

ATYPICAL DEVELOPMENTAL TRAJECTORIES AND SYMBOLIC ACQUISITION IN CHILDREN WITH ASPERGER SYNDROME. CASE OF CHILDREN AGED 4 TO 8 YEARS IN CAED-CAMEROON*

Estelle MEVO NOMO¹, Adolf MOTE²

DOI: 10.52846/AUCPP.2023.1.08

Abstract

This contribution repositioned the debate on atypical developmental trajectories and symbolic acquisitions in children with Asperger syndrome. Atypical developmental trajectories are a mode of functioning and structuring governed by attitudes, atypical lines of conduct, gestures and even unconscious reflex movements that are clearly deviated from the developmental stage of the person. In childhood, the awakening of thought and learning in Asperger's syndrome involves a significantly different development. For (Damasio, 1995), individual genetic differences, the effects of age, experience, and especially the emotional factor account for much of the decision making. Data were collected from children with Asperger's Syndrome and their caregivers at the CAED. Analyzed using thematic content analysis, it appears that in ontogenetic development, neurocognitive determinants account for symbolic acquisitions in children with Asperger syndrome. To understand these atypical developmental trajectories, Thomas and Baughman's (2014) neuro-constructivism states that not all cognitive functions are damaged or maladaptive in Asperger syndrome. Furthermore, consideration of the interactive specialization of theories of cognition must be constrained by experimental data. Thus, the developmental atypicalities of children with Asperger's Syndrome are driven by the desire to open up to the world, to solve problems in a timely manner, hence the symbolic acquisition of retro and systemic proactivity.

Key words: *Atypical developmental trajectories; Symbolic acquisition; Child with Asperger's syndrome; Ontogenetic development; Retro and systemic proactivity.*

* This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. Authors retain the copyright of this article.

¹ PhD student in Developmental Psychology, laboratory of Psychopathology and clinical Psychology, University of Yaounde I, Cameroon, e-mail address: estellemevo92@gmail.com

² Teacher Assistant, PhD in Psychopathology and Clinical Psychology, laboratory of Psychopathology and clinical Psychology, University of Yaounde I, Cameroon, e-mail address: adolfmotus@yahoo.fr, corresponding author

1. Introduction

The symbolic acquisition of children with Asperger's Syndrome is a relevant issue in today's societies because this pervasive developmental disorder, unlike typical autism, is marked by the absence of cognitive and language delays. Although they have a right to life, to be progressively accepted in our families and institutions, and although they have a right to schooling, children and adolescents with high functioning autism or Asperger syndrome still face many obstacles to integrate into society. Difficulties abound not only in the self of the deficient person who repeatedly manifests uncontrolled gestures, rituals and motor and sensory attitudes, but especially in the typical person who unfortunately perceives children with Asperger's Syndrome only from a morbid point of view. In order to overcome these difficulties and to promote the symbolic acquisition of children with Asperger's syndrome, as well as other pervasive developmental disorders and motor or visual disabilities, a set of laws exists both at the international and national levels.

At the international level, and beyond the atypical developmental trajectories of children and adolescents with Asperger's syndrome, the Universal Declaration of Human Rights stipulates that "All men are born free and equal". In order to promote the integration and access to economic, social and political life of people with disabilities or mental disorders, an International Day was proclaimed in 1992 by the United Nations on December 3rd.

To facilitate their integration, which, moreover, faces many obstacles, the public authorities are providing some answers to the situation of people with disabilities through Law No. 2010/002 of April 13, 2010 on the protection and promotion of people with disabilities (who says promotion, betrays the evolution of thought, problem solving in situations and the imaginative flexibility of these people). According to this law, in its article 38 paragraphs (1), (2) and (3) stipulates that:

"Persons with disabilities who have completed a vocational or educational training program benefit from preferential measures, in particular the age exemption when recruiting for public and private jobs compared to able-bodied persons, when the position is compatible with their condition"; "For equal qualifications, priority in recruitment is given to the disabled person. However, they may only be subjected to tests compatible with their condition".

In Cameroon, there is no constitutional definition for persons with functional limitations. However, Law N°83/013 of July 21 1983 and its implementing decree n°90/1 516 of November 26, 1990 on the protection of persons with disabilities fill this void. It should be noted that the 1983 law covers all the categories of disabled people existing in Cameroon, especially the blind, the deaf, the mute, the mentally retarded, the autistic etc. To concretize its position towards people with disabilities, the Government of Cameroon has proceeded in 2011 to the recruitment of 25,000 young people in the civil service among which 52 young people with disabilities. In addition, the Ministry of Social Affairs (MINSa) has signed a partnership agreement with the Ministry of Employment and Vocational Training (MINEVOT) to facilitate the employment and vocational training of people with disabilities.

The person with autism, being a citizen of the State, should also enjoy this privilege, as this right is constitutionally recognized to every man. Article 175 of the same code also states that the employment of disabled persons is regulated by law. Decree 90/1516 of November 26, 1990, which sets the terms of application of Law 83/013 of July 21, 1983, on the protection of disabled persons, provides for a 10% quota for disabled persons in mass recruitment for public and private jobs. The law 2010/002 on the protection and promotion of disabled people went further by simply stating that in case of equal competence (with the able-bodied person of course) the priority of recruitment is given to the disabled person, the same law specifies that the State and the decentralized communities protect some jobs for people with functional limitations.

The Ministry of Social Affairs also created the Yaoundé reception center for children in distress, to be able to protect, accompany and promote the full development of abandoned disabled children. Mbassa (2014) shows that over a period of 10 years, 768 children were received at the Yaoundé reception center for children in distress (abbreviated to CAED), 507 children were abandoned by their parents, or 66, 01% of the total sample.

Among them, two main types of abandonment were distinguished, 285 of which were temporary or emergency abandonments (representing 37.1% of the total sample and 56.2% of the population of abandoned children). The main victims are orphans, children of parents living with HIV, children of parents who have lost their jobs, abused children, street children, children with motor or visual disabilities, children in conflict with the law, children of the mentally ill, and in the case of the research, children with autism, who are commonly referred to by society as "snake children," "vampire children," etc.

According to statistics in Cameroon, people with disabilities and people with Asperger's Syndrome in particular constitute the category with the highest rate of inactivity and unemployment. Indeed, their unemployment rate is 90% compared to 40% on average for the whole population of working age or simply to integrate into society and solve problems.

Thus, the unemployment rate of people with disabilities is twice as high as that of the entire working population. There are several explanations for the symbolic acquisition difficulties of children with Asperger's syndrome. On the one hand, the difficulty in creating attachment links in the family and in society, the low level of qualification of these people (linked to a more difficult school career) which favours the gap between their level of competence and that required by companies and, on the other hand, the repeated and daily manifestation of stereotypies of children and teenagers with Asperger syndrome; Whether in the private sector or in the Public Service, the reading or even the understanding of these atypical developmental trajectories in people with high functioning autism is still a myth in Cameroon.

For Piaget (1967) and Luria (1973), in atypical developmental trajectories, symbolic acquisition in children with Asperger's Syndrome requires that: not all cognitive functions are damaged or maladaptive, as is the case in cognitive and language development. Symbolic acquisition in children with Asperger's syndrome

is also due to the fact that the ideal pro- and retroactive functions in the co-construction of thought are in place. Through this study, we identify subtle deficits in general abilities, which are nevertheless at the origin of differential effects on the phenotypic results observed in different cognitive domains. Indeed, a very slight impairment at an early stage of development can have a considerable impact in: some domains (the so-called "selectively impaired cognitive modules") and a very subtle impact in other domains (the so-called "intact cognitive modules").

It is therefore fundamental to focus not only on areas that demonstrate the severity of deficits in developmental disorders but also to conduct in-depth studies of areas that at first glance appear to be unaffected (Karmiloff-Smith, 1998). To the extent that the brain develops as a whole from embryogenesis onwards, it seems to us highly unlikely that children with genetic disorders will begin with a disparate set of well-segregated cognitive modules, some of which would be deficient while others would be preserved.

The appearance of complex functions in the infant cerebral cortex is attributable to a proliferation of synapse formation, the connections that allow knowledge to be encoded. This early precipitation of synapto-genesis is under genetic control and appears to occur throughout the cortex independent of environmental contributions (Huttenlocher, 2002). However, synapto-genesis creates an excess of connections (far in excess of those that will be retained in the final brain system) and it is the environment that will strengthen the connections that are functionally useful. Unused connections will be progressively weakened or eliminated. This process of elimination continues for several years, until late adolescence for the frontal regions for example, and involves an immense capacity of the environment to shape the mechanisms that genetic processes have put in place (Thomas, 2014).

2. Methodology

2.1. Participants

The research focused on a group of 12 residents with Asperger's Syndrome living at the Yaounde reception center for children in distress, composed of girls and boys between the ages of 4 and 18 years. However, only two (2) children had Asperger's syndrome corresponding to our eligibility criteria. They are in the age range of 4 to 8 years old and are both in the middle section in local schools (Tylou, aged 8, is in the middle section at CESSAM-CRERA located in Ngousso and Lolo, aged 4, is in the middle section at the trilingual school of TIAMA in Ngoa-ekele, Yaounde).

Table 1. Case profiles and framers' profiles

Case	Stereotypes in presence	Framers' profile		Age
		Public servant	Director of the CAED	40 years
				37 years
		Decision-maker	Framer	28 years
The Tylou case (8 years)	<ul style="list-style-type: none"> - Atypical non-verbal communication behaviors used in social interactions; - Atypical in the socio-emotional reciprocity; - Atypicalities in the codes needed to relate to non-autistic people. 	Decision-maker	Framer	36 years
		Caregiver	Nurse	33 years
The Lolo case (4 years)	<ul style="list-style-type: none"> - Atypical non-verbal communication behaviors used in social interactions; - Atypical in the socio-emotional reciprocity; - Atypicalities in the codes needed to relate to non-autistic people. 	Decision-maker	Framer	31 years
<p>Only these two cases in the study met the eligibility criteria of the study, (age, they attend and have been diagnosed with Asperger's syndrome. The other children and adolescents with autism and or Asperger syndrome are older, not attending, and not diagnosed. The MI case (18 years old); The ME case (18 years old); The NO case (15 years old)</p>		Stove	Stove	38 years
	<ul style="list-style-type: none"> - Atypical non-verbal communication behaviors used in social interactions; - Atypical in the socio-emotional reciprocity; - Atypicalities in the codes needed to relate to non-autistic people. 	Intern	Framer	29 years

2.2. Instruments and procedures

The techniques used to collect data from the supervisors of these cases were the focus group and the four-quadrant cognitive task model (verbal sequential and non-verbal sequential on the one hand, verbal simultaneous and non-verbal simultaneous on the other hand). The research took place between September 2020 and June 2022.

2.2.1. Focus group

The focus group was organized on the basis of an interview guide that we tried to make explicit. The themes and sub-themes that we exploited by focusing our attention on information that shed new light and that needed to be explored in greater depth through follow-up and requests for explanations.

2.2.2. Justification of the choice of the focus group as a data collection method

Theoretical analysis has shown that it is impossible to treat the human psyche as if it were cut off from its environment; thus, in the way of managing atypical developmental trajectories, it is necessary to articulate the psychic space with other spaces (Dupré La tour, 2005). It was desirable to use the focus group technique so that the subjects could rediscover a sense of community.

2.2.3. Progress of the focus group

The point of view of each member was required for one hour for the focus group itself and 30 minutes for the synthesis. The group could allow us to distance ourselves from the children with Asperger's Syndrome at the Reception Center for Children in Distress in Yaounde. It could allow the speaker to take some distance, in relation to what affected him/her in the situation he/she exposed. To hear the possible interplay between the word he has put down and the one that could have been put down. The word of the other came to unstick the others of their history, to unstick them of their impulses, their repetitions, their projections and came to put a space of breathing.

2.2.4. Focus group framework

The interview guide in this work was made in order to collect data or information from the respondents. It should be noted here that this instrument was used for individual interviews. This interview starts with a question and, depending on the answer obtained, it can lead to other questions, in other words, it is a semi-directive interview.

3. Ethical considerations

We wanted to reassure the respondents that the anonymity of the personal information collected would be respected. In order to participate in the study, we insisted on obtaining free and informed consent from each participant. The study was approved by the management of the CAED.

4. Results



Figure 1. Introduction to graphic design and colouring

Tylou has difficulty adapting to the unexpected and moving quickly from one task to another, such as doing an assignment with regularly changing instructions or changing colours in the same pattern.

He cannot replace information learned a few seconds ago with important new information. For example, if his mother asks him to bring her bread and butter, but then changes her mind and asks for bread and orange juice, Tyler will still bring her the bread and butter, being unable to replace the old information with the new (butter with orange juice).

However, a coordination and planning of the movements will make it possible to cut a whole in its components, to analyse the form, the colour, the relative position of each element at Tylou.

He is more able to identify colours and geometric shapes and to classify them in the geometric figure chart. He also relies on memorization of the rhythm and sequence of steps required in the execution of a given task.



Figure 2. Verbal sequences: attentive listening recognition and approximate identification of numbers and letters

The case of Lolo (4 years old) does not really have difficulties with his knowledge memory or his semantic memory. He can, for example, recognize and recite the numbers from 1 to 20 and the letters of the alphabet from A to Z. He has difficulty with his episodic memory, because he cannot remember certain events that he has experienced. He tends to opt for mutism. He sometimes fails to complete his activities because of difficulties with his executive functioning, especially with his working memory. Lolo lacks flexibility and agility. However, he is able to overcome his fears and try new activities such as clapping for himself (the reward you get when you succeed brilliantly and quickly in one or more cognitive tasks). He is already able to cope with sitting, standing, pacing, and following the rows according to the time and requirements of the instruction.

These results show that there is a way of thinking, a way of communicating independently of the rules and that instead of a stable and common behavior, we have the autistic way of thinking. The autistic way of thinking can use a completely illogical material to reach its logics. It is a mental reproduction of links (association and link). This ontogenetic evolution of language in children with neurodevelopmental conditions is based on a central idea: the environment, in the broadest sense, influences the child's development. Bronfenbrenner (1996) specifies that the individual develops in interaction with his environment.

5. Conclusion

The research was based on understanding the developmental trajectories that account for the symbolic acquisition abilities of children with Asperger's syndrome. When Asperger's is misunderstood and diagnosed late, the child continually regresses. He or she becomes socially inhibited and opts for speech mutism. These

social cognitive deficits are in clear deviation from the developmental stage of the person. Hence the predominance of dismantling in his psyche. He finds himself, by his nature and without a good support, in the in-between with a cleavage of the object and a fragmented psyche. To make contact, process the context, and solve the puzzle, Thomas and Baughmann (2014) clarify that one must not only go through the progressive maturational development that Piaget (1967) and Luria (1973) suggest. In addition, one must go through the probabilistic epigenesis that Gottlieb (2007) advocates. But, it is also necessary to go through the contextual dependence or the interactive specialization put forward by Mareschal *et al.* (2007). Far from using rigorous and fixed models, flexibility and constant innovation are needed because individual differences, the effects of age, experience, and especially the emotional factor count for a lot in the decision making. To this end, it is necessary to focus on the way in which the child with Asperger's Syndrome understands his or her situation according to his or her knowledge, past experiences and context, but also the way in which he or she manages to change his or her representation in order to cope with situational changes, characterizing according to Clément (2009), cognitive flexibility. From the cognitivist perspective, which focuses on the maturational and progressive development of the cognitive potential of Asperger's children, Piaget shows that the child with Asperger's syndrome gains access to concrete pre-operational thinking. In childhood, the major cognitive task can be seen as the mastery of thought, of one's own thinking process. First, the awakening of symbolic and representational language related to the pre-operational stage is marked by frontal lobe stimulation in the cognitive tasks administered to Asperger's children. Secondly, the linking of the various properties of an object (color, size, shape and name) favors access to the principles of conservation which clearly corresponds to Piaget's (1967) concrete operative stage in the sequential cognitive tasks and verbal and non-verbal simulations of Flessas-Lussier (1995) proposed to children with Asperger's syndrome, hence their symbolic acquisitions.

The results obtained were thus influenced by the choice of analyzing not only what the supervisors said (focus group analysis) about the problematic behaviours displayed by children with Asperger's Syndrome on a daily basis, but also by analyzing the four-quadrant cognitive task model (verbal sequential and non-verbal sequential, verbal simultaneous and non-verbal simultaneous) administered to children with Asperger's Syndrome directly observed at the CAED and delayed in their biological families. In particular, we were able to comment on a possible link between atypical developmental trajectories and symbolic acquisition. Indeed, insofar as all of the participants with autism in our study presented significant qualitative difficulties in oral expression, social interaction, and causal attribution, they used primary and secondary stereotypies to unconsciously compensate for their disorders, their limitations, their gaps, etc. It would thus be relevant to reproduce this work with patients with more severe tetraplegic autism, and to adapt the conditions of the protocol to the severity of the disorders.

REFERENCES

1. Bronfenbrenner, U. (1996). "The process – Person – Context – Time" model in developmental psychology research: principles, applications and implications. In : R. Tessier & G.M. Tarablulsy (Eds.), *The ecological model in the study of child development*, 9-58, Ste- Foy, Qc: Presses de l'UQ.
2. Clément, E. (2009). *La résolution de problème à la découverte de la flexibilité cognitive. Les classiques du fond*. Armand Colin.
3. Damasio, A. (1995). *L'erreur de Descartes*. Odile Jacob.
4. Dupré La Tour, M. (2005). *Les crises de couples, leur fonction et leur dépassement*. Couple, famille et métamorphoses. Érès.
5. Flessas-Lussier, J. (1995). The impact of cognitive style on learning. *Association canadienne d'éducation de langue française*. 25(2), 48-63. DOI: 10.7202/1080659ar
6. Huttenlocher, P.R. (2002). *Neural plasticity*. Harvard University press.
7. Karmiloff-Smith, A. (1998). Development itself is the key to understanding developmental disorders. *Trends in cognitive sciences*, 1; 2(10), 389-398, DOI: 10.1016/s1364-6613(98)01230-3.
8. Luria, A.R. (1973). *Fundamentals of Neurophysiology*. Working brain, Basic books.
9. Mareschal, M., Sirois, S., Westermann, G., Johnson, M. H. (2007). Neuroconstructivism. *Perspectives and prospects*. Oxford University press. 10(1): 75-83. DOI: 10.1111/j.1467-7687.2007.00567.x
10. Mbassa. (2014). *Historique du Centre d'accueil des enfants en détresse de Yaoundé. Echellon et évolution des enfants abandonnés*. CAED-Cameroun, MINAS.
11. Piaget, J. (1967). *Psychologie de l'intelligence*. Armand Colin.
12. Ponsot, G. (2011). Les stéréotypies chez l'enfant normal et pathologique. *Mt pédiatrie*. 14(2), 95-101.
13. Thomas, M., Baughman, F. (2014). Neuroconstructivism: understanding typical and atypical developmental trajectories. *Enfance*, 3, (3), pp. 205-236. DOI: 10.3917/enf1.143.0205
- 14.*** Decret n°90/1516 du 26 novembre 1990 fixing the methods of application of the law n°83/13 of 21 july 1983 relating to the protection of handicapped persons. Retrieved at: www.ilo.org/dyn/natlex/natlex4.detail?p_lang=fr&p_isn=21619
- 15.*** Law n°2010/002 of 13 april 2010 on the protection and promotion of persons with disabilities. Retrieved at: www.Juriafrica.com/lex/loi-2010-002-13-avril-2010-18201.htm
- 16.*** Law n°83/013 of 21 july 1983 relating to the protection of handicapped persons. Retrieved at: www.ilo.org/dyn/natlex/natlex4.detail?p_lang=fr&p_isn=46755&p_country=CMR&p_count=323