

# Turkish Online Journal of Educational Technology

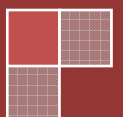
*Special Issue for INTE 2017  
October 2017*

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**THE  
TURKISH ONLINE  
JOURNAL  
OF  
EDUCATIONAL  
TECHNOLOGY**

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**ISSN: 2146 - 7242**

**Indexed by**

Education Resources Information Center – **ERIC**  
**SCOPUS - ELSEVIER**

## **Adaptation of Curricular Activities as a form of Inclusion - An Experience Report**

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### **ABSTRACT**

Inclusive education implies a bilateral commitment between people with and without disability. The activities in preschool education, such as the exploration of children's stories, nursery rhymes and songs, are special moments of knowledge sharing, linguistic development, social interaction and emotional improvement. Truly sharing these moments means sharing channels of communication between the interlocutors to provide an effective exchange of information between sender and receiver. Following this principle, during a school year, a set of activities was adapted in accordance with the needs of children with Autism Spectrum Disorder (ASD), so that they could be performed in a class context targeted at children both with and without developmental disorders. This adaptation, based on linguistic simplification/structuring and the provision of multimodal information, fulfilled one of the fundamental principles of the Salamanca Statement, namely that students with and without problems should learn together. This resulted in a more active and effective involvement of the 4 children with ASD in the dynamics of the class, as well as better ability by their colleagues to deal with other realities, fostering early social and civic concerns and competences.

**Keywords:** ASD, Inclusive Education

### **INTRODUCTION**

In 1994, the Salamanca Statement (UNESCO, 1994) established the transformation of the education system in an inclusive system for all children, regardless of individual differences, as a political and economic priority. In Portugal, the concept of inclusive schooling became official when legislation on special needs education came into force with Decree-Law No. 3/2008 (after publication in the Portuguese Official Journal, 1<sup>st</sup> series, No. 4 on January 7<sup>th</sup>, 2008) ("Decreto-Lei n.º 3/2008 de 7 de Janeiro," 2008). This Decree-Law regulates specialized educational measures for children with significant limitations in terms of activity and participation, resulting from permanent functional and structural changes (special educational needs, SENs), from preschool to secondary education. The objective is to ensure the principle of equal opportunity, both in access to education and learning results. In the particular case of children with autism spectrum disorder (ASD), Article No. 25 of the Decree-Law provides for the creation of Structured Education Units for Students with ASD (*Unidades de Ensino Estruturado para Alunos com Perturbações do Espectro do Autismo*, UEEAs) in schools that integrate students with this diagnosis. The creation of UEEAs sought to provide an adequate educational response to students with special needs. This decision included not only students but also the whole school environment, in which teachers play a particularly relevant role. Among other objectives, these units aim to “promote the participation of students with autism spectrum disorder in curricular and enrichment activities with their peers from the classes they belong to”, “apply and develop interdisciplinary intervention methodologies that, based on a structured educational model, facilitate learning, autonomy, and adaptation processes within the school context” (“Decreto-Lei n.º 3/2008 de 7 de Janeiro,” 2008). UEEAs are expected to “adapt resources to children’s needs”, “ensure the necessary support for speech therapy”, and “create spaces for reflection and training about differentiated learning

strategies from the perspective of the development of multidisciplinary and collaborative work among professionals” (“Decreto-Lei n.º 3/2008 de 7 de Janeiro,” 2008).

It was within the framework of this Decree that the speech therapist leading this project had the opportunity to work in a UEEA, where she became aware that it is still necessary to further improve the inclusion plan to achieve more effective educational practices in classrooms.

ASD is a neurodevelopmental disorder that affects all areas of child development, but most notably communication and interaction (Capucha & Pereira, 2008; Wetherby & Prizant, 2000). Although there is great variability in the characteristics of children with ASD, the Diagnostic and Statistical Manual of Mental Disorders - DSM-5 (American Psychiatric Association, 2014) defines two major diagnostic criteria: A) persistent deficits in social communication and social interaction across multiple contexts, and B) restricted, repetitive patterns of behavior, interests, or activities. It also determines that C) symptoms must be present in early childhood.

Language, the development of which is determined by the interaction between biological, cognitive, psychosocial, and environmental factors (ASHA, 1982; Sim-Sim, 1998), is a complex, organized, and dynamic system of conventional symbols (sounds, words, and signals) that allows human beings to communicate and think (ASHA, 1982). A socially shared linguistic code is essential to effective communication between interlocutors (Franco, Reis, & Gil, 2003; Sim-Sim, 1998). Speech, defined as “the production of language in its phonetic form through a process of sound articulation” (Sim-Sim, 1998), is the main communication vehicle in society. However, this communication channel is not effective for many children with ASD because they possess a limited speech mechanism, or no speech mechanism at all, to express themselves – or because they do not understand their interlocutors’ speech. For these children, speech ceases to fulfill its communication role and it is necessary to use other means of communication that contribute to identity building, knowledge, and socialization. Specialized technicians, namely speech therapists, are responsible for devising solutions to improve communication as much as possible (Morris, 2005).

Based on the needs identified in a kindergarten with a UEEA during a school year, several activities were adapted to be implemented in the class, among children with ASD and their peers. Inclusion is believed to imply a bilateral and symbiotic commitment between people with and without impairment. Thus, it is important to stimulate children with SENs to achieve their full potential within their condition and environment, as well as enable society to include them.

The adaptation of some curricular activities aimed to ensure a simpler, more structured and multimodal presentation of information with the purpose of facilitating understanding and communication when compared to the traditional verbal/oral communication channel.

It would be naive to think that the skills of children with ASD could be boosted to the levels of their peers with no developmental impairment. Rather, this adaptation sought to adjust the method and content of information to the children’s needs in order to maximize each child’s potential and contribute to the achievement of an inclusive school.

## **METHODOLOGY**

This project is a case study and the result of the speech therapist’s professional experience of the daily needs and demands of a kindergarten.

### *Characterization of the context*

The study was conducted in a kindergarten with a UEEA in the Centro region of Portugal that applies the Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) program. This pedagogical response is centered on a set of principles and strategies that, by harnessing the areas of greatest potential in ASD students (e.g., visual processing, memorization of functional routines, and special interests), promotes the organization of places, time, materials and activities in order to structure the external environment, making it predictable and, thus, promoting internal organization. It is, however, a flexible model, capable of being adjusted to students’ individual characteristics to facilitate learning and autonomy processes (Capucha & Pereira, 2008).

Children with ASD remained in the usual classroom (which was adapted to the TEACCH structured teaching model) during most classes, only leaving for set periods of time to receive individualized and specialized support provided by the SEN teacher, the speech therapist, and the occupational therapist.

#### *Characterization of the participants*

All 21 children from the only classroom in the kindergarten participated in this study. The children were aged 4 to 6 years ( $M=5.01$ ;  $SD=0.51$ ). Among them, four children (three boys and one girl) had been diagnosed with ASD. From a functional perspective, the children with ASD were at different levels in the continuum of the spectrum and showed different clinical expressions of the disorder. Therefore, this small group highlights the variability and heterogeneity found in the literature regarding the communication and linguistic skills of children with ASD. Based on the classification of language subgroups (Rogers, 2006), two children (I. and F.) belonged to the subgroup of verbal children (they imitate speech - often in an echolalic manner - but are unable to deconstruct their interlocutors' speech and infer relationships between the form, content, and use of speech (Peixoto & Varela, 2009)). The two other children (M. and C.) belonged to the subgroup of nonverbal children, with no vocal imitation (they did not imitate adult behavior).

Children I. and F. interacted socially with adults they knew and peers, albeit with qualitative limitations, through verbal and non-verbal language. Children M. and C., on the other hand, exhibited social behavior marked by isolation, stereotyped movement disorders and, in the case of M., self-harm episodes. Children M. and C. used an aided Alternative Communication System (Communication Notebook) by means of ARASAAC (Aragonese Portal of Augmentative and Alternative Communication) pictograms, which they were learning through the PECS (Picture Exchange Communication System) teaching methodology. This system has different stages of implementation and aims to develop the understanding, communication, spontaneity and autonomy of people with severe communication difficulties. Pictograms are images that represent a word/concept to make it easier to understand, promote access to information and the participation of people with communication difficulties, and develop literacy and learning skills (Encarnação, Azevedo, & Londral, 2015). Pictograms were selected for each child's communication notebook according to his/her daily nutritional, hygiene and recreational needs.

The group was culturally diverse, comprising 12 Portuguese children and 9 children of other nationalities. Although there were no other children with SENs in the class, two children were referred to a neurodevelopmental pediatrician because their language development seemed greatly below the expected level for their age. To date, there are no clinical findings and some of the foreign children were not yet at the stage of Portuguese language acquisition.

## **PROCEDURE**

### *Adaptation and implementation of the activities*

Several authors state that visual stimuli are a good learning strategy for children with ASD (Bruni et al., 2013; Fossett, 2004; Goldstein, 2002; Paasche, Gorrill, & Strom, 2010), due to their greater capacity to memorize visual/spatial stimuli than auditory stimuli. Taking this into account, the speech therapist adapted content taught in the classroom, notably that which was more demanding in terms of language skills (children's stories and songs, rhymes, recipes, etc.). These activities were carried out weekly or every other week, according to the class schedule. The kindergarten teacher provided the classroom activity plan to the speech therapist to allow the adaptation of activities to the characteristics of the children with SENs. The adaptation consisted in converting content into ARASAAC pictograms (Gobierno de Aragon, 2017) and their linguistic adaptation (Figure 1). These pictograms, which represented words and concepts, were selected due to their graphic quality and iconicity (the similarity between a graphic symbol and its meaning (Wetherby & Prizant, 2000)). In addition, both children who used the Alternative Communication System were already familiar with them. The linguistic adaptation consisted in rewriting the original sentences by: [1] reducing the length of the sentences; [2] simplifying the more complex sentences from a linguistic/cognitive perspective, mostly following Subject-Verb-Object order; and, given that children with ASD have difficulty understanding abstract concepts (Kutscher, 2011), [3] replacing abstract concepts with concrete ones while maintaining the semantic value within the linguistic context.

In most of the adapted activities, pictograms were framed using the Fitzgerald Key, which enhances sentence structure visually through a consistent color coding system for each part of speech: yellow for

people, green for verbs, blue for adjectives and adverbs, orange for nouns, pink for personal-social words, and white for function words (Encarnação, et al., 2015).

The goal was to help children to keep attention, understand the main concepts of the story, boost their initiative to communicate, and improve the quality and quantity of their communication. Children with difficulties in verbal comprehension and expression were provided with both the verbal label and visual representation of the concepts (multimodal language). Some of the adapted activities were provided in paper format, others in digital audiovisual format, and others used laminated images and signs with Velcro added, to ensure the durability of material and promote child interaction and participation. Whenever the activity involved handling signs (building sentences, organizing a narrative structure, etc.), children were given clear verbal and visual guidance.



**Figure 1:** Example of adaptation of one children's story.

The teacher in charge and the speech therapist selected and adapted the different activities based on the need to stimulate the different language components. The semantic component (the ability to acquire and express new words - their vocabulary - and their meanings, as well as the relationship between them (Franco, et al., 2003; Sim-Sim, 1998)) was developed through the representation of each word in a pictogram. Morphosyntax, which is essential in developing command of a language, is composed of rules that use parts of speech (nouns, verbs, adjectives, prepositions, etc.) and define the conditions that govern the organization and combination of words in sentences (Franco, et al., 2003; Mateus, Brito, Duarte, & Faria, 2003; Sim-Sim, 1998); (Gerber, 1996; Rigolet, 1998; Sim-Sim, 1998). This component became clear in the material that was adapted using the Fitzgerald Key.

Phonology is defined as the ability to learn and apply rules on how to use and combine speech sounds (Franco, et al., 2003; Sim-Sim, 1998). The teacher developed this component through songs and alliterations in rhymes.

#### *Results monitoring of the adapted activities*

The project was developed between the beginning of the second school term (January 2016) and the end of the third term (July 2016). During this time, results were monitored through direct observation of the children in the learning space (in adapted and non-adapted activities), interviews with the teacher in charge and SEN teacher, analysis of the notebook and the “Personal and Social Development” and “Expression and Communication” sections of the quarterly evaluation grids completed by the teacher in charge.

#### **Results and discussion**

The adaptation of activities within the classroom seems to have reduced the limitations and restrictions of children with ASD regarding their activities and participation. This was particularly evident in children I. and F., who possessed verbal-oral language skills. Thus, it appears that the visual communication system (signs) has helped to overcome the difficulty in understanding purely auditory information.

Children with ASD displayed greater levels of attention and active participation, albeit in different ways, in the adapted activities when compared to non-adapted activities. In the case of I. and F., these children displayed initiative to communicate more often, which points to improved self-confidence and

communication intentionality, as well as a greater ability to keep up topics of conversation related to the activities at hand, both with adults and their peers, thus contributing to the acknowledgment of social roles.

As for M. and C., the main changes in these children were the decrease in their levels of agitation and stereotyped movement disorders, and the improvement in their ability to self-regulate and maintain eye contact (although brief) with their interlocutor and the materials being used. These two children also displayed behaviors of motor imitation, such as clapping. However, this behavior was not exclusive to or more frequently observed in adapted activities. In the third school term, M. pointed to the used material twice when the activity was no longer in progress, and sat at the work table to explore it with the speech therapist, albeit only briefly. These displays of communication intentionality and attention, which, according to the literature, predict understanding and expression of verbal language in typically developing children (Peixoto & Varela, 2009), emerged for the first time in this context.

The observation of greater participation in adapted activities was not exclusive to children with ASD, as it was observed in most of the group, notably in children with poor language skills such as foreign children and two children with language difficulties.

When the activities started, children I. and F. had difficulties scanning in the reading direction (left - right), which is not uncommon in ASD (Kutscher, 2011). Throughout this project, children were able to develop this skill by performing appropriate readings using pictograms and building sentences in the correct direction and order. This ability allowed them to better follow the activities, which was demonstrated by the lower frequency of immediate echolalia and a greater ability to understand the main ideas of narratives and reproduce these using semantic content and more mature grammatical structure (aided by pictograms). According to Fossett (2004), the use of visual aids and graphic signs are good strategies to promote literacy. The observations of this study are in line with a case study by Francisco (Francisco, 2016), who adapted a book using the Communication Pictographic System. This system, when compared to the original version, was able to structure and facilitate understanding and communication in four children with developmental problems.

In addition, the repetition of adapted activities within the context of individualized support seems to contribute to the observed development, as repeating stories allows children to become familiar with them, thus benefiting the sequencing of events and memory (Ferreira, Ponte, & Azevedo, 1999).

Despite the development mentioned, and in view of the descriptive nature of this paper, it should be noted that because children with ASD receive support in many forms (special education, speech therapy, and occupational therapy), the progress cannot be solely explained by the inclusive work carried out through the adaptation of materials. However, all the professionals who took part in this project acknowledge its contribution.

The adapted activities, resulting from the simplification of syntactic structures and conversion of symbols, were not exclusively aimed at children with ASD, but rather at the whole group in order to enhance the naturalness of other forms of communication. Thus, it was possible for one sender to share two common codes with different receivers: verbal language and visual information. This conversion ensured that children with difficulties understanding verbal language were able to understand the main concepts of a story when provided with both the verbal label and visual representation of the concepts. This adaptation allowed students with SENs to overcome difficulties, giving them equal access to story contents, and raised other students' awareness of other forms of communication. Most children in the group acquired basic notions of Augmentative and Alternative Communication and displayed behaviors in line with this learning in their interactions with children with ASD during daily activities in the kindergarten. By the end of this study, the remaining children had become more competent communication partners. In order to communicate, they often retrieved pictograms themselves, and used the symbols to interpret what was said to them.

Early awareness by children of inclusion is of utmost importance in building positive environments and promoting ethical and social values for the future (Correia, 2013).

According to Wetherby & Prizant (2000), an effective ASD program should include not only learning more efficient forms of communication and motivation but also developing verbal and non-verbal understanding and imaginative capacity. The adaptation of activities provided a response to these challenges while maintaining the content of the class, placing equal importance on both components. The adapted activities

improved both the quality and quantity of experiences and exchanges among children with and without SENs.

The different presentation of the material elicited the curiosity and motivation of all those who took part, raised students' awareness, and increased communicative interaction between them. The interactions and experiences enable natural integration of children with communication difficulties by integrating them in their class, school, and society. Literature supports this idea, suggesting that interaction between children with ASD and typically developing children in the same settings improves social interaction between both groups and produces acceptable social behaviors (Levy, Kim, & Olive, 2006).

The adapted activities also proved to be useful to the teacher in charge and the SEN teacher by allowing the use of a multimodal language (auditory and visual), which facilitated the teaching-learning process, and by aiding the evaluation of children's skills.

As far as limitations are concerned, the main difficulty in this study was adapting the material to be used in the classroom due to the heterogeneity of competences found in the children with ASD. This also limited the creation of grids to monitor the children's evolution.

### **Final remarks**

Communication and language disorders hamper the development of other cognitive skills, namely learning, thinking, and reasoning. For this reason, this project contributed to the psycholinguistic and social development of children with ASD and their peers. It is important to conduct similar projects since 75-90% of autistic children will gain a certain degree of functional use of verbal language if they receive adequate attention during preschool age. (Rogers, 2006).

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