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SPECIALIZED EDUCATION SERVICE OF DISABLED STUDENTS IN THE PROFESSIONAL, SCIENTIFIC, AND TECHNOLOGICAL EDUCATION: DILEMMAS AND PROPOSITIONS

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ABSTRACT

School inclusion has been much discussed in Brazil, which has enabled the expansion of legal regulations and public policies aligned with the student's rights. Thus, this article aims to analyze, based on a systematic review, the specialized educational service carried out in an institution of professional, scientific, and technological education, pointing out the main dilemmas and propositions for inclusive education. The methodology adopted was based on systematic bibliometric research, through which a search considering the *Scopus* database with the following terms ("inclusive education" or "special education") and "vocational education". In addition to the survey in the literature, the specialized educational service carried out in an institution of professional, scientific, and technological education was also reported, pointing out the challenges pertinent to this service. It is concluded that Special Education is a field of interdisciplinary. It was found that the Specialized Educational Service carried out at the institution lacks better infrastructure conditions and the constitution of a multidisciplinary team. Some actions were taken in order to guarantee the permanence, and learning of the monitored students: reception at the beginning of the course, individual and collective assistance to the target audience of Special Education, and formative moments with the teachers.

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INTRODUCTION

In the last two decades, with the expansion of legal regulations and educational policies aligned to school inclusion in Brazil, such as the Brazilian National Policy on Special Education from the Perspective of Inclusive Education — PNEEPEI (Política Nacional de Educação Especial na Perspectiva da Educação Inclusiva, 2008), students with disabilities have secured the right to access regular school. However, considering the social function of school – which is to teach and learn the knowledge historically systematized by humanity –, the challenge of educational institutions is to ensure the learning of people with different needs, meeting what is common and, at the same time, specific among students (Camargo, 2017). Inclusive Education is a broad proposal, "based on the principles of human rights, according to which individuals with disabilities must have access to education, participate in educational activities and learn in a meaningful way" (Pletsch, 2020, p. 63).

In the meantime, school inclusion requires a combination of the following elements: student development, respect for their cognitive plurality and coexistence with diversity (Pletsch, 2020). According to Camargo (2017), inclusion is a paradigm that applies to the most varied social contexts and in which identity, and difference represent social advantages that favor the emergence and establishment of solidarity and collaboration relationships. Thus, it should be noted that Inclusive Education does not concern only the public with disabilities, since it defends the right of all to a quality education socially referenced, having as "[...] priority focus on those excluded from the educational process" (Camargo, 2017, p. 2). Thus, this study will address more specifically, the pedagogical monitoring performed in Vocational, Technical and Technological Education within the scope of Special Education. Special Education is a type of education that cuts across all levels, stages, and modalities (Política Nacional de Educação Especial na Perspectiva da Educação Inclusiva, 2008), which has its own specialized techniques and resources, but also an area of interdisciplinary scientific knowledge (Pletsch, 2020).

According to Brazilian Federal Decree No. 7.611, of November 17, 2011, in its Article 2, special education must ensure specialized support services aimed at eliminating barriers that may obstruct the schooling process of students with disabilities, global developmental disorders, and high abilities or giftedness. (Decreto 7611, 2011). According to the PNEPEI, the specialized educational service identifies, develops, and organizes pedagogical and accessibility resources that eliminate barriers for the full participation of students, considering their specific needs (Política Nacional de Educação Especial na Perspectiva da Educação Inclusiva, 2008). Also according to Decree No. 7.611/2011, the Specialized Educational Service (SES) must transversally integrate the pedagogical proposal of the educational institution, involve the participation of the family and the student, meet the specific needs of the target audience of Special Education, and be carried out in conjunction with other public policies (Decreto 7611, 2011). In this regard, laws such as Brazilian Federal Law No. 10.098 of December 19, 2000, and No. 13.146 of July 6, 2015, among others, ensured the right of people with disabilities to education, to a SES and to the insertion in the world of work. However, ensuring both educational and professional training so that this public can fully enjoy their social rights is still a challenge. This occurs because the school and the world of work, historically, have understood disability from the perspective of the medical model, established from the corponormativity (Mello, 2016), a standard of human being accepted and valued at the expense of others. That is, under the aegis of corponormativity, a hierarchy was established between the ideal bodies (those considered 'normal') and those abnormal or disabled (that need to be corrected, readapted, segregated), thus constituting "[...] certain bodies as inferior, incomplete or subject to repair or rehabilitation when situated in relation to the hegemonic corporal or functional standards" (Mello, 2016, p. 3271). The medical or biomedical model aims to standardize bodies and considers corporal limitations as a deviation from nature. In turn, the social model of disability holds that the experiences of oppression experienced by people with disabilities are not in the corporal injury, but in the social structure and architectural, transportation, attitudinal, and technological barriers, among others (Lei 13146, 2015), which limit and/or prevent their participation. Thus, disability is treated as a human condition, situated in the general context of corporal variation and part of the life cycle (Diniz, 2007). This concept of disability is in accordance with Law No. 13.146, of June 6, 2015 or the Brazilian Inclusion Law, which, in its Article 2, states that "a person with disability is considered to be one who has a long-term impairment of a physical, mental, intellectual or sensory nature, which, in interaction with one or more barriers, may obstruct his or her full and effective participation in society on an equal basis with others" (Lei 13146, 2015, n. p.). It should be noted that in Brazilian legislation, the target audience of Special Education is formed by students with deafness or other disabilities (hearing impairment, visual, physical, intellectual, or multiple disabilities), autism spectrum disorder (ASD), and high abilities or giftedness (Política Nacional de Educação Especial na Perspectiva da Educação Inclusiva, 2008; Decreto 7611, 2011). In this context, Special Education, in recent years, has faced an identity crisis by recognizing, for example, that special classes, individualized teaching, as well as personalized curricula and didactic strategies for people with disabilities, among other practices commonly carried out in this knowledge area, are aligned with the medical model of disability and, therefore, do not correspond to the Inclusive Education proposal. In this way, the contributions of the social model and feminist disability studies caused epistemological transformations in the area of Special Education, making it possible to understand it as an interdisciplinary field and a collaborative modality to Basic Education and Higher Education (Pletsch, 2020). As of 2008, Brazilian national public policies encouraged the strengthening of Professional Education through the creation of the Federal Institutes of Education, Science, and Technology. Federal Law No. 11.892, of December 29, 2008, defines those institutes "as institutions of higher, basic, and professional, multi-curricular and multicampi education, specialized in offering professional and technological education in different teaching modalities, based on the combination of technical and technological knowledge with their pedagogical practices"

(Lei 11.892, 2008, n. p.). In Brazil, the term Professional and Technological Education (PTE) was introduced in the Education Guidelines and Bases Law (Law No. 9.394, of December 20, 1996), establishing in its Article 39 that "professional education, integrated to the different forms of education, to work, to science and technology, leads to the permanent development of skills for productive life" (Lei 9.394, 1996, n. p.). Regarding the policy of expansion of PTE, the Brazilian National Education Plan, stipulates in its Goal 11: "triple the enrollments of high school professional education, ensuring the quality of the offer and at least 50% (fifty percent) of the expansion in the public segment" (Lei 13.005, 2014, n. p.). In relation to people with disabilities, Strategy 11.10 establishes that "there is the offer of high school technical professional education for people with disabilities, global development disorders, and high abilities or giftedness" (Lei 13.005, 2014, n. p.). Similarly, Federal Law No. 13.409, of December 28, 2016, provides for the reservation of school places for people with disabilities in high school and college technical courses in federal educational institutions, which has contributed to the increase in enrollments of this population segment, although in a very incipient way. Moreover, despite the legal guarantee of access, it is necessary to broaden the debate regarding the permanence, participation, and learning of students with disabilities in PTE. In view of the aspects mentioned above, this article aims to analyze, in the light of systematic review, the Specialized Educational Service held in a professional, scientific, and technological education institution, pointing out the main dilemmas and proposals for Inclusive Education in this education modality.

THEORETICAL FRAMEWORK

Federal Decree No. 6.949 of August 25, 2009, establishes the right of people with disabilities to work, in equal opportunities with other individuals. This right extends to the opportunity of holding a job of their free choice or acceptance in the labor market, in an environment that is open, inclusive, and accessible (Decreto 6.949, 2009). In this way, the PTE is a possibility for young people and adults who seek professional training and insertion in the world of work, this kind of education being seen as an element of leverage with other public policies for the economic development of the country (Moura, 2014). However, considering that this is a system of capitalist production, which "[...] is in essence incompatible with social justice in its fullest sense, that is, the right of everyone to produce, in an equitable way, society and existence itself through social and collective control of the means of production" (Sá et al., 2020, p. 3), PTE needs to be constituted as a teaching modality that allows students to master the scientific and technological fundamentals through a comprehensive training. According to Moura (2014),

This conception of the human being results in conceiving the right to an education in which scientific, technological, humanistic, and cultural aspects are incorporated and integrated. Thus, the knowledge of the so-called hard sciences and that of the social and human sciences will be considered equally, in terms of importance and content, aiming at an integral formation of the autonomous and emancipated citizen (p. 44).

A comprehensive training based on the principles of human rights and social justice implies that these aspects are present in institutional policies for teacher training. About this, Moura (2014) explains that teachers who work in PTE have different backgrounds, including Bachelors or graduates in technology courses and graduates in basic education subjects. This fact highlights the need for educational institutions to encourage and provide opportunities for continuous and in-service training that addresses, for example, issues related to the learning and development process, inclusive pedagogical practices, assistive technology resources, among others, highlighting the importance of collaborative and integrated work between common classroom teachers and special education teachers. In the Federal Network of Professional, Scientific, and Technological Education, Special Education has been outlined, even today, as an area of knowledge under development. In the context of the Federal Institutes of Education, Science, and Technology, there are the Centers for

Assistance to People with Specific Educational Needs (NAPNEs), which are responsible for providing SES to students with disabilities and for articulating teaching, research, and extension of themes including accessibility, inclusion, and living with diversity. The research by Vilaronga *et al.* (2021) shows that nationwide the NAPNEs have different compositions. Some have the services of a psychologist, pedagogue, social worker, translator-interpreter of Brazilian Sign Language (Libras), teachers, and special education teachers. Others, however, do not previously indicate any composition. Moreover, there are divergences among the Federal Institutes in relation to the public to be assisted by these centers, i.e., there are NAPNEs that assist all students, disabled or not, considering inclusive education as something much broader (p. 287). On the campuses where this happens, besides the Special Education public, students with specific learning disorders (dyslexia, dyscalculia), and psychiatric disorders, among other specificities, are assisted.

Furthermore, unlike what happens in Basic Education and in Higher Education, the NAPNEs do not receive budgetary resources for the purchase of materials and assistive technology resources, which directly hinders its structuring and adequate service to students with disabilities. In this aspect, it should be noted that the NAPNEs were not included in the Federal Accessibility Program in Higher Education that was run through a partnership between the Federal Secretariat for Higher Education and the former Secretariat of Continuing Education, Literacy, Diversity, and Inclusion (Programa Incluir, 2013). Added to this, there is a notorious difficulty in offering the SES in the Federal Institutes as provided in the PNEEPEI (2008), since most of these institutions do not have a Special Education teacher in their permanent staff (Vilaronga *et al.*, 2021). As Mendes (2017) points out, some campuses opt for the temporary hiring of these teachers, which is also not appropriate because “the work occurs in an unsystematic and discontinuous way in part of the Federal Institutes, without the possibility of creating institutional practices for the care that can be characterized as institutionalized” (p. 105). In this sense, Zerbato *et al.* (2021) point out that hiring these professionals in the Federal Institutes is necessary, because some of the teachers responsible for the technical disciplines hold Bachelor’s degrees and have not experienced in their educational process aspects related to teaching and/or working with students with disabilities.

Vilaronga *et al.* (2021) corroborate the fact that it is necessary for Special Education teachers to be part of the staff, since students with disabilities have entered technical and higher education courses without knowing Braille, Libras, and assistive technology resources. According to these authors, the role of these teachers is essential both in Multifunctional Resource Rooms and in working with the regular classroom teacher through collaborative teaching. Zerbato and Oliveira (2018) consider that the performance of the Special Education teacher in Multifunctional Resource Rooms limits the performance of the SES, because “[...] it reduces their chances of understanding and contributing to the most important context in the learning process of the student: the classroom” (p. 11).

The provision of the SES in Multifunctional Resource Rooms and in the after-class time to the disabled students attending the regular class is established in regulatory documents, such as the PNEEPEI (2008), however, these authors present other possibilities for this performance from the specific demand of each student, indicating that it may involve the following aspects: a) individualized care in the after-class time and monitoring in the classroom aiming a collaborative performance with the common education teacher, b) participation in pedagogical meetings, c) formative moments with teachers from other areas of knowledge, d) participation in class council meetings, e) elaboration of accessible teaching materials, f) SES for the teaching of written Portuguese for deaf students and in Libras for carrying out complementary teaching activities. Considering the above, it is understood that expanding the number of professionals with specific training for accessibility and school inclusion is a right of students with disabilities and needs to be put into practice by the Federal Institutes (Vilaronga *et al.*, 2021).

METHODOLOGY

The research method used was a systematic search in an online database, followed by an integrative analysis of the results. The chosen database was *Scopus*, as it is a benchmark of the impact of peer-reviewed scientific literature, and an interdisciplinary source that contributes to a broad view of scientific publications. Initially, the five steps of Torracco (2016) were followed, elaborated in the integrative literature review step described below (Machado *et al.*, 2019):

First step: formulation of research problems about the Specialized Educational Attendance held in a Professional, Scientific and Technological Education institution, pointing out the main dilemmas and propositions for Inclusive Education in this teaching modality.

Second step: definition of research sources. Both need to be comprehensive, but with a specific focus, considering that scientific research in databases should be a transparent and reproducible process.

Third step: selection of articles and/or conference papers? Related to the identified problem, according to various eligibility criteria, such as defined time frame, specific sources, and keywords.

Fourth step: evaluation of the selection, an assessment of the quality and the degree of the integrative review, which will depend on the sample, which includes the sources, methods, and instruments.

Fifth step: synthesis process with qualitative and narrative analysis of the qualitative and quantitative studies. The synthesis can take the form of a table or template to present the results. The main method that can be used consists of data reduction, data display, data comparison, conclusion drawing, and verification (Whittemore and Knafl, 2005). To meet this research problem, it was carried out an exploratory-descriptive view with the inductive method with the aim of mapping the theme and expanding the familiarity of researchers with the theme from sufficient data allowing making reflections about the SES developed in the context of a PTE institution.

Search, Analysis, and Discussion of the Articles: The integrative review contributes to the systematic visualization of the state of the art (Machado *et al.*, 2019) on the subject in the research and its timeline to the level of production by area, avoiding minimization or repetition of studies, or even tendency to bias when looking at a specific theme. For this analysis, the research was organized in five steps, as shown in Figure 1:

Figure 1. Organization of the Research

First Step	Formulation of research problem.
Second Step	Definition of research sources.
Third Step	Selection of articles and conference papers.
Fourth Step	Evaluation of the selection, based on the criteria previously defined.
Fifth Step	Analytical synthesis of the results.

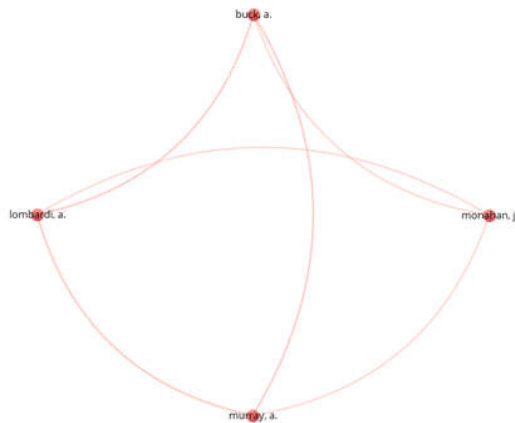
Source: Prepared by the authors (2021).

The **first step** is the formulation of the research problem that guides this study. This will answer the question: How is the Specialized Educational Service carried out in institutions of Professional, Scientific, and Technological Education? To answer this question, a search was carried out in the database, which began in August 2021 and ended in September 2021.

In the **second step**, the definition of research sources, some criteria for the selection of the research were defined, such as the delimitation of the research base. It was chosen to work with the electronic database *Scopus* (www.scopus.com), considered relevant due to the number of abstracts and references indexed in the peer-reviewed space, as well as its impact on the academic field in the interdisciplinary scope, which is the study area of this research.

Considering the research question, the **third step** was the selection of articles and conference papers. As a basic principle of the search, it was chosen to insert the terms and expressions in the fields 'Title', 'Abstract' and 'Keyword'. First, it was conducted the initial search that resulted in 240 papers, then a time cut was made between the years 2015 and 2020 and only articles were selected, which resulted in 63 publications.

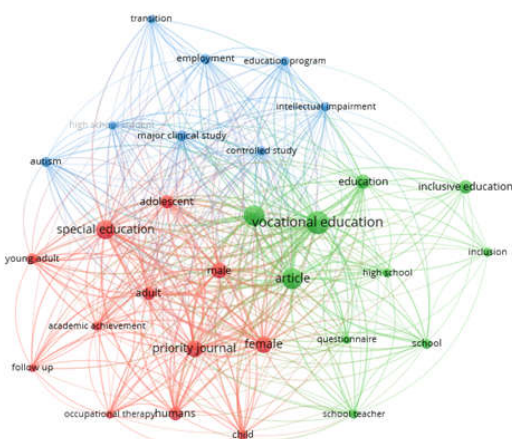
The **fourth step**, the evaluation of the selection, based on the previously defined criteria, totaled 63 indexed papers. It was identified that the articles were written by six prominent authors, with two published works in the area. Of these authors, four have interconnections with other networks of authors, as shown in Figure 2:



Source: Prepared by the authors (2021).

Figure 2. Author Network

A total of 172 keywords were used and, for the analysis of these terms and their co-occurrences, the *VOSviewer* was used. Figure 3 shows the network of co-occurrences formed by the descriptors. As inclusion criteria for this analysis, keywords that reached a minimum of five repetitions in different works were considered, which resulted in the output of 28 main keywords, as illustrated in Figure 3.



Source: Prepared by the authors using the software *VOSviewer* (2021).

Figure 3. Word Network

When analyzing the result of the network formed in Figure 3, it is observed that the keyword *Vocational Education*, with 37 occurrences, presents a larger sphere size, which alludes to a greater weight in the network and central position in the green cluster. In the red cluster, the main position is occupied by *Special Education* with 26 occurrences. In the blue cluster comes *Autism*, followed by *Employment*, with seven appearances.

The countries that stand out in the study on this topic are the United States with 21 publications in the area, the Russian Federation with six works, Finland with four works, and the other countries have three publications each. It was identified that, in the universe of 63 peer-reviewed scientific papers, articles in the area of Computer Science, Arts and Humanities, Biochemistry, Genetics and Molecular Biology, Business, Management and Accounting, Computer Science, Health Professions, Medicine, Neuroscience, Nursing, and Psychology and Social Science make up the sample for an integrative analysis, which allows to outline the state of the art of the subject from the consulted database. As found from the systematic review, research on Special Education in the context of PTE is still incipient and has an interdisciplinary character, constituting a fruitful field for studies and reflections. In Brazil, research such as the ones by Zerbato *et al.* (2021) and Vilaronga *et al.* (2021) have highlighted the need to structure the Special Education service in the context of the PTE, in order to ensure the right of people with disabilities to training for the world of work. In this sense, some reflections are presented about the experiences in the context of the SES of the Federal Institute X (FI X)¹ in the experience report below.

Specialized Educational Service in PTE: Special Education in the perspective of Inclusive Education in one of FI X's campuses:

The report presented in this article refers to the performance of a Professional, Scientific, and Technological Education institution located in the city of Y. The institution offers technical courses at the high school and college levels. In 2021, around 60 students from the target audience of Special Education were enrolled in the different courses taught on campus and were monitored by course coordinators, teachers from different areas of knowledge, professionals from the pedagogical coordinator, and the Center for Educational Accessibility (NAE). The NAE team is responsible for the special education services, among them the provision of SES established in the current Brazilian legislation (Política Nacional de Educação Especial na Perspectiva da Educação Inclusiva, 2008; Decreto 7611, 2011). The composition of this team included two Special Education teachers who worked in a regionalized form and a pedagogue based on campus. The regionalized performance of the teachers represents many challenges and limitations for the development of a systematic and integrated work with the students' needs and the reality of the educational context. At the moment, FI X has eight Special Education teachers who cover *n* campuses. In order to structure the NAEs and offer a more qualified service to the academic community, there is a request at the institutional level for each campus to have at least one position in this area.

At the institutional level, the special education service is carried out based on Resolution² No. *nn*, of December *dd*, 20*AA*, which approved the Regulation of NAEs. This Center replaced the Center for Assistance to People with Specific Educational Needs (NAPNE), which had been created in 2000 through an articulation between the Secretariat of Vocational and Technological Education and the extinct Secretariat of Special Education, both linked to the Ministry of Education (Mendes, 2017).

The regulation that established the NAE at FI X is recent and took some years to have the configuration with which it was approved, but it is fundamental to the organization and structuring of the special education service from the perspective of Inclusive Education. Thus, the NAE is responsible for articulating the actions for the promotion of accessibility, acting in an integrated way with teachers, course coordinators, pedagogical coordinator, managers, students and their families, among others involved in the academic community. In this sense, the aforementioned resolution sought to ensure the following actions: the offer of SES to students targeted for special education, guidance and joint work with the education professionals who work with these students, guaranteeing the hiring of the special education

¹The institution and the municipality where it is located are not disclosed in order to maintain confidentiality.

²Again, as this is an institutional document, there is no information to maintain confidentiality.

teacher through public contest, multidisciplinary composition of the team, and allocation of a specific space, accessible and with accessibility resources and assistive technology to perform the assistance.

Thus, the objectives of NAE are, among others:

I - contribute to the promotion of attitudinal, architectural, communicational, instrumental, methodological and procedural accessibility; II - promote with the academic community the dissemination of the culture of inclusion within the FI X and in its relationship with the external community; III - articulate the various sectors of the institution in activities related to inclusion for the implementation of policies of access, permanence, and successful completion of students in the target audience of Special Education; IV - carry out the reception and monitoring of students targeted for Special Education considering their needs and specificities; V - carry out the specialized educational service (SES) of students with disabilities, autistic spectrum disorder, and high abilities/giftedness (FI X, 20AA).

From Resolution No. *nm/20AA*, the students monitored by the NAE are those who make up the target audience of Special Education according to the PNEEPEI and other legal guidelines in force, as mentioned above: people with disabilities such as deafness or hearing impairment, or visual, physical, intellectual, or multiple disabilities, ASD and high abilities or giftedness. However, the performance from an Inclusive Education perspective that seeks to eliminate attitudinal and methodological barriers for all collaborates to the educational process of people with and without disabilities. On campus Y, the SES has been organized based on individual appointments or collective thematic meetings. In the context of remote teaching offered due to the covid-19 pandemic, these appointments were held through digital platforms, such as *Google Meet*, and aimed to ensure the maintenance of contact and bond with students, as well as their permanence in the courses. The individual consultations, with frequency defined in accordance with each student and their family, vary according to the educational needs presented. In the collective thematic meetings, more general pedagogical guidelines were addressed, such as organization and study habits, learning styles.

Moreover, in line with Zerbato *et al.* (2021), it is understood that even students with disabilities who did not attend the SES were monitored by the Special Education team through partnerships with other professionals, institutional assessments, discussions of the singularities of each individual in the pedagogical meetings of the courses, and in the continuing education offered to the teachers.

Regarding teacher training, a *Cycle of Debates on Special Education from the Inclusive Perspective* was held in 2021. The purpose of this activity was to contribute to the continuing education, providing the opportunity to debate and expand the knowledge about Special Education and about the educational process of students with hearing impairment or deafness or ASD in an Inclusive Education perspective. In previous years, the NAE organized formative moments during the *National Week of Science and Technology*, in inclusion seminars in which workshops and roundtables were proposed with themes contemplating the target audience of Special Education, and in the *Pedagogical Weeks* that precede the school term.

Another action taken by the team is the monitoring of students who are under the Differentiated Study Plan, also known as Individualized Educational Plan. In this case, the NAE works together with the course coordination, the pedagogical coordination, and the teachers, proposing training itineraries that enable the learning of the curricular contents by the target students of Special Education. It is worth pointing out that the Differentiated Study Plan has institutional regulations, and does not apply only to students with disabilities, but also to those who have difficulty in regularly following and developing the disciplines, therefore, people with and without disabilities. The preparation of this plan involves different levels of

flexibility, such as a reduction in the number of disciplines to be taken per semester, extra-class attendance by teachers, and adoption of new teaching strategies, with methodological diversification and assessment tools, among others. Therefore, it is important that the flexibilities and pedagogical proposals made are incorporated into the plan and are provided for in the institution's official documents, in order to guarantee the students' permanence and their course completion (Zerbato *et al.*, 2021).

Besides the actions mentioned above, the NAE team participates in the admission process, guiding the candidates who enroll in the quota for people with disabilities about the specific documentation to be delivered at the enrollment time. In parallel, it welcomes these individuals and their families, trying to get to know their singularities and educational needs, in order to organize the Special Education follow-up and to guide the teachers who will receive these students.

Dilemmas and proposals for the school inclusion of people with disabilities in the FI X - Campus Y

Some of the main dilemmas for school inclusion of people with disabilities in the context of the experience here presented are related to the structuring process of the Special Education Service in the institution, lack of physical space and adequate materials for the SES, lack of professionals to make up the multidisciplinary work team, as well as the lack of knowledge of the academic community about what Special Education is, and the elitist and meritocratic cultures still present in technical, technological, and higher education.

The reduced number of professionals in the sector makes difficult, among others, the articulation with the work world and the presentation of the professional reality of each course to the students with disabilities, which, in many cases, leads to demotivation and the dropping out of the course or even the conclusion of the graduation itinerary, but without the student having a glimpse of a job in their training area. This is an action that the team aims to develop, but that still lacks intersectoral articulation with course coordinators and the internship sector, for example.

Related to this fact, Lombardi *et al.* (2020) address the need to plan the transition from high school to higher education or to a career, both for students without disabilities and for those belonging to the target audience of Special Education. It is well known that people with disabilities end up in low-paying jobs, with little evidence that they will be able to move into higher-paying roles. Therefore, it becomes necessary that students with and without disabilities have opportunities for career preparation. Also according to these authors, digital or blended learning can offer practical options for the transition to adulthood and the consequent entry into the world of work. This process must occur through a coordinated set of activities and people, involving both general education and special education. An example of how this is accomplished in a US institution can be described by the following actions: a) creating a high school course schedule, b) completing online learning and transition assessments, c) researching post-high school careers and programs, d) developing a resume and cover letter, and participating in simulated interviews, e) writing a personal statement and career narrative, f) submitting job and college applications (Lombardi *et al.*, 2020).

The dilemmas found in our professional locus instigate us to implement pedagogical actions aimed at the permanence and learning of all students. Among the proposals that were attempted, the following stand out: a) a multidisciplinary work guided by the assumptions of Inclusive Education, b) the structuring of the team aiming at a collaborative work between all the professionals of the institution and the school community, c) in-service training, and creation and consolidation of the support network for Inclusive Education, having the social model of disability as a theoretical perspective for proposals for teacher training. Corroborating Zerbato *et al.* (2021), it is understood that the consolidation of support networks is an action that

[...] that can point to an effective strategy in building a collaborative culture and school inclusion in the institution, considering it favorable to the strengthening and expansion of support offered to the public served by the center. The sum of knowledge and practices of the different professionals that made up the support team was very important in decision making and development of strategies with the teachers of regular education in favor of student learning [...]. (p. 330)

Carrying out pedagogical monitoring and the SES from an Inclusive Education perspective enables the needs and specificities of all students to be respected and met, not only the public with disabilities, but ensures these individuals the right to education, access, participation, permanence, and learning, they who have been historically excluded and invisibilized. It is in this sense that there is a need to move forward, expand the support networks to serve, and welcome the target audience of Special Education, and work in a perspective of eliminating barriers for everyone. To this end, one of the possibilities for collaborative work is “[...] to guarantee, in the teaching work schedule, joint planning moments between the Special Education teacher and the teacher of regular curricular subjects” (Zerbato *et al.*, 2021, p. 331). Moreover, other actions can be taken such as: joint development of curricular adaptations when necessary, development of practices based on the Universal Design for Learning, provision of more time to perform the subjects and the course, and extended time to perform an assessment (Zerbato *et al.*, 2021).

Similarly, Lombardi *et al.* (2018) discuss the need to integrate disability awareness and institutional supports more broadly and around student diversity within Higher Education. With this in mind, supports can “[...] include academic skills programs, health and wellness, academic advising, and campus life, to name a few” (p. 2). Further, the authors point out that because people with disabilities are a growing subpopulation on college campuses, institutions will need to make decisions about resource allocation and pedagogical strategies for learning and development for all students. Thus, high-quality assessment instruments that seek to evaluate topics such as institutional ambience for disability awareness and cultural understanding or to assess the experiences, perceptions, and skill sets of college students with disabilities may be useful tools when making such decisions. Considering the aspects addressed throughout this study, it is understood that school inclusion is always a collective movement, so it depends on integrated educational actions that are expressed through a democratic pedagogical project that makes audible the voice of all members of the academic community. The construction of a collaborative and inclusive culture in PTE is necessary, since, “[...] in the absence of the implementation of public policies coupled with the lack of an in-depth discussion involving internal and external community, the inclusive principles end up becoming fragile and the inclusive educational process vulnerable” (Zerbato and Oliveira, 2018, p. 13). Given the above, it is not a sector, or a professional who will ensure that these goals become effective, but an institutional policy with integrated actions aimed at the right to education and insertion into the world of work. In this sense, the NAE has an important role in articulating the actions related to school inclusion with the various sectors and education professionals.

FINAL CONSIDERATIONS

Based on the aspects presented, it is considered that a Special Education Service is being structured at FI X and needs better infrastructure conditions and the constitution of a multidisciplinary team. In this sense, the members of NAE defend the constitution of this team, including the Special Education teacher, among other professionals such as pedagogues, psychologists, interpreters of Libras, Braille proofreader, as well as adequate and accessible space to carry out the services, accessibility materials, and assistive technology. Even in the face of the challenges encountered, some actions were taken in order to ensure the permanence, participation and learning by the monitored students. In short, it stands out the need for training sessions for the staff that address, for example, topics related to the Universal Design for Learning, the specificity of *being* an adolescent and *living* the adolescence and the implications for the

educational process of this student, the particularity of technical and technological education and how to work with different levels of learning in a class, the relationship between the world of work, and the intersubjective constitution of each individual (right to access to education and the world of work). More specifically, considering our locus of action, it is emphasized the need for an institutional policy of training and qualification of the staff and the understanding that students with disabilities belong to the entire institution and not the responsibility of just one teacher or one sector. Thus, by recognizing that disability is a human condition, situated in the general context of the physical variation and part of the life cycle (Diniz, 2007), it is possible to create interaction spaces that are inclusive, dignifying, equitable, and that value differences. In this context, an important aspect for the construction of inclusive educational environments is undoubtedly the training of teachers who value differences, understand disability as a human condition and manage to deconstruct the myth of ‘normal’ people as opposed to ‘abnormal’, since this dichotomy continues to segregate and exclude the population segment with disabilities from education and the world of work. Without exhausting the subject, it is understood that the theme addressed here can bring implications for the area of Special Education in the context of PTE and enable new research to deepen on inclusive pedagogical practices in this type of education, policies, welcoming actions, and the creation of support networks aimed at the permanence, participation, learning, and development by students with disabilities, in the context of technical and technological education, among other topics relevant to the area.

REFERENCES

- Camargo, E P de 2017. Inclusão social, educação inclusiva e educação especial: enlaces e desenlaces. *Ciência & Educação (Bauru)*, 23(1), 1–6. <https://doi.org/10.1590/1516-73132017010001>
- Decreto n. 6949, de 25 de agosto de 2009 (2009). *Promulga a Convenção Internacional sobre os Direitos das Pessoas com Deficiência e seu Protocolo Facultativo, assinados em Nova York, em 30 de março de 2007*. Recuperado de http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2009/decreto/d6949.htm
- Decreto n. 7611, de 17 de novembro de 2011. *Dispõe sobre a educação especial, o atendimento educacional especializado e dá outras providências* (2011). Recuperado de http://www.planalto.gov.br/ccivil_03/_Ato2011-2014/2011/Decreto/D7611.htm
- Diniz, D (2007). *O que é deficiência*. São Paulo: Brasiliense.
- Lei n. 9.394, de 20 de dezembro de 1996 (1996). *Estabelece as diretrizes e bases da educação nacional*. Recuperado de http://www.planalto.gov.br/ccivil_03/leis/19394.htm
- Lei n. 11.892, de 29 de dezembro de 2008 (2008). Institui a Rede Federal de Educação Profissional, Científica e Tecnológica, cria os Institutos Federais de Educação, Ciência e Tecnologia, e dá outras providências. Recuperado de http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2008/lei/11892.htm
- Lei n. 13.005, 25 de junho de 2014. *Aprova o Plano Nacional de Educação – PNE e dá outras providências*. Brasília, 2014. Recuperado de http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2014/lei/113005.htm
- Lei n. 13.146, de 6 de julho de 2015 (2015). *Institui a Lei Brasileira de Inclusão*. Brasília, DF: Diário Oficial da República Federativa do Brasil. Recuperado de http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2015/lei/113146.htm
- Lei n. 13. 409, de 28 de dezembro de 2016 (2016). *Altera a Lei nº 12.711, de 29 de agosto de 2012, para dispor sobre a reserva de vagas para pessoas com deficiência nos cursos técnico de nível médio e superior das instituições federais de ensino*. Recuperado de http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2015/lei/113146.htm
- Lombardi, A, Gelbar, N, Dukes, L L, Kowitt, J, Wei, Y, Madaus, J, Lalor, A R, Faggella-Luby, M (2018). Higher education and disability: A systematic review of assessment instruments

- designed for students, faculty, and staff. *Journal of diversity in higher education*, 11(1), 34–50. <https://doi.org/10.1037/dhe0000027>
- Lombardi, A, Rifenbark, G, Tarconish, E, Volk, D, Monahan, J, Buck, A, Izzo, M, & Murray, A (2020). Main and moderating effects of an online transition curriculum on career readiness. *Career Development and Transition for Exceptional Individuals*, 43(3), 146–156. <https://doi.org/10.1177/2165143419900952>
- Machado, A de B, Sousa, M J, Nawaz, F, Martins, J M (2019). Impacts of the integration of Chinese managers in the Western economies the case of Brazil. *Transnational Corporation Review*, 12(3), 319–328. <https://doi.org/10.1080/19186444.2019.1693203>
- Mello, A G de (2016). Deficiência, incapacidade e vulnerabilidade: do capacitismo ou a preeminência capacitista e biomédica do Comitê de Ética em Pesquisa da UFSC. *Ciencia & saude coletiva*, 21(10), 3265–3276. <https://doi.org/10.1590/1413-812320152110.07792016>
- Mendes, K A M O (2017). *Educação Especial inclusiva nos institutos federais de educação, ciência e tecnologia brasileiros* [Universidade Federal de Goiás, Faculdade de Educação]. <https://repositorio.bc.ufg.br/tede/handle/tede/8139>
- Moura, D H (2014). *Trabalho e formação docente na educação profissional*. Instituto Federal do Paraná. Recuperado de <https://portal.ifrn.edu.br/pesquisa/editora/livros-para-download/trabalho-e-formacao-docente-na-educacao-profissional-dante-moura>
- Pletsch, M D (2020). O que há de especial na educação especial brasileira? *Momento - Diálogos em Educação*, 29(1), 57–70. <https://doi.org/10.14295/momento.v29i1.9357>
- Política Nacional de Educação Especial na Perspectiva da Educação Inclusiva* (2008). <http://portal.mec.gov.br/arquivos/pdf/politicaeducespecial.pdf>
- Programa Incluir - Acessibilidade na Educação Superior* (2013). Recuperado de http://portal.mec.gov.br/index.php?option=com_docman&view=download&alias=12737-documento-orientador-programa-incluir-pdf&category_slug=marco-2013-pdf&Itemid=30192
- Sá, R M B, Moura, D H, Henrique, A L S (2020). O ensino integrado como medida política em prol da justiça social: o caso dos cursos EFA em Portugal e do PROEJA no Brasil. *Revista Brasileira de Educação*, 25. <https://doi.org/10.1590/s1413-24782020250021>
- Torraco, R J (2016). Writing integrative literature reviews: Using the past and present to explore the future. *Human Resource Development Review*, 15(4), 404–428. <https://doi.org/10.1177/1534484316671606>
- Vilaronga, C A R, Oliveira da Silva, M, Momesso Franco, A B, Alias Rios, G (2021). Inclusão escolar e atuação dos Núcleos de Apoio às Pessoas com Necessidades Educacionais Específicas no Instituto Federal de São Paulo. *Revista Brasileira de Estudos Pedagógicos*, 102(260). <https://doi.org/10.24109/2176-6681.rbp.102.i260.4585>
- Whittemore, R, Knafl, K (2005). The integrative review: updated methodology. *Journal of Advanced Nursing*, 52(5), 546–553. <https://doi.org/10.1111/j.1365-2648.2005.03621.x>
- Zerbato, A P, Oliveira, S P S (2018). *O Atendimento Educacional Especial no Instituto Federal Baiano: concepções iniciais da experiência no Campus Uruçuca*. Recuperado de <https://proceedings.science/cbee/cbee-2018/papers/o-atendimento-educacional-especializado-no-instituto-federal-baiano--concepcoes-iniciais-da-experiencia-no-campus-urucuc>
- Zerbato, A P, Vilaronga, C A R, Santos, J R (2021). Atendimento Educacional Especializado nos Institutos Federais: Reflexões sobre a Atuação do Professor de Educação Especial. *Revista brasileira de educação especial*, 27. <https://doi.org/10.1590/1980-54702021v27e0196>
