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Necessidade de fechamento cognitivo para alunos com deficiência visual associada a outras deficiências

Flavia Daniela dos Santos MOREIRA[1]

Resumo
Necessidade de Fechamento Cognitivo é definida como uma motivação das pessoas para processar e julgar informações. Essa motivação se relaciona ao desejo de obter respostas a uma pergunta ou esclarecimentos sobre determinada situação, a fim de evitar incertezas e ambiguidades. Nesse sentido, surge a questão: como implementar as estratégias de fechamento cognitivo por meio do ensino remoto para alunos com deficiência visual associada a outras deficiências? Objetivo: implementar estratégias de fechamento cognitivo, por meio do ensino remoto, para alunos com deficiência visual associada a outras deficiências, oferecendo oportunidades concretas para se envolverem em representações do começo e fim das atividades. Método: relato de experiência com abordagem qualitativa e quantitativa, durante o ano de 2021, com três alunas com deficiência visual associada a outras deficiências. Resultados: as alunas foram envolvidas em representações do começo e do fim das atividades. Conclusões: seja na modalidade remota ou presencial, os alunos com deficiência visual associada a outras deficiências precisam vivenciar situações que representem o começo e o fim das atividades de forma concreta. Acredita-se que a divulgação da experiência vivenciada neste estudo poderá beneficiar outros alunos por meio das estratégias do fechamento cognitivo, ao envolvê-los em representações concretas que evitem incertezas e ambiguidades que surgem durante o processo de aprendizagem.

Palavras-chave: Educação Especial. Ensino Remoto. Experiencias Concretas.

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Need for cognitive closure for students with visual impairment associated with other disabilities

Flavia Daniela dos Santos MOREIRA

Abstract
The Need for Cognitive Closure is defined as a motivation for people to process and judge information. This motivation is related to the desire to obtain answers to a question or clarification about a given situation in order to avoid uncertainty and ambiguity. In this sense, the question arises: how to implement cognitive closure strategies through remote teaching for students with visual impairment associated with other disabilities? Objective: to implement cognitive closure strategies, through remote teaching, for students with visual impairment associated with other disabilities, offering concrete opportunities to engage in representations of the beginning and end of activities. Method: experience report with a qualitative and quantitative approach, during the year 2021, with three students with visual impairment associated with other disabilities. Results: the students were involved in representations of the beginning and end of activities. Conclusions: whether in remote or in-person modality, students with visual impairment associated with other disabilities need to experience situations that represent the beginning and end of activities in a concrete way. It is believed that sharing the experience gained in this study could benefit other students through cognitive closure strategies, by involving them in concrete representations that avoid uncertainties and ambiguities that arise during the learning process.

Keywords: Special Education. Remote Teaching. Concrete Experiences.

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Necesidad de cierre cognitivo para estudiantes con discapacidad visual asociada a otras discapacidades

Flavia Daniela dos Santos MOREIRA

Resumen
La necesidad de cierre cognitivo se define como una motivación para que las personas procesen y juzguen la información. Esta motivación se relaciona con el deseo de obtener respuestas a una pregunta o aclaración sobre una situación determinada, com el fin de evitar incertidumbre y ambigüedad. En este sentido, surge la pregunta: ¿cómo implementar estrategias de cierre cognitivo a través de la enseñanza remota para estudiantes con discapacidad visual asociada a otras discapacidades? Objetivo: implementar estrategias de cierre cognitivo, a través de la enseñanza remota, para estudiantes con discapacidad visual asociada a otras discapacidades, ofreciendo oportunidades concretas para participar en representaciones del inicio y final de las actividades. Método: relato de experiencia con enfoque cualitativo y cuantitativo, durante el año 2021, con tres estudiantes con discapacidad visual asociada a otras discapacidades. Resultados: los estudiantes participaron en representaciones del inicio y final de las actividades. Conclusiones: ya sea de forma remota o presencial, los estudiantes con discapacidad visual asociada a otras discapacidades necesitan vivir situaciones que representen el inicio y el final de las actividades de manera concreta. Se cree que la difusión de la experiencia vivida en este estudio podría beneficiar a otros estudiantes a través de estrategias de cierre cognitivo, al involucrarlos en representaciones concretas que eviten incertidumbres y ambigüedades que surgen durante el proceso de aprendizaje.

Palabras clave: Educación Especial. Enseñanza Remota. Experiencias Concretas.

Introduction

In the article titled *Hand-Over-Hand Guidance: What Lesson Do We Teach?* Andrea Story (2004) mentions that international literature on blind students frequently highlights the term *fairy godmother syndrome* to draw attention to its effects during daily activities. This term refers to the tendency of these students to perceive that things simply appear and disappear before them (Story, 2004).

Without vision, access to information can be limited, which may cause blind students to struggle in understanding how and why things appear and disappear around them without explanation (Story, 2004). This challenge can be even more pronounced for those with visual impairments combined with other disabilities.

The ability to understand what determines the beginning and end of activities can significantly influence motivation, which in turn promotes active involvement and participation in daily situations. The human mind is remarkably averse to uncertainty and ambiguity, spontaneously generating plausible explanations to satisfy the desire for knowledge and arrive at a concrete understanding. These explanations are imbued with subjective value, stemming from each individual's intrinsic motivation.

In this context, motivation can be linked to the need for cognitive closure, which refers to the desire for clarification on a particular subject (Webster & Kruglanski, 1994a).

In 1972, American psychologist Jerome Kagan proposed that resolving uncertainty is the driving force behind human behavior (Kagan, 1972). In other words, humans have an irresistible need to achieve clarity regarding events and daily situations. This is why they tend to avoid ambiguity, uncertainty, and confusion in pursuit of cognitive closure (Webster & Kruglanski, 1997b; Kruglanski & Fishman, 2009).

The term need for cognitive closure, originating in psychology, was coined by psychologist Arie Kruglanski, who defined it as the need to obtain a consistent answer amidst chaos and uncertainty. According to epistemic theory, the need for cognitive closure is described as a process that affects, to varying degrees, individuals' responses to their social environment (Atak, Syed, & Çok, 2017). It is important to clarify that, in this concept, the word need does not refer to something lacking but rather to an internal drive or motivation (Atak; Syed; Çok, 2017).

The need for cognitive closure refers to the desire to obtain an answer or clarification about a specific subject or situation any answer without the ability to tolerate ambiguity, confusion, or uncertainty (Webster & Kruglanski, 1994a).

This need is influenced by both situational factors and individual differences, making it a sociocognitive phenomenon with effects that can manifest at intrapersonal, interpersonal, and group levels. It derives from two tendencies: urgency and permanence (Hazir & Ramírez, 2015). The first relates to the immediate desire for clarification or answers, while the second pertains to the preservation or "freezing" of that closure. In other words, the individual feels ownership of their knowledge and seeks to maintain it for as long as possible, rather than embracing new or contradictory information (Atak, Syed, & Çok, 2017).

These tendencies influence various areas of life, such as forming impressions, persuading others, or making group decisions. Personal goals and motivations are closely interconnected and mutually reinforcing. Thus, information processing is affected by the motivation to achieve an answer or clarification, which is tied to personal objectives (Webster & Kruglanski, 1994a; Hazir & Ramírez, 2015).

It has been observed that some individuals exhibit a chronic desire for closure, likely due to the sense of order and stability it provides. Such individuals may react negatively to disruptions in their pursuit of closure. They tend to favor structured rules and routines in their lives and reject chaos and disorder (Webster & Kruglanski, 1994a, 1997b).

While some people feel a strong need for cognitive closure, others prefer the freedom and flexibility inherent in the lack of closure. These opposing needs exist at the ends of a continuum, ranging from a strong drive to achieve closure to a strong resistance to it at all costs (Webster & Kruglanski, 1997b).

The need to avoid closure is largely influenced by two factors. The first concerns the potential consequences of the answers or clarifications obtained, which may result in penalties, frustrations, or disadvantages. The second factor involves the benefits derived from the absence of closure, such as immunity to the unknown or freedom from possible criticism (Webster; Kruglanski, 1997b).

As we can see, the need for cognitive closure can vary significantly depending on the situation, individual characteristics, and is strongly influenced by culture. Atak, Syed, and Çok (2017) note that in different societies, a high need for cognitive closure can be shaped by various factors. Among Americans, it is associated with individualistic traits, whereas among the Chinese, it is linked to collectivism.

These aspects reveal that the need for cognitive closure is a powerful force for all individuals, including those with visual impairments combined with other disabilities.

In the international literature, this condition is referred to as Multiple Disabilities and Visual Impairment (MDVI) (Chen, 1997; Keil, 2003; Argyroupoulos & Thymakis, 2014). While this term helps to characterize students who are blind or have low vision along with other disabilities, its inherently heterogeneous nature prevents a succinct definition. Each of these students has unique learning needs; what works for one may be unsuitable or even uncomfortable for another (Chen, 1992).

A student with visual impairment combined with other disabilities faces greater demands than a student without disabilities in perceiving and interacting with their surrounding environment. Often, the challenges in accessing information adequately may lead to fragmented experiences and limited learning opportunities. Furthermore, such students may have complex communication needs due to diverse etiological factors (Nicholas, 2020). For this reason, communicative and cognitive processes often overlap.

Complex communication needs refer to elementary, informal, and idiosyncratic communication modalities (Goldbart & Caton, 2010). Some individuals may be unable to use speech but can communicate through natural gestures. Others, though capable of speaking, may use isolated words in very specific contexts or produce speech that is difficult to understand. Additionally, there are individuals who can communicate effectively but face difficulties in understanding what others say (Goldbart & Caton, 2010).

As Evensen (2020) aptly states, understanding and being understood is a basic human right, even if symbolic communication poses a challenge.

From a medical and diagnostic perspective, children with multiple disabilities have complex conditions due to the combination of their disabilities and fragile health. From a socio-relational perspective, these complex conditions may create obstacles for these children to interact with their socio-cultural environment. Finally, from a phenomenological perspective, these children are recognized as full and participative individuals, with the same rights as everyone else (Evensen, 2020).

Regarding cognitive processes, it is worth highlighting some aspects of Piaget's theory of cognitive development (1936; 1950). According to this theory, cognitive development changes as children grow and is driven by the interaction between innate abilities and environmental situations.

Piaget (1936; 1950) argues that intelligence is not a fixed trait; rather, cognitive development is a process arising from the interaction of biological maturation and the environment.

Another important aspect of Piaget's theory (1936; 1950) concerns the four stages of development that children go through. The first stage is the *sensorimotor stage*, which occurs from birth to two years of age. Next is the *preoperational stage*, lasting approximately from two to seven years. The *concrete operational stage* spans from seven to 11 years, and the *formal operational stage* begins around age 12. Although the sequence of these stages is universal across cultures, children progress through them at different times and paces (Piaget, 1936; 1950).

In this study, special attention is given to the sensorimotor and preoperational stages, as they address, respectively, the notion of object permanence and symbolic thinking, which corresponds to the formation of concepts.

During the *sensorimotor stage*, the child lives in the present. Without having constructed a mental image of the world in their memory, they lack the notion of object permanence if they cannot see something or someone, it does not exist for them. Bruce and Vargas (2012) emphasize that children with low vision rely on their residual vision to develop an awareness of object permanence, whereas blind children depend primarily on their concrete experiences with objects. For these children, if they cannot touch, hear, smell, or otherwise experience something, it does not exist.

In the *preoperational stage*, children are able to separate their thoughts from the physical world. However, their thinking is still based on subjective judgments about events and remains egocentric, centered on their own perspective of the world.

According to Bruce and Vargas (2012), instructional strategies recommended to help these children develop the notion of object permanence and form concepts should include the consistent and repeated naming of hidden objects, using motivating and varied objects that are hidden, along with direct support and reinforcement. In other words, instructional strategies should be collaborative, involving both teacher and child. For example, they can hide a specific object together and then assign meaning to the object within meaningful and practical contexts (Bruce & Vargas, 2012).

It is important to highlight that many of these students may experience high levels of stress, often due to difficulties in their expressive and receptive communication or because of verbal approaches that overwhelm them with experiences in the hope of stimulating interest in proposed activities across various contexts (Mclarty, 1997). Additionally, they face numerous everyday ambiguities, such as: *Why am I being touched? Who is touching me? Where am I, and why am I here?*

What is happening? What are these objects? When will this end? Where are the objects that were here?

One of the primary causes underlying these ambiguities is the fairy godmother syndrome. For this reason, it is essential to provide concrete experiences mediated by reference objects, which must be used systematically in a symbolic and meaningful way to facilitate communication and ensure a clear perception of beginnings and endings (McLarty, 1997). This, indeed, constitutes cognitive closure!

Given the importance of this topic, it is worth emphasizing that, although cognitive closure originates in psychology, its strategies can be applied to the teaching and learning of students with visual impairments combined with other disabilities. This consideration led to the following question: How can cognitive closure strategies be implemented through remote learning for students with visual impairments and other disabilities?

From this question emerged the objective: To implement cognitive closure strategies through remote learning for students with visual impairments and other disabilities, providing concrete opportunities to engage in representations of the beginning and end of activities.

Teachers of students with visual impairments combined with other disabilities are well aware that teaching is an infinitely complex task. It involves not only verbal explanations of content but also physical and verbal supports, unique adaptations and modifications throughout the school environment, valuing students' strengths, and providing them with skills to help them succeed in their daily activities. According to Weiss (2000), these advanced skills require significant interaction between teacher and student.

However, the 2020 school year was drastically impacted by the devastating effects of the COVID-19 pandemic caused by the SARS-CoV-2 coronavirus.

For students with visual impairments combined with other disabilities, it is essential not only to understand what is being said but also to adequately assimilate information through tactile experiences (Weiss, 2000). As is well known, in remote learning, the connection between teacher and student eliminates physical contact, as the dynamics of activities are mediated through voice intonation and sounds. Thus, the justification for conducting this study was based on the significant value of cognitive closure strategies provided during remote learning, particularly during the period when schools were closed

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Method

This is an experience report with a qualitative and quantitative approach, originating from a comprehensive postdoctoral research project in Education titled Objects as Symbols of Communication for Children with Visual and Multiple Sensory Disabilities. The research was submitted to the Research Ethics Committee of the State University of Rio de Janeiro and received approval under protocol number 4.211.598. All guardians of the participating students signed the Informed Consent Form (ICF), and in this study, their real names were replaced with fictitious ones. The research and this experience report began in April 2021, with data collection completed in October of the same year.

It is important to note that experience reports are valuable tools for producing scientific knowledge and aim at social transformation. They are not limited to academic research accounts but encompass records of lived experiences, which may stem from research, teaching, or practical and meaningful experiences within or outside the classroom, among other contexts (Ludke & Cruz, 2010).

Research employing both qualitative and quantitative approaches highlights two aspects:

a) aspects inherent to the researcher's subjectivity; and

b) objective aspects based on the impersonal description of phenomena.

Given the inherently social and descriptive nature of qualitative research and the quantification bias of quantitative research, this study analyzed two variables during data collection for qualitative analysis and quantitative recording. These were the independent variable and the dependent variable.

The independent variable (IV), manipulated by the researcher, corresponded to cognitive closure strategies provided through the use of concrete resources to represent the beginning and end of alternative communication sessions in a remote learning format.

The dependent variable (DV) was represented by the target behaviors of the participating students, which included: performing the proposed activity independently, performing it with assistance, or not performing the activity at all. These variables were collected during the baseline phase before the researcher sent the boards with reference objects to the students' homes and during the intervention phase, after the boards were sent and their use explained.

Participantes

Three students enrolled in a public school located in southeastern Brazil participated in the study.

The first student, Amanda, is blind, has been diagnosed with autism, and has complex communication needs. At the time of the research, she was 10 years old and enrolled in the 4th grade of elementary school. Amanda attended psychomotricity sessions, speech therapy, alternative communication sessions, psychiatry consultations, and ABA therapy[3]. Amanda dislikes touching soft and sticky objects, understands "yes" and "no," and expresses affirmation and denial in very peculiar ways that are not always easily understood.

he second student, Isadora, is blind, has cerebral palsy, reduced mobility, hypotonia, and complex communication needs, with her diagnosis under investigation. At the time of the research, Isadora was 11 years old, enrolled in the 5th grade of elementary school, and attended occupational therapy, speech therapy, alternative communication sessions, physiotherapy, and swimming lessons.

The third student, Patrícia, was 12 years old at the time of the research. Patrícia is blind, has reduced mobility, complex communication needs, and her diagnosis is also under investigation. She was enrolled in the 5th grade of elementary school and attended psychomotricity sessions, speech therapy, alternative communication sessions, music therapy, physiotherapy, and Educational Services for Students with Multiple Disabilities (AEDMU).

This experience report took place in a remote learning format during alternative communication sessions conducted by the researcher via the institutional Google Meet videoconferencing platform. These sessions were held once a week and lasted up to 50 minutes.

Materials

The following materials were used: an object and a basket for Amanda; an object and a bag for Isadora; an object and a basket for Patrícia. It is important to note that each student, with the assistance of their mothers, selected their objects and containers to represent the conclusion of the alternative communication session. These containers were designated as the "end bag" or "end basket". The following figures display images of these materials.

3 According to Fernandes and Amato (2013), the acronym ABA originates from the English term Applied Behavior Analysis, which in Portuguese translates to *análise do comportamento aplicada*. Intervention proposals based on the ABA model are often considered the only model with scientifically proven results.

Figure 1 – Object and Basket of Student Amanda

Source: Personal archive of the researcher.

Image Description: A grayscale image of two objects on a wooden table. From left to right, there is a transparent plastic basket, and next to it, a black toy tire.

Figura 2 – Object and Bag of Student Isadora

Source: Personal archive of the researcher.

Image Description: A grayscale image of two objects on a red fabric. From left to right, there is a white plastic bag and next to it, a pink plush rabbit.

Figure 3 – Object and Basket of Student Patrícia

Source: Personal archive of the researcher.

Image Description: A colored image of a textured ball in green and red inside a brown basket, placed on black fabric.

Instruments for Data Collection

The Protocol for Identifying Communicative, Functional, and Interactional Skills, adapted from the Child-Guided Assessment developed by Jan Van Dijk (Nelson, Van Dijk, McDonnell, & Thompson, 2002), and b) Video recordings.

The use of the *Protocol for Identifying Communicative, Functional, and Interactional Skills*, adapted from the *Child-Guided Assessment* by Jan Van Dijk, as a data collection instrument in this study is justified because not all assessment protocols are capable of analyzing the full range of skills in children with such complex learning needs. Many fail to consider the impact of other disabilities associated with visual impairment, particularly with regard to the effects of sensory disabilities, reduced mobility, complex communication needs, health vulnerabilities, and learning difficulties (Nelson, Van Dijk, McDonnell, & Thompson, 2002).

According to Powell, Francisco, and Maher (2004), the use of video recordings for data collection is justified because this tool has become a popular means of capturing and archiving data for both qualitative and quantitative research. Video has proven to be a valuable and flexible instrument for collecting oral and visual information. It allows researchers to capture everything from the subtlest communicative nuances (verbal or non-verbal) to complex, moment-to-moment interactions, enabling them to continually reexamine the data (Powell; Francisco; Maher, 2004).

Procedures for Data Collection and Analysis

The alternative communication sessions aimed to organize the domestic routines of the participating students using boards and reference objects, which were exclusively developed by the researcher and mailed to each participant's home.

To concretely teach the beginning and end of activities through remote learning, the researcher requested that the students' mothers select two objects: one that the student liked very much and another that the student had no interest in. Each mother was then instructed to place the two objects inside a confined container (such as a box or basin) and assist the student in choosing one object to represent the session.

The mothers were also asked to provide a bag, plastic sack, basket, or box to represent the concept of "finished." The researcher explained that once selected, these objects could not be

replaced, as consistent use was essential for the students to understand their meaning within a given context and internalize the real significance of the objects.

The bag, plastic sack, or basket served the concrete purpose of representing "finished." The action of removing the object from the container symbolized *"the alternative communication session is beginning,"* while placing the object back in the container signified *"the alternative communication session is ending."* If any of the objects were lost, they had to be replaced, and the student had to be given an explanation that the new objects would now represent the alternative communication session.

To enhance the understanding of beginnings and endings, the alternative communication sessions were individualized and lasted up to 50 minutes, depending on the acceptance and engagement of each student.

The data were recorded via the institutional Google Meet videoconferencing platform with the consent of the three participating mothers, who read, signed, and received explanations about the Informed Consent Form (ICF) and this research. The videos were fully transcribed by the researcher and analyzed using both qualitative and quantitative methods.

The analysis of these videos focused on the selection activities. In the first part of the alternative communication session, each student was invited to remove the session's object from the bag or basket to signify the beginning of the alternative communication session. This was followed by an initial conversation, resembling the format of a group discussion. During this initial phase, the researcher greeted the student, inquired about recent updates, and asked how they were feeling. Subsequently, the researcher greeted the student's mother as well.

n the second part of the alternative communication session, the researcher provided guidance to the student's mother on how to use the board with the objects, asked for her opinion, and addressed any questions she might have.In the third part of the session, the researcher explained to the student that the session was ending and asked her to place the session object back into the bag or basket. This was followed by the researcher singing the goodbye song:

“Goodbye, goodbye, I’m leaving now,

Goodbye, goodbye, it’s time to go.”

It is important to note that during these sessions, the mothers were instructed to provide the following levels of support to their daughters: 1) Verbal Support: Providing explanations about the activities, offering verbal encouragement for the students to perform the activities independently, and giving praise for their participation and performance during the activities. 2) Physical Support:

Offering physical assistance to help the students complete the activities, such as holding or guiding the student's hand to remove the object from the container at the start of the session and holding or guiding the student's hand to place the object back into the container at the end of the session.

For student Amanda, it was observed that the guidance provided by the researcher regarding support levels allowed the activities to occur systematically but not rigidly structured. Amanda was able to use the object in two ways: a) With physical and verbal support: Her mother explained the activity and assisted her in removing and placing the object inside the basket. b) With verbal support only: Her mother brought the basket closer to Amanda, encouraged her, and asked her to remove and then place the object back into the basket.

For student Isadora, her mother also received guidance from the researcher on using the session object and the *"end bag."* As a result, Isadora received both verbal and physical support: her mother presented the object and the bag, asked Isadora to remove the object from the bag to begin the alternative communication session, and, at the end, instructed her to place the object back into the bag, signaling the conclusion of the session.

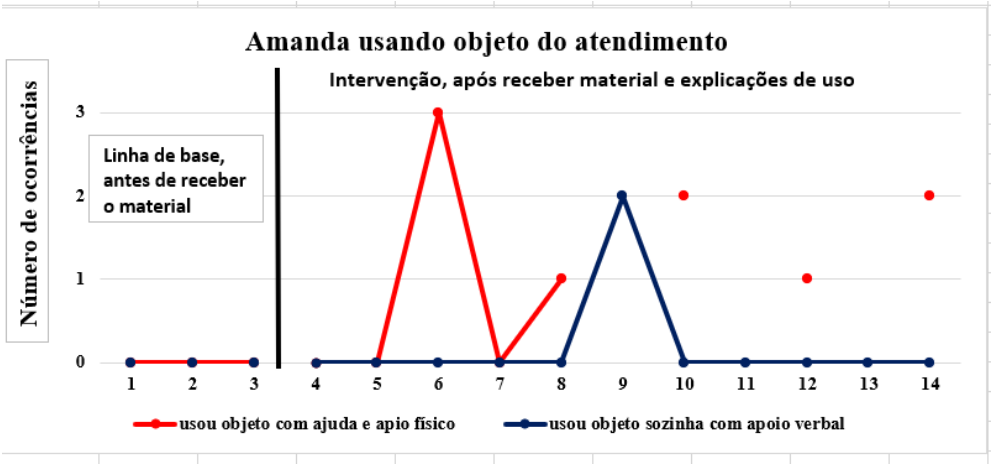
For student Patrícia, her mother likewise received the same guidance provided to Amanda's and Isadora's mothers. However, she frequently replaced the session object with similar ones, which prevented the objects from holding any symbolic representation for Patrícia. Despite receiving both verbal and physical support, Patrícia did not show interest in performing the activity spontaneously or independently.

It is worth noting that the conclusion of this study was determined by the manifestation of the target behaviors by the participating students.

Results and discussion

As mentioned earlier, the research began in April 2021 through remote learning in alternative communication sessions. However, data collection through video recordings only commenced in May, after the Informed Consent Form (ICF) was signed. Below are the graphs pertaining exclusively to the use of the session object by the students.

Graph 1 – Número absoluto de ocorrências do uso dos objetos por Amanda para representar o início e o final das atividades.



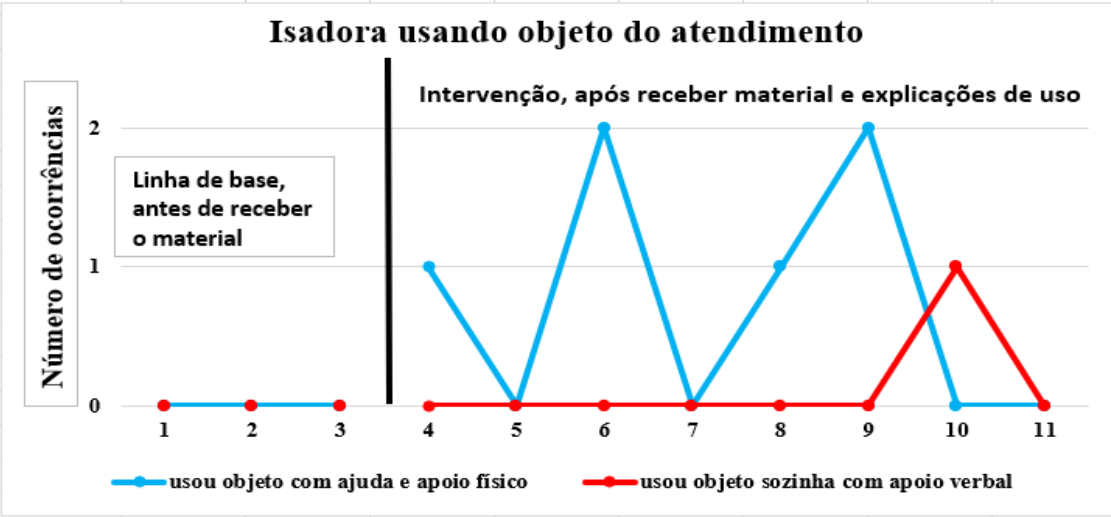
Source: Prepared by the researcher.

Graph 1 illustrates the performance of Amanda using her session object. Vertically, from left to right, the graph shows the absolute number of occurrences, ranging from 0 to 3, indicating how many times Amanda used her session object. A black line divides the graph into two sections: baseline and intervention. Horizontally, the graph displays the number of attendance days, from 1 to 14. At the bottom of the graph, colored legends represent the categories: *performed with assistance*, *performed independently*, and *did not perform.*

During the baseline phase, Amanda did not use any object to represent the beginning or end of activities. In the intervention phase, she used the session object independently 2 times and with her mother's assistance 9 times. On August 6, after returning from school vacation, Amanda's mother explained that the object had been lost. Consequently, another object was selected to represent the alternative communication session.

As previously mentioned, the use of objects, whether symbolic or semi-symbolic, can facilitate communication and understanding of environmental situations, such as beginnings and endings (Mclarty, 1997). Although their use should be systematic, it can also occur relatively simply and informally, for example, selecting an object to represent an activity or action. Amanda received assistance from her mother to remove the object from the basket to signify the beginning and to place it back into the basket to signify the end of the alternative communication session. Furthermore, her mother encouraged and prompted her to make choices (Mclarty, 1997).

Graph 2 – Absolute Number of Occurrences of Isadora Using Objects to Represent the Beginning and End of Activities.



Source: Prepared by the researcher.

Graph 2 illustrates the performance of student Isadora using her session object. Vertically, from left to right, the graph displays the absolute number of occurrences, ranging from 0 to 3, indicating how many times Isadora used her session object. A black line divides the graph into two sections: baseline and intervention. Horizontally, the graph shows the number of attendance days, from 1 to 11. At the bottom of the graph, colored legends represent the categories: *performed with assistance, performed independently*, and *did not perform.*

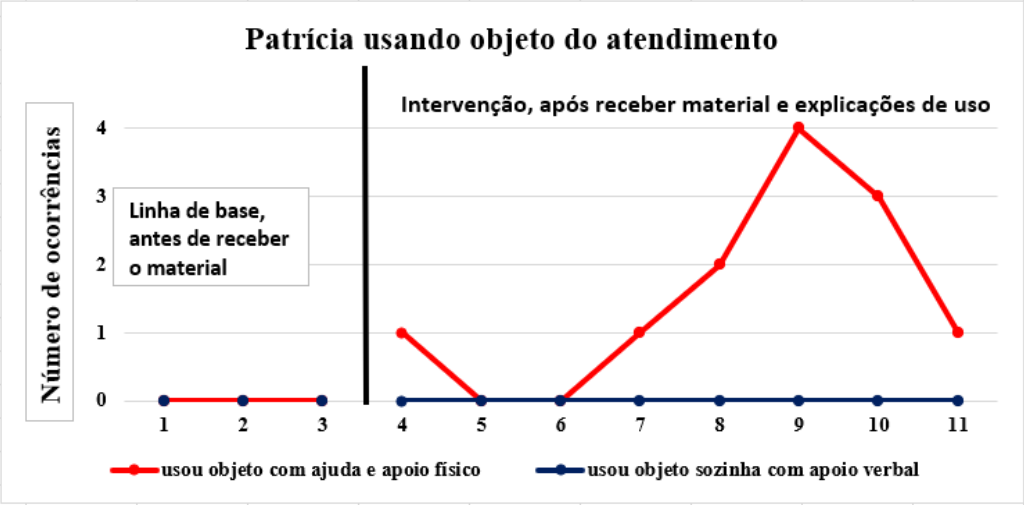
During the baseline phase, Isadora did not use any object to represent the beginning or end of activities. In the intervention phase, she used the session object 6 times with her mother's assistance and only once independently. As mentioned earlier, Isadora has cerebral palsy, reduced mobility, and hypotonia. Despite these challenges, she was able to hold the object and place it inside the *"end bag."*

According to McLarty (1997), the use of objects as references should occur in symbolic, semi-symbolic, and meaningful ways. For this reason, when the mothers were instructed to offer options for the students to select an object to represent the session, the researcher requested that one of the objects be something the student preferred. It is believed that, despite her reduced mobility, Isadora was able to hold and place the object inside the *"end bag"* because it was a preferred item—a plush rabbit.

Many students with visual impairments combined with other disabilities are pre-linguistic, communicating through informal and idiosyncratic modalities. According to Trief, Cascell, and Bruce (2013), these students may become pre-intentional or intentional communicators, though less

frequently than symbolic communicators. Many lack verbal communication and use a variety of natural gestures, incomprehensible sounds, body language, and facial expressions to communicate. They require opportunities to use resources that support their receptive and expressive communication during domestic and school routines (Trief; Cascella; Bruce, 2013).

Graph 3 - Absolute Number of Occurrences of Patrícia Using Objects to Represent the Beginning and End of Activities.



Source: Prepared by the researcher.

Graph 3 illustrates the performance of Patrícia using her session object. Vertically, from left to right, the graph displays the absolute number of occurrences, ranging from 0 to 4, indicating how many times Patrícia used her session object. A black line divides the graph into two sections: baseline and intervention. Horizontally, the graph shows the number of attendance days, from 1 to 14. At the bottom of the graph, colored legends represent the categories: *performed with assistance, performed independently*, and *did not perform.*

The graph indicates that Patrícia used the objects 12 times with her mother's assistance but never used them independently. This may be attributed to the frequent replacement of these items. With her mother's guidance, Patrícia was encouraged to choose between two toys, selecting the one she preferred a textured rubber ball with protruding tips to represent the day of the alternative communication session. However, this ball was frequently replaced with other materials, preventing these items from becoming symbolic or semi-symbolic. As a result, their use was not systematic, and Patrícia often required both verbal and physical support from her mother to remove and place the object in the *"end bag."*

Need for cognitive closure for students with visual impairment associated with other disabilities

According to McLarty (1997), developing students' understanding of the meaning of a particular object within a specific context requires the repetition of simple routines that enable them to memorize and anticipate tasks and their sequence. In this study, this involved consistently using the same objects and containers to represent the end of the session.

The experiences of these three students demonstrate that the need for cognitive closure can vary based on the situation and individual differences (Webster & Kruglanski, 1994a; 1997b). Each student, at her own pace and rhythm, experienced different scenarios and was encouraged to engage with the representations of the beginning and end of activities through the use of reference objects. In Patrícia's case, her textured rubber ball with protruding tips likely served as her primary motivator, and the frequent substitutions may have posed additional challenges in her ability to perceive the beginning and end of activities.

The use of reference objects facilitates receptive and expressive communication because they require less memory and representational skills compared to abstract symbols. However, they need to be used systematically to support the development of concepts and communication for students with visual impairments combined with other disabilities (Rowland & Schweigert, 2000). When used inconsistently or disorganized, they can cause confusion and disinterest.

The data analysis revealed that this study's research question was addressed, showing that the use of objects combined with the goodbye song effectively engaged the students in situations tied to the beginning and end of alternative communication sessions in the remote format. It is important to highlight that these actions were not limited to the researcher's verbal explanations when greeting the students or saying goodbye. Instead, they involved opportunities to form the concrete concepts of beginning and end through actions like removing the object from a container to start the session and placing it back in the container to end it, as well as using a container to represent "finished" in a concrete way.

According to Moreira (2020a), teachers of students with visual impairments combined with other disabilities must use alternative teaching strategies and provide effective and accessible instruction through tactile alternative communication resources. Furthermore, the author emphasizes that many of these students lack the spontaneity and motivation to explore their surroundings to form concepts. Therefore, they should be encouraged to use their hands to develop concepts about the world (Moreira, 2021b).

The data analysis also revealed that, despite the challenges posed by physical distancing, the objective of this research was achieved. The students were provided with concrete opportunities to engage in representations of the beginning and end of activities through cognitive closure strategies.

Final considerations

This experience report demonstrates that each individual's need for cognitive closure differs and manifests based on the situation and individual differences (Atak, Syed, & Çok, 2017). Although the students' mothers received the same instructions regarding the use of the session object and the *"end container,"* this action was carried out differently by the three students.

For student Patrícia, the use of various session objects and different *"end containers"* did not provide the conditions necessary for her to associate them with the beginning and end of the alternative communication sessions. The frequent changes in these objects prevented them from becoming reference points or meaningful for her.

When seeking closure, one seeks answers about the cause of a situation that generates uncertainty or ambiguity (Webster & Kruglanski, 1994a). In this study, such closure involved engaging concretely with representations of the beginning and end of sessions through remote teaching. Closure is only achieved when the answers are clear, and since the objects and *"end containers"* were used inconsistently by Patrícia, the sessions likely began and ended without any clear explanation (Webster & Kruglanski, 1994a; Story, 2004).

For students Amanda and Isadora, the objects were used systematically. Although Amanda lost her initial session object, it was replaced and not switched again. This reveals a potential aspect of cognitive closure provided by the session object and the *"end container"*: the ability to avoid *fairy godmother syndrome,* as the sessions had concrete representations of beginnings and endings (Story, 2004).

It can be concluded that, both in in-person and remote teaching, students with visual impairments combined with other disabilities need to engage in concrete representations of the beginning and end of activities to avoid ambiguities such as: *What is happening?* or *When will this end?* Given its significant relevance and the scarcity of evidence-based practical research, the dissemination of this study is essential and could benefit other students by implementing the strategies presented here. These strategies engage students in concrete representations, thereby preventing uncertainties and ambiguities that may arise during the learning process.

Moreover, this study can be understood and utilized as a valuable tool by other teachers in the context of cognitive closure, supporting their efforts to create structured and meaningful learning experiences.

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