

Educational strategies to attend a student with incarceration syndrome¹ in the undergraduate course in medicine

Estratégias educativas para o atendimento de acadêmica com síndrome do encarceramento no curso de graduação em medicina

Estrategias educativas para la atención de un estudiante de medicina con síndrome de encarcelamiento

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ABSTRACT

This text reflects on the issue of inclusion and the use of educational support strategies for a student with locked-in syndrome in the medicine course of Universidade Estadual do Oeste do Paraná (Unioeste), Cascavel (PR). It employs bibliographic, documentary, and field research methods, including a questionnaire for the disabled student and an interview with the assisting teacher. The Special Education Program (PEE) presents educational strategies tailored to the student's needs and demands. For the theoretical foundation, the study references Brazilian legislation and L. S. Vygotsky's *Fundamentals of Defectology*. The results demonstrate that the educational strategies developed and implemented through a collective process successfully promoted the student's inclusion in higher education, enabling her to graduate from the medicine course on June 10, 2022.

Keywords: Higher Education. Educational Inclusion. Medicine.

- 1 Locked-in syndrome or blockage syndrome is a state of wakefulness and awareness with tetraplegia and paralysis of the lower cranial nerves, resulting in an inability to exhibit facial expressions, move, speak, or communicate, except through codes via eye movements. Available at: Locked-in Syndrome- Neurological Disorders- MSD Manuals Professional Edition (msdmanuals.com). Accessed on: August 15, 2022. In this case, after the event that occurred in October/2014, previously acquired knowledge, as well as cognitive capacity, remained preserved. This condition allowed the academic to master the contents of the medical school disciplines.

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RESUMO

Este texto apresenta reflexões sobre a problemática de inclusão e o uso de estratégias educativas de apoio a acadêmica com síndrome do encarceramento no curso de medicina da Universidade Estadual do Oeste do Paraná (Unioeste), em Cascavel (PR). Utiliza-se de pesquisa bibliográfica, documental e de campo com aplicação de questionário à discente com deficiência e entrevista com docente que a atende. O Programa de Educação Especial (PEE) apresenta as estratégias educativas de acordo com as necessidades e demandas da acadêmica. Para a fundamentação teórica, utiliza-se referências da legislação brasileira e dos *Fundamentos de defectologia*, de L. S. Vigotski. Os resultados demonstram que as estratégias educativas desenvolvidas e colocadas em prática são resultantes de um processo coletivo que promoveu a inclusão da aluna no ensino superior, permitindo a colação de grau no curso de medicina em 10 de junho de 2022.

Palavras-chave: Ensino Superior. Inclusão Educacional. Medicina.

RESUMEN

Este texto presenta reflexiones sobre la problemática de inclusión y uso de estrategias educativas de apoyo a académica con síndrome de enclaustramiento en la carrera de medicinas de la Universidad Estadual del Oeste de Paraná – Unioeste, Cascavel (PR). Se utiliza de un estudio bibliográfico, documental y de campo con aplicación de un cuestionario a la discente con discapacidad y entrevista con el docente que la atiende. El Programa de Educación Especial (PEE) presenta las estrategias educativas de acuerdo con las necesidades y las demandas de la académica. Para la fundamentación teórica, se utiliza referencias de la legislación brasileña y de los *Fundamentos de Defectología* de L. Vigotski. Los resultados demuestran que las estrategias educativas desarrolladas y puestas en práctica son resultantes de un proceso colectivo que promovió la inclusión de la alumna en la enseñanza superior, permitiendo la graduación en la carrera de medicina en 10/06/2022.

Palabras clave: Educación Superior. Inclusión Educativa. Medicina.

INTRODUCTION

Discussions about educational inclusion in higher education have been recurrent among scholars and researchers of special education, especially since Ordinance No. 1,793, of December 1994, which recommended that higher education institutions (HEI) include the subject “Ethical-political educational aspects of the normalization and integration of people with special needs” in pedagogy and other undergraduate courses such as speech pathology, psychology and others (Brasil, 1994).

The State University of Western Paraná (Unioeste) instituted the Special Education Program (SEP) in 1997. Its services began that year, being provided to two visually impaired students (one blind and one with low vision), who were assisted with enlarged material on A3 paper and digitized texts to allow reading by the Dosvox system, or other resources with a voice synthesizer.

The legislation in force which addresses the rights of people with disabilities was and is important for the achievements and advances of educational inclusion at different levels of education.

The Federal Constitution of 1988 (Brasil, 1988) recognizes education as a social right, with both the family and the state as responsible parties. It also determined the implementation of specialized educational assistance (SEA) at all levels of education. This condition increases the possibility of

people with disabilities entering educational institutions, as it disperses responsibilities in the inclusion process.

Circular Notice No. 277/96 (Brasil, 1996) reinforced the operationalization of SEA to HEIs, aiming to serve people with disabilities (PwD)/special educational needs (SEN) in the entrance exam. This condition expanded the participation of this category of candidates in this selection process.

The reproduction of texts in braille or scanned for blind or low-vision students, without the obligation to pay copyrights, was allowed by Law No. 9,610/98 (Brasil, 1998), while Decree No. 3,298/99 (Brasil, 1999) made recommendations to ensure accessibility conditions in accordance with the regulations of the Brazilian Association of Technical Standards (ABNT), NBR-9050 (ABNT, 2020). The guidelines on the suppression of architectural barriers to people with disabilities and/or people with reduced mobility, described in Law No. 10,098/00 (Brasil, 2000), also contributed to expanding the possibilities of inclusion of people with disabilities in education.

Decree No. 5,296/04 (Brasil, 2004) defined regulations to promote access to education, classified the types of disability and included ostomy and dwarfism in the category of physical disabilities. In this way, it expanded the rights of inclusion for these people.

The regulations of Decree No. 5,626/05 (Brasil, 2005) define the teaching of Brazilian sign language (LIBRAS) in teacher training, and the operational guidelines for SEA are established by Resolution No. 04/09 of the Brazilian National Education Council — CNE (Brasil, 2009). Also part of this scope of important legislation for inclusion is the National Policy for Special Education from the Perspective of Inclusive Education (PNEEPEI) (Brasil, 2008), which defines the special education (PAEE) public as students with disabilities, global developmental disorders and high abilities/giftedness. To expand the possibilities of serving this public, Decree No. 7,611/2011 established in its art. 5º, item VII, the structuring of accessibility centers in federal HEIs aiming to eliminate physical, communication and information barriers that restrict the participation and the academic and social development of students with disabilities (Brasil, 2011).

In the wake of expanding rights, Law No. 12,764/12 (Brasil, 2012) defines autism spectrum disorder (ASD) as a disability, and Law No. 13,146/15 (Brasil, 2015), or the Brazilian Inclusion Law, identified by the Statute of Persons with Disabilities, defines the concept of PwD as those *who have a long-term impairment of a physical, mental, intellectual or sensory nature, which, in interaction with one or more barriers, can obstruct their full and effective participation in society on an equal basis with other people* (Brasil, 2015, p. 1). This law established regulations that ensure all rights related to the life and citizenship of these people and is a mandatory reference to discuss issues related to PwD.

At the level of the state of Paraná, there is the Statute of Persons with Disabilities of the State of Paraná, established by Law No. 18,419/2015 (Paraná, 2015). The concepts of special education, PAEE and SEA, including in higher education, are established by Resolution No. 02/2016 of the State Education Council (SEC) (Paraná, 2016). In the perspective of expanding educational inclusion, there has also been the definition of quotas of 5% of vacancies reserved for PwD in higher education courses and public technical schools in the state, as per Law No. 20,443/2020 (Paraná, 2020). All of these legal references are measures that have expanded the possibilities for the people in question to enter higher education.

Within the scope of Unioeste, the Institutional Program of Actions Related to the Needs of Persons with Disabilities, better known as the Special Education Program (SEP), follows the regulations approved by the higher instances of the HEI, such as Resolution No. 323/97 (Unioeste, 1997), which created the program; Resolution 127/2002 CEPE (Unioeste, 2002) which approved the regulation; and Resolutions No. 319/2005 CEPE (Unioeste, 2005) and 209/2016 CEPE (Unioeste, 2016), which reformulated and regulated its activities. The role of the SEA teacher was also created by Resolution

No. 005/2021 CEPE (Unioeste, 2021), aiming to regulate the activities related to serving students with disabilities at the institution.

The SEP serves students with disabilities in various undergraduate and graduate courses. The students have specific characteristics and needs caused by sequelae resulting from diseases that occurred in different age groups or by disabilities acquired due to accidents that occurred before or after entering the university. This paper deals with the case of a student with a disability acquired during her undergraduate medical course. Due to the specificity of the condition presented by the student, manifested by motor and speech sequelae, and considering the course she attended (medicine), this is an “exclusive case” in that it is unprecedented in Brazilian HEIs.

METHODOLOGY

This work is a discussion excerpt from doctoral research on assistive technologies at Unioeste, whose project is registered in the Plataforma Brasil, with the Certificate of Presentation for Ethical Appreciation — CAAE 95830518.5.0000.0107, which received approval Opinion No. 2,858,032, issued on August 31, 2018.

The research methodology is characterized as qualitative, bibliographical, documentary and fieldwork. The field research used interviews and questionnaires that were applied to students with disabilities and the professors who assist them.

Eleven professors participated in the research, namely: six professors from the computer science course, two professors from the pedagogy course, one professor from the literature course, one professor from the economics course, and one professor from the medicine course. Of all the participating professors, 10 have a doctorate degree and one a master’s degree. Teaching experience in higher education ranges from seven to 32 years, with seven professors being between 19 and 32 years old. The other four have between seven and 15 years of experience.

As academics, there were five participants in the research, among which: two from the pedagogy course, one blind and the other with low vision, one from the computer science course with physical disability and deafness, one from the economic sciences course with physical disability, one from the medicine course with physical disability — the academic with locked-in syndrome, as a consequence of having suffered a cerebrovascular accident (CVA) in the second semester of the third year of the medicine course.

For qualitative data analysis, Bardin’s (2011) content analysis technique was used, from which seven units of analysis or meanings were elaborated, which are the result of the expressions and speeches of the research participants. The discussion of this work deals with the unit of analysis — assistive technology (AT) and inclusion — and the SEA procedures.

DEVELOPMENT

PROCEDURES ADOPTED BY THE SPECIAL EDUCATION PROGRAM TO ASSIST STUDENTS WITH DISABILITIES OR SPECIAL EDUCATIONAL NEEDS

To serve new PwD/SEN students, the SEP follows a protocol previously prepared by the team, consisting of the following steps:

- a. The student is consulted to determine whether he/she needs the SEA service. If the need is confirmed, a meeting is held to clarify the activities to be developed in the SEA, which may include support from a transcriber, reader, translator/interpreter of sign language (TILS) or digitized materials, etc. This meeting may be attended by a family member with the aim of finding out whether, in his/her previous schooling, the student had support from a pedagogical support professor, whether he/she used specific AT, etc.

- b. Once the need for the SEA is confirmed, the SEP requests information from the academic secretariat about the class schedule and syllabuses of the subjects taken by the student.
- c. After identifying the needs for curricular adaptations and extracurricular support, the SEP sends a memorandum to the course coordinator, informing them about the SEA and guidelines on curricular adaptations.
- d. Assistance to students may be provided only during classes, or only during exams, or during classes, exams and extracurricular activities. An SEA plan is made for each student.
- e. After the first tests, the SEA teachers observe the results achieved by the students. If there is no progress, and when necessary, adjustments are made, which are discussed and implemented in the SEA activities. This situation is only put into practice after conversations between the student, teacher and the SEP team.
- f. When the SEP is informed by the Pro-Rectorates of Undergraduate and Graduate Studies of the presence of a PwD/SEN student acquired during the course, and who requires SEA, the procedures adopted follow the steps mentioned in letters a, b, c, d, e.

OTHER PROCEDURES ADOPTED BY THE HIGHER EDUCATION INSTITUTION THROUGH LEGAL OPINIONS

- a. For disabilities/SEN academics, the right to record classes, take photos of teachers' notes on the board, and use Scilabe or MATHlabe software (or others), which are specifically designed to perform math exercises, is ensured. This condition is guaranteed by Legal Opinion No. 043/2014, of March 27, 2014 (Unioeste, 2014), based on legal grounds provided for in Brazilian law.
- b. When necessary, it is possible to make the curriculum more flexible in order to meet the student's study needs. In this case, the board may request a reduction in the number of subjects (disciplines), an extension of the deadline for entering work grades, etc. in the academic secretariat's computerized system. This measure is taken after discussions and analysis of the specificities related to the student, and is formalized between the SEP team, teachers from the relevant board and the student or family member. With the appropriate justifications, the board forwards the request to the Pro-Rector of Undergraduate Studies for authorization and procedures necessary to implement the process with the academic secretariat.

PROCEDURES ADOPTED AS SPECIALIZED EDUCATIONAL ASSISTANCE TO SERVE THE STUDENT WITH 'LOCKED-IN SYNDROME' IN THE MEDICAL COURSE

At the beginning of the 2015 academic year, the Office of the Vice-Rector for Undergraduate Studies (Prograd) contacted the SEP Coordination, informing them about a medical student who had after-effects² from a stroke and wanted to attend in-person classes at the Cascavel campus and at the Western Paraná University Hospital (HUOP). The initial information was that the student had tetraparesis and aphasia, that is, she could not move her upper and lower limbs, although she had retained sensitivity in these limbs, and she did not have any verbal communication.

It was also reported that the student had already attended classes at HUOP, using an alternative and augmentative communication (AAC) board during classes.

² According to a neurological assessment, the student suffered a stroke that affected the basal ganglia of the central nervous system, causing tetraparesis (loss of movement, without loss of sensitivity) and aphasia (loss of speech ability). In addition, she has small movements caused by spasticity that make it difficult to keep her head completely still.

Prograd's contact with the SEP was motivated by the fact that part of the medical school's board did not agree with the student's presence in classes, claiming that due to her functional conditions she could not practice medicine. This manifestation by the board generated a judicial process that guaranteed the student's permanence in the course. However, even with the legal guarantee ensuring her presence in classes, rejection and attitudinal barriers were expressed by a significant part of the course's teaching staff.

Due to this, Prograd held a meeting with the director of the Center for Medical and Pharmaceutical Sciences (CCMF) and the coordinator of the medical course board to discuss the case. After the clarifications and arguments for and against, the student's right to attend the course was assured and it was up to the SEP to contact the student and her family to define and plan the SEA during classes, both at HUOP and at the Cascavel Campus.

A teacher from the Special Education Program (PEP) was assigned to monitor the student's classes. The agreement was that this professional or others who would assist her would be present in all her classes and tests.

During the monitoring (follow-up), the special education teacher used an alternative³ communication board (verbal interaction occurred through the student's blinking) to confirm or deny the lines or letters on the board, thus enabling (providing) the formation of syllables, words and sentences, and establishing communication (Silva, 2019).

ABOUT THE STUDENT'S CARE AT THE PHYSICAL REHABILITATION CENTER

After joining the psychology service at the Physical Rehabilitation Center (PRC) at Unioeste, the student's ability to use AT was assessed. It was suggested that tests be carry out using some software. One of them was Mousekey.⁴ However, the family demonstrated a rejection of any other resource that was different from PC eye Tobii.⁵

In view of this, the acquisition of PC eye Tobii software was requested with a justification from the SEP. The institution authorized and made the acquisition, which took around two months. PC eye Tobii was given to the psychologist at the PRC at Unioeste for testing and, later, training the student on its use. After a month of training, the software was given to the student through a lending process so that she could use it during her undergraduate course.

At the PRC, the student also attended physiotherapy and speech therapy sessions.

After an informal conversation about the student's care with the SEA teacher, the PRC psychologist suggested conducting a test with the Mousekey software, which would be used as a communication board. To perform the tests, a pen with a laser beam was attached to a headphone rod and placed on her head, allowing her to point the beam of light at the syllables or letters on the Mousekey virtual keyboard. This condition al-

3 Communication in the classroom was carried out using an alternative communication system with a communication board in which the student's responses to questions are given through the student's eye contact. This communication board consists of five rows and five columns. The letters of the alphabet are placed sequentially in each row. The person who is talking to the student asks her which row contains the letter she wants to use to compose the word she is thinking of, whether it would be row 1, 2, 3, 4 or 5. The question is asked once for each row. When she reaches the row containing the letter she wants, she blinks, confirming. The interlocutor verbalizes the letters of the selected row and she confirms the letter she wants to "write" by blinking. In this way, successively, she produces syllable(s), forming word(s) or sentence(s). Since the interlocutor in this case was aware of the content of the dialogue, he could deduce which word the student was thinking and composing mentally, just by joining the letters forming the syllables and, from these, forming the words and sentences. Then, the interlocutor asked the student if the letters/syllables that she indicated formed a certain word or sentence that was related to the subject that was being taught or discussed in class. If she confirmed, the cycle of communication would be completed, which could continue or cease according to the academic's decision. This was the dynamic established for all classes of the course that the student attended (Silva, 2019).

4 A piece of software that reproduces a virtual syllabic keyboard, developed by Claudio Dusik during his master's research at the Federal University of Rio Grande do Sul (UFRGS).

5 Piece of software coupled to the PC that allows all mouse functions to be operated by eye movements. Combines eye tracking, voice recognition, manual trigger and infrared control (optional) for accessing desktop computers.

lowed the companion or support professional to click the mouse on the letter or syllable chosen by her, thus forming syllables, words and sentences. These tests performed demonstrated good results, reducing writing time and eliminating the stress and fatigue caused by using the alternative communication board with ocular feedback (blinking).

The favorable condition demonstrated by the results of the tests with Mousekey and the laser pen sparked the idea of developing a headmouse⁶ (a mouse operated by head movements), thus aiming for more autonomy and independence, as Mousekey has a mouse click activation system that would allow her to write her texts without the presence of other people to help her.

The idea for the headmouse was proposed by the PRC psychologist to a teacher of the computer science course who showed interest in developing a prototype. After acquiring printed circuits and researching how to program the headmouse, the teacher began work together with a student, and, after a year of work, the prototype was tested by the academic. It went through some adjustments; training was done and the equipment was given to the student to use at home.

THE THEORETICAL FOUNDATIONS THAT UNDERPIN CUSTOMER SERVICE ACTIVITIES

The SEP team uses the Fundamentals of Defectology by Lev S. Vigotski (1896–1934) as a theoretical basis for developing its activities.

For Vygotsky (2019), an organic defect, such as blindness, deafness, physical disability, etc., is, in itself, a biological fact. From this perspective, the educator must work not only with facts pertinent to the biological field, but with the social consequences caused by such facts. Vygotsky deals with the biological level (the defect itself) and the social level (the consequence of the defect). Likewise, it can be understood that there are two possibilities of compensation, one direct, at the biological level, and the other indirect, at the psychic level.

Vygotsky uses the human organism itself as a reference, stating that the possibility of compensation occurs at a biological level when there is a lack of one of the paired organs; for example, the removal of a kidney, a lung, etc. In these cases, the other organ, which has not been removed, makes the compensation, developing the organic function necessary to maintain a balanced functioning of the body.

In the second case, since there is no possibility of a direct compensation at an organic or biological level, the central nervous system and the psychic apparatus of the person affected by the defect develop mechanisms — by indirect means — to overcome the difficulties in existing functionality. For example, a blind person develops the tactile ability to read braille, a condition that occurs indirectly, that is, without the use of sight. Braille learning occurs through the transmission of tactile-auditory information in the psychic sphere, which is triggered and stimulated by the demands of activities that require such ability to perform a certain task. In this case, reading braille.

Vygotsky (2019), based on the reflections of Adler (1870–1937), states that the educational process of the person with a physical defect is generally based on indirect, psychic compensation, since direct, organic compensation, for example, of blindness, deafness and other disabilities, is impossible.

It is important to note, however, that the process of social compensation does not occur in the same way for all PwD, since this condition is linked, according to Vygotsky (2019), to the adequate functioning conditions of the brain system, to the psychological conditions provided by psychic energy to overcome the obstacles resulting from the conditions of the disability, to the motor apparatus related to the muscles responsible for work operations, and to the central nervous system, which is

⁶ The headmouse is a device that allows to perform mouse functions through head movements. Writing using the headmouse is done on the Mousekey virtual keyboard, which has a button that allows to click on letters or syllables, after remaining on the letter or syllables chosen by the user.

responsible for receiving and processing information and memory, planning, reasoning mechanisms, among others. This whole process is also subject to the social conditions of the social environment that stimulates or minimizes the development of the potentialities that are preserved in the PwD.

For Vygotsky (2019), all these elements influence and are reflected on the educational process and cognitive development, on the formation of personality and on the social adaptation of the PwD. Therefore, they are elements that can favor or hinder the process of social compensation for the defect, which occurs indirectly.

The compensation processes, indirectly, are directed through the psychological apparatus to overcome limitations and difficulties, aiming to achieve the social position desired by the subject. In this aspect, Vygotsky (2019), citing Adler, states that the ultimate goal of education is to achieve the social validity of PwD.

It can be understood, therefore, that the educational process can create adequate conditions for indirectly overcoming the defect. In this sense, social compensation for the defect occurs when the subject conquers the desired social position, recognized by the social environment as something of value. Stephen Hawking (1942–2018) can serve as an example of social compensation for the defect (in the indirect form), because, while his disease worsened, increasing his motor difficulties and limitations, on the other hand, his cognitive development expanded, and he advanced in the appropriation and reproduction of knowledge promoted by formal, systematized education.

Vygotsky (2019) states that cognitive development is mediated by language, signs and instruments and that, in this aspect, the various social activities are its triggering elements, including formal education.

Among the various resources available to carry out activities are technologies, which can be seen as instruments, as means to facilitate the execution of tasks.

The resources, materials and equipment intended for use by people with disabilities are called assistive technologies, according to the definition of the Technical Aids Committee — CAT (Brasil, 2007). In the educational field, Bersch (2017) states that a technology is considered assistive

[...] when it is used by a student with disabilities and aims to break down sensory, motor or cognitive barriers that limit/prevent their access to information or limit/prevent the recording and expression of the knowledge acquired by them; when they favor their access and active and autonomous participation in pedagogical projects; when they enable the manipulation of objects of study; when we realize that without this technological resource the student's active participation in the learning challenge would be restricted or non-existent. (Bersch, 2017, p. 12)

Bersch (2017, p. 12) complements the idea by stating that “we identify that it is assistive technology [applied to education] when we realize that, by removing the support provided by the resource, the student has difficulties in performing the task and is excluded from participation”. From this perspective, there is a relationship of dependence between the user of AT and the performance of a certain activity, which is only possible if they use the AT.

The AT can be seen as an instrument to mediate the execution of an activity. This condition allows the user to appropriate knowledge and effectively participate in their learning process, which is intrinsically linked to the condition of thinking, planning and executing the action necessary to achieve the desired or predicted result. In this context, AT presents two possibilities for educational inclusion: first, it allows the user to participate in and perform activities that promote knowledge and its memorization, and, second, it allows the user to express their potential and the knowledge that is necessary to perform the desired task.

THE USE OF ASSISTIVE TECHNOLOGIES BY ACADEMICS

The student with locked-in syndrome, who is the reference for the reflections in this work, uses different types of ATs: to get around she uses a wheelchair and an adapted vehicle; to study and develop her academic activities she uses PC eye Tobii, the headmouse with Mousekey and the Colibri software; she also uses an alternative communication board to participate in classes and to have social interactions with colleagues, teachers, friends and family.

RESULTS AND DISCUSSIONS

A scenario from the perspective of inclusion requires the presence of at least three elements: the student who is the subject of inclusion, the accessibility conditions provided by educational institutions, and the human and material resources intended and necessary to serve the student. These conditions, if met, allow the student to remain in the program and acquire the knowledge necessary to achieve the expected results; in the case of higher education, a degree in the course chosen for the entrance exam or in a postgraduate course.

In this specific case, the subject of inclusion is the academic with locked-in syndrome. Because she is totally dependent, the student needed a caregiver to perform or assist her in the activities necessary for her to attend the course. Care ranges from daily life activities (eating, bathing, personal hygiene, changing clothes) to being transferred from bed to a shower chair, using a wheelchair to access an adapted car, going to the University Hospital, getting out of the car and going to the classroom to study. This set of activities is carried out routinely, and such willingness and motivation that are present in the student's actions can be seen to represent a store of energy in her psyche to leverage the motivation necessary for her to achieve her goals.

This condition can be understood as the compensation fund mentioned by Vygotsky (2019), understood as the psychic energy that the defect generates in the subject to overcome limits present in his life and that are pertinent to the activities to be carried out to achieve his goals.

In this sense, it is worth highlighting what Adler, cited by Vygotsky, says: "We are not in a position to think, feel, want and act without some objective in front of us" (Vygotsky, 2019, p. 75). This understanding creates in the PwD the perspective of the future, in the search to reach the maximum of their potential in terms of indirect cognitive development through compensatory processes.

Another point highlighted by Vygotsky (2019) is the implementation of collective activities as a means of stimulating the development of PwD. Participation in work groups produces results that affect the participating subjects bilaterally. When confronted with the demands of the course activities, the student sought to overcome obstacles using all possibilities of accessibility to achieve the desired result, her degree. In this case, she expressed all her potential of intelligence, cognitive capacity and perseverance. Her presence in the course allowed her to learn from her limitations, also enabling teachers and colleagues to learn to live with and relate to her needs and difficulties. This process strengthened aspects of resilience in the face of her current life context, as it did for her peers in the medical course.

It is interesting to examine the moments of discovery provided by the human relationships established in this case. Let us look at the perception that teacher D11 has about the academic's conditions, as well as his conception of PwD.

So far I haven't understood much about how you communicate [using an alternative communication board]. Your communication is fantastic. I thought about doing an experiment, I asked her oral questions and the SEA teacher articulated the answer and she answered them all correctly... So, I didn't have to do it that way anymore,

because I realized that she knew... she reasoned the same way as the other students and she didn't get any question wrong. I said: "I'm going to do it differently; I'm going to give her the multiple choice test". She answered everything correctly and got a ten. I want to say that, for me, this has been a very enriching year, I learned a lot from her [emotional]... just like I learned now when the girl [interviewer] said that it's important to teach, because you teach what you know and learn what you teach. (Silva, 2022, p. 213-214)

D11's initial perception of the student's conditions led him to generalize the idea that PwD are deprived of abilities or their abilities are minimized. The narrative demonstrates D11's initial understanding that the physical disability (tetraplegia) + aphasia affected the student's cognitive ability (Silva, 2022, p. 214).

It is possible to assume that D11 was amazed during a classroom activity when he discovered the preserved potential of the academic. In his words:

[...] I realized that she knew... she reasoned in the same way as the other students and she didn't get any question wrong [...], ... [...] I'm going to do it differently, I'm going to do the multiple choice test for her. She answered everything correctly, she got a ten. ... [...] she really, inside my chair, has the same training as the others, and, better. (Silva, 2022, p. 214)

It is worth highlighting that one of the important elements in the inclusion process is discovering oneself, learning through interaction with others, in this case, a PwD.

With over 20 years of experience in higher education, professor D11, during the interview, demonstrated his humanity in an emotional and admirable way, when reporting this experience: "[...] I want to say that, for me, this has been a very rich year, I learned a lot from her [emotional]..." (Silva, 2022, p. 214).

During the period of the student's service, which began in March 2015, the support activities were developed by eight SEA professors. She also had support from course colleagues who filmed the surgical procedures, took photos of appointments and participated in case discussions and internship activities. The academic's perseverance and dedication to her studies resulted in excellent grades in her evaluations, earning the respect and admiration of everyone. Her graduation took place on October 6, 2022, and was reported in an article published at the link <https://catve.com/noticia/6/367271/primeira-medica-com-tetraparesia-do-brasil-se-forma-na-unioeste-de-cascavel>.

Regarding the resources allocated to support the academic, teacher D11 stated: "She would not be able to study without the use of technologies and the monitoring of the SEA professional" (Silva, 2022, p. 201). In this case, D11 understands that it is necessary to sum up the possibilities provided by ATs, such as PC eye Tobii, headmouse, notebook, internet network, videos of practical classes and photos, a motorized wheelchair and adapted vehicle, assistance from the SEA teacher, the use of an alternative communication board with ocular feedback (Silva, 2022).

In addition to these resources, there is the issue of methodologies and adaptations of tests, additional time for carrying out the tests that are discussed and guided by the SEA professors. There is also the architectural accessibility provided by the HEI, which consisted of physical adaptations in the various environments of the hospital to facilitate transit in wheelchairs and access to the different rooms, the surgical center, and the intensive care units (ICUs) where the classes took place.

All these elements were essential in the academic inclusion process, as teaching and learning require, on an ongoing basis, a communication process with minimal barriers between senders and receivers in the exchange of messages, as well as access to the spaces where academic activities took place.

Messages are expressed through arguments, explanations and reflections produced by interactions between the actors — professors, students, SEA professors — and, supported by TAs, tend to facilitate appropriation of the knowledge produced in the university environment. In this context, it is possible to understand that the cognitive development of the student with locked-in syndrome occurred as an indirect compensation — at the psychic level — for her physical defect, characterized by the manifestation of tetraparesis and aphasia.

The student's cognitive potential, associated with her desire, her willingness to act and overcome the obstacles posed by her disability were indispensable elements for achieving the social position she desired and recognized in the medical course. In this regard, it is worth highlighting what Vygotsky states: "[...] in the same way that the life of any organism is directed by the biological demand for adaptation, the life of the personality is directed by the demands of its social being" (Vygotsky, 1997, p. 30).

The social demands that the academic established for herself, in terms of social validity and which were guided by her objectives, made her direct her thinking, wanting and acting towards achieving a degree in medicine and consisted of a perspective of future achievement, as cited by Vygotsky (2019). Achieving the social position desired by her represents and expresses the highest manifestation of success, which can be understood as an indirect compensation for the defect, at a psychic level. One of the results of this compensation process was the cognitive development achieved and recognized by the regulations approved by the Unioeste medical course.

The degree achieved by the academic and materialized by the graduation ceremony motivated several articles⁷ published in the regional, state and national press.

In his reflections on the cognitive development process of PwD, Vygotsky (2019) gave great importance to collective activity, collaboration and interaction. These elements, considered fundamental in the sphere of compensation, are facilitated by the elevation of cultural development, the expansion of the sphere of communication and the intensification of collective socio-labor relations.

All these conditions highlighted by Vygotsky (2019) are present in the process of social compensation for the defect that occurred in the life of this academic and can be seen as an example of inclusion in higher education at Unioeste, Cascavel campus (PR).

FINAL CONSIDERATIONS

The results achieved by this student with locked-in syndrome from the Unioeste medical course demonstrate that the inclusion of PwD in higher education is possible and viable and tends to produce new life possibilities for those people who go through such a process, achieving the results expected and desired by them.

The clarity of the actors involved in the inclusion process demonstrated that the accessibility conditions provided by the institution, from architectural accessibility, specialized educational services, the use of assistive technologies, the methodologies applied by professors in the classroom, the willingness to address legal issues that ensure access rights to higher education, the student's own organic/biological conditions and preserved cognitive capacities, and her psychological conditions to use energy to overcome obstacles, were, in this case, the elements that made her academic success, inclusion and completion of higher education possible.

⁷ Some websites that published news pieces about the academic with tetraparesis and aphasia who graduated in medicine at Unioeste: <https://www.aen.pr.gov.br/Noticia/Unioeste-forma-primeira-estudante-de-Medicina-com-tetraparesia-do-Brasil/>; <https://redesuldenoticias.com.br/noticias/parana-vai-ter-a-primeira-medica-com-tetraparesia-do-brasil/>; <https://tribunapr.uol.com.br/cacadores-de-noticias/curitiba/estudante-com-tetraparesia-aprende-a-falar-so-mexendo-os-olhos-e-se-forma-em-medicina-no-parana/>; <https://globoplay.globo.com/v/10515996/>. Accessed on: April 07, 2022.

However, the inclusion process is not something that occurs spontaneously or simply as a measure to comply with legal regulations, because in the university environment there are also the attitudes and behaviors of a portion of the academic community that does not accept the presence of PwD. Often, the search for a solution to situations of rejection culminates in a judicial process, aiming to guarantee the right of PwD to be at university, attend classes and have specialized educational support appropriate to meet their specific needs.

Judicialization can be considered the last attempt to guarantee inclusion, which is triggered after all resources or dialogues between those who reject the opportunity for students with disabilities to attend university have been exhausted.

The process of judicialization regarding inclusion entails, as a consequence, two important issues: first, it configures and makes effective the recognition of the right of the presence of PwD in the space from which they were previously excluded; and, second, it tends to be a process that educates the institution or those professionals who, for some reason, are against inclusion, as it allows both to develop actions to improve the inclusive process (Silva, 2022). Such situation demonstrates that there is a path to be taken for educational inclusion to become an interinstitutional process at the different levels of education, which must be formed by a network of actions, conducts and policies to be put into practice in contemporary society (Silva, 2019).

These issues demonstrate that an inclusive university “is a process that is never finished, but that, collectively, must be constantly faced” (Moreira, Bolsanello and Seger, 2011, p. 141). Thus, it is possible to understand that “inclusion is seen and experienced as a process which, due to the complexity involved in administrative, pedagogical, material, technological and human issues, tends to be, to some degree, unfinished and incomplete” (Silva, 2022, p. 227).

These reflections refer to the concept of disability presented in item 5 of the preamble of the World Convention on the Rights of Persons with Disabilities (WCDDP):

[...] disability is an evolving concept and [...] results from the interaction between people with disabilities and the attitudinal and environmental barriers that prevent their full and effective participation in society on an equal basis with others. (UNICEF, s.d., p. 1)

This understanding reinforces the idea that social conditions are, to a large extent, the elements that promote or minimize the potential of PwD in any social spaces and, in this way, can contribute to minimizing the obstacles to the inclusion of students who need this type of support to study, at any level of education.

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