The management approach to teacher training for the use of digital technologies from the perspective of inclusive education

Jessica Novôa

Araucária City Hall (PMA), Araucária, Paraná, Brazil

jessicanoal@hotmail.com

Gláucia da Silva Brito

Federal University of Paraná (UFPR), Curitiba, Paraná, Brazil

glaucia@ufpr.br

Abstract: In this article, we analyze the work carried out by a special education manager in a particular city in Paraná, in the metropolitan region of Curitiba, between 2021 and 2023, from an inclusive perspective for teachers of specialized educational care with a focus on autism spectrum disorder and the use of digital technologies. We sought to answer the following question: How can education managers plan meaningful in-service training for their special education teachers? We conducted a qualitative exploratory study with an educational manager in the municipality of Araucária, in the state of Paraná. We concluded that the manager should listen in advance to the needs of the teachers in terms of the training they want and plan the training focused on these needs.
Keywords: Democratic Management; Digital Technologies; Continuing Education; Inclusion.

O olhar da gestão na formação de professores para o uso das tecnologias digitais na perspectiva da educação inclusiva

Resumo: Neste artigo analisamos um trabalho realizado por uma gestora da educação especial num determinado município do Paraná, na região metropolitana de Curitiba, com um recorte temporal entre os anos de 2021 a 2023, numa perspectiva inclusiva para professores do atendimento educacional especializado com ênfase em transtorno do espectro autista e a utilização de tecnologias digitais.

Procuramos responder a seguinte questão: como os gestores em educação podem planejar formações continuadas significativas para seus professores e professoras da educação especial? Fizemos uma pesquisa de abordagem qualitativa do tipo exploratória, que foi realizada com uma gestora educacional do município de Araucária, no Estado do Paraná. Chegamos à conclusão que o gestor deve escutar previamente as necessidades dos professores quanto à formação continuada desejada e realizar o planejamento da formação focada nestas necessidades.

Palavras-chave: Gestão Democrática; Tecnologias Digitais; Formação Continuada; Inclusão.

El enfoque de gestión en la formación del profesorado para el uso de las tecnologías digitales desde la perspectiva de la educación inclusiva

Resumen: En este artículo, analizamos el trabajo realizado por una administradora de educación especial en un municipio específico en Paraná, en la región metropolitana de Curitiba. El estudio abarca el período de 2021 a 2023 y adopta una perspectiva inclusiva para los profesores de atención educativa especializada, con énfasis en el trastorno del espectro autista y la utilización de tecnologías digitales. Nuestro objetivo es abordar la siguiente pregunta: ¿cómo pueden los administradores educativos planificar formaciones continuas significativas para sus profesores de educación especial? Realizamos una investigación cualitativa exploratoria, en la que participó una administradora educativa del municipio de Araucária, en el estado de Paraná. Nuestra conclusión resalta la importancia de que los administradores escuchen previamente las necesidades de los profesores en cuanto a la formación continua deseada y planifiquen la formación enfocándose en esas necesidades identificadas.

Palabras clave: Gestión Democrática; Tecnologías Digitales; Formación Continua; Inclusión.

1 INTRODUCTION

The section presented here is part of the results of a Doctoral Thesis in Education carried out at the Federal University of Paraná. In this article, we highlight the role of the democratic manager in special education, as we believe that he or she must provide and articulate the possibilities for continuing education and effective conditions for teachers and the pedagogical team to organize and carry out the work developed in classroom practice.

When we talk about democratic management in inclusive special education, we are referring to the possibility of opening the dialogues necessary for the teaching and learning process, also in a procedural and challenging way. We understand that for this democratic management to take place, we have to consider the role of the participants in an educational act in the construction of dialogic, in other words, the effective participation of everyone, in which the manager mediates in an attempt to resolve conflicts while leaving the space open to the possibilities of dialogue and interaction between all participants in the educational act.

In this way, thinking about the interpersonal relationships involved in management, we start from the assumption that special education from an inclusive perspective must be open to listening to everyone, to educational aspects, and to accepting or not differences of opinion, and that the historical process of established relationships of discussions about special and inclusive education, the transformations of educational policies depended on these moments of dialogue and social movements. We therefore sought to answer the following question: How can educational managers plan meaningful continuing education for their special education teachers?

The objective of this work was to analyze the actions of a special education manager, in a proposal for continuing education from an inclusive perspective for teachers of specialized educational care with a focus on Autism Spectrum Disorder (ASD) and the use of digital technologies. This action was carried out in the municipality of Araucária, in the metropolitan region of Curitiba in the state of Paraná, between 2021 and 2023. Our research has a qualitative, exploratory approach. The nature of our research is interpretive about the educational manager in the planning of a training action. Data were collected through interviews with the manager and participation in meetings with the team of the special education department.

The qualitative approach guided the data analysis from the perspective of Bogdan and Biklen (1994), Sampieri, Collado and Lucio (2013) and Gil (2011). Regarding the characteristics of this type

of research, a detailed description of the phenomenon to be analyzed is carried out, in which the researchers explore their object of study to better understand it, trying to explain what is being studied based on subjectivity. Exploratory research allows the researcher to use different instruments to generate data, its planning is flexible and this type of research seeks to observe and understand different aspects of the phenomenon being studied, in our case the educational management of a municipality.

From a macro perspective, the majority of municipal administrations in their education systems present continuing education based on the National Education Plan, Law No. 13.005/2014, which includes goals and strategies that set guidelines for education policy until 2024. Objective 16 of the National Plan states that the administration should

> to train 50% (fifty percent) of basic education teachers at the postgraduate level by the last year of this PNE, and to guarantee all basic education professionals continuous education in their field of activity, taking into account the needs, demands, and contextualizations of the educational systems" (PNE, 2014, p. 51, translated by us).

2 Starting a dialog on management and ASD

Autism Spectrum Disorder (ASD), according to the guide of the Department of Pediatrics and Human Development and Behavior of the Brazilian Society of Pediatrics (2019, p. 1, translated by us), is a "neurodevelopmental disorder characterized by difficulties in communication and social interaction and by the presence of repetitive and restricted behaviors and/or actions". ASD has three types of severity, which are identified in levels in which they need a lot of substantial support, little or almost none, varying from person to person according to clinical aspects such as some comorbidities or developmental changes, differentiating characteristics of each, in addition to external factors such as environmental, social and internal of the individual consistent with their life cycle.

Teaching in itself becomes a challenge for people with ASD because, given the diversity of their characteristics and development, we have countless ways to explore what is the best pedagogical strategy to use in the classroom, especially with the use of digital technologies.

The role of management in the schooling of people with ASD is to manage and articulate all the necessary steps in the teaching and learning process, thus validating the rights of students to develop, such as: guaranteeing curricular flexibility or enrichment, guaranteeing the availability of a

school support professional to subsidize the interrelationships and mechanisms for making learning effective alongside the classroom teacher, promoting the inclusion support network with mediation and intersectoral actions for students, promoting the participation of teachers in continuous education and the link between specialized educational care and basic education, as well as welcoming and involving families.

Among all these aspects that a manager is responsible for in the organization of an educational unit, in this study we will highlight the issue of continuing education from the point of view of the manager of the Special Education Department of the Municipal Department of Education of the city of Araucária (PR).

The organizational structure of the secretariat in this city is:

Figure 1 - SMED Araucária organizational chart
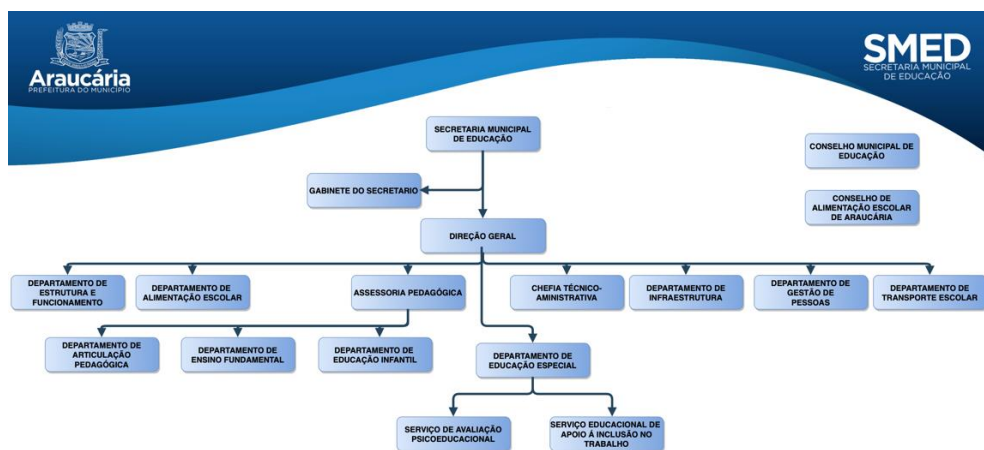
Source: Image taken from the city council's official website. Available at: <https://araucaria.atende.net/subportal/educacao/pagina/sobre-a-smed>. Accessed on: November 30, 2023.

The special education department carries out actions that involve the inclusion of children and students with disabilities enrolled in the municipal education network, working with axes that promote training actions for specialized teachers who work in special education and teachers who work in basic education, in addition to subsidizing guidelines on the work that involves the inclusion support network with the articulation of professionals from the fields of health, social assistance, therapists and families.

The team of the department supervises and directs various actions in the municipal centers of specialized pedagogical care in the areas of mental retardation, visual impairment, deafness, global

development disorders, as well as in the multifunctional resource rooms for the target public in primary and early childhood education, and the multifunctional resource rooms from the perspective of collaborative teaching, organizes continuing education for teachers in the special education rooms.

We found out that the manager (director) of the special education department of the municipal education department has been a teacher for 19 years. She is a Ph.D. student in Education and holds a Master's Degree in Education from the Federal University of Paraná, with a defended dissertation and a thesis in progress on Special Education and Digital Technologies. She specialized in special and inclusive education and educational policies at the Federal University of Paraná. We would like to highlight the care taken by the secretariat in selecting her for this position, as the director has experience in the areas of teacher training, digital technologies, special education, and autism spectrum disorder.

In this sector, the challenges of inclusion are supported by Law 13.146/2015, which establishes the requirements and pathways to be followed to overcome barriers and promote the quality of life and emancipation of people with disabilities. Therefore, education must include means, mechanisms, and resources that contribute to enabling people with disabilities to live, act, think, express opinions, contribute, and experience their social and educational environment in an increasingly autonomous way. In this sense, we emphasize the importance of continuing education for teachers in this context, since the teacher conducts his or her practice in such a way as to promote learning in a meaningful way that is consistent with the needs and potential of the students.

Therefore, the management must work to develop more democratic management, listening to the teachers, and welcoming their desires and needs in the face of pedagogical tools and strategies that are closer to the reality they experience in the classroom.

We emphasize that training processes and school life are in constant flux, and in this sense, continuing teacher education must keep pace with the changes that occur both in the daily social sphere and in the legislation that permeates educational systems, leading to guidelines for the implementation of teaching.

Therefore, within each school, or as in this research context, linked to the Department of Special Education, of a Municipal Center for Specialized Educational Care (CMAEE), where we are highlighting the work in specialized educational care from the perspective of management, we analyze several changes in the organization of teaching and the movement of changing teachers annually, which require needs and adjustments in continuing education as "[...] at the same time as new

elements, new contents and new forms of knowledge, new epistemic-didactic configurations, new definitions of academic excellence or new values emerge" (FORQUIN, 1993, p. 15, translated by us).

Therefore, we need to advance the issue of school culture related to communicative and academic skills through assistive technology, and social skills, among other aspects related to digital technologies, to provide support to educational professionals in terms of "acting in the classroom and in the dynamics of studying their practices" (BRITO; PURIFICAÇÃO, 2015, p. 18, translated by us).

2.1 School Culture and Social Representations: the movement of cyberculture and cyberspace in this context

Culture is dynamic and renews itself in different historical and temporal situations. In this processual act, society reinvents itself over time and with the transformations that occur, implying some factors of collective social construction, such as acceptance, mutual help, cooperation, and negotiation of different points of view, among others.

However, after the industrial revolution, new ways of relating and expressing oneself in society emerged, expanding the possibilities of retaining and disseminating knowledge, with resources and behaviors within the reality called cyberculture, which, according to Levy (1999, p. 22, translated by us), is a "set of techniques (material and intellectual), practices, attitudes, ways of thinking, and values" within cyberspace. Cyberspace emerges from the computer network in an "oceanic universe of information that it harbors, as well as the people who navigate and feed that universe" (Levy, 1999, p. 22, translated by us).

In cyberspace, people circulate among a variety of information and social objects that characterize certain social contexts and influence people's ways of relating and positioning themselves in the face of reality and attitudes toward a given subject (LEVY, 1999). This way of acting and thinking brings us to the field of education, especially concerning the use of technologies in the classroom and teaching processes, through the exchange of knowledge and new ways of organizing and acting.

A group of professionals working in a particular organization, that is, in an educational unit, as in the case of Specialized Educational Care (SEC), as management identifies different ways of relating and organizing themselves as social groups while establishing working relationships, with ideas, languages, thoughts and attitudes, and practical knowledge shared among teachers and other

professionals, with similar and different opinions about educational matters, including technologies, widely shared as a social representation.

Social representation is

> [...] a structure composed of two systems of elements (beliefs, ideas etc). A first system is made up of the consensual and more resistant elements that define the most important and defining aspects of what a group thinks about a social object: this system is called the central core. A second system is called peripheral and consists of more particular and flexible elements that adapt social representations to specific contexts and practices (WACHELKE, 2013, p. 10 *apud* ABRIC, 1994a, 1994b, translated by us).

In special and inclusive education, social representation is a strong field that has already been studied by several authors. There is still lots of research to be done on aspects related to public policies, the actions of teachers from an inclusive perspective, their role in the school, their initial and continuing education, and the cultural aspects that emerge from all these processes and their place in a management in which all parties can establish relationships of permanence and identity.

In this sense, the city where the director of special education works has made it possible, since the end of 2020, to implement collaborative teaching in the SEC through resource rooms. Collaborative practices, also known as collaborative consultation or co-teaching, emerged in the 1990s. According to Mendes, Almeida and Toyoda (2011), collaborative guidance is:

> a process that has six characteristics: 1) it is a helping or problem-solving process; 2) it takes place between someone who receives help and someone who gives help and is responsible for the well-being of a third person; 3) it is a voluntary relationship; 4) both the giver and the receiver share the solution to the problem; 5) the goal is to help solve a current work problem of the one who seeks help; and 6) the one who helps benefits from the relationship so that future problems can be managed with more sensitivity and skill (MENDES; ALMEIDA; TOYODA, 2011, p. 85, translated by us).

Understood as a process, management is part of the basis of collaborative guidance or collaborative practices, in the sense of listening, sharing responsibilities or making decisions about certain daily situations in the educational environment, managing interpersonal relationships, and short, medium, and long-term planning based on collectively constructed action plans, with the direction of the pedagogical proposal and it is necessary that

> the experiences of the world in recent decades, with the human rights movement, social sciences, technology, and communication, have brought us closer to the world, to diversity, to differences, and require the school to

present itself as the student's interlocutor with this expanded world (OLIVEIRA; DRAGO, 2012, p. 348, translated by us).

In this educational scenario, with current challenges that disaccommodate both managers and teachers, in the next section, we will report on the path that the management has taken to offer professionals in special education and in the field of specialized educational care with an emphasis on autism, in the Municipal Educational Network of Araucária (PR).

2.2 Management's path to proposing continuing education

We have already stated in the introduction that our research is qualitative, exploratory, and interpretive in nature, carried out with an educational manager in the municipality of Araucária, in the state of Paraná. The data were collected through interviews with the manager, participation in meetings with the team of the Special Education Department, and observation of the course. In an initial online interview, we asked the manager: Does the department carry out continuing training, and how does it organize and think about training?

> *Manager: What we do most as a department is continuing education, especially in the different areas of special education and the needs of teachers when it comes to technology and how to work with students. We invest in training because special education teachers need to be trained in different aspects, needs, and requirements that come from basic education because they are the ones who guide the basic education teachers, so they need a lot of training in this area. We have divided the training for specialist teachers, who have a specific demand, and the specific training for basic education teachers, who also have another specific learning demand* (translated by us).

We remind of goal 16 of the PNE (2015), which directs management to provide continuing education for teachers. The manager recognizes the need for continuing education, highlighting the need for continuing education in the use of technology with special education students.

At another point in the interview, the manager states that:

> *Manager: The city has been organizing continuing education for special education professionals, based on the finding of an increase in the enrollment of children and students for inclusion, I would like to highlight the increase in ASD reports received by the department, both in early childhood and elementary education in the last decade. This increase has led us to consider the diversity and challenges of inclusive*

education, which increases the need for training for staff and teachers (translated by us).

Faced with this scenario presented by the manager, we decided to analyze the reports of continuing education offered by the city in 2020 and 2021. We chose these two years because it was in March 2020 that the World Health Organization (WHO) declared the existence of a COVID-19 pandemic, which led schools around the world, at all levels, to suspend their face-to-face activities. Managers, teachers, and professors of basic education found themselves, from one moment to the next, carrying out activities in cyberspace.

We found that in 2020 a course entitled "Inclusion in times of pandemic" was offered, with a workload of 4 hours. In 2021, there was a change in the management of the special education department to expand the training of professionals working in the city's educational services. The new director is the one who participates in this research, which we have already described in section 2 of this article. The director organized ten training sessions in various areas of special education, five of which focused on ASD, as shown in the table below.

Chart 1 - List of continuing education courses offered in 2021

Theme	Workload
DOWN SYNDROME SEMINAR YouTube channel	3 hours
AUTISM SEMINAR 2021: LECTURE: "Autism and pedagogical practices: how to make activities more motivating." Youtub channel	3 hours
"Autism: Questions and Answers" Youtub Channel	3 hours
Basic Education Training Google Meet	26 hours
CMAEE Training - Pedagogical Proposal Google Meet	2 hours
Deafness Training Youtub Channel	3 hours
SEM Training Google Meet	4 hours 2 hours
CMAEE's -ASD Assessment Tools Training Google Meet	3 hours
Training new trainees and teachers Google Meet	3 hours
Training: "Possible consequences of the pandemic on children's neurodevelopment" Youtub Channel	3 hours

With these data, we can see that the manager valued continuing education once she took on the role. In this way, she put into practice the role of a manager within a collaborative consultation process (MENDES; ALMEIDA; TOYODA, 2011), as she carried out a problem-solving process through training, which was to increase the enrollment of students with ASD reports.

Regarding the year 2022, the manager told us about the proposal for continuing education course, which arose from her doctoral research.

> *Manager: As principal and doctoral student, I developed, in partnership with the Federal University of Paraná, a continuing education project, based on listening to teachers in the city who had taken part in an extension project offered in previous years and... I presented this project to the education department and the executive director of education for implementation in the municipal network. After approval by the heads of department and the involvement of my team, I opened an internal course, using the process we have, to direct the offer, the spreadsheet, publication and dissemination by the secretariat. The name was: "Continuing Education in Collaborative Pedagogical Work for Autism Spectrum Disorder: the Use of Digital Technologies"(translated by us).*

This reinforces the role of educational management in the schooling of people with ASD and the use of digital technologies, understanding that it must manage and articulate all the necessary steps in the teaching and learning process. "Experiences from around the world" (OLIVEIRA; DRAGO, 2012, p. 348, translated by us) are valued in teacher training, such as human rights and technology.

This speech also highlights the issue of listening to teachers who have had previous training, in other words, the manager recognized the importance of valuing the previous experiences and knowledge acquired by her teachers. This not only enriches the educational environment but also promotes the exchange of knowledge between educators, contributing to more complete and comprehensive learning for all involved, thus reinforcing the structure of social representation identified by Wachelke (2013).

In addition, providing a space for these teachers to share their perspectives and insights fostered a collaborative learning environment that encouraged diversity of ideas and strengthened professional development by increasing everyone's participation in problem solving, which is related to what Mendes, Almeida, and Toyoda (2011, p. 85, translated by us) state: "both those who give help and those who receive it participate in solving the problem". In terms of listening to teachers, the

manager highlighted

> *Manager: I asked what aspects they would consider relevant for training and what essential content should be worked on a new course. The teachers asked for more content on the methodologies to be used in the field of ASD with digital technologies, the training should be online, but they would like to have some face-to-face moments. The systematization of the proposal for the extension course corresponded to what we heard from the teachers* (translated by us).

A total of 120 places were open for registration through an online form published on social networks and the official communication channels of the Municipal Department of Education, which was filled in less than two hours. We had access to the project and the course structure:

Figure 2- Structure of the course
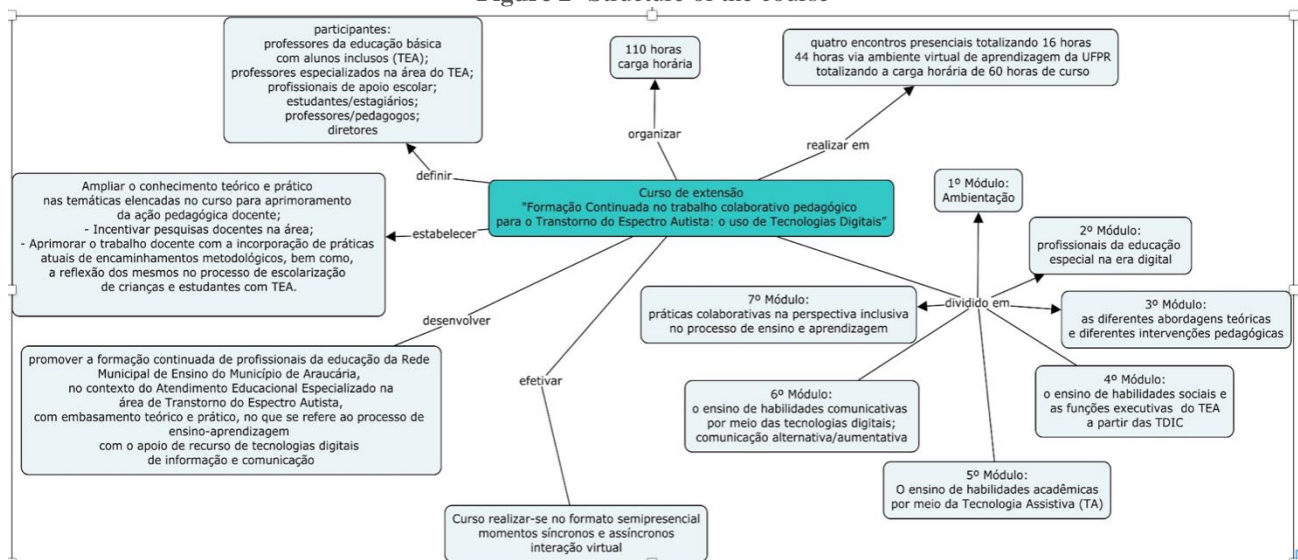
Source: NOVÔA, Jessica. Continuing education for teachers and digital technologies: a look at specialized educational care with an emphasis on autism. Doctoral thesis. Curitiba, 2023. p. 99 (book's title translated by us).

The course was organized by the manager, with the support of the team, in a semi-present format, with synchronous and asynchronous meetings, with individual and collaborative activities in each module, a total of seven, each lasting an average of 15 days.

The main objective of the collaborative activities was the collaboration between the professionals participating in the course, so that they could exchange experiences and collectively build different types of knowledge, which, according to Tardif (2002, p. 54, translated by us): "[...] experiential knowledge emerges as the vital core of teaching knowledge, the core from which teachers try to transform their external relations with knowledge into internal relations with their practice. [...] teaching knowledge is therefore essentially heterogeneous," and teachers reflect on their practice

following this exercise of establishing relationships.

From the activities, there were countless possibilities for interaction among the course teachers, such as posting photos and videos in the AVA forum, and in the group of social applications such as Telegram and WhatsApp, promoting interaction among them so that they could feel like inhabitants (SCHERER, 2008) of this space, and as inhabitants "they take responsibility for their actions and those of their partners, seeking mutual understanding, communicative action, reconstructive questioning; the inhabitant is always part (dynamic sense) of the environment" (SCHERER, 2008, p. 2, translated by us).

Regarding the course participants, the manager said:

> *Manager: From the participation and interaction of the course participants, of the 120 teachers who initially signed up for the extension course, 100 completed it, although there were dropouts for various reasons, such as physical and emotional health issues, as well as lack of access to digital technologies, work overload, and expectations about the course, as one of them believed that distance learning wouldn't have too many demands and tasks. As a director, and with 100 students, and teachers from the community, graduating from the course and receiving a degree from the Federal University of Paraná, I feel that I have fulfilled my role as a democratic leader. There is still much to do* (translated by us).

Based on Donini (2015, p. 27, translated by us), it seems to us that the manager has understood her role in democratic management, which is to "ensure the participation and contribution of all in the educational process, not equally for all - following a single model, but singular, in which the individual is respected as part of a collective".

3 FINAL CONSIDERATIONS

The objective of this work was to analyze the actions of a special education manager, carried out in the city of Araucária, in the metropolitan region of Curitiba, in the state of Paraná, between 2021 and 2023. It proposed training from an inclusive perspective for special education teachers with a focus on autism spectrum disorder (ASD) to use digital technologies. We sought to answer the following question: How can education managers plan meaningful continuing education for their special education teachers?

Thus, we realize that the articulation of all those involved in the educational process, especially

in inclusive education, is a field of many challenges and counterpoints, and the manager is the mediator of the entire organizational process in all its administrative, pedagogical, environmental and social aspects, mediating with the school community as a whole.

Planning meaningful continuing education for special education teachers requires careful consideration of the specific needs of these educators and best practices in inclusive education. For this reason, the data shows us that listening to the teacher and his or her reality allows the administration to consider what is needed in order to plan the professional development intervention. Listening makes it possible to assess the teacher's needs and provide guidance that is more in line with the reality of each educational context, bringing in elements of the school culture and the social objects identified in these contexts.

After analyzing the data, we felt it was important to promote collaboration and encourage special education teachers to collaborate, with the goal of providing training that allows educators to share their experiences, challenges, and solutions.

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