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Research Article

Universal Design for Learning in Second Language Teaching

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This research was born in a foreign language teaching center in Barranquilla, Colombia, by taking the reality of this institution where teachers find themselves in front of diverse and neurodiversity students. They require orientation towards an inclusive education. The purpose of the study was to strengthen the teaching-learning process of a foreign language within the framework of inclusive education considering both neurodiverse and neurotypical students. The methodology is framed in mixed research, with interpretive paradigm and descriptive design in which a survey for teachers and a semi-structured interview for students were used. The results show that although teachers have many qualities, neurodidactic orientation is needed to attend and guarantee the accessibility, participation, permanence, communication and learning of the whole population regardless of their condition. From this need emerged the proposal "UDL in the teaching of foreign languages" which is materialized through the website "NeuroELE", an online site that shares theoretical content to enrich the teaching knowledge with neuropedagogical bases, and neurodidactic strategies to strengthen the pedagogical work based on the Universal Design for Learning. The web page was evaluated by expert judges who highlighted its content and correspondence with the objective proposed with its design and it was subjected to changes generating a 2.0 version.

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1. Introduction

Education has passed from being a privilege of a few to being a right of all (Clavijo, López, Ortiz, Mora, & Cedillo, 2016); therefore, times change and with it the ideologies and social, educational, moral and ethical actions. A continuous search for answers and solutions to the educational needs of a wide diversity of students is observed. Crisol (2019) explains that Inclusive Education (IE) should be conceived as a process that allows addressing and responding to the diversity of needs of all students. It is important to involve the entire educational community, through greater participation in learning and reduction of exclusion from the educational system. This implies changes and modifications of contents, approaches, structures and strategies based on a common vision and the conviction that it is the responsibility of the educational system to educate everyone. It highlights the importance of education today, in which education moves from being exclusive to inclusive, in order to provide high quality learning experiences.

Each brain is unique; no two people are alike in personality, skills and ideas, as well as in the way they interpret information, communication and expression of what they have learned. From a neuroscience perspective and with a view to having a positive approach to inclusion, Armstrong (2012) explains the term “neurodiversity” to change the term disability to take advantage of students' capabilities by turning limiting perspectives around and emphasizing potentials. In this sense, neurosciences become very important not only in human development, but also in education and in the understanding of learning. Therefore, teachers must adapt their teaching to the needs of their students. It is important to reformulate the educational paradigm through a curricular framework and didactic strategies that eliminate barriers that hinder learning and guarantee an IE. Neurodidactics plays a transcendental role, bringing neurosciences and education closer together with the objective of promoting strategies and methodologies towards a more efficient brain development to generate greater learning and at the same time attending to diversity, generating an inclusive system, benefiting brain plasticity, brain capacities and interconnections according to Paniagua (2013).

Tacca et al. (2019) state that neurodidactics comes to extend the teacher's hand favoring neurodiverse or not students, proposing innovation and brain activation where “neurodidactic strategies propose to respond to the students' interest, consider their cognitive and affective characteristics, establish socio-emotional links and, as Paniagua (2013) states, provide a novel and interesting learning experience” (p.26).

Merchán Morales (2018) states that different authors explain the application of neurodidactics in various areas such as language development, musical stimulation, learning new languages, learning mathematics, development of executive functions, regulated learning in populations of different ages and sociodemographic variables. Based on this, the contributions of neurodidactics in topics such as language learning are highlighted, likewise, language, memory, attention as neuropsychological processes, verbal fluency, cognitive flexibility, social cognition, as executive functions are fundamental in the learning of a language and are also considered by neurodidactics.

In the same way, Unzueta (2011) cited in Morales (2018) exposes that “neurodidactics takes into account the principle of externalization of psychic processes that are generated in the interaction with others, and through language as a bridge that facilitates it” (p.161). Considering that language learning is a social interaction, it is important that neurodidactics prioritize it and provide the appropriate instructions for its proper development and applicability.Consequently, Morales (2018) refers to the fact that neurodidactics of languages recommends considering: emotions, play, stories and activities with real contexts to generate diversity, motivation, creativity, stimulate thinking and commitment.

Precisely, in the framework of attention to diversity, the Universal Design for Learning (UDL), formulated by Meyer, Rose and Gordon (2014), has been highlighted as one of the good inclusive practices that are consistent with the multidimensional framework of human functioning. Also, the ecological-contextual approach, since it focuses on modifying the context to enable students to have access to the curriculum (Sánchez-Gómez & López, 2020). The UDL proposes, through the incorporation of its principles and guidelines, the diversification of teaching and the manifestation of learning with motivation and generating student participation, as well as sharing strategies and neurodidactic activities to achieve this goal.

A problem is evidenced in a foreign language teaching center where the need to reorient pedagogical practices towards inclusive education is observed in order to achieve quality education: The Incheon Declaration states that "inclusion and equity in education are the foundation of quality education and the cornerstone of a transformative education agenda, adopting a commitment to address all forms of exclusion and marginalization, disparities and inequalities in access, participation and learning outcomes" (UNESCO, 2015).

Due to this, there are many studies conducted internationally about IE, the application of UDL, neurodidactics and the use of digital resources in the teaching and learning of foreign languages that gave important contributions to this work. Castro, Casar y García (2019) analyze IE in the teaching of English and propose the use of emerging technologies for the participation of all students without exclusion and thus benefit the educational process. Among the conclusions it is exposed that it is necessary for teachers to know the interests and emotions of students to select the most relevant strategy. The authors highlight some methodological approaches, but a great interest arises towards emerging technologies that facilitate a more inclusive and adaptable language to students. The explanation of the concept of inclusive teaching, the exposure of some technologies and their applicability in English learning is very enriching for this research, shedding light on the advantages of Information and Communication Technologies (ICTs) in the inclusion scenario.

This paper aims to change the discourse from "deficit" to diversity, highlighting the term neurodiversity proposed by Armstrong (2012) and Bertilsdotter Rosqvist, Chown and Stenning (2020). It considers that the human being should not be seen as a static machine but as a living ecosystem that changes continuously. The UDL and some strategic adaptations based on its principles for attention to neurodiversity and inclusive language teaching are highlighted. These considerations are relevant to consider the idea of guiding appropriate strategies for neurodiversity in foreign language learning.

This is how the great importance of teachers and their enormous responsibility towards the community is highlighted. It is in their hands to educate, and this depends on their attitudes, ideals and preparation. Guiding them in IE represents transcending the classroom to be located in everyday life, in any circumstance, but above all in every brain where the teacher generates stimulation and has extraordinary influence. Therefore, the center of language teaching, by advocating for a more inclusive education, would generate a society with fewer barriers, so that a community with inclusive teachers reproduces an inclusive society.

2. Materials and Methods

The research approach is mixed; qualitative and quantitative collection, analysis and interpretation techniques were used in a systematic, empirical and critical way in which the objectivity of quantitative research and the subjectivity of qualitative research are combined to respond to problems identified according to Otero Ortega

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(2018). The paradigm is interpretive, which according to Gil, León and Morales (2017) focuses its study on the meanings of human actions and social life starting from a problem caused by social groups. The object of research is to know and understand the situation found from the perspective of the individuals themselves.

2.1. Research design

The research design of this study is descriptive; it consists of characterizing a specific situation by pointing out the most relevant and specific elements in order to know the existing reality through the description of the main actors, processes, difficulties and the context in which they develop.

It should be clarified that not only data are collected, but also variables are related, and the results are presented on the basis of a theory or hypothesis and then carefully analyzed to obtain fundamental generalizations that contribute to knowledge. The data collected are indicated, as well as the origin of the population from which they are taken, reducing the latter to a sample of teachers and a number of students who responded to an interview, and teachers, a survey, so in this way the data could be analyzed qualitatively and quantitatively.

2.2. Population and sample

At the foreign language teaching center there are 90 tutors. A sample of 16 tutors who voluntarily agreed to answer the interview was determined: 8 English teachers (majority language), 4 of French, 2 of German, 1 of Portuguese and 1 of Japanese of different levels, but mostly level 1 of trimesters and semesters, this constitutes a non-probabilistic sample according to Hernández Sampieri, Fernández-Collado & Baptista-Lucio (2014): In non-probabilistic samples, the choice of the elements does not depend on probability, but on causes related to the characteristics of the research or the researcher's purposes (Hernández-Sampieri et al., 2014). Here the procedure is neither mechanical nor based on probability formulas, but depends on the decision-making process of a researcher or a group of researchers and, of course, the samples selected obey other research criteria. (p.176)

The second population: the students, the total number varies each trimester and/or semester and 136 students voluntarily participated in the interview, belonging to the groups of the 16 teachers who are learning different languages and at different levels. Thus, it is also a non-probabilistic sample, since due to factors such as virtuality, time and availability, it is difficult to have an exact sample of the population in general.

2.3. Instruments

Two instruments validated by Garibotto Trujillo, Ramos Rodríguez & Ríos Castro (2020) in Colombia are taken: a 7-question survey for teachers about learning strategies, tools, resources, activities, learning styles, conceptions about disability and IE, strategies used with students with disabilities and suggestions for inclusive classes. And, a semi-structured interview of 10 questions for students about their experiences, likes, dislikes, attitudes, difficulties and suggestions for foreign language classes, a question was added to identify characteristics such as disabilities, culture and difficulties.

3. Results

After organizing the data obtained, some categories were determined to analyze and interpret the results: foreign language teaching, foreign language learning, IE, teaching and learning barriers. Each one is defined by means of the triangulation technique consisting of: survey results, interview results and literature review.

3.1. Teaching foreign languages

The 16 tutors surveyed ranged in age from 25 to 39 years, mostly from 31 to 35 years old, a young sample teaching different language. English (50%), French (25%), German (12.5%), Portuguese (1%), Japanese (1%), with different years of professional experience: 37.5% have 1 to 5 years, 31.3% have 10 to 15 years and 25% have 6 to 10 years of work experience. As for their academic background; 68.8% have undergraduate studies and 31.3% postgraduate studies, none of them are teachers in formation, and only 18.3% are trained in inclusion.

According to their answers, teachers consider cooperative work, generating closeness, integration, communication and respect. Similarly, gamification is implemented by transferring games to the educational field to obtain better results, especially in digital contexts. A technique mentioned by a tutor is Shadowing which is a highly cognitive and active activity in which students listen and repeat trying to imitate exact sounds of the foreign language strengthening aspects such as perception and working memory (Manrique Ramírez, 2014). This technique, although only named by one teacher, is implemented by the whole school through a virtual platform called English central in which students must watch videos, do exercises with vocabulary and record lines that they listen to as part of a mandatory autonomous virtual work that is considered in the final grade.

In the same way, teachers use strategies based on the intercultural communicative approach. Precisely, teachers consider activities such as role-playing aimed at strengthening the four communicative skills (reading, listening, speaking, writing) considering the daily context. The tools and resources used by teachers are currently technological and virtual due to the new modality, through different platforms and websites that facilitate the teaching of foreign languages. Some mentioned websites such as: Liveworksheets, Quizizz, Wordwall, Educaplay, Kahoot, Genially, Prezi, Canvas, roulette, Quizlet, Pear Deck, Google docs, Google workspace, Google forms and YouTube to explain, play, practice and evaluate the topics. In the same way, teachers carry out activities with songs, plays, recipes, videos, debates, oral presentations, tongue twisters.

3.2. Foreign language learning

The second instrument is a semi-structured interview applied to 136 students between 18 and 51 years of age, mostly 18 years old, studying different languages. Mostly students of English (67.6%) of French (25. 7%), German (4.4%) and Portuguese (2.2%) of different levels: mostly level 1 (61%), level 5 (18.4%), level 2 (11%), level 4 (5.9%) and level 3 (3.7%), 59.6% study in quarterly mode and 40.4% in semester mode.

A large number of students have had a good, enriching, interesting and satisfactory experience in learning a foreign language. Among the specific experiences they have had, they have liked the virtual games, songs, debates, plays, movies, the use of Kahoot, quizzes, conversations, readings, oral activities, interactive activities, competitions and tongue twisters, activities already mentioned as part of the teachers' didactics. Regarding negative experiences, a large number of students answered that they do not have any, but some of them stated that they do not like the excess of activities, little time to carry them out, speed in teaching and only the active participation of outstanding students without considering the rest.

In relation to the methodological preferences of the students, we find: music, games, dynamic, participatory, playful activities, audiovisual content, debates, activities in pairs, grammar, readings, activities in interactive pages such as Quizziz, and listening and oral activities. In contrast, a few responded that there are some activities that they do not like such as: group conversations, performing grammar exercises and the monotony that is sometimes generated in a class.

It is positive to know that 35.5% of students listen and take notes during class, 28.7% attend and inquire, 22.1% observe and attend, 10.3% are reserved and quiet, and only 1.5% are not interested if they do not understand. Similarly, when students have doubts, they consult directly with their teacher, a few on YouTube, Google, some watch the recorded class, or ask a classmate or friend.

In general, they are comfortable with the way classes are taught, some suggest to continue in virtualization, others wish to have face-to-face classes and other alternation. In terms of teaching, they suggest more dynamism through games, songs, interactions with native speakers, feedback on exams and the aforementioned: more time for activities, considering the individual pace and also supporting the whole group without leaving anyone behind.

3.3. Inclusive education

Precisely in the survey the teachers answered questions about the concept of disability and IE; they had a theoretical-conceptual approach to these meanings, in fact, their attitude nor that of the institution in general has never been exclusive or discriminatory. Some teachers have not had students with disabilities in their classes, others have, and some of them do not specify, which is understandable because they are not identified in the institution. Among the strategies used with this population are: adaptation of individual or general activities focused on their tastes and preferences, activities that promote general participation, activities based on collaborative work, identification of learning styles for the preparation of special activities, less demanding and comprehensive evaluation, classes with simpler or easier activities, and in cases of students with visual limitations. For example, they emphasize listening and speaking skills to compensate.

And among the suggestions to have a successful process in language teaching within the framework of inclusive education, they recommend: knowing the disabilities, being clear about them, understanding the taught community, having more investment in the physical plant, teacher training, teaching according to preferences. Heterogeneous classes with emphasis on multiculturalism, adaptation of methodologies with technological tools, visual cards, songs, etc. And it is interesting to note a response in which the teacher is sincere and states that he/she has no idea what to do about this.

Although the efforts, intentions and work of the teachers are directed towards the benefit of all students, they themselves are aware and recognize that they need to be guided and trained on diversity and how to deal with it according to precise and pertinent parameters and instructions. Thanks to the interview with the students, it was possible to obtain quantitative data that allow to know some students (not all because it is a sample) with diverse characteristics present in this center.

76.44% of students have no particular characteristics, 10.29% have high intellectual abilities, 4.4% have numeracy and/or mathematics difficulties, 3.68% have reading and writing difficulties, 2.2% belong to an ethnic minority, 1.47% with attention deficit with or without hyperactivity, 0.74% with intellectual disability/diversity, and 0.7% with psychosocial disability/diversity.

3.4. Barriers to teaching and learning

From the results of the survey of teachers, some barriers to teaching for IE were found; as a first step, theoretical-conceptual and didactic barriers because although teachers are not discriminatory. They have ideas about disability and IE and apply useful strategies for language teaching, a large percentage are not trained and express the need for training or guidance in IE, it is important that they learn to distinguish concepts such as integration, segregation versus inclusion. Their practices are based on the last one and are not confused with the previous ones, also according to their answers they want to know the different conditions and characteristics of the students they have in the classrooms.

Molina & Holland (2010) cited in González Gil, Martín Pastor & Castro (2019) present "Initial teacher training is the most effective method to improve their assessment of inclusion". This training will increase the teacher's competence which is very rich in terms of knowledge of languages and their didactics, but it would be even more relevant in the face of the existing diversity in the classrooms.

Another point is the political barrier, about this, Jaimes, Niño & Porras, (2017) express that "political barriers are evidenced in the lack of awareness to comply with the norm in relation to programs and activities that facilitate the interaction of PWD" (p.19). Colombia establishes decrees to guarantee inclusive education in institutions, despite the fact that the institution accepts this population there is no characterization, follow-up or formal attention based on the guidelines and requirements of inclusive education issued by the national government. These norms seek to ensure the right to equality and order the control, surveillance, development of pedagogical actions for this population, as well as to guarantee the effective exercise of rights with inclusion measures.

On the other hand, Zamudio (2019) explains the barriers to learning within which didactic barriers are identified, such as the "unique learning modes and times of the students, the materials used by the teacher, the characteristics of the classroom setting, the links and interactions, as well as the ways of evaluating, among others within the framework of inclusive education" (p.18). Therefore, what was previously mentioned about the need to consider the times, rhythms and learning styles is taken up again.

It is important to pay attention to students' nonconformities that may affect learning, attitude and interactions in the classroom, and also overshadow any intention and effort to promote inclusive processes in the institution.

4. Discussion

4.1. Facilitators for inclusive education

The survey and interview applied not only allow finding the barriers that affect the teaching and learning of languages in the student community, especially in the neurodiverse community, but also help to highlight the strengths or positive points present that are useful for inclusion and to design a pedagogical proposal. According to San Martín, Rogers, Troncoso & Rojas (2020) "the facilitators would be related to the actions that make the implementation of inclusion successful" in the same way "the factors that admit to optimally achieve inclusion are called facilitators" (Muccio, 2012, cited in San Martín et al.,2020, p. 193). Considering this, among the factors found in favor are:

- Teachers' positive attitude towards neurodiverse students and inclusive education. According to Beaven (2020) "The attitudes shown by teachers in the classroom can be a facilitator or a barrier in the educational process, impacting the use of inclusive strategies" (p.77).
- The rich didactics in foreign language teaching (diverse strategies, methodologies, activities, approaches) that is attractive to students. Regarding this Crisol (2019) explains "For a task of this complexity and difficulty to come to fruition, it is essential for teachers to be able to mobilize resources, supports and aids of all kinds... without which it is difficult to cope with the uncertainty of educational change" (p.4).
- The use of technological and virtual tools that are among the preferences of students. According to Wengrowicz (2020) "technology as a tool that favors the understanding of content by all students, with and without disabilities. These strategies reflect a pedagogical intentionality that opts for inclusion and for the recognition of diversity in the classroom" (p.224).

These aspects facilitate the strengthening of inclusive education in the teaching of foreign languages through the design of strategies aimed at addressing neurodiversity and thus ensuring the active participation of all in the classroom.

4.2. Proposal

The proposal "UDL in Foreign Language Teaching" is carried out with the creation of the website "NeuroELE" https://www.neuroele.net/. A Neurodidactic website of Foreign Language Teaching, presents different menus: at the beginning, which is the first menu, an introduction about the research and the methodology used for the elaboration of the page with audios for greater accessibility is visualized. You can also access a predesigned cartoon about inclusion with five reflective questions that help activate previous knowledge, followed by the menus with theoretical and didactic content.

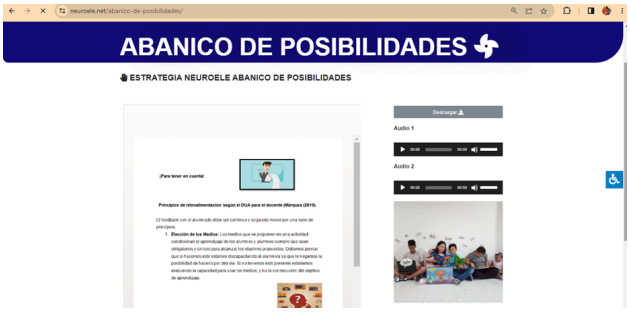

Figure 1. Website

In menu 2, Teacher Training, there is theoretical content about IE (submenu 1), concept, relationship with languages, informative video and images about the difference between equality, equity, exclusion, segregation, integration and inclusion, confusing concepts for most teachers. Within this tab are shared some pages where you can find International Standards that are summarized in a very precise way. In the same way, the term Neurodiversity is defined according to Armstrong (2012), and its importance in language teaching, also a video and image is presented to explain visually.

There is also a section on Neuroeducation (submenu 2) that includes this concept, as well as Neuropedagogy, Neurodidactics, principles and strategies, Neurolearning and brain plasticity. Similarly, information is shared on Cognitive Processes (submenu 3) which explains: perception, attention, memory and language, related to foreign languages, as well as language learning and brain functioning, images, videos and mind maps are attached for greater understanding. In addition, content about UDL (submenu 4) on networks, principles and guidelines, UDL and ICT and UDL and Foreign Language Teaching is presented. Concepts, concept maps, images and videos to simplify and vary the presentation of information.

Next is menu 3 Neurodidactic materials; first, some strategies called NeuroELE (submenu 1) are published because they are self-made: *Abanico de posibilidades, Trébol irlandés, Sol de variedad, Mano arriba and Foco de ideas*, they are downloadable and can be adapted to the needs, tastes and creativity of teachers and to the corresponding teaching language, they can also be used in the virtual or face-to-face modality and are based on the UDL giving different possibilities to the teacher to use the templates. These can be found (with accessible features) in downloadable Word format, with predesigned images and audios on the content to facilitate accessibility.

Before each activity, information is shared on "Principles of feedback according to the UDL " for the teacher by Márquez (2019) that focuses on the choice of media, questioning the curriculum, constant monitoring, evaluation tools, barrier detection and barrier-free redesign, important aspects when designing, developing and evaluating activities in the framework of inclusive education.

The UDL Wheel (submenu 2), designed by Antonio Márquez, is a wheel that contains technological resources; various applications classified according to the principles and guidelines of the UDL that support teachers and benefit students. Subsequently, there are some suggested and adaptable strategies (submenu 3) found on the web: the first one is the "Linear strategy", this UDL strategy allows the student to choose three activities of his preference to express his learning. The teacher also presents different ways and options to the student to motivate him/her in the process and generate active participation.

Next, the reading strategy with pictograms is shared, a NeuroELE example is presented with the story of "The Three Little Pigs" in French, it is an innovative, striking strategy that not only presents the story in written text, but also includes drawings providing the possibility of reading images for those who have some particular condition or simply for those who prefer this presentation. Through this strategy, the student's attention, imagination, motivation and participation are developed. It can be done in any language and with any story.

It is also suggested the strategy "The 6 Thinking Hats" by Edward de Bono. It consists of six hats of different colors on a central theme to develop considering different points of view, each color represents a particular activity, those with the white hat talk about specific data, those with the yellow hat about positive data, those with the black hat about negative data, those with the red hat about feelings and emotions, those with the green hat about creativity and those with the blue hat about summary and conclusions. This strategy allows the development of thinking, analysis, creativity and participation.

Other useful neurodidactic activities for cognitive, attentional and memory stimulation and training are also presented:

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First an attention worksheet to work cognitive stimulation in adults by Maria Olivares, it contains exercises with numbers and symbols that can be adaptable to different languages and with different vocabulary such as colors, fruits, objects, animals.

In addition, the Stroop Test is presented, a test with the names of colors, but written in a different color that represents a certain degree of difficulty when reading and therefore requires attention and concentration. It can be translated into different languages.

Similarly, a web page is shared that contains cognitive stimulation exercises with different categories such as: attention, memory, perception, language, praxias, which can be downloaded and can be used as a guide to adapt them to language teaching.

Accessible Formats (submenu 4) also contains a recommendation of a website where Word, Power Point and accessible Test templates can be downloaded, clearly explaining the style, size, font, line spacing, margins relevant to the design of these documents. This online site also offers a short and simple training course on the guidelines to be followed for their creation.

The four Recommendations menu is divided into different submenus: Images (submenu 1): of the central nervous system and the so-called brain homunculus, which provide a visual and clear understanding of how the brain works. Pages (submenu 2) to download pictograms, to create bingos, lotteries, dominoes, with templates to create word searches, roulettes, anagrams and to complete, to practice writing with paragraphs, questions, surveys, to create or find interactive quizzes, to create interactive presentations (posters, infographics, comic strips, cards). You can also download images for coloring, to fill in online drawings and games of enigmas that are multiple forms of representation and expression. Texts (submenu 3), we suggest the "Guide to create accessible digital contents" that orient the teacher to design his didactic material and the text "Neuropedagogy" that contains neuroscientific and pedagogical bases with an understandable language.

Among the Articles (submenu 4), the "Document of technical, administrative and pedagogical guidelines for the educational attention to students with disabilities in the framework of inclusive education" is recommended, which is extremely important because it establishes a route to attend to neurodiversity with pedagogical guidelines. Likewise, an article about some learning difficulties such as dysgraphia and dyslexia, another one about UDL and its application in virtual environments, and others about the use of Podcast for inclusive education and learning from a neurolinguistic perspective are suggested.

In the same way, several Videos (submenu 5) found in the network about Neuroeducation, Neurosciences and the study and learning of languages are shared. The Application (submenu 6) called lyricstraining to learn languages with music is recommended and a page containing several Infographics about inclusion, the UDL and disability is shared, also a Podcast (submenu 7) about language learning and brain functioning. All these strategies, activities and recommendations allow the teacher to have different options for teaching and presenting the information, as well as giving the student several options to express themselves. Finally, there is a space for comments at the bottom of each menu that allows the expression of feelings, experiences and interaction between the author and the teachers.

5. Conclusions

The research allowed visualizing neurodiversity with a different focus, understanding that everyone, whether neurodiverse or diverse, has exceptional abilities and the same right to access education without barriers or distinctions. This work generates a deep reflection on the use of the potentialities of each human being leaving aside the attention to the differential characteristics that he/she may have and taking advantage of the neuropedagogical and neurodidactic contributions that are a support for the knowledge and implementation of strategies oriented to the understanding and inclusion of neurodiversity. Such reflection was possible with the achievement of the proposed objective.

The barriers to teaching and learning a foreign language to the neurodiverse population were identified through the application of research instruments to teachers and students through which as a final observation the existing barriers in teaching are of a theoretical-conceptual and didactic nature. There is great acceptance of the existing methodologies by the students and the level of languages is high, teachers need to be directed towards the knowledge of more inclusive strategies that promote the participation of all, also understanding that each one has a unique brain. Political barriers were also identified because the institution in general does not present so far control, surveillance or development of actions towards IE as mandated by the Colombian state.

As for learning barriers, didactic barriers were found; some students stated that the same students always participate, that sometimes the time stipulated for the activities is not enough, so it is considered of utmost importance that teachers consider the rhythms and learning styles and encourage the active participation of all, generating to a more IE.

The didactic and learning preferences of foreign languages were achieved by means of the results of the survey and interview that allowed to know that teachers are very creative, recursive and use different strategies and interactive activities. It includes games, songs, conversations, readings, use of ICT that are interesting and motivating for their students, however, although teachers have a positive attitude towards neurodiversity and inclusive education, they state that they need to be oriented to the attention to diversity.

The design of a proposal with neurodidactic guidelines towards IE in the teaching and learning of a foreign language was proposed, which was achieved by considering the strength of teachers in terms of their dedication and creativity, which facilitated the design of the pedagogical proposal entitled "UDL in the teaching of foreign languages" through the website "NeuroELE". The proposal contains information on neuropedagogical and neurodidactic guidelines with referenced and simplified quotations, as well as videos, images, mental and conceptual maps predesigned to facilitate the understanding of what is shared and based on the principles of the UDL to diversify its presentation.

Likewise, recommendations from other authors, strategies and activities according to the UDL were published to guide the teacher towards inclusive education and motivate the student to participate actively and spontaneously in the teaching and learning of foreign languages.

Finally, the proposal was shared with specialists for its evaluation and enrichment was achieved by receiving recommendations and comments from the expert judges that not only allowed the website to be evaluated but also improved, the corresponding adjustments were made and others were projected for the future. The good appraisals and the approval of the page by the specialists are highlighted, standing out for its content and relevance, and the necessary corrections were also applied to some additional accessibility features. This proposal will be put at the service of the educational community, not only of this place, but can also be used by others that require guidance for their teachers and are interested in learning and transforming their work.

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