



## Inclusive pedagogical strategy based on DUA and PIAR to develop inferential reading

Estrategia pedagógica inclusiva basada en DUA y PIAR para desarrollar la lectura inferencial

Sandra Yamile Gutierrez Galvis\*  
Claudia Marcela Bran Urrego\*



### Abstract

The objective of this research is to strengthen inferential reading in sixth grade students of the La Esperanza Educational Institution by means of a strategy based on the Universal Design of Learning DUA and the Individual Plan of Reasonable Adjustments PIAR. The research was conducted from a qualitative approach under the educational action research design. The population consisted of 34 students in grade 6, including 5 with a diagnosis of disability and 5 presumptive. The results of the research show that the SAD allows strengthening the inferential comprehension of students with and without a diagnosis of disability. In addition, there is little knowledge and application of the principles of SAD for classroom work; therefore, there is an urgent need to improve training in this regard. It is also identified that the PIAR is an indispensable tool to strengthen the academic process of the disabled student, since it allows understanding how far he/she can go without falling into capacitism. It is not the student who must change beyond his or her

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\*Master, Corporación Universitaria Iberoamericana de Bogotá  
sayamile@gmail.com, <https://orcid.org/0000-0001-8989-0991>

\*Master, Corporación Universitaria Iberoamericana de Bogotá, [claudiabran120@gmail.com](mailto:claudiabran120@gmail.com)  
<https://orcid.org/0000-0003-3495-7719>

possibilities; it is the educational institution that must eliminate learning barriers and prevent the curriculum from preventing the student from accessing knowledge based on his or her abilities.

**Keywords:** Comprehension, reading, strategies, didactics.

### **Resumen**

La presente investigación tiene como objetivo Fortalecer la lectura inferencial en estudiantes de grado sexto de la Institución Educativa La Esperanza por medio de una estrategia basada en el Diseño Universal de Aprendizaje DUA y el Plan Individual de Ajustes Razonables PIAR. Se realiza la investigación desde el enfoque cualitativo bajo el diseño de investigación acción educativa. La población estuvo conformada por 34 estudiantes de grado 6, dentro de los cuales hay 5 con diagnóstico de discapacidad y 5 presuntivos. Los resultados de la investigación muestran que el DUA permite fortalecer la comprensión inferencial de los estudiantes con y sin diagnóstico de discapacidad. Además, que, es poco lo que se conocen y aplican los principios de DUA para el trabajo en el aula, por tanto, es una necesidad urgente mejorar la capacitación al respecto. También se identifica que el PIAR es una herramienta indispensable para fortalecer el proceso académico del estudiante discapacitado, ya que permite comprender hasta dónde puede llegar sin caer en el capacitismo. No es el estudiante el que debe cambiar más allá de sus posibilidades, es la institución educativa la que debe eliminar las barreras de aprendizaje y evitar que el currículo le impida al estudiante acceder, desde sus capacidades, al conocimiento.

**Palabras clave:** Comprensión, lectura, estrategias, didácticas.

### **Introduction**

It is intended to account for a research and deepening process regarding the pedagogical-didactic competencies that future teachers must develop to face the challenges that inclusive education demands, taking as a reference the phenomena proposed through the SAD, which allows a development view from the teacher and student perspective, competencies that promote educational practices that make it possible to demonstrate inclusion processes in the classroom.

This process took place at the La Esperanza Educational Institution, Medellín, with sixth grade students who had just made their transition from primary to secondary school, which in turn contained a subgroup with undiagnosed students with Special Educational Needs, SEN, through a training proposal focused on developing and/or strengthening pedagogical-didactic competencies, especially in the area of Spanish language.

This paper addresses reading from an inclusive approach, emphasizing what kind of diversity is addressed when talking about education, which in turn can be answered as the student who may be physically different, diverse by family, socioeconomic and cultural origin; diverse in their mother tongue or even their ethnicity. A diversity of diversities, which is necessarily reflected in a diversity of ways in which each student learns.

Diversity in learning, in turn, has other aspects that are strictly related to the structure of the brain and its functioning. The most up-to-date neuroscientific advances have shown that no two brains are alike, and although we share similar structures, the areas that are activated simultaneously in a learning task are different.

Based on the instruments that allow the use and collection of information, it was possible to describe the transformation process in the students in training and the results before and after the implementation of the SAD; likewise, it was possible to recognize the relevance of teacher training to bring to the classroom processes from and for the recognition of diversity.

The main objectives of this work are focused on making an effective and objective scan of the capacities and forms of relationship that are generated in a student group that has a substantial diversity in each of its members with all that the concept of diversity entails, reconstruct the pedagogical practices from this diagnosis during the intervention process and evaluate the scope of this pedagogical practice once it was reconstructed on the processes of inferential reading in sixth grade students with different cognitive abilities, that

is, with and without a diagnosis of disability who are participants of this intervention.

The document in question is structured taking into account the following points:

- The inclusive problem facing the education community along with deficiencies in reading comprehension according to PISA 2018.
- In-depth study of the SAD, how it works, its implementation through ICTs and its principles.
- Methodology used according to a qualitative approach, an action-research design that seeks to solve specific problems of daily practice, in this case, referring to the educational field.
- Stages of the research process, strategies and the type of population, to finally lead to an analysis of results or recommendations.

## **Materials and methods**

The approach of this research is qualitative. The methodological design of this study is action research, which seeks to solve specific problems of daily practice. In the specific case of this research, educational action research is implemented.

The authors Bernardo Restrepo Gómez et al. (2004) in the text: *Investigación - acción educativa: una estrategia de transformación de la práctica pedagógica de los maestros*, indicate that the steps to carry out this process should be: "deconstruction, reconstruction and validation of the effectiveness of the reconstructed practice" (p. 29). They present different experiences that they have collected and systematized through the application of the model invented by themselves and which they have called the deconstruction - reconstruction - experimentation model (pp. 39 - 40), which must go through the following stages:

Restrepo, B., et al. (2004). *Investigación - acción educativa: una estrategia de transformación de la práctica pedagógica de los maestros*. pp. 39-40.

Following the guidelines of these authors, the research activities chronogram is presented, which includes the instruments for the collection of qualitative information, implementing the following strategies:

### **Deconstruction strategies**

- Interviews: support teacher (special educator of the institution), Spanish language teacher of the institution,
- Surveys: to students on reading practices, to teachers on the use of DUA and PIAR in the classroom.
- Documentary review: of PEI, to identify the relation made of the inclusion processes.

### **Reconstruction strategies**

- Elaboration and application of reading comprehension pretest.
- Application of DUA in 4 work sessions with students for the improvement of reading comprehension.
- Classroom evaluation form for students on the clarity and effectiveness of the content
- Use of Field Diary to record classroom observations.
- Post test application

### **Analysis strategies**

Analysis of the information collected during the intervention process for the preparation of the final report and transmission of results.

## **Results**

### **Preparatory phase: Deconstruction of the practice**

#### **Interview with support teacher**

It is concluded that:

Number of students with disabilities

There are 98 students registered in the SIMAT, but there are more because the parents have not made the corresponding registration or the appropriate medical process and therefore they are treated as presumptive.

Characteristics of group 6-1

At the moment, group 6-1 has 5 diagnosed students and 5 presumptive students with written referrals from teachers.

Diagnosed students present among other difficulties: Attention deficit with hyperactivity or inattentive; autism, intellectual disability, oppositional defiant disorder.

### **Interview with Spanish language teacher**

Made to Yamile Carmona, a graduate in Spanish Language and Literature.

It is concluded that:

The dedication and commitment of the teacher, student and family. Awareness of the fact that there are shortcomings on both sides, both the teacher and the family must be aware of them in order to generate commitment. The dosage of the academic work and the recognition of the context since it affects everything. From there the multiple activities, ideas and dynamics that may arise in order to address the issues in order to the complexity. Start from the minimum. Plan and execute according to the difficulties that arise in the group and take into account the diagnostics to work on the visual, the dosage of instructions, the continuous repetition of instructions.

### **Student surveys**

A survey was conducted and answered by 26 students, which yielded the following data of interest:

- The students in group 6-1 range in age from 11 to 15 years old. Of the respondents 10 are 11 years old (38.5%), 7 are 12 years old (26.9%), 7 are 13 years old (26.9%), 1 is 14 years old (3.8%), and 1 is 15 years old (3.8%).
- 48% are men, 52% are women.
- Students live in strata 1, 2 and 3.
- 13% of respondents report having some disability, including: visual, mental retardation, cognitive.
- 52% of students have lost years: 3 students have lost 1 year (23.1%), 7 have lost 2 years (53.8%), 2 have lost 3 years (15.4%), 1 has lost 4 years (7.7%).
- The occupations of fathers and mothers are mostly basic trades, such as hairdressing, clothing, professional soldier, police, housewives, a disabled parent, drivers, carpentry, shoemaking, various trades, among others.
- 84% of the respondents stated that they enjoy reading; 69% stated that they find it easy, 30% found it difficult, among the reasons for difficulty were: "Because it makes me feel

embarrassed and I get bored", "Sometimes I understand and sometimes I don't", "Because there are very difficult words", "Because sometimes I don't understand what the book says", "Because there are words I can't pronounce", "Because sometimes I get bored", "Sometimes my eyes burn when I read", "Because it's hard for me to remember what I read", "Because it's hard for me to remember what I read".

- Among the students' favorite hobbies are: playing games, watching TV, drawing, watching cell phones, soccer, reading, watching videos on Facebook and TikTok, writing love letters, gymnastics, among others.
- 78% of the students know libraries and 72% have books at home, 84% like to read myths and legends, 40% like to read stories and art books, they also like texts that talk about love and horror and suspense.
- For learning to read, students suggest: "Reading stories of myths and legends with more fear", "Reading more", "Reading with mime", "Going to the library and doing reading work in pairs", "With love, patience and tranquility", "Taking us to green areas to read", "Drawing, reading aloud", "Reading and playing", "Reading and playing", "Reading and playing".
- Students feel they need to improve in the area of Spanish Language: "Writing", "Reading", "Spelling", "I need to improve my handwriting and respect commas", "Yes, behavior and attention", "Learn more, study more, don't give up", "Yes, reading, memory and learning to write at all", "My reading comprehension", "Express myself more", "Read more fluently and without being embarrassed", "I need to improve my reading skills", "My reading comprehension", "I need to express myself more", "I need to read more fluently and without being embarrassed".

### **Teacher surveys**

A survey was made to 13 teachers of the institution obtaining the following results:

- 69.2% say they know what DUA is, 30.8% say they do not know what it is.
- 53.8% stated that they were aware of the principles of DUA, while 46.2% stated that they were not aware of them.
- When asked what they are, they answer: "I don't know. It seems to me that to carry out the activities in such a way that they serve all the students in the class, including those who have some type

of disability. That is, the Design of activities that reach this population of students with disabilities, in addition to regular students."; "Knowing how to use the tools for a good learning process in young people"; "Flexibility, simplicity, equality, tolerance to error", "The principles I do not remember", "Implementation of tools acquired in practice, which strengthen the development of classes.", "What to learn, how to learn and what to learn for."

- 84.6% stated that they know what PIAR is, while 15.4% stated that they do not.
- When asked if they know what it is for, they answer: "to help students with some diagnosis in the learning process", "Individual plans for students with some diagnosis", "It serves to personalize the teaching and learning process for students with cognitive difficulties", "it favors the adaptation processes for inclusion".
- When asked if they know how it is implemented, 84.6% indicated that they do, while 15.4% reported that they do not know.
- 100% report that they know which students have disabilities.
- When asked why they know this, they answer: "Because this information was shared by the support professionals of the Institution". "They are diagnosed", "Because of their performance and behavior within each class.", "Because I identify them in the classroom or they are referred by the support teachers of the institution", "Because of the diagnoses made, because of my academic training and the processes I carry with them", "Because they are in the database or because depending on their performance and what is observed in class they are referred to psychology and support teachers to make the attentions and referrals of the youngsters and they are analyzed by professionals." "Because in the teaching process one identifies some difficulties that they present, whether in concentration, writing, calculations or language. In addition, the support professionals of the UAI have provided some of this information in the institution."
- When asked if they know the diagnoses they respond:
- "Deficit hypertension activity", "Yes, the basic information of the type of disability of the students already diagnosed is recorded. But it is difficult to understand well what each one is about", "Cognitive", "Moderate intellectual disability", "Attention deficit and others", "Cognitive, socio-affective,

visual", "The disability is multiple that requires processes of pedagogical and curricular adaptation and that adaptations must be made to the curriculum so that the SEN can be accompanied with assertiveness", "Autism, tdh, dyslexia", "No".

### Diagnostic tests

The test consists of 12 questions, of which low results are obtained in the two tests applied. Both are totally different.

**Table 1.** *Initial reading test*

Prueba inicial de lectura					
Pregunt	Tipo pregunta	nivel	respuestas correctas	otras respuestas	resultado
1	Hallar la Idea Principal	inferencial	58,60%	41,40%	Debilidad
2	Identificar Detalles	literal	69%	31%	fortaleza
3	Comprender la Secuencia	literal	82,80%	17,20%	fortaleza
4	Reconocer Causa y Efecto	critico	79,30%	20,60%	fortaleza
5	Hacer Predicciones	inferencial	58,60%	41,40%	Debilidad
6	Hallar el significado de la palabra por contexto	inferencial	86,20%	13,80%	fortaleza
7	Sacar conclusiones	critico	3,40%	96,60%	Debilidad
8	Comparar y contrastar	inferencial	34,50%	65,50%	Debilidad
9	Distinguir entre hecho y opinión	inferencial	24,10%	75,90%	Debilidad
10	Identificar el propósito del autor	inferencial	89,70%	10,30%	fortaleza
11	Interpretar el lenguaje figurado	inferencial	27,60%	72,40%	Debilidad
12	Resumir	critico	62,10%	37,90%	fortaleza
*	Se toma como debilidad los valores inferiores al 60% de acierto				
*	Se toma como fortaleza los valores superiores al 60% de acierto				

Retrieved from: <https://descargatest2.jimdofree.com/estrategias-de-comprensi%C3%B3n-lectora-stars/>

It is identified that the students have serious comprehension deficiencies, since the reading is simple and in accordance with their chronological ages, however, the results are low, taking as a base, the correctness of at least 60% in each item, a goal that is achieved for half of the items in all levels, that is, 6 out of 12.

### Fieldwork phase: Reconstruction of practice

#### Activity 1

Title: Reading "Why didn't you come?"

Description: Read aloud of title, questions from teacher to students about what they think the reading is going to be about, brainstorming by students. Reading aloud of the text by the teacher.

At the end of the reading, check with the students to see if they had agreed on the answers.

Write a new ending and corresponding drawing.

Results: The realization of the change at the end of the reading and the drawing show the comprehension of the text. The students also liked to express the most relevant aspect for them by means of a drawing. During the activity, they showed liking for the topic covered in the reading and expressed their ideas, first verbally and then in writing.

### **Activity 2**

Title: Reading "A Crossroads" by Franz Kafka

Description or step-by-step: Reading aloud of the title, questions from the teacher to the students about what they think the reading will be about, brainstorming by the students. After this, reading aloud by the teacher. At the end of the reading, check with the students to see if they had agreed on the answers. Handing out a sheet of paper to each student so that they can write down their vision of the character. At the end of the class, socialization of the students' work, work presented by themselves.

Results: The participation of the students was excellent, the representation of the reading done with manual work, in this case with cotton as the main material, was to the total liking of the students.

### **Activity 3**

Title: Mandalas

Description of the activity:

Explanation of the meaning of mandalas, the purpose of making them, the different shades that exist to color them and the intention of each one of them.

Results: The students carried out the activity trying to apply what they had learned about the meaning of the colors in the mandalas. Some of them in the evaluation of the activity, suggested that for another opportunity to take relaxing music to concentrate better.

### **Activity 4**

Title: Video cartoon "Swan Lake".

Description or step-by-step: Play the video to students and then request comprehension report by written or verbal means for the student who does not know how to write.

Results: The students do not concentrate very well on the activity because the language is not very understandable due to the fact that they speak in Spanish from Spain. Although some students liked it. It is recommended to use the subtitled video.

### Activity 5

Title: Video ballet "Swan Lake".

Results: The students do not concentrate very well in the activity because the language is not very understandable due to the fact that the actions are performed through dance. Although, the students state that they did not understand, it was a good experience since they were concentrated, perhaps, because of the pleasant music of the presentation.

Analytical phase: Evaluation of results

To finalize the intervention of the reality of group 6-1, a reading post-test is performed, with a different test than the initial one and a PIAR Individual Plan of Reasonable Adjustments is proposed for the student who cannot read or write, which is provided by the support teacher Alexandra Alegria, taking into account the characteristics of the student, her clinical history and the generalities of the diagnosis. Post test. After the intervention, a reading post-test was performed, which yielded the following results:

**Table 2.** *Final reading test*

Prueba final de lectura				
Pregunta	Tipo pregunta	nivel	respuestas correctas	otras respuestas
1	Hallar la Idea Principal	inferencial	25,00%	75,00%
2	Identificar Detalles	literal	43%	57%
3	Comprender la Secuencia	literal	35,70%	64,30%
4	Reconocer Causa y Efecto	critico	71,40%	28,60%
5	Comparar y contrastar	inferencial	78,60%	21,40%
6	Hacer Predicciones	inferencial	32,10%	67,90%
7	Hallar el significado de la palabra por contexto	inferencial	35,70%	64,30%
8	Sacar conclusiones	critico	28,60%	71,40%
9	Distinguir entre hecho y opinión	inferencial	42,90%	57,10%
10	Identificar el propósito del autor	inferencial	78,60%	21,40%
11	Interpretar el lenguaje figurado	inferencial	46,40%	53,60%
12	Resumir	critico	64,30%	35,70%
*	Se toma como debilidad los valores inferiores al 60% de acierto			
*	Se toma como fortaleza los valores superiores al 60% de acierto			

Retrieved from: <https://descargatest2.jimdofree.com/estrategias-de-comprensi%C3%B3n-lectora-stars/>

For the second test, of the 12 categories, weaknesses were found in 8 items and successes in 4. Although the second test was taken after the intervention, it cannot be concluded that comprehension was affected in any way due to the fact that there were few follow-up sessions with the students. A greater number of accompaniment sessions, carried out by the SAD, are required to improve inferential reading rates.

## **Discussion**

Group 6-1 is characterized by the disruptive actions they frequently present during classes. Through the diagnostic and intervention activities, it has become evident that this group has students with disabilities or presumed disabilities. According to information provided by the support teacher, there are currently 10 students, 5 of whom have been diagnosed and 5 are presumed to have disabilities. Among those diagnosed there are 3 with TDH, 1 with autism and 1 with intellectual disability. The presumptive students are mostly characterized by difficulty in complying with the norm and disruptive actions, in addition to one student who has a visual impairment. It can also be observed that some students have extra-age for the grade: between 13 and 15 years old.

In addition, there is a high percentage of repeaters in the group, since 13 students are repeaters: 3 students have missed 1 year (23.1%), 7 have missed 2 years (53.8%), 2 have missed 3 years (15.4%), 1 has missed 4 years (7.7%). Repetition may be a sign of disability or learning difficulties.

Another important aspect is that the students live in low strata 1, 2 and 3, which may explain, in part, the low academic performance, disruptive behaviors and low cultural level.

In addition, most of the parents work in basic trades or are unemployed, which in some cases explains the lack of accompaniment.

The majority of students 84% like reading, but express difficulties in comprehending, pronouncing and remembering what they read.

Although the students are familiar with libraries and have books at home, they report that they read very little. In addition, they report that they have less than 10 books at home, which shows little reading culture.

Students' hobbies should be rescued to make planning, among which are: watching TV, playing, soccer, social networks, among others.

What they like to read the most is myths and legends 84%, followed by stories 40%, reading can be promoted from this aspect. They also express that they need to improve their fluency, spelling, memory and writing skills.

Among the suggestions, students say that they want to be read to more, in places other than the classroom, and that they want more stories, myths and legends to be read.

From the survey of teachers, it can be inferred that there is no clarity in the application of DUA and PIAR. Thirty percent state that they do not know what DUA is. The most worrisome thing is that the 54% who state that they do know them, when they are asked to mention them, do not do so correctly but by means of intuition and there are answers in all senses.

Another difficulty that arises is that, although teachers know the disabilities of the students they do not know the specific strategies for each student according to the disability, that is where the use of DUA and PIAR becomes relevant. In addition, recalling the interview with the support teacher: "it is necessary for the teacher to improve each time the training on the topic of inclusion in the classroom."

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