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TEACHERS' FORMATION

Inclusion of visual impaired people in the system of distance education

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ABSTRACT. In face of education challenges, social and legal changes considering social inclusion, the objective of this article was to present results obtained in Master degree in Education, which analyzed the process of educational inclusion of visually impaired people in undergraduate distance education courses in Brazil, using communication and information digital technologies and assistive technology. The research analyzed twelve articles from five categories of pre-defined analysis: contributions from Distance education to students with visual impairment; mediation using communication and information digital technology and assistive technology; fragility between distance education and student with visual impairment; challenges in pedagogical practice and also the learning process to achieve educational inclusion. The results show that studies on this topic are recent, but the existing processes says the learning distance contribute with educational inclusion of these students, when provide the access to a quality education and guarantees the student's right established by law. The main challenges are teacher's mediation, training, accessibility of learning virtual environments and the control of technologies by teachers and students.

Keywords: communication and information digital technologies; assistive technology; higher education in Brazil; distance education.

Inclusão de pessoas com deficiência visual na educação a distância

RESUMO. Diante dos desafios educacionais, das mudanças sociais e legais voltadas à inclusão social, este artigo tem por objetivo apresentar os resultados obtidos na pesquisa de mestrado em Educação, que analisou o processo de inclusão educacional de pessoas com deficiência visual nos cursos de educação superior a distância no Brasil, por meio do uso das TDIC e da tecnologia assistiva. A pesquisa propôs-se a analisar 12 artigos a partir de cinco categorias de análises pré-definidas: contribuições da EaD para os estudantes com deficiência visual; mediação por meio das tecnologias digitais de informação e comunicação e tecnologia assistiva; fragilidade da relação educação a distância e estudante com deficiência visual; desafios da prática pedagógica e do processo de aprendizagem; efetivação da inclusão educacional. Os resultados mostraram que os estudos sobre o assunto ainda são recentes, mas as pesquisas existentes afirmam que a educação a distância contribui com a inclusão educacional desses estudantes, uma vez que proporciona o acesso a uma educação de qualidade e garante aos estudantes os direitos previstos em lei. Os principais desafios são a mediação do professor, sua formação, a acessibilidade dos ambientes virtuais de aprendizagem e o domínio do uso das tecnologias por parte de professores e estudantes.

Palavras-chave: tecnologias digitais de informação e comunicação; tecnologia assistiva; educação superior no Brasil; educação a distância.

Inclusión de personas con discapacidad visual en la educación a distancia

RESUMEN. Ante los desafíos educacionales, los cambios sociales y legales dirigidos a la inclusión social, este artículo tiene el objetivo de presentar los resultados obtenidos en la investigación de maestría en Educación, que analizó el proceso de inclusión educacional de personas con discapacidad visual en los cursos de educación superior a distancia en Brasil, a través del uso de las TDIC y de la tecnología de apoyo. La investigación se propuso analizar 12 artículos a partir de cinco categorías de análisis predefinidas: contribuciones de la EaD para los estudiantes con discapacidad visual; mediación por medio de las tecnologías digitales de información y comunicación y tecnología de apoyo; fragilidad de la relación educación a distancia y estudiante con discapacidad visual; desafíos de la práctica pedagógica y del proceso de aprendizaje; efectividad de la inclusión educacional. Los resultados mostraron que los estudios sobre el asunto aún son recientes, pero las investigaciones existentes afirman que la educación a distancia contribuye con la inclusión educacional de estos estudiantes, una vez que proporciona el acceso a una educación de

calidad y garantiza a los estudiantes los derechos previstos en ley. Los principales desafíos son la mediación del profesor, su formación, la accesibilidad de los ambientes virtuales de aprendizaje y el dominio del uso de las tecnologías por parte de profesores y estudiantes.

Palabras-clave: tecnologías digitales de información y comunicación; tecnología de apoyo; educación superior em Brasil; educación a distancia.

Introduction

This article is the result of the master's thesis that addresses the inclusion of students with visual impairment in Distance Higher Education in Brazil. The guiding elements of this research are based on the Federal Constitution of the Federative Republic of 1988, which guarantees the right of all to education, in the National Education Guidelines and Bases Law n. 9,394 / 96, which in its article 80 ensures the provision of distance education and advances in Brazilian legislation aimed at the inclusion of people with disabilities (Lei n. 9.394/96, 1996).

The main objective of this dissertation is to verify how the distance education course has been addressed in articles mapped out to include students with visual impairment in the most diverse courses offered in this modality, especially in higher education. Thus, in this article we aim to present the data and results found in this dissertation.

We present the process of social and educational inclusion of people with disabilities in Brazil, aspects related to assistive technology for blind or partially sighted people, distance education and information and communication technologies, also the methodological procedure adopted in our research and, finally, the results achieved and the main data collected.

Social and educational inclusion in Brazil

Social inclusion is an expression which makes us think directly about aspects related to citizenship and social inequality. Citizenship, according to Burci (2016, p.18), "[...] relates politics, rights, duties, work, people, education, equality, freedom, among other aspects that have undergone and undergo pragmatic changes throughout the years through the public policies and legislation of each nation". Social inequality is understood by Demo (2001) as a result of any and all society structured by economic and power movements; and Burci (2016) points out that inequality arises when part of the population is exploited for the benefit of another.

Based on Faleiros (2006), we point out that the denying of citizenship culminates in social exclusion, which arises from the relation of dominant and exploited. Exclusion is also present in all types of society, and the groups that suffer directly are those of low income, elderly, people with disabilities, among others. Inclusion can be analyzed considering politics, economy, health, leisure, sport, but we emphasize above all the process of educational inclusion of people with disabilities. We understand that this part of the population suffered and go on suffering from the denial of their rights and the existing barriers in a social organization that seeks changes based on the principles of inclusion.

In the Brazilian scenario, we noticed that the inclusion of people with disabilities happened based on the creation of laws, decrees and ordinances that ensure their rights up to the present day. The change in people's mentality is also an important factor in the legal sector (Sassaki, 2010). In a given historical period, people with disabilities received segregated care, that is, a care that offered only minimal conditions of survival, usually in places away from urban centers. With the advancement of research, especially in the health area, the attention for treatments began to have as a principle social integration, which consisted in integrating people with disabilities into society, but without promoting changes to be met in a satisfactory way; and finally we have social inclusion, which consists of changing the social environment to ensure that all exercise their citizenship.

The year of 1981 was considered the International Year of Disabled Persons by the United Nations, which resulted in the creation of a program for people with disabilities (Abranches, & Batista, 2004). In that same year, the Seminar on New Trends in Special Education took place, resulting from the Declaration of Cuenca, aiming at guarantees of access to education (Carvalho, 2002).

Also as a goal at education, there was the World Conference on Actions and Strategies for Education, also in 1981, resulting in the Sunderberg Declaration (Carvalho, 2002). In 1993, the Rules for Equalization of Opportunities for Persons with Disabilities were created, giving equal conditions to receive the same services offered to the entire non-disabled community (Abranches, & Batista, 2004).

In 1989, Law n. 7,853/89 was dictated, which ensured support for people with disabilities, focused on social integration (Lei n. 7.853/89, 1989). This Law was regulated by Decree n. 3.398/99, which projected the National Policy for the Integration of Persons with Disabilities (Decreto n. 3.298/99, 1999).

The Declaration of Salamanca, promulgated in 1994, was the result of the World Conference on Special Education held in 1990, and established an agreement between dozens of countries and international organizations that have committed to bring about changes in education to suit all students regardless of their differences or difficulties (Declaração de Salamanca, 1996). Decree 3,956/01 is the result of the Guatemala Convention, also known as the Inter-American Convention on the Elimination of All Forms of Discrimination against Persons with Disabilities (Decreto n. 3.956/01, 2001).

Directed to Higher Education, Administrative Rule n. 1,679/99 ensured the accessibility of people with physical or sensory disabilities to courses, respecting the specificities of each disability (Portaria n. 1.679/99, 1999). Decree n. 186/08 (Decreto n. 186/08, 2008) resulted from the International Convention on the Rights of Persons with Disabilities, which in 2009 was ratified by Decree n. 6.949/09, recognizing the right to equality and education (Decreto n. 6.949/09, 2009).

The person with disabilities in Brazil had and has their equality and equity rights guaranteed by the legislation; consequently, their participation in society is more active, but Burci (2016, p. 36) points out:

> Ways of exclusion still exist, not only directed to them, but to the various social categories. We believe that disability is the way we think and look at each other. Social inclusion is nothing more than a constant struggle for the elimination of aspects that still arouse excludable acts and actions aiming at a social change. Inclusion strives for equality among all, providing opportunities for equality without the use of discrimination.

In view of the educational inclusion aspects and the rights to education guaranteed by the law, at any level or modality of teaching, we discuss in the sequence on how this inclusion is happening for students with visual impairment who choose to attend distance learning. These students have conditions of equality and equity that need to respect their specificities, that is, educational institutions need to offer resources and conditions so that they have access to a quality education. In the case of visually impaired students, we highlight the use of assistive technology and digital information and communication technologies in distance learning as a possibility of inclusion.

Visual impairment and assistive technology

With the Constitution of the Federative Republic of Brazil of 1988, the Specialized Educational Assistance (AEE) is created, offering people with disabilities a more focused service in the area of education and respecting their specificities (Burci, 2016). In the case of visually impaired people, we emphasize that attention to the educational process must respect the "[…] visual perceptiveness, distance that can be seen and the visual field, dimension of the space reached by the vision" (Burci, 2016, p. 49). Visual deficiency is divided into blindness and low vision; so it is important to consider the type of visual impairment and the length of time that the person has lost sight so that their needs are met and the strategies used are consistent. Trentin, Heliomar, Debieux, Souza and Ruas (2011) argue that visual impairment is not synonymous with intellectual impairment, so we understand that the stimuli and mediation are important for the development of these people, in the most different areas.

Aimed at the educational process of visually impaired students, especially in higher education, Masini, Chagas and Covre (2006) emphasize that one of the difficulties identified is the lack of teacher training, which directly interferes on mediation. One aspect which is worth mentioning is the commitment of these students, who are looking for different strategies to learn. According to Burci (2016, p. 65), "[...] knowing the real needs of his students, mastering the use of technology in the school environment and knowing how to adapt and adapt it, the teacher will be able to develop his role of mediator, providing quality teaching to for everybody".

Among the strategies used, the use of technologies has contributed to the learning of students blind or with low vision. There are several features developed specifically for people with disabilities, called assistive technology. The assistive technology was:

> [...] developed to help people with impairments to carry out the same actions of those without disabilities. Common technologies can also become assistive if they match that need. Assistive technology aims to improve the quality of life of people with disabilities and therefore also include them in society, enabling them to become socially active citizens who enjoy their constitutional rights (Burci, 2016, 110).

Rabello (2007) argues that the teacher can use the technologies as a motivating resource, specifically in the case of visually impaired students, who feel more secure and autonomous when they do not have to depend on other people to study. Gomes and Sampaio (2014) believe that technologies are facilitating instruments that allow

the construction of new knowledge and are fundamental for the reduction of barriers.

Burci (2016) highlights the main features of assistive technology developed for visually impaired people. In the case of the blind, the most common is the use of screen readers and voice synthesizers, and for people with low vision, they are the screen magnifiers. But there is also the Braille System, Braille printer, Braille display, audiobook, Soroban, scanner, typewriter, microcomputer, among other features that make life easier for these citizens.

The use of assistive technology will have positive results in students' learning when the teacher understands the specifics that need to be considered in the process of mediation and planning of the disciplines. Technology is not responsible for one's learning; it is a learning resource that guarantees the same conditions of access and equity of other students, so the teacher needs to be aware of the importance of his / her performance in this process and the student to master the use of this technology.

We corroborate with Burci (2016, p. 54) when she states that "[...] in higher education, the use of technologies can be a support and a way for resources for the educational process of students with visual impairment, providing their inclusion". Together with assistive technology, we can make use of digital information and communication technologies linked to distance education, and offer quality education that provides educational inclusion.

Distance education and digital information and communication technologies

Higher education in Brazil expanded the offer of public and quality education with the implementation of the distance modality, using digital information and communication technologies. This implementation was possible with the development of technologies from the 1990s (Burci, 2016).

Distance Education was recognized as a teaching modality with LDBEN n. 9.394, of December 20, 1996 and with Decree n. 5.622, of December 19, 2005, which repeals Decree nr. 2.94/98 and that regulates article 80 of LDBEN n. 9,394/96, which in its article 1 º characterizes it as "[…] an educational modality in which the didactic-pedagogical mediation in the teaching and learning process occurs with the use of means and technologies of information and communication, with students and teachers developing educational activities in different places or times" (Decreto n. 5.622/05, 2005).

Prior to the use of digital information and communication technologies, distance education was offered by correspondence, radio, television and telephone (Zanatta, 2014). Moore and Kearsley (2011) warn of the importance of knowing the stages of distance education, because this modality can not be understood only as a possibility due to the technologies, it happens through the use of any means of communication, but in the 21st century it was characterized by the use of technologies that have spread across all countries and provided yet another opportunity for educational inclusion.

The use of digital information and communication technologies in the most diverse social sectors shows the changes that occur in society as a result of these resources. In line with Pereira and Silva (2010), such transformations have resulted in the so-called Information Society, particularly by changing behaviors, habits and how we communicate.

Prudêncio, Carvalho and Ferreira (2009) assert that distance education has gained a new pedagogical model with the expansion of digital information and communication technologies. Based on Kenski (2003), we emphasize that in the distance modality, with the use of technologies, new forms of interaction and learning emerge. About that, Moran (2013) points out that society is characterized by the use of technologies. Already for Burci (2016, p.109),

> With technological expansion, we see changes in all social sectors and, in particular, education. We perceive how many access barriers have been broken with distance education and the use of TDIC, because a new reality is present with new forms of learning, habits and values. In distance education, virtual learning environments enable new forms of learning that through digital information and communication technologies favor the interaction and empowerment of the students' learning process.

The creation of the Open University System of Brazil, in partnership with higher education institutions and the federal government, has led to an increase in the number of places available for higher education, confirming this system as an important educational policy (Burci, 2016).

Burci (2016) emphasizes the importance of digital information and communication technologies to develop the potential of students in distance education and also in face-to-face teaching. In his words:

> Education has changed with the TDICs (Digital Information of Technology and Communication), which contributes to social and human development, though the EaD (Distant Education Course) is seen as an innovative education capable of forming individuals with individual and social

> values. However, TDICs do not only favor EAD, they also enhance classroom teaching. These resources can be used in any type of teaching, but for us to have a positive return of this use it is important that the teacher knows and master the available technologies. The teacher, based on the aim of the course, will develop his / her mediation in order to attend all students and seek to develop their potential, regardless of the modality of teaching (Burci, 2016, p. 109).

We emphasize that to meet the objective of the course using digital information and communication technologies, it is imperative that the teacher knows the possibilities of the technologies to be able to take advantage of them in a positive way and as a learning resource (Dittz, 2004).

In distance education, educational inclusion is possible through the action of teachers and the possibilities that the use of digital information and communication technologies provide. Burci (2016, p. 109) reiterates that this modality "[...] has contributed to the expansion of higher education and reduced social inequalities in education".

The reduction of social inequalities through distance education has enabled access to higher education for students with disabilities; we contemplate in the sequence how this inclusion is being carried out in the distance modality of Brazil.

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Methodological procedure

Our research was based on the survey of scientific productions in an article format in the Jurn search engine, between 2000 and 2015. The initial date is marked by the accreditation of universities with the Ministry of Education to offer the distance modality. According to Burci (2016, p. 78), Jurn is "[…] a Google-linked article and book search tool covering the arts, humanities, the natural world, ecology, science, biomedicine, business and law. Its target audience is mostly teachers, students, but also other professionals and scholars".

The search engines used in the mapping were: 'distance superior education and the visually impaired', 'distance higher education and the visually impaired student' and 'distance higher education and the visually impaired person'. In all, we found 350 productions, but we only analyzed 12 for contemplating the object and objective of the research.

This type of methodological procedure that considers the mapping of only one sector of scientific publications is called the knowledge state (Romanpwski, & Ens, 2006). We analyze the articles from a qualitative approach, respecting the information and opinions contained in the texts and based on descriptive and interpretative elements.

Results

The articles mapped in the search engine Jurn had as temporal cut the years from 2000 to 2015. After the research, we found productions between 2003 and 2013. At the end of the survey, we obtained 350 articles; of this total, we selected 12 articles from the information contained in the title, abstract and keywords, which addressed the educational inclusion of students with visual impairment in distance education. The articles selected by us are published in journals classified as A2, B1, B2 and B4 by the Coordination for the Improvement of Higher Education Personnel (Capes) (Table 1).

In the analysis of scientific productions, we defined five categories that guided our work: EAD contributions for visually impaired students; mediation through digital information and communication technologies and assistive technology; weakness of distance education and visually impaired students; challenges of pedagogical practice and the learning process; effectiveness of educational inclusion.

In the first category of analysis, 'DA's contributions to visually impaired students', Burci (2016) states that the autonomy of visually impaired students is a result of interactions with other students and that it contributes to the development of self-confidence and consequently, it cooperates in overcoming difficulties. The experiences in chat rooms of virtual learning environments showed that the deficiency went unnoticed among the students. Another outstanding aspect is the interaction between teachers and students that allows the inclusion of all the existing diversity.

Table 1. Mapped articles.

Name of the article	Author (s)	Year
Virtual digital environments: accessibility for the visually impaired	Andréa PolettoSonza; Lucila Maria CostiSantarosa	2003
The appropriation of communication information technologies in a computer-mediated EAD environment: an experience in Proinesp with PNEEs with visual limitation	Eliane Lourdes da Silva Moro; Lizandra Brasil Estabel; Lucila Maria CostiSantarosa	2005
The access to information and communication technologies and the overcoming of limitations of the PNEES with visual limitation including them in an environment of computer-mediated learning	Lizandra Brasil Estabel; Eliane Lourdes da Silva Moro; Lucila Maria CostiSantarosa	2005
Training of librarians with visual limitation by distance education in virtual learning environments	Lizandra Brasil Estabel; Eliane Lourdes da Silva Moro	2006
The use of screen readers in TelEduc	Roberto SussumuWataya	2006
More than just seeing: online reading in the Spanish language by visually impaired	Marcus Vinícius Liessem Fontana	2010
Binaural audiodescription in the production of accessible didactic materials	Elton Vergara Nunes; Gertrudes Aparecida Dandolini; João Artur de Souza; Tarcísio Vanzi	2011
Accessibility for people with visual impairment in Moodle	Cristina Madeira Coelho; Patricia Neves Raposo; Eduardo Xavier da Silva; Ana Carolina Freitas de Almeida	2011
An approach using communities of practice for the learning of students with low vision in the distance learning mode	Tatiana Takimoto; Gertrudes Aparecida Dandolini; João Artur Souza; Tarcísio Vanzin	2011
Distance education and visual impairment: possibilities and perspectives	Taissa Vieira Lozano; Maria Luisa Furlan Costa	2013
Usability test of a hypermiditic narrative through emotional evaluation (Emocard)	Silvia Quevedo; Sabrina Bleicher; Carlos Henrique Berg; Catarina Vânia Ulbrich	2013
A model of activities in the context of distance education courses for the visually impaired	Arturo Hernández Domínguez; Ronaldo Ribeiro Fernandes	2013

Source: Prepared by the authors (2016).

Distance education reduces discrimination, provides learning, it makes easier the access to educational materials, breaks down architectural barriers, and includes socially and educationally all students, including blind or low vision students.

In the second category, 'mediation through digital technologies of information and communication and assistive technology', Burci (2016) reports that mediation is exercised by the teacher and technologies are only mediating resources. The mediation is directly related to the action of the teacher, being carried out in an appropriate way conveys safety and contributes to overcoming the difficulties of the visually impaired students who need to establish a trustful relationship with the teacher, during the course to present their difficulties or good use to the virtual learning environment and the proposed activities.

A key element at the time of mediation is to consider the level of mastery of the use of digital information and communication technologies or assistive technology by students. Thus, the work must start from the idea that not all students dominate these technologies so that they have the same access opportunities, and that's why the teacher has to master the use of the technologies to direct his work.

Considering the privacy of each student is critical for comprehension for how he learns, and knowing what assistive technology features he uses is also important for educational inclusion to actually happen.

In the third category of analysis, 'the weakness of the distance education relationship and student with visual impairment', Burci (2016) emphasizes the attention for choosing the software to be used to make it accessible to all students. Accessibility is an aspect that needs to be improved in virtual learning environments, requiring environments to be formatted. The feature of audio description contributes to the spatial graphic understanding of blind or low vision students.

Communication with teachers is fragile, as they do not listen to students, and a change in teachers' posture is needed. Digital information and communication technologies have not been used effectively in some situations, so the teacher must change his methodology.

The difficulties of the educational process are related to the lack of attention directed to the specificities of students with visual impairment, which happens due to the lack of directed mediation that may be related to the inadequate training of the professionals involved in this educational process.

The problem of accessibility can be overcome, in part, by the commitment and mediation of teachers. The lack of demand for distance courses by students with visual impairment is another difficulty, since the improvements in these courses may be more effective with the experiences, but for it, it is necessary that more students study the modality at a distance.

In the fourth category, 'challenges of pedagogic practice and the learning process', in Burci's analysis (2016) the greatest challenge is for the teacher, who

needs to know the specificities and desires of his students, integrating and dialoguing with them through environments learning to make them feel safe to learn.

Librarians are challenged to provide access to information and materials in libraries so that visually impaired students have the same possibilities that all students deserve.

Another challenge for teachers is to develop educational practices that include students throughout the duration of the course in order to make them autonomous students. Mastering digital information and communication technologies is a fundamental competence for teachers, but it is also necessary that they know assistive technology directed to the type of disability of their student.

In the last category, 'effectiveness of educational inclusion', Burci (2016) points out that technology is a resource that enables inclusion, but for effectiveness to take place, it is fundamental to choose the appropriate software for each virtual learning environment. In view of the experiences already carried out in higher education institutions and which were addressed in the articles analyzed, the software that obtained prominence were; Jaws, Virtual Vision and Dosvox. The blind students who participated in the distance learning course were able to develop one of the activities they did in the virtual learning environment with their classes of students in the schools they taught, thus demonstrating that what they learned and what they experienced were fundamental elements in the academic formation and in their professional activities.

After the analysis, Burci (2016) found that technologies lower barriers for students with visual impairment, but more accessible environments are still needed. The author also reveals that students with visual impairment who participated in distance learning courses stated that even with the difficulties of access, especially in the chat tool, the experience was evaluated very positively.

Another example highlighted by Burci (2016) in her analysis was that of a blind teacher, who ministered for two years a discipline in distance education. The difficulties and barriers were healed throughout the courses with the technical support and a tutor, who in partnership with the blind teacher identified the problems and then solved them. At the end of this experiment, the teacher's greatest difficulties were reading and filling the tables with notes, because the file was not compatible with the environment and with the software used by her.

The implementation of educational inclusion requires the formatting of virtual learning environments and not their standardization so that they are accessible to software and assistive technology aimed at blind students or other disabilities. The environments that stand out in this process of inclusion are TelEduc, Moodle and Eduquito. The institutions' concern about educational inclusion, as well as actions and structures that are in line with demand, is a requirement for students with visual impairment to have access to quality higher education (Burci, 2016).

Blind and low vision students pointed out that the good performance of the teacher's pedagogical practice during the course is directly related to the students' good performance. In general, the problems encountered in a distance course are focused on pedagogical and non-technological problems. Teachers, unfortunately, do not know how to deal with the care of people with disabilities, but based on Burci's analysis (2016) and the experiences described in the articles, we highlight the commitment of the teachers who revealed that their anguish really is related to the lack of work with these students.

After the analysis, Burci (2016) understands that the educational inclusion of students with visual impairment in the distance modality is possible, and that the experiences carried out by some educational institutions have proven this fact, mainly because the distance education allows everybody to exercise their citizenship. The articles we have analyzed have demonstrated that self-confidence and autonomy have developed, and the difficulties and discrimination that people with disabilities face daily have been reduced.

Teacher mediation is fundamental to the inclusion process; technologies need to be only mediating resources and helpers for learning. In order to know the best form of mediation and which methodology to use, the teacher also needs to master the use of digital information and communication technologies and to know the technology that his student feels acquainted, so he will develop a complete pedagogical work in attention to the learning specificities of your students.

The difficulties of this process are related to the accessibility, the choice of virtual learning environments, methodology, the lack of adequate training, mainly from the teachers, who do not know how to deal with visually impaired students, and the lack of search for distance courses by the students.

Most of the challenges in distance education are related to pedagogical practice, which needs to be more inclusive; to the professionals involved, who

need to contribute to the creation of an increasingly accessible environment; to students and teachers, who need to master the use of assistive technology and digital information and communication technologies.

The challenge of education is to include students with disabilities in targeted practices that take into account all their specificities, providing them with the same rights of equality and equity guaranteed by law, regardless of the educational modality in which they are inserted.

Final remarks

Considering the results presented in this article, we conclude that the process of inclusion of people with visual impairment is a recent target of discussions in the educational field. The educational inclusion of these people in Brazil occurs by virtue of enacted laws. The change of mentality of the citizens is a slow process, because we understand that society is in transition, leaving aside conceptions based on social integration and appropriating conceptions aimed at social inclusion.

To include is to modify the medium so that everyone has the same possibilities. Distance education through the use of digital information and communication technologies is a possibility for students with visual impairment who are looking for a quality education, especially because the blind or low vision person uses assistive technology that can be integrated into the environments learning.

Technologies contribute to the development of society, and using them for inclusion is important in education. But for it to happen, in the training of teachers, which needs to be continuous and with quality, the learning of the new technologies must be included, because the educational challenges are diverse and the inclusion of people with disabilities in the education systems has presented itself more challenging.

We know that there are weaknesses in this type of inclusion, but we understand that these are just elements that need to be revised and improved, such as the formatting of virtual learning environments that primarily need to be accessible, and the pedagogical practice of the teacher, directly linked to its training process, which needs to be continuous.

We hope that this article, which reports the results of a master's thesis, can instigate new research aimed at the inclusion of people with disabilities in the distance modality, which has been contributing to democratization and access to higher education.

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