

Larriane Karen de Campos¹
 Fernanda Dreux Miranda Fernandes¹

School profile and language and cognitive abilities of children and adolescents with autism spectrum disorders

Perfil escolar e as habilidades cognitivas e de linguagem de crianças e adolescentes do espectro do autismo

Keywords

Autism Disorder
 Communication
 Language
 Cognition
 Education, Primary and Secondary School
 Child
 Adolescent

Descritores

Transtorno Autístico
 Comunicação
 Linguagem
 Cognição
 Ensino Fundamental e Médio
 Crianças
 Adolescentes

ABSTRACT

Purpose: Verify the association between the time spent at school per week and the performance of children and adolescents with autism spectrum disorders in non-verbal intelligence test and communicative and behavioral abilities. **Methods:** Participants were 44 children and adolescents aged 6 to 12 years. All participants were enrolled in regular schools. **Results:** Of the 44 participants, 20 did not respond to the non-verbal intelligence test. Therefore, the participants were divided into two groups: Group 1 was composed of 24 participants who were assessed in non-verbal intelligence, behavior and communication abilities; Group B comprised 20 participants who were assessed in communication and behavior abilities. Results for Group A showed significant positive correlation between the time spent at school per week and non-verbal intelligence, and significant negative correlation regarding impairments in expressive language and social/pragmatic abilities. Results for Group B presented a tendency to negative correlations in all associations, with significant correlation only with respect to social pragmatics. **Conclusion:** The overall results for both groups indicate that children with higher non-verbal intelligence scores and better communication and behavior abilities tend to spend more time at school per week.

RESUMO

Objetivo: verificar a correlação entre tempo de permanência semanal na escola, e o desempenho de crianças com Transtorno do Espectro do Autismo em teste de inteligência não verbal e em habilidades comunicativas e de comportamento. **Métodos:** Participaram deste estudo 44 crianças e adolescentes, com idade entre 6 e 12 anos. Todos os participantes estão matriculados em escolas regulares. **Resultados:** Dos 44 participantes, 20 não responderam ao teste de inteligência não verbal; assim, eles foram divididos em dois grupos: - Grupo A: 24 participantes avaliados quanto a desempenho em inteligência não verbal e habilidades comunicativas e de comportamento e Grupo B, com 20 participantes avaliados quanto às habilidades comunicativas e de comportamento. Os resultados mostraram, no Grupo A, correlação positiva significativa entre a frequência escolar e a inteligência não verbal, e correlação negativa significativa entre frequência escolar e as inabilidades em linguagem expressiva e pragmática/social. No que diz respeito ao Grupo B, houve tendência a correlações negativas em todas as relações, mas significância apenas com relação às inabilidades pragmática/social. **Conclusão:** De forma geral os resultados de ambos os grupos indicam que crianças com melhores resultados em inteligência não verbal e melhores habilidades de comunicação e comportamento tendem a permanecer mais tempo na escola por semana.

Correspondence address:

Fernanda Dreux Miranda Fernandes
 Rua Cipotânea, 51, São Paulo (SP),
 Brazil, CEP: 05360-160.
 E-mail: fernandadreux@usp.br

Received: February 02, 2015

Accepted: August 02, 2015

Study carried out at Research Laboratory in Language Disorders in ASD – School of Medicine, Universidade de São Paulo – USP - São Paulo (SP), Brazil.

¹Universidade de São Paulo – USP - São Paulo (SP), Brazil.

Financial support: CAPES.

Conflict of interests: nothing to declare.

INTRODUCTION

The DSM-IV tr⁽¹⁾ classifies the Autism Spectrum Disorders (ASD) as Pervasive Developmental Disorders. Their characteristics include the atypical development of social interactions, cognitive abilities and communication besides a restricted repertoire of activities and interests.

There are also reports in the literature of several decades about cases of autism also presents cases of autism with some kind of intellectual deficits^(1,2).

According to the diagnostic criteria it is based on behavioral observations and reports by the parents⁽³⁾. The severity of the disorder, progresses and aggravations can also be measured by the observation of behavioral characteristics⁽⁴⁾.

The American Psychiatric Association (APA) presented new criteria for the diagnosis of ASD in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). According to this document the individual variations of the ASD symptoms are presented on a continuum from mild to severe⁽⁵⁾. This continuum includes individuals with severe limitations as well as individuals with very mild manifestations of the disorder⁽⁶⁾.

Despite the new criteria have been published in 2013, in this paper the DSM-IV tr criteria were used because the participants were diagnosed before the new classification.

It should be emphasized that the language deficit is considered a fundamental characteristic of ASD in all the diagnostic criteria available in the literature⁽⁷⁾. Exactly how linguistic information is processed and which are the determinants of the language impairment of persons with ASD is still a matter of discussion and the social engagement inabilities and different cognitive processing increase the research difficulties with this population⁽⁸⁾.

Communication disorders in ASD affect both verbal and non-verbal abilities with different severity. Some children do not develop verbal communication abilities and do not acquire speech. Other children present immature language, with the use of jargon, echolalia, pronoun reversal, prosodic disorders and monotonous tone. Those that acquire speech may have persistent difficulties in social reciprocity resulting in problems to engage in conversations. Language comprehension may be delayed and the functional use of language impaired. There may be difficulties to understand humor, figurative expressions, jokes and sarcasm as well as to use and understand body language, gestures and facial expressions^(1,9).

Another study⁽¹⁰⁾ has shown that a disorder in the cognitive mechanism may affect the patterns of symbolic play, creativity, originality and pragmatic resulting on difficulties to represent the mental state of other persons and therefore impairing social interaction.

Cognitive deficits may impair the ability to attribute meaning to social interactions and therefore to participate in them⁽¹¹⁾. In more severe cases there are fewer opportunities of social experiences that favor the cognitive development⁽¹²⁾.

A Brazilian study points out that the diversity of demographic density in several regions of Brazil as well as the social-economic-educational differences constitute challenges to the planning and delivery of health, education and social services to persons with communication disorders. In such diverse contexts as the ones found in Brazil there is the need for different solutions in order to overcome specific barriers of different regions and situations⁽¹³⁾.

Autism is considered a disability in Europe since 1996⁽¹⁴⁾ and in the United States since 1990, when it was included in the Individuals with Disabilities Education Improvement Act (IDEA) where services of intervention, special education and other related to public agencies in the United States are guaranteed⁽¹⁵⁾.

Just in 2012 a law was approved in Brazil creating the national policy regarding the rights of the persons with ASD⁽¹⁶⁾ in which persons with ASD are considered as having a deficiency to all legal matters. This policy guarantees to persons with ASD the access to education and professional training and, when necessary, a specialized assistant in classes of regular schools. This law also states that the child with ASD cannot be barred from school.

The Brazilian basic law of education⁽¹⁷⁾ focus on the rights of students with special needs in its chapter 5. The objective of this chapter is to provide guidelines to the educational system regarding the education of students with special needs in regular classrooms of regular public schools, guaranteeing support services, specialized teachers and adaptation of methods resources and programs when needed. The second article of this law states that the teaching systems must include all students and that the schools must provide for the needs of the students with special needs guaranteeing the necessary means and adaptations necessary to an education with good quality for all. In the second chapter there is also the determination of a minimum workload of 880 hours per year, distributed in at least 200 school-days of effective classes. However, the professionals that comprise the educational team – teachers, principals, coordinators – do not have the necessary training and the necessary means to face the challenges posed by the everyday reality of inclusive education⁽¹⁸⁾.

In 2012 the ministry of health created the network of care for persons with disabilities within the unified health system (SUS) to improve the access of persons with disabilities to quality health services in the national health system⁽¹⁹⁾.

Just in December 2013 the city of Sao Paulo launched an inclusion program based on the United Nations convention about the rights of persons with disabilities that proposes actions regarding accessibility, attention to health, culture, leisure, work social inclusion and citizenship⁽²⁰⁾.

The education office of the city of São Paulo had already created, in 2010 an inclusion program in schools to attend to persons with disabilities, including ASD⁽²¹⁾.

The public attorney office of the state of São Paulo⁽²²⁾ also demands that the specialized educational service must be provided to persons with ASD by the regular school system.

However it points out that not all children and adolescents with ASD can benefit from regular classrooms in regular schools and that each case must be considered individually by the pedagogical and health team that follows the child or the adolescent.

However, the large number of children with ASD that do not attend school during the whole school period and all the week-days is not in accordance with these laws and regulations. Parents often report that the children attend school just a few days per week or for a few hours per day even when they are enrolled in special schools or have a therapeutic assistant in regular schools.

The purpose of this study was to verify the associations between the time the child stays at school during the week and the performance of children with ASD in testes for non-verbal intelligence, communicative abilities and behavior. That is, we aim to verify if there is an association between social, linguistic and cognitive abilities and the amount of time the children receive schooling.

METHODS

This research was submitted to the institution’s ethic committee and approved with number 287/13. The caregivers of the children signed the consent form authorizing the use of data.

Participants were 44 children. The inclusion criteria were: children diagnosed with ASD according to the DSM-IVtr criteria, with ages between 6 and 12 years, from both genders, enrolled in schools and that receive weekly language therapy.

Research procedure included:

- School Profile Questionnaire – developed by the first researcher (Annex A).

The school profile questionnaire was developed based on a pilot study to gather information reported by the parents about the school profile of their children with ASD. After the pilot study the questionnaire was finalized with 20 questions in order to determine the school profile of the children including data about the kind of school the child attends, the reasons why the child do not stay at school for 100% of the adequate time, the proportion of satisfied parents, the proportion of children that keep-up with the colleagues performance, challenges identified and how parents follow-up their child’s performance. Questionnaires were answered by the parents in individual interviews.

- *Functional Communication Profile* – reduced (FCP-Rr), proposed by Santos⁽²³⁾;
- Raven Progressive Colored Matrices Test – Special Scale (Angelini et al.)⁽²⁴⁾.

To the assessment of non-verbal intelligence the Raven Progressive Colored Matrices Test was used. The test was used according to the manual’s instructions: pictures of geometric

forms with missing parts are individually presented to the child. The task consists in pointing to the picture that would complete the form from a set of four alternatives. The results were extracted from each child’s protocol of the language therapy service where the Raven test was applied at the same time as the FCP-Rr.

The FCP-Rr was applied according to the test protocol, in interviews with the language therapist of each child. The therapists were working with the children for at least 6 months, a period considered enough to guarantee the necessary information.

To the analysis of the FCP-Rr scores from zero to four were determined being zero the best possible answer and 4 the worst possibility. The severity classification of each area was determined by the score, where the higher score is associated to the larger severity.

The Spearman correlation test was used to assess the associations between all variables and the significance value determined was $p < 0,050$ (5%). The coefficients parameters of the Spearman test vary from -1 to 1. The closer to these extremes the stronger the association identified. Regarding the correlation coefficient (r) the positive correlation indicates that when a variable increases the other also increases and the negative correlation indicates that when one variable increases the other decreases.

RESULTS

The total sample was comprised of 44 children with ASD that attended regular schools of the São Paulo metropolitan area. Eleven children (25%) attended private schools and 33 (75%) public schools. The distribution of the participants according to their grade was 7% in kinder garden, 9% in preschool, 20% in first grade, 18% in second grade, 25% in third grade, 9% in fourth grade and 12% in fifth grade.

The amount of time the children stay at school during the week varies between ther and 27.5 hours with na average of 18 hours at school per week.

Only 18 children (41%) stay at school during the whole period every Day of the week. The questionnaire assessed the motives for that and the results are presented in Chart 1.

Chart 1. Motives for not attending school for 100% of the time during the week

Motives for not attending school for 100% of the time during the week	N
The school defines it	7
Specialized therapy	13
Mother’s choice	3
The child can’t stay longer	6
There is not a therapeutic assistant (T.A.)	1
The mother stays with the child at school	1

Caption: N = number of occurrences

Parents report 6 reasons for their child not remaining at school for the whole regular time. The parents of 6 children reported two reasons and another reported three reasons. Among the 26 children that stay at school for a smaller amount of time, the parents of them report that their children leave school 30 minutes before the regular schedule to avoid the end-of-period crowds.

Specialized therapeutic appointments (always conducted out of the school in Brazil) were the motive presented by the majority of the parents. These schedule conflicts sometimes demands that the child leave school earlier or miss it altogether.

During the interviews, some parents stated that they agree that it is better that their children stay at school for a shorter time because they don't consider that their child benefits neither academically nor socially from school.

The sample was divided in two to answer to the research question.

Group A comprises 24 participants that answered to the Raven test, whose parents answered to the school profile questionnaire and therapists answered to the FCP-Rr. The 20 participants of Group B didn't collaborate answering to the Raven test but their parents answered to the school profile questionnaire and the therapists answered to the FCP-Rr.

Results for Group A

To verify the research questions, data about the school profile, the FCP-Rr and the Raven test are presented.

Thirteen of the 24 participants of Group A (54%) attended school for 100% of the regular time.

The Spearman Correlation Analysis was used to verify the association degree between the variables and the results are presented in Tables 1 and 2.

The results obtained from the Spearman Correlation Analysis show positive correlation between the percentiles and classification of the Raven non-verbal intelligence test and the weekly time the children attended school. Therefore, results indicate that higher non-verbal intelligence scores were associated to longer periods at school.

Regarding the correlations between time at school and the communicative abilities assessed by the FCP-Rr (behavior, attention/concentration, receptive language, expressive language and social/pragmatic), data indicate negative correlation to all associations. It means that less severe symptoms in all areas are associated with longer periods at school.

However, just the association between non-verbal intelligence and expressive language and social/pragmatic were statistically significant ($p < 0,050$).

Results for Group B

Group B is comprised of 20 participants - out of the total sample of 44 - that didn't collaborate in the Raven non-verbal intelligence test. To verify the research question data about the FCP-Rr and the school profile questionnaire will be analyzed.

Just 5 participants (25%) attended school during 100% of the regular time. Table 3 shows the associations between the research variables.

Table 1. Correlation between non-verbal intelligence and school attendance (%)

VARIÁBLE	STATÍSTICS	SCHOOL ATTENDANCE (%)
RAVEN percentile	Correlation Coefficient (r)	+0.433
	Significance (p)	0.035
	N	24
RAVEN	Correlation Coefficient (r)	+0.469
	Significance (p)	0.021
	N	24

Table 2. Correlation between abilities assessed by the FCP-Rr and school attendance (%) – Group A

VARIABLE	STATISTICS	SCHOOL ATTENDANCE (%)
Behavior	Correlation coefficient (r)	-0.323
	Significance (p)	0.123
	N	24
Attention/ concentration	Correlation coefficient (r)	-0.344
	Significance (p)	0.100
	N	24
Receptive language	Correlation coefficient (r)	-0.319
	Significance (p)	0.128
	N	24
Expressive language	Correlation coefficient (r)	-0.537
	Significance (p)	0.007
	N	24
Social/pragmatic	Correlation coefficient (r)	-0.800
	Significance (p)	< 0.001
	N	24

Table 3. Correlation between abilities assessed by the FCP-Rr and school attendance (%) – Group B

VARIABLE	STATISTICS	SCHOOL ATTENDANCE (%)
Behavior	Correlation coefficient (r)	-0.229
	Significance (p)	0.331
	N	20
Attention/ concentration	Correlation coefficient (r)	-0.203
	Significance (p)	0.392
	N	20
Receptive language	Correlation coefficient (r)	-0.267
	Significance (p)	0.254
	N	20
Expressive language	Correlation coefficient (r)	-0.276
	Significance (p)	0.240
	N	20
Social/pragmatic	Correlation coefficient (r)	-0.448
	Significance (p)	0.048
	N	20

Just the Social/pragmatic variable had presented statistical significance. Other variables didn't yield to significant results but there is a uniform tendency to negative correlation, that is, less severe symptoms are associated to longer periods at school.

DISCUSSION

In the analysis of the results a negative correlation between the school time and behavior, attention/concentration, receptive language, expressive language receptive language and social/pragmatic was observed in groups A and B. That is, less severe symptoms in these areas are associated to longer periods at school. A positive correlation between non-verbal intelligence scores and school attendance was observed in group A; meaning that children that had higher scores in non-verbal intelligence attended school for longer periods.

Prior studies indicate that the school system in Brazil still doesn't provide adequate services⁽²⁵⁾ and that education professionals do not have enough information about the characteristics and possibilities of children with ASD to support adequate teaching and education procedures⁽²⁶⁾. It can be an important issue to assure that children with ASD attend school for the adequate period and perform important educational activities. Another study⁽²⁷⁾, however, has shown that the Brazilian system is searching for solutions to guarantee access to regular schools for children with special needs through adaptations in the educational managing to avoid discrimination and prejudice. The author⁽²⁸⁾ points out that the traditional school, even with strategic changes in order to include children with ASD is still unable to absorb and deal with the disorders and differences presented by these children. The inclusion of students with special needs means providing them with adequate teaching by capable and involved professionals and not just guaranteeing their enrollment in the school system⁽²⁹⁾.

The parents that participated in this research expressed several times that they think that the time the children stay in school is not well used in productive activities that provide the adequate stimulation to the development of important aspects such as cognition, language and learning. Some parents also stated that they agree that their child should not stay at school for the whole period because they don't notice any progress in their child. These results agree with a prior study⁽⁶⁾.

Considering the ample notion of inclusion, the World Report on Disabilities⁽³⁰⁾ mentions that education may be developed in special centers or schools, special classes in integrated schools or in regular classes of regular schools. The basic aim is to guarantee that the children with special needs can receive education on less restrictive environment, regardless of the scenario or the required adaptations. The more strict sense of inclusion considers the adaptation to regular age-appropriate classes.

The results of the present study also indicate that the Brazilian law⁽¹⁷⁾ that demand a minimum work-load of 800 per

year distributed in at least 200 school-days (that is, 4 hours per week-day) still do not completely apply to children with ASD. According to the parents that participated in this study the reasons for that are mostly the need for leaving the school to take the child to specialized treatments, limitations determined by the schools and difficulties of the child to stay at school for a longer time. The notion that the child "can't" stay at the school for the whole period demands discussions about the inclusion process. It demands that each person with special needs should receive the adequate resources to allow a complete educational process. It implies that the reasons why the child "can't" stay at school for the whole period must be carefully considered to determine what are the resources that should be provided in each case, such as a therapeutic assistant, a quiet room for a time-out, specific or alternative resources to keep-up with the group's activities or other solutions. Certainly, to reduce the time the child spends at school is not the most productive solution to guarantee inclusion.

This study has some limitations such as the small number of subjects and the use of a test of non-verbal intelligence that demanded the child's collaboration. The assessment of the school profile was dependent on the parent's perceptions and/or opinions. However, they were able to provide information about what they observe about their child's performance and their routine at school.

CONCLUSION

It was observed a positive correlation between non-verbal intelligence and time spent at school, what indicates that better scores in the non-verbal intelligence were associated to longer time at school. A negative correlation between behavior and communicative abilities, as assessed by the FCP-Rr, and the time spent at school was also observed, indicating the children with more severe linguistic and behavioral symptoms spent less time at school.

Children that didn't collaborate in the non-verbal intelligence test also participated in this study. Comparing the groups, children that did answer to the non-verbal intelligence test presented better performance in the abilities assessed by the FCP-Rr. Probably the children of Group B are the ones the face more barriers to the access to education. Research that exclude children that do not collaborate in tests probably exclude the one with more severe disorders, that is, the ones that should be more carefully studied.

ACKNOWLEDGEMENTS

To CAPES, for the Master's degree scholarship.

REFERENCES

1. Associação Psiquiátrica Americana. Manual diagnóstico e estatístico de transtornos mentais (DSM IV-TR). Porto Alegre: Artes Médicas; 2002.

2. Carvalheira G, Vergani N, Brunoni D. Genética do autismo. *Rev Bras Psiquiatr.* 2004;26(4):270-2. <http://dx.doi.org/10.1590/S1516-44462004000400012>. PMID:15729462.
3. Stone WL, Turner L. O impacto do autismo no desenvolvimento infantil. Enciclopédia sobre o Desenvolvimento na Primeira – Infância [Internet]. Montreal: Centre of Excellence for Early Childhood Development; 2011 [citado em 2014 Out 18]. p. 1-7. Disponível em: <http://www.encyclopedia-crianca.com/documents/Stone-TurnerPRTxp1.pdf>
4. Marteleto MRF, Schoen-Ferreira TH, Chiari BM, Perissinoto J. Problemas de comportamento em crianças com transtorno autista. *Psicol Teor Pesqui.* 2011;27(1):5-12.
5. APA: American Psychiatric Association [Internet]. Diagnostic and Statistical Manual of Mental Disorders (DSM-5). 5th ed. Arlington: American Psychiatric Association; 2013. [citado em 2014 Out 18]. Disponível em: <http://www.dsm5.org/Pages/Default.aspx>
6. Pimentel AGL. Autismo e escola: a perspectiva de pais e professores [dissertação]. São Paulo (SP): Universidade de São Paulo; 2013. 119 p.
7. Fernandes FDM. Distúrbios da linguagem em autismo infantil. In: Limongi SCO, organizador. Fonoaudiologia informação para a formação: linguagem: desenvolvimento normal alterações e distúrbios. Rio de Janeiro: Guanabara Koogan; 2003. p. 17-39.
8. Miilher LP. Linguagem nos Transtornos do espectro autístico: relação entre uso, forma e conteúdo [dissertação]. São Paulo (SP): Universidade de São Paulo; 2009. 149 p.
9. Gadia C, Tuchman R, Rotta NT. Autismo e doenças invasivas de desenvolvimento. *J. Pediatr.* 2004;80(2):83-94.
10. Adamson LB, McArthur D, Markov Y, Dunbar B, Bakeman R. Autism and joint attention: young children's responses to maternal bids. *Appl Dev Psychol.* 2001;22(4):439-53. [http://dx.doi.org/10.1016/S0193-3973\(01\)00089-2](http://dx.doi.org/10.1016/S0193-3973(01)00089-2).
11. Camargo SH, Bosa CA. Competência social, inclusão escolar e autismo: um estudo de caso comparativo. *Psicol, Teor Pesqui.* 2012;28(3):315-24. <http://dx.doi.org/10.1590/S0102-37722012000300007>.
12. Defense DA, Fernandes FDM. Adaptação sócio-comunicativa e Autism Behavior Checklist: correlações com a evolução de adolescentes autistas institucionalizados. *Rev Soc Bras Fonoaudiol.* 2011;16(3):323-9. <http://dx.doi.org/10.1590/S1516-80342011000300014>.
13. Fernandes FDM, Behlau M. Implications of the world report on disability for responding to communication disorders in Brazil. *Int J Speech-Language Pathol.* 2013;15(1):113-7.
14. European Parliament. Written declaration. Official Journal of the European Communities [Internet], 1996 [citado em 2014 Maio 13];1-11. Disponível em: <http://www.disabilitysecrets.com/tip12.html>
15. United States of America. Public Law 108-446, 3 december 2004. Individuals with Disabilities Education Improvement Act. Senate and House of Representatives of the United States of America [Internet]. Congress Assembled Dec; 2004 [citado em 2014 Maio 25]. Disponível em: <http://idea.ed.gov/download/statute.html>
16. Brasil. Lei nº 12.764, de 27 de dezembro de 2012. Institui a Política Nacional de Proteção dos direitos da Pessoa com Transtorno do Espectro Autista [Internet]. Diário Oficial da União; Brasília; 2012 [citado em 2014 Nov 12]. Seção 1:2. Disponível em: https://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/112764.htm
17. Brasil. Ministério da Educação. Lei nº 9394, de 20 de Dezembro de 1996. Estabelece as diretrizes e bases da educação nacional [Internet]. Diário Oficial da União; Brasília; 23 dezembro 1996. [citado em 2014 Dez 12]. Disponível em: http://www.planalto.gov.br/ccivil_03/Leis/L9394.htm
18. Brande CA, Zanfelice CC. A inclusão escolar de um aluno com autismo: diferentes tempos de escuta, intervenção e aprendizagens. *Rev Educ Espec.* 2012;25(42):43-56.
19. Brasil. Ministério da Saúde. Portaria nº 793, de 24 de abril de 2012. Institui a Rede de Cuidados à Pessoa com Deficiência no âmbito do Sistema Único de Saúde [Internet]. Diário Oficial da União; Brasília; 25 abr. 2012. [citado em 2014 nov 12]. Seção 1:62. Disponível em: http://bvsms.saude.gov.br/bvs/saudelegis/gm/2012/prt0793_24_04_2012.html
20. São Paulo. Prefeitura de São Paulo. Secretaria Municipal da Deficiência e Mobilidade Reduzida. Decreto nº 54.655, de 3 de dezembro de 2013. Institui o Plano Municipal de Ações Articuladas [Internet]. Diário Oficial do Estado de São Paulo; São Paulo; 4 dez. 2013. [citado em 2014 nov 12]. p. 1. Disponível em: <http://www.jusbrasil.com.br/diarios/62543669/dosp-cidade-04-12-2013-pg-1>
21. São Paulo. Secretaria Municipal de Educação de São Paulo. Decreto nº 51.778, 14 de setembro de 2010. Institui a política de Atendimento de Educação Especial, por meio do Programa Incluir [Internet]. Diário Oficial da Cidade de São Paulo; 14 set. 2010 [citado em 2014 Dez 12], nº 172:1. Disponível em: http://www3.prefeitura.sp.gov.br/cadlem/secretarias/negocios_juridicos/cadlem/integra.asp?alt=15092010D%20517780000
22. São Paulo. Câmara Municipal de São Paulo. Lei nº 15.409, de 11 de julho de 2011. Estabelece diretrizes a serem observadas na formulação da Política Municipal de Atendimento às Pessoas com Transtorno Invasivo do Desenvolvimento – Autismo [Internet]. Diário Oficial da Cidade de São Paulo; São Paulo; 12 jul. 2011 [citado em 2014 Dez 12], nº 128:1. Disponível em: FTP://ftp.saude.sp.gov.br/ftpssp/bibliote/informe_eletronico/2011/iels.jul.11/iels129/M_LE-15409_110711.pdf
23. Santos THF. Comparação entre o perfil funcional da comunicação e as respostas obtidas no Functional Communication Profile – Revised (FCP-R) em crianças e adolescentes com transtornos do espectro do autismo [dissertação]. São Paulo (SP): Universidade de São Paulo; 2012. 163 p.
24. Angelini AL, Alves ICB, Custódio EM, Duarte WF, Duarte JLM. Matrizes Progressivas de Raven – Escala Especial. São Paulo: Centro Editor de Testes e Pesquisas em Psicologia; 1999.
25. Serra DCG. Entre a esperança e o limite: um estudo sobre a inclusão de alunos com autismo em classes regulares. *Psicol Clín.* 2009;21(1):235.
26. Felício VC. O autismo e o professor: um saber que pode ajudar [trabalho de conclusão de curso]. Bauru (SP): Universidade Estadual Julio Mesquita; 2007. 63 p.
27. Mantoan MTE. Igualdade e diferenças na escola: como andar no fio da navalha. *Educação.* 2007;32(2):319-26.

28. Mantoan MTE. Não há mal que sempre dure... São Paulo: Universidade Estadual de Campinas; 2012.
29. Secchi A. Os benefícios da inclusão de uma pessoa com autismo: um estudo de caso. *Rev Ágora*, 2013; 9(17):60-75.
30. OMS: Organização Mundial de Saúde [Internet]. Relatório Mundial sobre a Deficiência. São Paulo: SEDPCD; 2012. [citado em 2015 Out 20]. 334 p. Disponível em: http://www.pessoacomdeficiencia.sp.gov.br/usr/share/documents/RELATORIO_MUNDIAL_COMPLETO.pdf

Author contributions

LKC conducted the research and wrote the text; FDMF mentored the project and the research conduct, revised and translated the final versions.

Annex A. School Profile Questionnaire.

Caregiver's name: age:

Child's name: age:

Date: //

1 -Does your child goes to school? In which grade is she/he in? yes no**2**- What kind of school does she/he attends? Regular Private Special Public**3**- What factors lead you to choose this kind of school? Marc as many alternatives as apply near home indication didn't find others have other children in the same schools financial issues school team and structure the school as an inclusion project suggestion by the physician suggestion by other specialists others. Which? _____**4**- How many students there are in your child's classroom? 1 to 5 6 to 10 11 to 15 16 to 20 21 to 30 more than 30**5**- Does your child keeps up with the classroom performance? yes no

- How do you follow-up your child's performance? Marc as many alternatives as apply

 meetings tests reports other. Which? _____**6**- Your child attends school during mornings afternoons full-time**7**- Marc the week-days your child attends school Monday Thursday Tuesday Friday Wednesday**8**- How many hours per day your child stais at school? 1 hour 2 hours 3 hours 4 hours more than 4 hours

Obs: _____

NOTE: exact amount of time your child stays at school = _____

Regular amount of time of the regular class = _____

9- Why doesn't your child stays at school for the whole regular period?

- the school defines it
 mother's/caregiver's choice
 mother/ caregiver has to stay at the school and this is his/her only possibility
 mother/caregiver has to stay at the school and the school defines the time
 is the time the therapeutic assistant is available to the child
 the child can't stay at school for longer
 the child has other specialized therapeutic appointments
 others. Which? _____

10- Does anyone assists your child at school? You or a therapeutic assistance?

- yes
 no
 - Why does she/he need a therapeutic assistance? Marc as many alternatives as apply
 due to behavior disorders
 due to attention disorders
 due to social interaction disorders
 due to language disorders
 others. Which? _____

11- Does the school reach your expectations/ are you satisfied with the school?

- yes no
 - What can improve?
 educational support
 psychological support
 have therapeutic assistant
12- Your child always attended the same school?
 yes no
 - How many times did she/he changed schools?
 1 2 3 4 5 more than 5 times
 Why? _____

13- Which kind of school did he/she attended before?

- 1st school: Regular Private Special Public
 2nd school: Regular Private Special Public
 3rd school: Regular Private Special Public
 4th school: Regular Private Special Public

14- In which period and week-days did your child attend the previous school(s)?

- 1st school: morning afternoon full-time
 Monday Tuesday Wednesday Thursday Friday
 1h 2 h 3 h 4 h more than 4 hours
 2nd school: morning afternoon full-time
 Monday Tuesday Wednesday Thursday Friday
 1h 2 h 3 h 4 h more than 4 hours
 3rd school: morning afternoon full-time
 Monday Tuesday Wednesday Thursday Friday
 1h 2 h 3 h 4 h more than 4 hours
 5th school: morning afternoon full-time
 Monday Tuesday Wednesday Thursday Friday
 1h 2 h 3 h 4 h more than 4 hours

-If your child didn't attend school all days of the week during the whole regular period, why did it happen?

- the school defined it
- mother's/caregiver's choice
- mother/ caregiver has to stay at the school and this is his/her only possibility
- mother/caregiver has to stay at the school and the school defines the time
- is the time the therapeutic assistant is available to the child
- the child can't stay at school for longer
- the child has other specialized therapeutic appointments
- others. Which? _____

15- Did you or a therapeutic assistant stayed at school with your child?

- yes no

- Why did she/he need a therapeutic assistance? Marc as many alternatives as apply

- due to behavior disorders
- due to attention disorders
- due to social interaction disorders
- due to language disorders
- others. Which? _____

16-- Did your child keep up with the classroom performance?

- yes no

- How did you follow-up your child's performance? Marc as many alternatives as apply

- meetings
- tests
- reports
- other. Which? _____

17- What made you think about enrolling your child at a school?

- medical suggestion
- other specialist suggestion
- end of maternity leave
- need for socialization
- independence stimulation
- others. Which? _____

18- How old was your child when entered school?

- 1 year 2 years 3 years 4 years 5 years 6 years

19- Did you ever have any problem with your child's school? Marc as many alternatives as apply

- lack of social inclusion
- lack of cognitive stimulation
- lack of language stimulation
- lack of financial resources to buy school material
- lack of financial resources to buy hygienic material
- lack of monitoring during break time
- others. Which? _____

20- Which activities does your child perform in school? _____
