

## SPECIALIZED EDUCATIONAL SERVICE FOR STUDENTS WITH VISUAL DISABILITY IN TIMES OF REMOTE EDUCATION

SERVICIO EDUCATIVO ESPECIALIZADO PARA ESTUDIANTES CON DISCAPACIDAD  
VISUAL EN TIEMPOS DE EDUCACIÓN REMOTA

ATENDIMENTO EDUCACIONAL ESPECIALIZADO PARA ALUNOS COM DEFICIÊNCIA  
VISUAL EM TEMPOS DE ENSINO REMOTO

Lucélia Lôbo Teixeira<sup>1</sup>  
Cymone Martins Cotrim Teixeira<sup>2</sup>

**Manuscript received on:** May 31, 2021.

**Approved on:** September 7, 2021.

**Published:** September 20, 2021.

### Abstract

This text deals with specialized educational service for students with visual disability in times of remote teaching services. The aim of this study is to verify the evaluation of students with visual disability on the experience of remote educational services during the COVID-19 pandemic. We searched to answer the following research question: what is the evaluation of students with visual disability about this new experience of remote education? To construct the data, a self-applied questionnaire was used, the planning of the visits and the activities performed during the period comprising the pandemic. The data analysis was in light of Vygotsky's socio-interactionist theory. Thus, all the elements exposed, thought and oriented to remote teaching created an atmosphere of discoveries, which boosted the process of inclusion beyond the common classroom. They introduced the technological elements in the routine of students with visual disability, providing them with the construction of an intellectual and affective learning with their peers, demonstrated throughout the process.

**Keywords:** Remote Teaching; Specialized Educational Service; Visual Impairment.

### Resumen

Este texto trata sobre la atención educativa especializada para estudiantes con discapacidad visual en épocas de educación a distancia. El objetivo de este estudio es verificar la valoración de estudiantes con discapacidad visual sobre la experiencia de la atención remota durante la pandemia COVID-19. Buscamos dar respuesta a la siguiente pregunta de investigación: ¿cuál es

---

<sup>1</sup> Master's student by the Postgraduate Program in Teaching, Language and Society and a Licentiate in Languages/English from the University of the State of Bahia. Professor in Specialized Educational Care (blindness and low vision) at the State Center for Special Education in Caetité-BA.

ORCID: <https://orcid.org/0000-0002-9081-335x>

Contact: [lucelia.lobo@hotmail.com](mailto:lucelia.lobo@hotmail.com)

<sup>2</sup> Doctoral student and Master in Teaching at the State University of Southwest Bahia. Professor of Specialized Educational Service (blindness and low vision) at the State Center for Special Education of Caetité-BA.

ORCID: <https://orcid.org/0000-0002-2211-9171>

Contact: [cymonecte@hotmail.com](mailto:cymonecte@hotmail.com)

la valoración de los estudiantes con discapacidad visual sobre esta nueva experiencia de cuidado? Para la construcción de los datos se utilizó un cuestionario autoadministrado, la planificación de la atención y las actividades realizadas durante el período que comprende la pandemia. El análisis de datos se llevó a cabo a la luz de la teoría socio-interaccionista de Vygotsky. Así, todos los elementos expuestos, diseñados y orientados al aprendizaje remoto crearon una atmósfera de descubrimientos, que agilizó el proceso de inclusión más allá del aula común. Introdujeron elementos tecnológicos en la rutina de los estudiantes con discapacidad visual, proporcionándoles la construcción de un aprendizaje intelectual y afectivo con sus compañeros, demostrado a lo largo de todo el proceso.

**Palabras clave:** Aprendizaje a Distancia; Servicio Educativo Especializado; Discapacidad Visual.

## Resumo

O presente texto versa sobre o atendimento educacional especializado para alunos com deficiência visual em tempos de ensino remoto. O objetivo deste estudo é verificar a avaliação dos alunos com deficiência visual sobre a experiência do atendimento remoto durante a pandemia da COVID-19. Buscou-se responder à seguinte questão de pesquisa: qual a avaliação dos alunos com deficiência visual sobre essa experiência nova de atendimento? Para construção dos dados foram utilizados questionário auto aplicado, o planejamento dos atendimentos e as atividades realizadas no período que compreende a pandemia. A análise dos dados se deu à luz da teoria sociointeracionista de Vygotsky. Assim, todos os elementos expostos, pensados e orientados para o ensino remoto criaram uma atmosfera de descobertas, que dinamizaram o processo de inclusão para além, da sala de aula comum. Introduziram os elementos tecnológicos na rotina dos alunos com deficiência visual, proporcionando a estes, a construção de um aprendizado intelectual e afetivo com seus pares, demonstrado ao longo de todo processo.

**Palavras-chave:** Ensino Remoto; Atendimento Educacional Especializado; Deficiência Visual.

## Introduction

With the advent of the COVID-19 Pandemic, the structure of offering specialized educational service had to be rethought and evaluated along the lines of remote education. This new context then led to a profound change in the way students and teachers view education, as well as a substantial increase in the difference between those who had more difficulty learning as required by a new educator, who needed to reinvent himself, and adapt to new technologies and new methodologies.

Then, after an analysis of the first impacts caused by the pandemic, the State Center for Special Education in the municipality of Caetité – BA - CEEEC began to organize itself to think about a service to students, even in the face of the requirement to maintain social isolation. The remote service as a teaching tool in the midst of the

covid-19 pandemic adopted by this institution occurred after a restlessness of teachers and management to supply the absence of face-to-face activities and mainly to maintain and reestablish the bond with students. Thus, between March 18 and May 24 with total stoppage of care, the desire for solutions became more eminent and teachers sought, virtually, each other together with management to discuss, evaluate and promote strategies capable of adapting to the current situation, starting the service on May 25, 2020.

After five months of remote service, as teachers of this institution who serve students with visual disability, the following question: what is the evaluation of students with visual disability about this new experience of teaching? Thus, as teachers/researchers with the purpose of seeking answers to this question, we listed the general objective of this study: to verify the evaluation of students with visual disability about the experience of remote teaching during the COVID-19 pandemic. As specific objectives, we point out: (I) to identify the strategies used by CEEEC for the provision of remote education; and (II) discuss its impacts on the dynamics of service for students with visual disability.

CEEEEC is an educational institution that offers specialized educational service for the entire Productive Sertão of southwestern Bahia. This type of teaching requires human, technical, technological, physical and material resources in order to promote access and complementation and/or supplementation of the common curriculum for public students of special education. Specialized educational service - SES has the role of identifying, elaborating and organizing pedagogical and accessibility resources that eliminate barriers to full participation of students, considering their specific needs. According to the Operational Guidelines for Specialized Educational Service in Basic Education, through resolution no. 4 of October 2, 2009 this type of teaching can be understood by the following:

Art. 2 The SES has as its complementary or supplementary function the training of the student through the provision of services, accessibility resources and strategies that eliminate the barriers to their full participation in society and development of their learning. Single paragraph. For the purposes of these Guidelines, accessibility resources in education are considered those that ensure conditions of access to the curriculum of students with disabilities or reduced mobility, promoting the use of didactic and pedagogical materials, spaces, furniture and equipment, communication and information systems, transport and other services. Art. 3º Special Education takes place at all levels, stages and modalities of teaching, with The ESA as an integral part of the educational process (BRASIL, 2009, p. 01).

In addition, CEEEC offers services such as Roaming, production of adapted relief material, Braille, expanded type, among other pedagogical materials adapted and with Continuous Teacher Training. In the core of visual impairment, are offered the services such as: Strategies for the Development of Mental Processes, Braille, Soroban, Guidance and Mobility, Libras, Assistive Technologies. These areas of education are offered to complement the training of students with visual disability, because it is important to understand that visual limitation imposes challenges in the schooling process and for this purpose specialized educational service allows a breaking of barriers and assists in the inclusion process of the students with visual disability.

Visual impairment may come from a disease or trauma to the structure and functioning of the visual system that can cause a person total absence of vision, such as reducing it, even after optical or surgical correction. Thus, it can lead to limitations or impediments to the obtaining of concepts, direct access to the written word, orientation and independent mobility and social interaction. Visual impairment is, therefore, a sensory deficiency, it is the impairment or lack of one of the sensory channels of information acquisition, which has two classifications: blindness that:

[...] is a serious or total change of one or more of the elementary functions of vision that irremediably affects the ability to perceive color, size, distance, shape, position, or movement in a more or less comprehensive field. It can occur from birth (congenital blindness), or later (adventitious blindness, usually known as acquired) due to organic or accidental causes. In some cases, blindness may be associated with hearing loss (deaf blindness) or other disabilities (MEC, 2006, p. 15).

And the low vision:

The definition of low vision (amblyopia, subnormal vision, or residual vision) is complex due to the variety and intensity of impairments of visual functions. These functions range from simple light perception to reduced acuity and visual field that interfere with or limit the execution of tasks and overall performance (MEC, 2006, p. 16).

The great challenge of transposing the entire aes to the remote format is added to the importance of this teaching modality for students, since they feel welcomed, protected and directed in a learning routine with a view to complementing their most diverse needs. Specialized educational service is essentially necessary for the lives of these students, as it stimulates the development of their abilities by prioritizing and conditioning the inclusion process. It is always necessary to emphasize the importance of the school and all those who are part of it, because the school nourishes the soul of knowledge, but also to the body and minimizes social ills. In his postulates Vygotsky points to the "[...] the need to create better conditions in school, so that all students have access to information and experiences and can effectively learn" (REGO, 2009, p. 106).

This study seeks to reflect on these challenges and on the changes so necessary for education, ranging from investment and the realization of public policies as to the heart of the classroom, understanding that the relationship between student and teacher is conceived from the joint work. And to support and conduct this reflection we anchor ed in Vygotsky's socio-interactionist approach, since his perspective corroborates with assertion that the school is

[...] where there is room for transformation, for mutual collaboration, creativity. A school in which teachers and students have autonomy in which they can think and reflect on their own process of building knowledge and have access to new information [...] (REGO, 2009, p. 118).

This study has a qualitative approach and exploratory character, which according to Godoy (1995) qualitative research provides descriptive data involving people, places and interactive processes of the environment researcher and situations. And also according to Gil (1999) the qualitative approach favors the deepening of the

phenomenon of study and its relationships, valuing the individualities and multiplicities of situations. Thus, as a methodological path, we based on the experience report, which had as an instrument of data collection a self-administered questionnaire with 13 students with visual disability regularly enrolled in the CEEEC. The selected strategies go through documentary research such as the planning of teaching services and the activities carried out in the period that comprises the pandemic and with the use of secondary data of students (type of visual impairment, level of education, assistive and digital resource) available from the researchers' database.

## **Current educational practices and the use of technologies**

Nowadays, technological development is made in a very rapid way and the contact and interest of students (disabled or not) for these technologies, such as mobile phone, grows more and more. However, remote service does not help learning by itself; the use of this experimentation should be supported by didactic tools and properly grounded methodologies. Thus, current educational practices should have technology as one that brings the integration of all spaces and times, especially in the current pandemic scenario.

According to Moran (2015), it is necessary that the processes of organizing the curriculum, methodologies, times and spaces be reviewed, because:

[...] in a world of so much information, opportunities and paths, the quality of teaching is manifested in the combination of group work with personalization, in encouraging collaboration among all and, at the same time, to which each one can personalize his journey. Free WEB 2.0 technologies facilitate collaborative learning, among colleagues, near and far. Increasingly, the communication between peers, between peers, among themselves, acquires more importance, exchanging information, participating in activities together, solving challenges, carrying out projects, evaluating each other. Outside school the same happens, communication between groups, in social networks, which share interests, experiences, research, learning. Education is increasingly horizontal and expressed in multiple group and personalized interactions (MORAN, 2015, p. 12).

Therefore, the changes must be not only behavior, but with the search for knowledge with proactivity, collaboration, personalization and entrepreneurial vision. Some challenges are paramount in the restructuring of pedagogical practices as well as in the way of learning, since this introduction and use of Information and Communication Technologies (ITCs) enables the decentralization of educational processes that permeates the school environment and permeates social activities, and in particular of students with disabilities in which some cases the family participates directly in the performance of remote activities. In addition, remote service through these technologies can contribute so that these students with disabilities are not fully exposed to a situation of exclusion and annihilation of all the work developed over the years activities.

The family and that student with disabilities who has autonomy and skills with digital resources become active and are able to undertake learning. Such transformations certainly promote an emancipatory and compensatory achievement for that family that begins to understand and value the way their child learns and how much his participation in this process establishes principles of affection and being part of the construction of his child's learning. According to the Law of Guidelines and Bases of National Education-9394/94 (LDB 9394-96), education, according to Art. 1 and Art. 2, respectively, also establishes that:

Art. 1 - [...] the formative processes that develop in family life, human coexistence, work, teaching and research institutions, social movements and civil society organizations and cultural manifestations.

Art. 2 - Education, duty of the family and the State, inspired by the principles of freedom and the ideals of human solidarity, aims at the full development of the student, his preparation for the exercise of citizenship and his qualification for work [...] (BRASIL, 1996, p.01).

The legislation is assertive in inferring that the family is an institution that must act together with the State, in the promotion of education, that is, education should not be the responsibility only of the family, not only of the State, but of both in a joint process. Further considering the current context of a pandemic that imposes isolation

and social distancing as essential for the prevention of contagion. According to Amorim et al (2020) the family becomes an indispensable part for the development of non-face-to-face activities

The construction of work in remote education takes place jointly and for the development of learning dialogue is a fundamental element. The family assumes the central role in the intermediation of pedagogical activities, gains new attribution and acquires the function of mediating pedagogical activities, among the numerous challenges that social isolation has enabled. In this context, collaboration between school and families is paramount, in an articulation that opportunities the progress of students. However, it is necessary to understand the specificities of each family, the environment in which children are inserted in order to understand the possibilities and limitations of teaching (AMORIM et al, 2020 p. 08).

Assistive Technology facilitates this family participation in the process by allowing the use of simple and low-cost features such as a pencil thickener to special accessibility software that are special computer programs that enable or facilitate the interaction of students with disabilities with the equipment.

To meet the specificities in the schooling process of students with visual disability, Assistive Technology is important and necessary, since it enables both the teacher and the entire school team to build an accessible and inclusive environment. The Technical Aid Committee of the National Coordination for the Integration of Persons with Disabilities (Corde) decided that Assistive Technology:

It is an area of knowledge, of interdisciplinary characteristic, that encompasses products, resources, methodologies, strategies, practices and services that aim to promote the functionality, related to activity and participation, of people with disabilities, disabilities or reduced mobility, aiming at their autonomy, independence, quality of life and social inclusion (BRASIL, 2009 p. 09).

As an assistive resource for people with visual disability, our Visual Core students use digital spaces by JAWS (Paid Screen Reader for Windows), NVDA (Free Screen Reader for Windows) readers, and DOSVOX (Free Screen Reader for Windows) which is an operating system that uses voice synthesizer summing up in Portuguese and other languages, and has applications such as text editors, email managers, chat apps, among

others. These are software used mainly by blind people, which provides information through voice synthesis about the elements displayed on the computer screen.

In view of this, it is understood how much technology is a great ally of specialized educational service for students with visual disability. In addition to allowing students to be in touch with new tools increasingly requested in the personal routine, it offers resources for a more flexible and dynamic learning teaching process. According to Silva et al (2021) information and communication technologies

[...] are great allies in the teaching-learning process, but it needs qualified teachers/mediators who are able to use them effectively to achieve the desired goals. It is clear that no work can achieve good results without the help of the teacher and that the construction of knowledge can be acquired by students through technological resources. However, the supervision of the teacher/mediator is essential. The mediator will stimulate research and the search for knowledge selectively, providing moments of participatory construction involving students and teachers (SILVA, 2021, p. 08).

Specifically at this time, technological resources have been basic for educational institutions to follow up classes remotely and stand by students, even if the distance. Above that, they have proven to be key pieces for successful teaching methodologies.

## Theoretical Rationale

According to Vygotsky's socio-interactionist theory, inspired by the principles of dialectical materialism, human development is a process of man-made appropriation of historical and cultural experience. In this theory, the human organism and the environment exert mutual influences. Thereby,

[...] the premise is that man constitutes himself as such through his social interactions, therefore, he is seen as someone who transforms and is transformed into the relationships produced [...] (REGO, 2009, p. 93).

For Vygotsky, the functioning structure of the human brain undergoes many changes at the logo of its development, and this occurs through interactions with the physical and social environment. In this dialectical process, man is an active subject, does not have a passive, contemplative behavior, but, on the contrary, being stimulated by the external environment, he builds new knowledge from social demand, from the need for new instruments of work and thought. Based on these conceptions of Vygotsky, we also seek to analyze the interaction process established throughout the remote teaching, since it was done in collaboration with the family within a context mediated by technology.

Current technologies enable the autonomy of users, but the learning teaching process that is established between a teacher and a student with visual disability visually is through collaborative mediation. To assert Da Silva (2016) considers that

[...] the teaching and learning process take place in the interaction of the student with the environment, where the teacher and resources are inserted. For the same to happen and to be effected in the life of the student in a significant way, the inclusion of new resources in this process will provide new ways of learning and teaching, in order to expand the pedagogical mediation between teacher and student (DA SILVA, 2016, p. 108).

Thus, it is understood that technological resources in the learning teaching process only make sense with pedagogical exploration and should be contextualized at the time of its use. Therefore, in remote education the need for technology placed the test to the training of teachers requiring digital skills to face this challenge and, with this also a search for motivations for students to learn through new methodologies.

The demands of this technological moment have become significant because they accompany a generation born in technology and that the demands of social or academic life can no longer be undefeated. Faria (2004) points out exactly about this interactivity through technology when it points out that the

[...] the role of the educator is to guide and mediate learning situations so that the community of students and ideas, sharing and collaborative learning occurs, so that the appropriation that goes from the social to the individual happens, as advocated by the vygotskian ideas. The teacher, researching together with the students, problematizes and challenges them, by the use of technology, to which modern young people are more accustomed, more easily emerging interactivity (FARIA, 2004, p. 01).

In this perspective, technological resources and digital spaces can be facilitators of the teacher, student and knowledge relationship, and also as educational tools that help in the transposition of ideas and contents, bringing them to the reality experienced by the learner. And many students with visual disability adapt to this digital context and achieve through the assistive resources the digital inclusion that enables them to have access to an environment whether focused on entertainment, commercial or academic use.

## Method

It should be emphasized that this study was also based on a participatory and democratic character, with a view to contributing to the adequacy or improvement of the strategies adopted in remote services to students with visual disability. Thus, the research not only made it possible to review the strategies adopted, the availability of technological devices for teachers and students, but also to size the collaborative culture among them to face the challenges of remote teaching.

The course of this research was realized in a collective process, between researchers and their students through their assessments about remote teaching. Soon its characteristic in the form of experience reporting sought the point of view of the participants understanding that

The meaning that people give to things and their lives is the essential concern of the researcher. Qualitative researchers try to understand the phenomena that are being studied from the perspective of the participants. Considering all points of view as important, this type of research "illuminates", clarifies the internal dynamism of situations, often invisible to external observers (GODY, 1995, p. 63).

The choice of such methodology was justified due to the fact that the researchers are part of the research, and, therefore, researchers should have sufficient flexibility to accept not only the different opinions of the other participants, but also a result that may arise from the collective experience. Severino (2007) points out that the researcher's work has a personal character and, therefore, has a social dimension, which confers a political meaning:

[...] the theme should really be a problem experienced by the researcher, it should concern him. Not, obviously, on a purely sentimental level, but at the level of evaluation of the relevance and meaning of the problems addressed to the researcher himself, in view of his relationship with the universe that surrounds him (SEVERINO 2007, p. 214 - 215).

These methodological procedures fit this study, because the researchers and students are participants in the research and work in the same educational system and are consistent with the same problem. And for the construction of the data was used the self-applied questionnaire sent online through the use of the messaging application - WhatsApp and by e-mail, detailing the planning of the calls and activities performed. Thus, it was possible to observe how remote service with its strategies and resources are contributing or not to the implementation of remote education.

The structured questionnaire sought to investigate the contributions of remote services for students with visual disability considering their own assessments about this new teaching format. It is believed that students have autonomy for the use of digital resources and resources for reading and writing as reglete and puncture. However, among the 10 students 1 student has 6 years requiring family assistance. The questionnaire was sent to the students' WhatsApp contact and not to the group of students in which remote activities are available. With this, tracking and analysis have become easier and more objective, since among the 13 students belonging to the Visual Center 10 students are actively participating in the service activities.

## - Research locus

The research has as locus the State Center of Special Education of Caetité-CEEEEC that serves on average 137 students with Intellectual Disability, Global Development disorders, Multiple Disability, Visual Disability and Deafness, of different age group, coming from the municipality of Caetité and municipalities belonging to the Territory of Productive Sertão Identity, included and not included in the regular classes of common education. According to the specifications of the National Guidelines for Special Education in Basic Education, which lists three groups of the public of special education:

- [...] 1) Students with marked learning difficulties or limitations in the development process that make it difficult to monitor curricular activities: those not linked to a specific organic cause or those related to conditions, dysfunctions, limitations or disabilities;
- 2) Students with communication difficulties and signaling differentiated from other students (deafness, blindness, deaf blindness);
- 3) Students who show high skills/gifted and who present great ease or interest in relation to some theme or great creativity or specific talent [...] (MEC, 2001, p. 02).

The students participating in this study are those who are attended by the Visual Impairment Center and have visual limitation (blindness or low vision). For the beginning of the research, the self-applied questionnaire was sent to them in mid-October 2020, starting the analysis of their evaluations in the following month. And from his contributions it was allowed to conceive this construct until the month of April 2021.

## - Participants

Table 1 shows the characterization of students who participated in remote teaching-learning process, and are part of the research:

**Table 1 -** Characterization of the students who participated in the research.

REMOTE SPECIALIZED EDUCATIONAL SERVICE CHARACTERIZATION OF STUDENTS			
STUDENTS IDENTIFIED BY THE INITIAL LETTERS OF THE NAME ITSELF	CLASSIFICATION OF VISUAL IMPAIRMENT	EDUCATION LEVEL	RESOURCE / MEANS OF COMMUNICATION that has the ability to remote activities
1-A.V.S.	Severe Low Vision	Complete high school	Mobile and notebook WhatsApp/ e-mail/Facebook
2-A.C.A.	Severe Low Vision	Complete high school	Mobile and notebook WhatsApp/ e-mail/Facebook
3-A.V.D.	Severe Low Vision	1st Year (Fundamental I)	Mobile/WhatsApp (family accesses)
4-C.G.	Severe Low Vision	8th Grade (Fundamental II) Discontinued studies	Mobile and notebook WhatsApp/e-mail
5-J.A.C.B.	Blindness	Complete high school	Mobile and notebook WhatsApp/e-mail
6-J.D.C.	Low Vision	Complete high school	Mobile WhatsApp (Mp3 audio activities)
7-J.O.	Blindness	4th Year (Fundamental I) Discontinued studies	Mobile WhatsApp (Mp3 audio activities)
8-L.N.M.	Blindness	7th Year (Fundamental II) Discontinued studies	Mobile and notebook WhatsApp/e-mail
9-L.M.D.S.	Blindness	Did not attend ordinary school	Mobile WhatsApp (Mp3 audio activities)
10.R.V.S.	Severe Low Vision	Complete high school	Mobile and notebook WhatsApp/ e-mail/Facebook

**Source:** Chart prepared by the researchers.

The other 3 students, who complete the total of the 13 attended by the Visual Center, were unable to participate in the service. This is because 2 of them live in the rural area and have difficulties in accessing the Internet and the other student is resident in the urban area, but, has difficulties for learning the technologies, without autonomy and the family has difficulties to support.

For the 6-year-old student with low severe vision, the family considered sending the activities by whatsapp of the grandmother in private keeping in touch with only one of the teachers. The activities for this student were made available in Power point format, in Word, audios with guidance and exchange of messages. Her activities were specifically for multisensory stimulation, since it is through the senses that she knows the world and acquires important skills for learning, motor coordination, social interaction, creativity, memory, balance and other skills.

Throughout the remote calls the posts were printed and attached to the monthly report as all activities performed by students for registration, archiving and sending to ceec management. In specialized educational service, the report is an indispensable tool for a more reflective look and mediation that meets the needs of each student, even being worked collectively as in remote education.

### - Procedures

In general, remote service was established from an Action Plan to serve students of the Visual Center, as well as guidance to parents and/or guardians. This specific planning aimed to organize the weekly routine of student activities, provide exchanges of pedagogical experiences with other SES teachers, develop activities that meet the specificities of students to distance learning and promote forms of communication with students and parents, thus ensuring the viability of specialized educational service.

For the realization of remote teaching, the teachers of specialized educational service, belonging to the Visual Disability Center, established the following steps for the preparation of the plan: a) Elaboration of joint activities by the teachers of the nucleus, considering the individual skills of the students; b) Preparation of activities within the areas of service of the center for students regularly enrolled and application through: E-mail; WhatsApp; Facebook; Audios; Videos. Previous alternatives could be made according to the choice of the SES teacher and within the best way that the student and/or family adapts. (In activities that require concrete realization request photos and videos of students / parents or guardians, as well as send to the e-mail / WhatsApp of teachers photos of printed or written activities and activities that can be carried out in Word); c) Register the proposals developed, as well as the objectives to be worked according to the Roadmap of Studies and Activities; d) Establish tips on how activities should be done at home (forward to students and parents/guardians); e) Indicate specific guidance for each student/ parents or guardians (digital tool and resources that they can use to carry out the activities).

In the general planning explained above, a monthly Study and Activities Roadmap was aggregated to sequence the activities. And to make up the monthly evaluation, the records of the evaluation process consisted of descriptive reports with prints and archiving in digital folder. And for pedagogical alignment, monitoring and evaluation of the services the management of CEEEC stipulated monthly meetings through the hangouts meets meeting application. However, for the elaboration of the activities the Visual Core teachers used the WhatsApp group and personal e-mail.

This planning allowed students to access the activities of their residence or from anywhere that had access to the Internet. The proposed activities allowed students greater freedom to organize their time and place of study. It is important to clarify that students with visual disability use voice and screen reader software on the mobile phone to access activities, such as navigation in the equipment itself.

These voice software such as DOS-VOX, NVDA and JAWS are already installed on students' computers as well as their mobile phones that have screen readers, has been an indispensable resource, both for face-to-face and non-face-to-face teaching. The use of technologies by people with visual disabilities provide more independence and expands the possibilities of these students' actions in the processes of learning teaching. In addition to reading, the visually impaired person can write and have access to what he wrote, and can thus, in the case of remote activities, follow all referral and guidance through hearing.

This software interacts with the operating system, capturing the information presented in the form of text and transforming it into a spoken response through a voice synthesizer. To navigate using a screen reader, the user makes use of commands by the keyboard. People with low vision and people with dyslexia can also make use of screen readers. Students learn to navigate, basically, in three ways: reading the entire page (navigating with arrows), reading the links (navigation with the Tab key) and reading the headers (navigation with the h key).

## Data analysis and discussion

In order to foster the realization of an organizing activity and provide a learning interaction, the experience of remote educational service for students with visual disability considered their skills with technological resources such as computer / notebook and mobile phone as well as the ease that most have in navigating digital spaces. The autonomy of students with visual disability to perform remote activities is conquered when they go through assistive technology, one of the areas of specialized educational care. For Galvão Filho (2009), this area of knowledge promotes autonomy for people with disabilities, because it establishes equalization of opportunities when,

[...] it points to the autonomy and development of the human being, as a subject of its processes, and also to the construction of an Inclusive School. This is the recently called Assistive Technology, used as a mediator, as an instrument, as a tool for "empowerment", for the equalization of opportunities and for the autonomous activity of people with disabilities, in today's society (GALVÃO FILHO, 2009, p. 115).

In this sense, we understand that the acquisition of this autonomy is based on the assumption suggested by Vygotsky that the characteristics of each individual are being formed as it interacts with the environment, in its different dimensions. In this process, according to Rego (2009), "[...] the individual, while internalizing cultural forms, transforms them and intervenes in his environment." It is, therefore, in the dialectical relationship with the world that the subject is constituted and liberated (REGO, 2009, p. 94).

In the questionnaire, composed of ten questions, eight of which were closed and two were open, the students were able to evaluate the remote education and how they felt belonged to the new process. Thus, the questions outline the students' assessment of their experience in remote education, since they never had and the functionality of the means of communication used and the link established with such experimentation. The questions were structured as well: 1-To develop the activities, what type of internet did you use (Residential, Mobile)?; 2-Evaluate the quality of your internet to develop the proposed activities; 3-In your point of view, the format of the remote call that the Visual

Core proposed, generates connection between you and CEEEC?; 4-In your view, was remote teaching important and effective? ; 5-In your opinion the interaction with teachers through WhatsApp, email and Facebook, supported you emotionally in this period of social isolation?; 6-Assess your satisfaction with remote activities; 7-Do you believe that the media (WhatsApp / Email / Facebook) used by the Visual Core at this time of social distancing to share the activities and guidance were efficient?; 8- The proposed activities allowed you to perform; It is important to highlight that the answers to these questions oscillated between yes and no, another, between great, good, regular and bad, between satisfied, indifferent and dissatisfied and between alone and with help. 9-Leave your statement about what it was like to try this remote service feature that our Center promoted. Write below; 10-Share with us your suggestions so we can improve the process. Your opinion is important to us! Write below.

Table 2 illustrates a detail about the self-administered questionnaire, quantifying the closed alternatives with greater marking by the students of questions 01 to 08. On the other, the open alternatives 09 and 10 demonstrate the students' perception of the remote teaching conducted by the Visual Disability Center and collect suggestions from them, also placing them with an active voice to improve the teaching-learning process in this new format. Once the construction of knowledge from Vygotsky's perspective, "[...] implies a shared action, since it is through others that the relations between subject and subject of knowledge are established" (REGO, 2009, p. 110).

**Table 2-** Frequency of responses to the questionnaire

TABLE WITH SAMPLING (Questions 01 to 08)			
Question 1 Residential 10 markings	Question 2 Good 05 markings	Question 3 Yes 09 markings	Question 4 Yes 09 markings
Question 5 Yes 09 markings	Question 6 Yes 09 markings	Question 7 Yes 09 markings	Question 8 With help 09 markings

**Source:** Chart prepared by the researchers.

The answers given in open questions 09 and 10 indicated a concern to be without any service, attest to the importance of the reestablished bond between teachers and students, the quality of activities and adaptations to the available assistive resources. They still considered the remote service necessary for the face-to-face of social isolation, not failing to compare with face-to-face and the lack it does. This is due to the association of learning with personal and affective contact that permeate the relationships of knowledge and learning between individuals. In this sense, Vygotsky demonstrates, "[...] the existence of a dynamic system of meanings in which the affective and the intellectual unite. It shows that each idea contains a transmuted affective attitude [...]" (REGO, 2009, p. 120).

These data showed us that we could follow up specialized educational service remotely, even if they did not reach all students yet. Among the 10 students, only one reported difficulties in using technology and another suggested that the texts be recorded with the teachers' voice and increase the number of activities. This approach favored what Vygotsky calls the "appropriation" of learning, and consequently its transformative action of intellectual and family relationships, in the context of each individual participating in the research.

Given the appropriate orientations and solutions, as far as possible, the first orientations for the students were made in videos recorded by the teachers who established clarifications about the new form of care, tips for activities at home and the rules to enable it so that everyone could participate respecting the days of sending, delivering and evaluating the activities performed.

Reading and writing activities, logical reasoning and calculations were made available in Word and audio (Mp3) formats shared in the class group on WhatsApp, along with general audio guidance by teachers, exchange of messages in private or in the group and also by the Facebook group. In the Facebook group coordinated by the technology teacher assisted students asked questions about digital tools and social networks.

All the elements exposed, thought and oriented to remote teaching created an atmosphere of discoveries, which boosted the process of inclusion beyond the common classroom. They introduced the technological elements in the routine of students with visual disability, providing them with the construction of an intellectual and affective learning with their peers, demonstrated throughout the process. For Vygotsky, learning is an organization that, "[...] it leads to mental development, activates a whole group of developmental processes, and this activation could not take place without learning" (VYGOTSKY, 1988, p. 113-115). This learning extended to family relationships that also changed and required new formats, more contact, and finally, there is no doubt that these students come out of this teaching process, with a new perspective of life, of relationship with the environment in which they live and their interactive dynamics.

### **Final considerations**

The pandemic has put us in front of the challenge of rethinking school and how to restructure the main links of knowledge mediation. So think and do school from other formats, for which there are numerous questions such as access to resources technologies, quality internet, workload, family context, and superbly stamped the social problems of a country that continues to neglect education.

However, even in the so many adversities and challenges imposed by remote education, it was possible to persevere in the reestablishment of specialized educational service for students with visual disability of the State Center for Special Education of Caetité - CEEEC. And this was from the teachers and students who are trying within their few possibilities and desires to continue the learning teaching process. Therefore, the methodologies and technological resources used were the main objective of trying to develop the activities of the SES, not letting these students with visual disability stay on the margins of the educational system. However, given the access challenges for some students, it is necessary to review or even follow the context in which they are inserted, as well as the difficulties that families may have with the intermediation, the specificities of each student, internet access and even joint work with the teacher.

By exposing the student with visual disability to a remote teaching experience of specialized educational service, it allowed learning to be a joint responsibility. The student was given the opportunity to be the protagonist of his learning and to have access to the themes addressed in the care through information technologies. And for the teacher the possibility of working the interaction collectively and collaboratively between the apprentices and family members, acting as an indispensable mediator to the educational process.

### References

AMORIM, Marília Carollyne Soares de; et al. Prática de ensino no atendimento educacional especializado (AEE) no contexto da pandemia no município de Teresina. CONEDU VII Congresso Nacional de Educação, Maceió – AL, 2020. Disponível em: <http://www.editorarealize.com.br/artigo/visualizar/74293> Acesso em 29 de jun de 2021.

BAHIA. **Diretrizes da Educação Especial**. Salvador, 2017. Disponível em: <<http://escolas.educacao.ba.gov.br/educacaoespecial>>. Acesso em: 15 ago. 2020.

BRASIL. **Comitê de Ajudas Técnicas**. Tecnologia Assistiva. Brasília: CORDE, 2009. 138p.

BRASIL. Resolução nº. 4, de 2 de outubro de 2009. **Diretrizes Operacionais para o Atendimento Educacional especializado na Educação Básica, modalidade Educação especial**, Brasília: MEC, 2009. Disponível em [http://portal.mec.gov.br/dmdocuments/rceb004\\_09.pdf](http://portal.mec.gov.br/dmdocuments/rceb004_09.pdf). Acesso em 28/06/2021.

DA SILVA, Ione de Cássia Soares; DA SILVA PRATES, Tatiane; RIBEIRO, Lucineide Fonseca Silva. **As novas tecnologias e aprendizagem: desafios enfrentados pelo professor na sala de aula**. Em Debate, n. 15, p. 107-123, 2016.

FARIA, E. T. **O professor e as novas tecnologias**. *Ser professor*, v. 5, p. 57-72, 2004.

GALVÃO FILHO, T. A. **Tecnologia Assistiva para uma Escola Inclusiva: apropriação, demandas e perspectivas**. Tese (Doutorado em Educação) – Universidade Federal da Bahia, Salvador, 2009.

GIL, Antônio Carlos. **Métodos e técnicas de pesquisa social**. 5. ed. São Paulo: Atlas, 1999.

GODOY, A.S. Introdução a pesquisa qualitativa e suas possibilidades. Revista de administração de empresas. São Paulo, v. 35, n. 2, 1995, p. 57-63.

LDB – **Leis de Diretrizes e Bases. Lei nº 9.394. 1996.** Disponível em: <[http://portal.mec.gov.br/seesp/arquivos/pdf/lei9394\\_ldbn1.pdf](http://portal.mec.gov.br/seesp/arquivos/pdf/lei9394_ldbn1.pdf)>. Acesso em: 15 ago. 2020.

MEC. Resolução CNE/CEB nº. 2 de 11 de setembro de 2001. **Diretrizes Nacionais para a Educação Especial na Educação Básica.** Brasília: MEC, 2001. Disponível em: <<http://portal.mec.gov.br/arquivos/pdf/resolucao2.pdf>>. Acesso em: 06 fev. 2021.

MORAN, J. M. **Mudando a educação com metodologias ativas.** 2013. Disponível em: <[http://www2.eca.usp.br/moran/wp-content/uploads/2013/12/mudando\\_moran.pdf](http://www2.eca.usp.br/moran/wp-content/uploads/2013/12/mudando_moran.pdf)>. Acesso em: 15 ago. 2020.

REGO, Teresa Cristina. **Vygotsky: uma perspectiva histórico-cultural da educação.** 20 ed. Petrópolis: Vozes, 2009.

SEVERINO, Antônio Joaquim. **Metodologia do Trabalho Científico.** 23ª ed. São Paulo: Cortez, 2007.

SILVA, Edna Alves Pereira da; et al. O papel do professor e o uso das tecnologias educacionais em tempos de pandemia. Cenas Educacionais, v.4, n.10740, p.1-17, 2021. Disponível em: <https://www.revistas.uneb.br/index.php/cenaseducacionais/article/view/10740>. Acesso em: 29 de jun de 2021

VYGOTSKY, L.S. et al. **Linguagem, desenvolvimento e aprendizagem.** (Coletânea). São Paulo: Ícone/Edusp, 1988.