectively and cooperatively with the various dimensions and routines of DE, the team conforms and gives materiality to the actions.

[3] As defined by the MEC, the local support center is the duly accredited place for the decentralized development of pedagogical and administrative activities related to the courses and programs offered at distance.

Regarding the curricular and pedagogical proposal, the design of the PNEG at UFOP consisted of 10 subjects, called room environments, in addition to the course conclusion paper. The Moodle platform was adopted to promote synchronous and asynchronous interaction between participants and the training team. Thus, as stated by Kenski (2012), virtual interaction was encouraged, regardless of where they were.

Finally, the course design at UFOP included three face-to-face training meetings – one at the opening, one in the middle, and one at the end of the course, held at the University itself. In addition to these meetings, there were face-to-face or virtual meetings at the local centers programmed to gather, clarify, or deepen essential issues for the course development.

Methodological Aspects

Quanti-qualitative research was carried out with graduates from the third class of the PNEG at UFOP (2015-2017), in three phases:

Phase I: Application and Tabulation of the Survey Sent to Graduates

The graduates who responded to the survey were school professionals that belonged to the public schools attended by UFOP. The survey contained 68 objective questions, distributed in five dimensions that focused on the graduates' perceptions about of the program: (i) the training and pedagogical design implemented; (ii) the polyteaching training team; (iii) distance education and the use of Digital Information and Communicational Technologies (DICTs); (iv) the local support center: resources and infrastructure and (v) the interaction between the graduates and the polyteaching team in the PNEG training process. Available as a form on the Google Docs platform, the survey had its access link sent by e-mail to 216 graduates. The respondents performed the functions of direction, vice direction, pedagogical coordination, pedagogical supervision, and teaching. The data discussed in the survey comes from the analysis of a total of 74 responses, the equivalent of 34.25% of the total number of respondents.

Phase II: Interviews with Graduates and Polyteaching Team

The script for the interviews with the graduates was structured based on the survey questions and the literature review. In addition to the five dimensions of the survey, the instrument had two additional ones: initial and continuing teacher training policies and external evaluations. Twenty-nine interviews were conducted: eight with public school principals and 21 with the polyteaching team at the University.

Phase III: Data Categorization and Analysis

Data were categorized with the assistance of NVivo®, software that allows the reading and classification of the sources. The software allows the elaboration of qualitative analyses from concepts and classifications previously identified by the researcher. Table 1 presents the five dimensions and the sources considered for analysis. Based on Vedung (2009), such dimensions, categorized, emerge as qualitative indicators that, combined, analyze how the effects and results obtained by the PNEG are intertangled.

Table 1

Recurring Dimensions and Categories, by Coded Fonts and Passages

Dimensions	No. of encrypted sources	No. of coded stretches
The training and pedagogical design implemented	23	105
The polyteaching training team	20	219
Distance education and the use of Digital Information and Communicational Technologies (DICTs)	21	93
The local support center: resources and infrastructure	18	48
The interaction between the graduates and the polyteaching team in the PNEG training process	16	116

Source: Elaborated by the authors.

What Do the Graduates and the Polyteaching Team Think?

The Training and Pedagogical Design Implemented

As discussed in section one, DE has its outlines and mobilizes a set of specific subjects and knowledge. As the processes of formation and interaction are mostly asynchronous since technological resources and pedagogical strategies potentiate these times, we agree with Mill's formulations (2012, p. 141), when he states that "[...] this perspective of knowledge construction is based on the belief that we learn in interactions, collaboration, exchange. The interfaces should favor communication in plural and objective way by the context/content to be developed".

By arguing that DE is not a mere transposition of training strategies from classroom teaching to the virtual learning environment, Oliveira et al. (2019) warn of the risks that polyteaching work can bring with it, regarding the process of incorporation of data in virtual learning platforms: (i) the excess of material available for study in the virtual environment; (ii) the adoption of few, similar and/or repeated didactic and methodological strategies that allow the student to transform information into knowledge and (iii) low level of differentiation or reduced use of creativity in the production/development of media and/or pedagogical activities.

The authors warn that the binomial presence-distance requires, therefore, care. The ease of incorporating data and information into the virtual classroom may turn the virtual learning environment (VAS) into merely a database or information showcase. In other words, as there are risks for trainers to resort to their teaching experience from their repertoire and knowledge, the virtual classroom can become a mere repository of content, with little or no concern about the adequacy of the materials provided and the time needed for the student to accomplish his/her goals. The same reasoning applies to mediation strategies and didactics.

Still, concerning this duality, distance can be a real difficulty. The fact that the interactions are asynchronous tends to increase the feeling of isolation or abandonment. No in-classroom presence of the teacher and other students can make the student feel helpless and lonely. As the

absolute of Brazilian students enrolled in distance learning courses attended classes in traditional in-class education, their repertoires and references associated with training, didactics, interaction, evaluation, and feedback were structured based on this modality.

The analysis reveals that, in other words, in-class education is still the paradigm that orders the activation of the knowledge of students and instructors in the virtuality of DE. Consequently, the relationship tends to be antagonistic, tense, strange, and insurmountable in some cases. Many give up. As they still have different representations about DE because of the absence of skills in this modality, these subjects still see the pattern with suspicion, with insecurity, or as something that rivals face-to-face training.

In all cases, the path of DE, its connection with technologies and processes of hybrid exchange with face-to-face education, may modify such conceptions, causing the student – and the trainers – to actively transit through these modalities, which are increasingly convergent.

Thus, both the training and the polyteaching team's planning are linked to these processes, assuming a central character. At UFOP, the proposed pedagogical design prioritized the combination of face-to-face activities in the face-to-face local support centers with actions developed through the virtual learning environment. The survey responses highlighted this aspect: when questioned about the design and the pedagogical proposal, 70% of the respondents considered "Very Good", and 29% felt "Good". The interviews conducted converge with these data, as indicated in the two following passages.

> I think that those who criticize do not know distance education is because they do not know UFOP. The UFOP takes the possibility of training anywhere in the world! Here at UFOP, we know that there are people in the rural area studying for real [E5].

> [Referring to a rural district] There, the access to the local center was more complicated, and they had to take a ferry to get to the center. But there was no shortage of one! [AT2].

In this direction, both the data provided by the survey and the survey conducted by Pinto (2020) reinforce the thesis that there is a direct correlation between the effects of these programs and the design that FUs print to courses in this modality. As Brazilian legislation assures university autonomy to public institutions of higher education, such plans can assume the contours defined by each institution. Even if the continuing education actions financed by the MEC in partnership with public universities have national guidelines, their implementation is strictly associated with the strategies and conceptions of DE that each institution has. In this sense, good designs tend to ensure good results. Likewise, weak training strategies or inconsistent models are likely to produce poor results.

Thus, by making use of this autonomy, FUs define the program implementation designs based on regional and socio-economical demands and the clientele profile. From the administrative point of view, these designs also reflect the structure of each institution. Again, since each FU has its organizational arrangements, the training actions, even if financed by the federal government, will be implemented with reasonable discretion. Consequently, issues associated with the pedagogical project, such as technical support, selection of teacher trainers, administrative team, activity planning, face-to-face and virtual meetings, among others, will vary among the institutions.

The Polyteaching Training Team

Distance training requires the presence and performance of a coordinating team that plans and supervises the decision-making process, based on the design adopted, articulating the polyteaching team both in the institution and in the support centers in person. In a study on the

performance of the polyteaching team of PNEG in UFOP, Oliveira et al. (2019) highlight the creation of mechanisms and strategies used to overcome the actual distance between the subjects linked to the training.

Thus, the need to work in total cooperation and harmony among the different course professionals was a condition for the success of continued training of school managers at UFOP. Therefore, the program had a team of pedagogical and administrative supervision, based on the institution. They were responsible for the planning of actions, the design of face-to-face and virtual activities, the management of the virtual environment, the support of the training team, and the administrative routine.

When evaluating the item "Quality of the administrative and supervision team", 74% of the respondents considered the team "Very Good", and 23% found its performance "Good". As 97% of the interviewees positively evaluate the work of these professionals, we believe that the supervision team is a critical element in the management of training activities in the distance learning mode. Supervision is, therefore, fundamental to articulate the whole polyteaching team. Thus, we understand that the absence of coordination and monitoring will fatally compromise the design and training, increasing the levels of evasion.

In the case of UFOP, the design formulated by the Program team prioritized the articulation between on-site and distance learning strategies; the supervision and virtual interaction of the polyteaching team; the elaboration of the contents of the offered disciplines, and the combining the available media through Moodle, inducing the active participation of all the professionals involved in the formation process.

In this context, by evaluating as "Very Good" the technical support of CEAD, 69% of the responses to the survey demonstrate that the involvement of the Center's team brought a movement of concern with the different actors of the formative process, seeking to understand and respect the needs of these individuals and find ways to foster the potentiation of benefits both for students, instructors, tutors, and the administrative team in the local centers.

Distance Education and the Use of Digital Information and Communicational Technologies (DICTs)

Regarding didactic-pedagogical mediation and the use of technologies in DE, the Quality Benchmarks for Distance Higher Education (2007) advocate that it should reflect the principles contained in the Pedagogical Political Project of the courses and should be conceived by educational institutions to integrate different media, both print and radio, television, digital, among others. Such elements should compose a theoretical framework available to the student in a clear and precise way through the DICTs, ensuring flexibility and diversity.

Mill (2012) argues that for many teachers, the experience at DE can end up serving as an opportunity for professional development, since, when teaching, these professionals need other teaching knowledge in addition to that already used in face-to-face education. The trainer will need to master, in addition to the experience necessary for face-to-face teaching and other expertise inherent to the mastery and use of DICTs. It means knowing how to elaborate and conduct the work based on both face-to-face activities, as well as that which will be carried out at a distance, through the VAS. Although the graduates have positively evaluated such tools, the interviews revealed the students had difficulties with using the technologies at the beginning of the process, as illustrated by one of the testimonials:

> Moodle, for me, was the first impact. Forums, chats, typing. That was the hardest, but then I also took off [E4].

When evaluating the adopted VAS, 77% of the students considered that the platform was excellent and 79% recognized the site of the Program[4] positively, where the most relevant information was posted. Thus, to guarantee the students' digital literacy[5], UFOP prioritized the adoption of strategies aimed at the students' environment. The subjects Introduction to Virtual Learning Environment and Technological Workshops stimulated the students, guided by the polyteaching team, to interact with the VAS, becoming familiar with its resources from oriented actions. In the same direction, the team's interviews also revealed that the trainers learned from the disciplines, expanding their knowledge and skills:

> We had a discipline that used the infographics tool. I had the opportunity to learn how to use these infographics in a more adapted way, [aimed at] my students at the school where I work [PT5].

> The use of the technologies added a lot. I started using them with my students at the college where I work at night. Exploring these technologies helped me a lot [PT3].

For Coll et al. (2010), the explanation for the impact of DICTs on school education and its effects on learning outcomes lies in the activities developed by instructors and students, enhanced by the possibilities these technologies offer. In this sense, the survey responses reveal that most graduates positively evaluate the use of technological resources applied to DE. 82% responded that they were "Very Good" at using these resources.

As this item evaluated the combination and articulation of the media, resources, and technologies adopted in the design of the training, it can be seen, based on the data, that the respondents recognize the importance that DICTs have in the mediation process. These results converge with the findings of the survey conducted by Pinto (2020), who, when analyzing the perception of the graduates on training and their professional insertion in five undergraduate courses in a federal public institution, recognizes the centrality that technologies have in pedagogical projects.

However, some interviews also indicated that there were difficulties with the use of technologies. Although in much smaller proportion to positive perceptions, the findings of this research align with the formulations of Peters (2003) and Kenski (2012), when they state that the institutions that offer courses in this modality still assume that students [in the case of this research, both students and trainers] have previous knowledge of such technologies. The same authors argue that DE requires differentiated skills and competencies from the subjects to overcome and modify information search and processing strategies, promoting other types of interaction, especially virtual ones. The fact is that such knowledge is not always sufficient or even exists.

Regarding the DICTs associated with DE, the direct contact of the teacher with these technologies can reveal a set of weaknesses or difficulties: little (or no) mastery of the tools provided by DICTs, which range from sending an e-mail to participate in chats, forums, Skype meetings, audio and video recording, among others. Oliveira et al. (2017) afirm that they emerge as restrictive factors or even impediments for the teacher, contributing to student dropouts and teachers' dismissals.

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[4] On the program's website, it was possible to find interaction rooms for the team and students; bulletin board; links to access notes; reports; informative videos; virtual library; guiding documents, such as schedules and templates, among others.

[5] As stated by Stordy (2015), digital literacy concerns the social practices of reading and producing texts in digital environments. It refers to the use of texts in environments provided by the computer or mobile devices, such as cell phones and tablets, in platforms such as e-mails and web social networks, among others.

Hence, the interaction and training mediated by digital technologies in DE are directly linked to the quality of digital literacy of those involved in the teaching-learning process. In other words, it is a process that demands skills, abilities, and attitudes distinct from those required by the traditional classroom, especially concerning digital fluency.

The Local Support Center: Resources and Infrastructure

As defined by the MEC, it is at the local center that the student will have face-to-face tutoring activities, library, laboratories, on-line classes, evaluation (tests, exams) and will be able to use its technological infrastructure to be in contact with the educational institution and other participants in the respective training process.

In the case of training actions financed by the MEC and implemented by the FUs within the scope of the UAB, the local center is a structure funded by the municipality, being part of the network presented in Figure 1. Although the FUs use it, the management and maintenance of the center are of local competence, which is why the federal institutions must consider the federative relationship with such sub-national entities. In other words, FUs need to build a relationship with the municipality and the localities around it. That is why Pimenta et al. (2019) state that the success of distance learning activities and the democratization of access through DE depend directly on the proper functioning of these spaces.

Pinto (2020) affirms that the local center is the most important physical space of DE; it is the local reference for students. The administration of this space is not an easy task and requires the local center coordinator to command people and manage processes, in addition to relating to all institutional spheres involved (the MEC, FUs, state and municipal governments). To this end, it is crucial to define clear criteria that assess whether the coordinator will perform his or her duties effectively. Likewise, it is up to the universities to make sure that the municipality ensures the adequate infrastructure for the center to function, to maintain the quality of the formative process at the local level.

The quantitative data confirm the literature: when questioned about the spaces for the realization of in-class activities, 53% of the graduates considered them as very good, and another 42% attributed the concept "Good". The performance of the administrative secretariats of the local center was significant for the promotion of interaction between the students and the other actors belonging to the program since 47% of the graduates attributed the concept "Good", 39%, "Very Good". When asked to respond to the realization of activities aimed at teaching and learning at the center, 58% of students rated as "Very Good" and 39% rated as "Good".

Based on the data, we can affirm that the students valued the structure of local centers positively. In addition to a pedagogical and administrative team, they must have the adequate and satisfactory infrastructure and physical space suitable for the coordination and operationalization of academic life, with the existence of conference rooms, multipurpose rooms or areas for varied in-class activities, secretariat, study rooms, physical library, teaching laboratories, according to the specificities of the courses and computer lab.

The Quality Benchmarks for Higher Distance Education (2007), when pointing out the requirements in each local center, state that the availability of a computer lab with broadband internet access is fundamental. Thus, when questioned about the dependencies of the existing laboratories in the local centers, 48% of graduates attributed the concept "Very Good" to the survey's answers. The computer labs of the on-site support units play an essential role in the democratization and inclusion of those who have difficulties in accessing the technologies, either because of socioeconomic issues or because they are part of the so-called "digital illiterates". When attending the centers' computer labs, the students can count on the support of the centers' team in

person (such as the in-person tutors, for example), and this support is often decisive so that the students who have difficulties with the use of the technologies remain enrolled and find sense in training.

Still, concerning computer laboratories, 50% of graduates at PNEG claimed not to use such spaces. It should be noted that most of the students attended by the program did not live in the municipalities where the local centers were located and, in their majority, only participated in the mandatory face-to-face meetings. In any case, even though half of the students did not use the computer labs, the majority of the respondents valued the face-to-face support center, especially during the meetings, and saw this environment as a reference and congregation space. Thus, it is vital to reinforce the role the local units play to support students who do not have resources in their homes and need support to carry out their activities.

Although the local centers have a strategic role in DE courses, problems such as the absence of computer labs in these spaces or the existence of inadequate or obsolete labs; the precariousness of their facilities or equipment; limited access to the Internet, and digital collections lacking a more adequate and efficient standardization are still recurring in Brazil. Although these problems are factual, data indicate that respondents did not highlight them in the local centers where the PNEG took place. Since they were selected based on these criteria and the relationship with the municipalities was close and cooperative, we concluded that the program's support units' choice was adequate, contributing positively to teacher training.

The Interaction between the Graduates and the Polyteaching Team in the PNEG Training Process

Oliveira et al. (2017) argue that in the practices and resources adopted by DE, the interaction between the actors fosters and enhances exchanges and the formation of collaborative groups in cyberspace. The interaction between students or between students and the polyteaching team, motivated by a set of demands and by the dynamics of formation, makes these subjects capable of researching and creating other and new strategies, at the same time as they develop and open themselves to new possibilities. This ability to interact allows the development of skills and abilities, which is fundamental for the professional formation and autonomy of these subjects.

Aimed by Pinto (2020) as one of the leading causes of loss of quality and evasion in distance learning courses, disability in the interaction processes contributes to the student's isolation and compromises collaborative learning. Thus, the pedagogical design and training strategies in this modality need to be anchored in a communication system that promotes interaction among instructors, tutors, students, and those responsible for academic and administrative management. The author considers that, although the teaching and learning processes at DE are autonomous and asynchronous, the interaction among the various actors [the coordinated and supervised team], together with the degree of involvement and discipline on the part of the student, will be great allies to ensure the excellence expected in these training processes.

At the University, the supervision team has designed three virtual interaction rooms: the polyteaching team interaction room, the interaction room with the student, and the research and academic production training room. The first promoted virtual mediation between the coordination and the team of trainers. The second, among all the enrolled students, gathered in a single "virtual arena". The third one provided access to didactic materials, video-classes and tutorials produced and directed to the production of academic textual genres. A large part of this material and video lessons was created by the course's supervision, in terms of polyteaching.

Specifically, about the interaction room of the training team, this space privileged the supervision, discussion and forwarding of pedagogical issues, the discussion of procedures and evaluation criteria, the sharing of problems, the socialization of strategies, and the exchange of

information of interest to the team. In this sense, the room was a qualified hub for team management – a space for articulation and creation of links that favored the monitoring of trainers, supervision feedback, and the production of quantitative and qualitative reports. One of the trainers interviewed highlighted these aspects:

> Initially, for people who are not from this digital area, it is more complicated. We don't open the business [referring to the resources available in the Interaction Room], and we don't see it so easily. It's useful for drawing attention and pulling the ear because sometimes we get lost with the dates. It's a lot to pay attention to! [PT3].

When referring to the virtual meetings between the team of trainers and the pedagogical supervision, a class assistant describes the interaction with a teammate via Skype:

> The assistant from another center called me on Skype and helped me with a problem. My concern was about some students who were missing from the platform. I had never used Skype! After I started using it, the work got more dynamic, and the communication improved] [AT5].

Besides promoting strategies for the environment of trainers and students regarding digital literacy, the interaction environments also served as differentiated spaces for the polyteaching team to reinterpret and create their actions. As described by Ball (2012), this continuous process of interpretations and translations made the team reflect and modify the officially proposed policy, incorporating its knowledge and experiences.

Seeking to investigate the interaction processes at PNEG, we analyzed how the graduates perceived their interaction with the program's team – administrative staff, instructors, class instructors, class assistants. About the communication between the students and the team, 65% of the interviewees stated that they were "Very Good", and 35% evaluated it as "Good". It is important to highlight: for 100% of graduates, the interaction was positive. Regarding the interaction with the trainers of the program, the data revealed that 70% of the graduates considered it "Very Good". Concerning the interaction with the instructors, 76% and 23% of the students agreed to have had "Very Good" and "Good" contact, respectively. Regarding the interaction between the students and the administrative team of the center, 57% of the graduates considered it "Very Good", while another 37% found it "Good".

In the case of the interaction processes between the students and the polyteaching team, the crossing between the survey data and the interviews reveals that the dialogue, the exchange of information and the exposition of ideas between trainers, tutors, and students at DE are factors capable of making the students more active in the teaching and learning process. Interaction provides students and staff with mechanisms to develop more autonomy in the face of the demands and challenges inherent to the context in which they operate.

Regarding the interaction process between the PNEG actors at UFOP, the data indicate that the set of actions articulated and carried out by the team was a preponderant factor for the quality of the course offered and, therefore, for the training of educational managers. The data also reveal that the work developed by the team was strategic to strengthen the actions of alignment and support to the course participant, besides articulating theory and practice in the formation of educational managers through research-action/project intervention in the reality of schools attended by the program in the state of Minas Gerais.

Final Considerations

This article's objective was to analyze the graduates and the polyteaching team's perception about the formation promoted by the PNEG and provide evidence on multi-level administrative and educational decision-making processes in distance education. Although the research has limitations in scope for having analyzed only one federal institution, the findings serve as guidelines to be considered at the macro level, when considering the multilevel role that Federal Universities have played in the process of implementing these actions, nationally. By formulating and financing several programs in this area, especially since 2003, in the administration of President Luís Inácio Lula da Silva, the MEC has assumed the role of articulator and inducer of the federative multilevel network through the National Educational Policy, offering vacancies at the undergraduate and graduate levels to professors in service and students interested in teaching.

Although they have limitations of various kinds, the programs implemented intended to respond to the massive demand for quality higher education, and, to this end, many of them were organized employing the distance learning modality. Thus, mediated by technology, the programs redesigned curricular paths, experimented with new pedagogical methods, and proposed new skills to be acquired by students, teachers in training.

This is one of the aspects that circumscribe teacher training in Brazil. By requiring higher education for public school teachers, as expressed in the National Education Guidelines and Bases Act, the Brazilian government recognizes that there is an increase in the demand for vacancies at this level, which means more systematized actions, financed by the MEC. Although more than 80% of vacancies at this level of education are provided by private institutions, data from the Higher Education Census (2018) indicate that the FUs have strengthened their social function as promoters of public action. By expanding their area of scope through the expansion of courses, attendance, and distance learning vacancies through the Open University of Brazil and efforts funded by the federal government, these institutions have ensured a more inclusive and equitable quality education, in addition to promoting lifelong learning opportunities for a more significant number of citizens – including teachers – deprived of access to public higher education.

Sottani et al. (2018) affirm that, even though the Ministry has a strong induction capacity, it disregarded the heterogeneity of Brazilian school realities when generically designing a program, given such diverse contexts in which schools are inserted. In this context, it is possible to perceive a certain autonomy of the Federal Universities in the process of implementing the PNEG, adapting it to meet their regional demands and striving to minimize the problems that arouse derived from previous processes linked to the design of the policy, within the scope of the MEC.

The article provides subsidies to improve administrative and pedagogical decision-making processes in other public institutions responsible for local implementation. The data reinforce the importance those dimensions have for the achievement of the intended objectives, besides contributing to reduce evasion and raise the quality of training. Likewise, the research informs that the management and promotion of interaction among the actors involved are fundamental. By articulating the interviews with the survey outputs, the data report that planning the use of technologies and promoting resources that stimulate virtual and face-to-face interaction among the subjects involved plays a decisive role in this process. In this same direction, team management is another aspect that can contribute decisively to the success – or failure – of these actions.

However, the interviews also revealed difficulties and fragilities associated with institutional support by the State and municipal education departments. About seven of the eight graduates interviewed addressed this issue, especially concerning the cost of expenses (food and lodging) that arose from traveling to the face-to-face training meetings at local centers and the University. As the MEC does not finance these expenses and the municipalities and the state have no obligation to do

so, this is an essential weakness of the multilevel network articulated by the Federal Universities. In this direction, Oliveira et al. (2017) warn that the lack of support from the subnational education secretariats may interfere negatively in policy implementation, either in the context of practice or in their results.

Segatto et al. (2021), when analyzing the role of the school director as a street-level manager, state that, associated with extra-school factors, the school management is one of the essential aspects to explain the improvement in educational performance. For the authors, the changes, adaptations, and mediations that directors carry out in policies at the school level play a major role in minimizing the effects of the students' social background. In addition, the relationship they establish with students, their families, and the school community in general also contributes decisively to school performance. Thus, the lack of support from the education departments goes in the opposite direction and compromises the expected effect of the PNEG. Again, federative coordination is a strategic element for the program – not only this one but any other that operates in terms of a multilevel network – to succeed.

Finally, it is important to reinforce that, since 2016, national teacher training policies and programs have suffered severe setbacks. Most of them have been discontinued due to the budget contingency promoted by Constitutional Amendment 95/2016, which froze public spending until 2037[6]. The federal government's guidelines have radically changed due to the conservative turnaround that brought Jair Bolsonaro to power in 2019. With the extinction of SECADI and the redesign of SEB, the initial and continuing training network, which had already weakened since the end of Dilma Rousseff's administration, is demobilized and ceases to exist. These are hard times for public education in Brazil.

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