

## INDIVIDUALIZED EDUCATIONAL PLANNING FOR A UNIVERSITY STUDENT WITH AUTISM

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### ABSTRACT

Researchers question the inclusive university process of students with Autism Spectrum Disorder (ASD), aiming at the permanence and completion of the course. Individualized Educational Planning (IEP) is a support strategy for students with ASD in basic education. The objective was to describe and analyze the development and application of the PEI for a university student with ASD and to compare academic performance before and after the PEI. It is a case study, with evaluations and teacher involvement. The results describe the elaboration and application of the PEI with differences in the menu and schedule of the subjects studied. Prior to the PEI (analysis of six four-month periods prior to the survey), the student with ASD had two total withdrawals in the four-month period, four disapprovals and seven cancellations of disciplines. After the PEI, analysis of three subsequent quarters, the student had a discipline canceled. The data evidence the PEI as a concrete and effective strategy for the student's permanence, as well as a viable strategy for continuing teacher training in Special Education, in the university context.

**Keywords:** autism; higher education; educational inclusion

## Planificación Educacional Individualizado de estudiante con autismo en la universidad

### RESUMEN

Se cuestiona sobre el proceso inclusivo universitario de estudiantes con Trastorno del Espectro Autista (TEA), visando la permanencia y conclusión de curso. La Planificación Educacional Individualizada (PEI) es una estrategia de apoyo al estudiante con TEA en la educación básica. El objetivo fue describir y analizar el desarrollo y aplicación del PEI a una universitaria con TEA y comparar desempeño académico antes y después del PEI. Se trata de estudio de caso, con evaluaciones y participación docente. Los resultados describen la elaboración y aplicación del PEI con diferenciales en la propuesta y cronograma de las asignaturas cursadas. Con anterioridad al PEI (análisis de seis cuatrimestres anteriores a la investigación) la estudiante con TEA tuvo dos aplazamientos totales de cuatrimestre, cuatro reprobaciones y sete suspensiones de asignaturas. Tras el PEI, análisis de tres cuatrimestres posteriores, la estudiante tuvo un aplazamiento de una asignatura. Los datos apuntan el PEI como estrategia concreta y eficaz para permanencia de la estudiante, así como una estrategia viable para la formación continua del profesorado de Educación Especial, en el contexto universitario.

**Palabras clave:** autismo; educación universitaria; inclusión educacional

## Planejamento educacional individualizado de estudante com autismo na universidade

### RESUMO

Questiona-se sobre o processo inclusivo universitário de estudantes com Transtorno do Espectro Autista (TEA), visando a permanência e conclusão de curso. O Planejamento Educacional Individualizado (PEI) é uma estratégia de apoio ao estudante com TEA na Educação Básica. O objetivo foi descrever e analisar o desenvolvimento e aplicação do PEI para uma universitária com TEA e comparar desempenho acadêmico antes e depois do PEI. Trata-se de estudo de caso, com avaliações e envolvimento docente. Os resultados descrevem a elaboração e aplicação do PEI com diferenciações na ementa e cronograma das disciplinas cursadas. Anteriormente ao PEI (análise de seis quadrimestres

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anteriores à pesquisa) a estudante com TEA teve dois trancamentos totais de quadrimestre, quatro reprovações e sete cancelamentos de disciplinas. Após o PEI, análise de três quadrimestres posteriores, a estudante teve um cancelamento de uma disciplina. Os dados evidenciam o PEI enquanto estratégia concreta e eficaz para a permanência da estudante, assim como estratégia viável para formação docente continuada em Educação Especial, no contexto universitário.

**Palavras-chave:** autismo; educação superior; inclusão educacional

## INTRODUCTION

The Autistic Spectrum Disorder (ASD) is a neurological disorder that affects the process of brain information while altering the way nervous cells organize themselves and resend their synapses. Due to its spectrum classification (which involves different typologies that are specified in previous health manuals, from Asperger Syndrome to classic autism), the scope and seriousness of behaviors (signs and symptoms) might vary radically, which means that some people with TEA learn how to read, write, and orally communicate, while others can remain nonverbal throughout their whole lives. Thus, it is possible to identify some behaviors that define the disorder such as: difficulties related to the areas of communication and social interaction, restricted and repetitive behaviors, in addition to deficits related to motor coordination and sensorial alterations (APA, 2013).

People with ASD might present difficulty in social adaptation (Giacone & Rodrigues, 2014) and especially, in the educational realm, where they still, have to face problems such as lack of qualified professionals and qualified services in regular schools and universities, for the development of a qualified, inclusive work (Costa, 2016).

Considering the transversal nature of Special Education in the perspective of Inclusive Education as a mode of teaching that gets started in child education and underlies all educational levels and stages (Task Force of the National Policy of Special Education, 2008), the educational right of students with ASD should be guaranteed at all levels, including higher education. A recently published study on inclusion at universities aimed at investigating actions that targeted the Special Education contingent (PAEE), at the Federal University of Grande Dourados, in the last decade. The results indicated that the university promoted political, practical, and strategic actions, in the university foundations (teaching, research, and extension), as well as in the services provided to the target public. Another discussed point referred to the challenges and perspectives in this process (Nozu, Bruno, & Cabral, 2018).

Branco and Almeida (2019) assessed the PAEE of four Brazilian universities by means of the application of the Scale of Satisfaction and Attitudes by People with Disabilities – ESA. The results were put together in four axes referring to satisfaction: a) structural, in which most of the participants pointed at dissatisfaction with the architectural accessibility of the institution, b)

operational, with satisfactory answers on the conditions available for classroom support, c) psycho-affective, in which satisfactory were also presented, d) attitude regarding the barriers, with equally satisfactory answers, and the respondents did not need to activate the public ministry for the guarantee of educational rights. Despite the satisfactory items, the study emphasized the importance to amplify such satisfaction in order to produce greater entrance and permanence of these students in the university realm.

Actions to guarantee the permanence of the PAEE in the university were documented by Nozu, Bruno and Cabral (2018) as a means to support the process of university organization, guarantee access, permanence, progress, and the academic success of such contingent, aiming at the strengthening of an inclusive institutional culture. Furthermore, researchers identified the importance of guaranteeing a multidisciplinary team for the articulation of actions between special education and psychology, social assistance, pedagogy, interns, and representants of civil society. The multi-professional team formed in the area of special education was also identified in the study by Sonza, Vilaronga and Mendes (2020) as a challenging situation to guarantee inclusive actions.

The need to provide for the challenge of PAEE curricular integralization or, still as identified in a previous study, as curricular accessibility, based on curricular differentiations and mediations with the teachers responsible for each discipline during the education planning process has been documented in the national (Nozu et al., 2018; Sonza et al., 2020) and international (Agran, Alper, & Wehmeyer, 2002) literature. Thus, it is fundamental to guarantee a service that directly affects the students' curricular planning, in combination with the teacher that is responsible for the discipline. The data produced in the study by Martin et al. (2006) defended the importance of guaranteeing a teaching that focuses on individualized practices for PAEE students. On the other hand, it is fundamental to highlight the fact that the use of differentiations can be understood as complementary to the strategies of universal design for learning (Pletsch, Souza, & Orleans, 2017; Zerbato & Mendes, 2018).

In the PAEE and its discussions, specifically, the inclusion of students with ASD into university environments is still a challenge to be overcome, especially concerning the proposition of the Individualized Educational Proposition

(PEI) involving different disciplines. The PEI is a diffuse practice, which consists of a few axes such as initial educational assessment, parental consent (in case of underage students) and multidisciplinary team for its respective elaboration (Glat, Vianna, & Redig, 2012). This practice is used as support for inclusion in diverse European countries (Costa, 2016).

The study by Tannús-Valadão and Mendes (2018) aimed at drawing a historical map of the use of PEI, by means of an analysis of normative documents and models for use in countries such as France, Italy, United States, and Brazil. Considering the coverage of the PEI for the different stages of the vital cycle, the French model was considered the most comprehensive, since the north American and Italian modes involved only the the students' schooling period. In the national context, still, there is scarcity of documentations that guarantee a PEI that is based on the particularities of each student, despite the documents described in attributions of the teachers at the Specialized Educational Assistance (AEE), which is present in the AEE study, with models that focus on the description of services without considering the students' specificities. This leads to reflections on the posed challenges nowadays regarding the inclusion process, since the planning practices do not fit inclusion yet.

The research by Agran, Alper and Wehmeyer (2002) questioned 84 teachers on the possibility of access to the standard curriculum with disabilities. Most of the interviewees believed that the access was not appropriate for students with disabilities that demand intense support by the environment and that these students would not have the same patterns of performance as their peers without any disabilities. Besides that, the study revealed that several teachers were not actively involved in the planning that is connected to the access and several American districts did not explicitly comprehend the policies regarding the PEI. In the United States, the PEI was legalized in 1997. However, after 2004, with several documents providing guidelines and laws that systematized the practice of PEI, it was possible to generalize their practice for the whole country (Tannús-Valadão, 2010).

When one thinks of the PEI proposition, it is certainly necessary to discuss the collaboration between the different actors involved in the inclusive process, such as the Special Education professionals and teachers of the disciplines. Machado, Vail and Almeida (2015) analyzed school collaboration in the perspective of the north American Inclusive Education and discussed strategies for guaranteeing effective inclusion in the spaces for Basic Education. However, when it comes to collaboration in university spaces, it still seems to be a challenge to be overcome in the national literature (Nozu et al., 2018).

The identification of barriers that are present in the university space and of proposals on how to overcome them could be important items in the PEI of a student with ASD. Barriers can be understood as

any obstacle, impediment, attitude, or behavior that limits or prevents one's social participation as well as leisure time and the exercise of rights to accessibility, to the freedom of movement, and of expression, to communication, to access to information, to comprehension, to transportation with safety and so on. (Law no. 13.146/2015).

A barrier that is commonly identified refers to access to the curriculum, which contains personalized adjustments for each student with ASD. Thus, studies that discuss on the inclusive process for students with ASD involve primarily the Basic Education public (Benitez, Gomes, Bondioli, & Domeniconi, 2017; D'Antino et al., 2010; Rodrigues, Moreira, & Lerner, 2012). The lack of studies on such planning in higher education shows the urgent need to guarantee data that legitimize the inclusive process at this level of education with such target public, considering the challenges posed in previous studies (Agran, Alper & Wehmeyer, 2002; Nozu et al., 2018; Sonza et al., 2020) on the curricular planning issue, in general, in the university realm, as a variable criticism for the academic permanence and success for such public.

Regarding these data, the object of the investigation referred to the study of the PEI with a student with ASD, in higher education, by means of a case study. Thus, the present study aimed at generally describing and analyzed the PEI process of development and application on a student with ASD in Brazilian public higher education and, as a specific objective, compare academic performance before and after the PEI.

## METHOD

### Ethical Considerations

The project was approved by the Ethics Committee for Research on Human Beings of the Federal University of the ABC (CAAE: 00962818.1.0000.5594, Decision no 3.052.298).

### Participant

The study participant was a female student with a medical diagnosis of ASD. She was registered at the Accessibility Nucleus of a public university in the metropolitan area of São Paulo. She was 24 years old and was enrolled for a bachelor's degree in Sciences and Technology – BCT. The student had a late diagnosis and a critical history of dropout episodes, with a lot of difficulty to attend disciplines of practical nature, in addition to presenting difficulties related to permanence time in the classroom, due to the number of people present in the same classroom, in addition to sensorial questions for example, distraction with movements by classmates and lights. The students also presented self-taught behaviors, and due to hyperfocus, had excellent performance in the area of exact sciences.

### Data Collection Procedure

For recruiting the student with ASD at the university, researchers contacted the Accessibility Nucleus of the institution. After such contact, she accepted the invitation and signed the Free Informed Consent Term – TCLE. Subsequently, researchers conducted a semi-structured interview with the student, in order to assess the participant's perception regarding her inclusive process in the university in order to identify the barriers that are present in her schooling process, according to the prescriptions of the Brazilian Law of Inclusion (Law no 13.146/2015), as well as collecting information on the effects of the ASD on her everyday life, by means of the International Classification of Functionality – CIF (OMS, 2003), with the intention to characterize the profile of the student with ASD.

The semi-structured interview was made up of four fundamental categories: a) history of school trajectory and information on the ASD, by means of the CIF (WHO, 2003), b) identification and analysis of barriers, according to the LBI (Law no. 13.146/2015), c) analysis of resources of assistive technology, d) survey of possible adjustments that could be proposed for each discipline that the student would attend during every four-month term, look at where the researchers conducted the collecting of data for the study.

After the interview, researchers applied to instruments all the student's entrance repertoire: a) life quality scale – GENCAT de Calidad de vida (Alonso et al., 2009), which aimed at assessing the student's quality of life and provide information on the social services that could contribute to better quality of life and b) Scale of satisfaction and attitudes towards people with disabilities (Guerreiro, Almeida, & Silva Filho, 2014), which aimed at assessing the student's degree of satisfaction, based on 4 dimensions – structural, operational, psycho-affective, and attitudes regarding obstacles. At the same time, there was a survey all the number of enrollment cancellations during the four-month term, dropouts and failures in the disciplines.

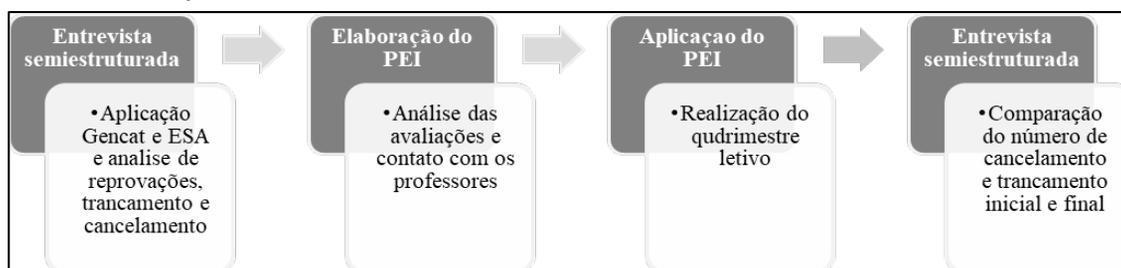
Right after that, researchers realized a contact with the teachers responsible for each discipline and produced the ASD student's PEI and applied it, according to the diversifications and/or differentiations proposed by the teachers, in collaboration with the students and the researchers. the semi structured interview as well as the analysis of the number of cancellations, drop outs, and failures were applied again after the production and application of the PEI, with the intention to compare the reports and performances before and after the PEI. The reapplication of the semi-structured interview aimed at assessing, from the ASD student's perspective, the benefits and possible improvements for the future regarding the PEI and its permanence at university.

The flow of collection followed the logics presented in illustration 1. It is fundamental to highlight the protagonism and the participation of the student with ASD throughout the whole process of data collection.

### Data analysis

First, there was an analysis of data from the applied interview with the ASD student in order to categorize the provided answers with the intention to characterize the functioning and applicability of PEI before and after participation in the study. Four categories were proposed for analysis of such data: a) characterization of student with ASD, according to school trajectory and the findings of the CIF (OMS, 2003), b) identification and analysis of barriers, according to description provided by the Brazilian Law of Inclusion (Law no 13.146/2015), c) analysis of possible resources of assistive technology, d) identification of the adjustments that would be necessary to attend and finish each discipline in the current four-month term of the study./ The answers to the applied scales (Scale of Quality of Life – GENCAT de Calidad de vida – Alonso et al., 2009 and Scale of Satisfaction and Attitudes of People with Disabilities – Guerreiro et al. 2014) were tabulated, converted into graphics and compiled into a document in association with the analysis of the interview. Researchers realized a contact with

Figure 1: data collection flow.



#### Content of the picture

- . Semi structured interview: application of Gencat and ESA and analysis of cases of failure, drop out, and cancellation
- . Production of PEI: analysis of assessments and contact with teachers
- . Application of PEI: realization of the four-month term
- . Semi structured interview: comparison of the initial and final number of cancelations, and dropouts

the teachers of the disciplines and, in the occasion, the teachers were asked to fill in a form with the pedagogical activities and assessments that would be conducted and possible adjustments, with specific suggestions provided by the ASD student for each student, in order guarantee its protagonism and create conditions for the future realization of such action in an autonomous and independent way.

In the sequence, researchers analyzed the numbers of cancelations, dropouts, and failures in the disciplines in the previous four-month terms underwent by the ASD student, before and after participation in the study in order to check on the impact of the PEI in their academic yield. And, finally, the data structured in the PEI format were assessed in terms of viability for use. Then, the semi-structured interview was reapplied with the purpose to identify, in the ASD student's perspective, benefits and improvements of the PEI in their permanence at the university.

## RESULTS

The session was organized in accordance with the logics what data collection provided as an example in Illustration 1. the first proposed analysis was of the first application of the semi-structured interview. For characterization of the student, researchers asked her to share reports of assessments realized by other professionals (such as psychological or medical reports). in the occasion, the student took two reports one neuro psychological assessment with the styles of learning and one provided by the psychotherapist.

The student was not taking any education I have had undergone treatment in the area of psychiatry and psychology. Regarding her style of learning, the student presented a report of the neuropsychological assessment that attributed a style that was more directed to synesthetic learning (Which involved skills for the execution of tasks - approximately 50%), concerning the visual learning (43%) and auditory (7%). such data were obtained from the psychological report presented by the student. such that important to illustrate the challenges posed to their learning process, for example, in case of an exposition class, in which the content is presented orally by the teacher, with the use of a slideshow. Researchers question the expected behavior by university students in this type of class, that is, the student is expected to remain sitting down while listening to the teacher and watching the slides. such situation was characterized as a challenge by the student, if one considers her synesthetic learning style, which primarily involves skills for the execution of the task, despite the visual and auditory learning. In the psychotherapist's report, there is a clear demonstration of the student's facility when it comes to the organization of academic studies, due to the student's self-taught inclinations.

Concerning her school trajectory, the student always

studied at a regular school and entered university like everyone else without using the affirmative action system. Due to the late diagnosis of ASD (realized in the year 2015, at the age of 20), there was no differentiated intervention in her Basic Education formation. The pedagogical intervention and the curricular differentiation that should have take place in Elementary Education and High School word developed, in graduation, during the realization of the present research work.

Among the guidelines required by the student to be negotiated with the teacher, we can mention: a) the difficulty to remain in enclosed environments with other people and difficulty to concentrate due to the noise, movements, and lights - sensorial hyper sensibility (visual, auditory and touch) let the student to required activities for curricula supplementation in other environments in order to justify her absence in regular classes, b) additional time for the realization of assessments, c) realization of examinations in a reserved and individual environment, d) organization of curricular differentiations in the first week of class, in collaboration with the teachers responsible for the disciplines.

Concerning the assessment in accordance with the functionalities (CIF – WHO, 2003) researchers proposed a questionnaire in which the student was asked to underline one out of three options (Little difficulty, partial difficulty, and total difficulty). The toys should be the one that made the most sense with the student's profile. The limitations highlighted by the students who are related do psychosocial and emotional areas. she reported total difficulty for interaction and establishment of interpersonal relationship in an appropriate way for her age; partial difficulty to communicate (understand and be understood by other people Even with the use of symbols, Gestures, or other communication aids) No difficulty for the following items: listening, watching, walking, and moving around, acquiring and applying knowledge, realizing daily tasks that are common for her age, and taking care of herself in an appropriate way. The student reported that she had difficulty to understand metaphors, irony, and jokes, especially in situations that involved interpersonal relations.

Illustration 2 shows the student's performance and the Scale of Quality of Life - GENCAT de Calidad de vida (Alonso et al., 2009), Which represents a percentage that is close to average (55), with the highlight on the areas of material well-being, interpersonal relations, personal development, self-esteem, and social inclusion. However, in the areas of material well-being, physical well-being, and rights the scores were below average. Such data hints at the importance of creating conditions for empowering the student regarding rights and duties, as well as creating conditions for organization and satisfaction of material and physical well-being. The items of material well-being involve assessment on

Figure 2: Performance and the scale for quality of life – GENCAT (Alonso et al., 2009).

Percentage	BE	RI	BM	DP	BF	AU	IS	DR	index QL
99	16-20	16-20	16-20	16-20	16-20	16-20	16-20	16-20	>130
95	15	15	15	15	15	15	15	15	122-130
90	14	14	14	14	14	14	14	14	118-121
85	13	13	13	13	13	13	13	13	114-117
80									112-113
75	12	12	12	12	12	12	12	12	110-111
70									108-109
65	11	11	11	11	11	11	11	11	106-107
60									104-105
55									102-103
50	10	10	10	10	10	10	10	10	100-101
45									98-99
40									96-97
35	9	9	9	9	9	9	9	9	94-95
30									92-93
25	8	8	8	8	8	8	8	8	89-91
20									86-88
15	7	7	7	7	7	7	7	7	84-85
10	6	6	6	6	6	6	6	6	79-83
5	5	5	5	5	5	5	5	5	68-78
1	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	<68

Note – BE means emotional well-being, RI personal relations, BM material well-being, DP personal development, BF physical well-being, AU self-determination, IS social inclusion, DR rights, QV quality of life. The gray boxes refer to the student’s score. Source: research data

the work conditions, materials, residences, economic resources for personal satisfaction and so on, whereas the items for physical well-being are related to sleep quality, eating habits, personal hygiene, medical care and so on. The assessment on quality of life is fundamental for social, educational, and health services in order to identify the opinions and experiences of the student and plan programs and activities based on individual personal realization (Alonso et al., 2009).

Concerning the barriers described in the LBI (Law no. 13.146/2015), this comment did not underline any item related to urbanistic, architectonic, transportation, technological, communication, or information barriers. Concerning attitude barriers, she required support by the researchers in order to negotiate adjustments in collaboration with the teachers for each discipline and the reorganization of the discipline that had a practical character, in a laboratory situation. Illustration 3 shows the student’s performance in the Scale of Satisfaction and Attitudes by People with Disabilities (Guerreiro et al., 2014). The data identify satisfaction concerning the structure of the university and with a tendency towards satisfaction concerning attitude in face of obstacles. It was neutral concerning operational and psycho-affective satisfaction. The categories connected to aspects of the architecture and civil engineering and physical

characteristics of the university seem to satisfy the student’s expectations. However, the areas of psychology and education as well as operational and emotional aspects still need improvements.

The adjustments proposed in the disciplines or presented on Charts 1 and 2. Out of a total sum of nine disciplines attended by the student, she passed in 8 and chose to cancel one discipline. Table one presents the result of the items of the amendments and of the timetable of the discipline that needed to be changed and one of these alterations could take place totally or partially or even be not necessary. It is important to highlight the fact that even though the PEI production is necessary, that does not mean a defense of an integral differentiation of teaching, but necessary alterations in order to reach the individual repertoire of the aforementioned student. Besides that, there are situations that are changed in parts related to the possible differentiations within environments that are as restricted as possible, that is, the less need to differentiate, the better for the student’s educational process, which leads to inference on a teaching planning that focuses on a universal design for learning (Zerbato & Mendes, 2018). In this sense, it is possible to have diversifications based on the DUA (CAST, 2016) or on the Differentiated Instruction (Tomlinson, 2001) which

will benefit not only the PAEE, but also peers, which means that the document is produced with a focus on the potentials and needs of a student that is behind or underprivileged or that needs curricular improvement, but that does not mean that its practice is individual. In the elaboration of this PEI, in addition, there was no change in the strategies for communication and writing, with a permanence of the communication by the oral

and written Portuguese language, no matter the means.

The discipline which the student decided to cancel was in the area of exact sciences and had a theoretical character. It is fundamental to highlight the fact that one of the proposals of the study predicted the student's independence and autonomy concerning the autonomy of her planning, so that she could directly negotiate with the teachers who were responsible for the disciplines over the best adjustments for each case, based on the developed printed document (the aggregated product of the PEI as meta-contingency). However, during the student's first negotiation with the teacher, without any mediation by the researchers, there was a certain noise in the communication between the student and the responsible teacher and, thus, the student decided cancel the discipline, due to the difficulties that came up when the student was going to have a conversation with this teacher. Chart 2 shows the combined adjustments for each discipline.

Illustration 4 shows an analysis of the number of failures, number of dropouts in the four month term (total dropouts) and cancellations of disciplines before and after the PEI, in the period from 2016 until the second four month term of 2019.

Concerning the analysis of the data from the reapplication of the semi structured interview, it was possible to observe the student's satisfaction with the use of the PEI, especially concerning its permanence at the university, aiming at the conclusion of the course. With proposals for improvements, she recommended

**Chart 1:** Summary of the differentiations related to the menu and the timetable of the discipline that provide to the student's needs.

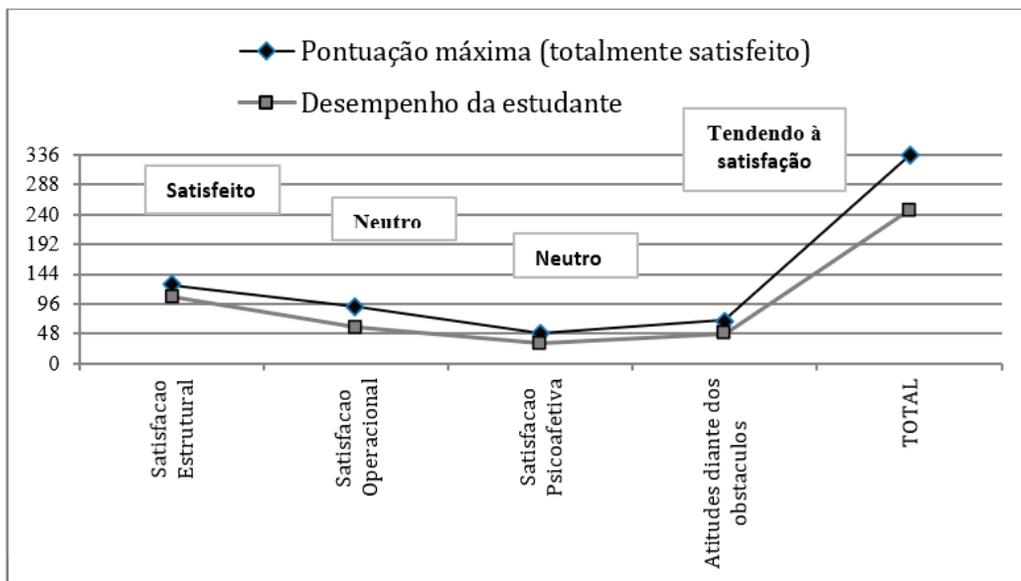
Differentiations	YES	NO	PARTIALLY
In didactics	( )	(X)	( )
In methodology	( )	( )	(X)
In the disciplines of the semester\school year	( )	( )	(X)
In the forms of assessment	(X)	( )	( )
In the contents	( )	(X)	( )
In the pedagogical materials and resources	(X)	( )	( )
In the objectives of the discipline	( )	(X)	( )
In the themes of the lessons	( )	(X)	( )

Source of data: research data

**Chart 2:** Combined Adjustments for Each Discipline in the areas of Human and Exact Sciences.

	Adjustments
Area: exact sciences	<p><b>Theoretical Disciplines 1 and 2:</b> Application of tests individually and at alternative times with additional test time. End of mandatory attendance, which could be compensated by home activities.</p> <p><b>Practical Discipline 1 and Theoretical Discipline 3:</b> Experiments in laboratory and practical test – application of tests and of experiments at alternative times, individually, without mandatory attendance to practical lessons. The teacher realized extra sessions for support and sent a list containing seven experiments with the already collected data for the realization of analysis as assessment of practice, with a total sum of seven reports, one for every experiment. The concept of the assessment was given after the correction of the seven reports. The theoretical tests were applied in accordance with the student's development and the teacher's availability, individually in the teacher's room. As compensation for the absences, the student handed in lists of accomplished tasks and questions.</p>
Area: humanities	<p><b>Theoretical discipline 1:</b> assessment by means of seminar was replaced by alternative examination made up of four texts.</p> <p><b>Theoretical discipline 2:</b> individual assessment with an additional hour and extra class time for assistance, with a 50% reduction in absences and additional activities for compensation of the absences.</p> <p><b>Theoretical discipline 3:</b> home activities for compensation of the absences, on-site examinations were realized in the home format, the group activities were adjusted for individual activities, the individual activities realized in the classroom were replaced by activities realized during the assistance time individually. The group activities were replaced by individual activities.</p> <p><b>Theoretical discipline 4:</b> the discipline predicted the proposal an event by means of group work. In order to do that the activity was realized in pairs, with specification of the tasks for the student with assessment applied individually at a different time from class.</p>

Figure 3: Performance in the ESA (Guerreiro et al., 2014).



Source of data: research data

Content of the picture:

Pontuação máxima - maximum score (totally satisfied) student's performance

Tendendo à satisfação - tending to satisfaction

Satisfeito - satisfied

Neutro - neutral

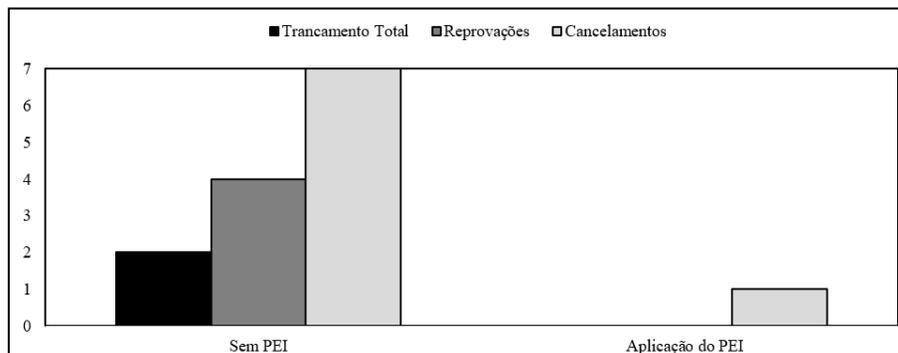
Satisfação estrutural - structural satisfaction

Satisfação operacional - operational satisfaction

Satisfação psicoafetiva - psycho affective satisfaction

Atitude diante dos obstáculos - attitude regarding obstacles

Figure 4: Analysis of the number of failures, dropping out of the four month term, and cancellation of discipline before and after the PEI.



Content of the picture:

Trancamento total - total number of dropouts

Reprovações – failures

Cancelamentos - cancellations

Sem PEI - without the PEI

Aplicação do PEI - application of the PEI

the application of tests that measured intelligence. In the occasion, the researcher, suggested the use of a psychological test as a future referral proposal.

### DISCUSSIONS

The present case study had the general objective of describing the process of development and application

of the PEI for a student with TEA in higher education and a specific objective of comparing academic performance before and after the PEI. The use of the PEI, according to the ASD student's report in the reapplication of the interview. Also, according to the data from illustration 4, it was considered an efficient strategy when it comes to guaranteeing the permanence of the ASD student at

the university. Despite the fact that Special Education is considered a transversal educational mode for teaching (Taskforce for the National Policy for Special Education, 2008), the present study revealed that the challenges posed to the ASD student in the university environment are still overcome in a punctual manner, or in the character of experimentation, as in the realization of the present study, which generates questions on the organization of colonizing practices that still propagate exclusion in the academic environment (Nozu et al., 2018).

Among the challenges posed for the use of the PEI, the data from the present study replicate the documental work realized by Sonza, Vilaronga and Mendes (2020), because it consists of an individual measure that demands a multi-professional team put together to that end. Another point where the study replicates previous literature (Sonza et al., 2020) referred to the situation of the Brazilian public university and the reality of the assistance centers or Centers for support for people with specific educational necessities (NAPNEs) at the federal institutes, due to the scarcity of qualified professionals for a collaboration towards curricula accessibility for the whole PAEE. Despite the fact that the federal institutes have the NAPNEs in their organization with doctor professors in the area of special, inclusive education for the availability of specialized services, the conditions to guarantee equity are still a challenge.

The characterization of the profile of the ASD student realized in the first application of the semi-structured interview, concerning the hyper focus and the sensorial hyper-sensibility (typical behaviors of the autism spectrum – APA, 2013) demonstrated that such impediments might directly affect their academic performance and, consequently, there is an urgency to guarantee alternative pedagogical strategies that aim at effective inclusion, just like what happened in the picture collaborations represented on Tables 1 and 2. The PEI in general seemed to fill a blank identified in previous literature (Agran, Alper, & Wehmeyer, 2002; Nozu et al., 2018; Sonza et al., 2020), which was a challenge to the inclusive process, concerning curricular planning. Also, there was advancement in the implementation of data analysis despite previous documental literature (Sonza et al., 2020).

Another point to be discussed refers to the results of the two applied scales – GENCAT on quality of life (Alonso et al., 2009) and the ESA on satisfaction and attitudes (Guerreiro et al., 2014). The factors that the student highlighted that we're above average in the GENCAT were: emotional well-being, interpersonal relations, personal development, self-determination, and social inclusion. On the other hand, material well-being obtained a lower score, followed by rights and physical well-being.

Despite the fact that the student has a percentage of

75 for interpersonal relations during the questionnaire with the findings of the CIF (OMS, 2003), she reported total difficulty to interact and establish interpersonal relationships, which was corroborated in the psycho-effective satisfaction and attitudes item regarding obstacles, according to the analysis of the ESA (Guerreiro et al., 2014). Therefore, it is important to better assess such factor in order to provide better support to the process and propose activities that might benefit quality of life even more due to the importance of this construct in pedagogical development.

The analysis of the data from the ESA (Guerreiro et al. 2014) of the present work replicated partially the data from the study by Branco and Almeida (2019). Concerning structural satisfaction in the present study, she referred to satisfaction, whereas in the previous study (Branco & Almeida, 2019), the reference was to dissatisfaction. And the other areas satisfaction (operational, psycho-effective, and attitudinal), in the data by Branco and Almeida (2019) there was satisfaction, while in the present study the results were – neutral, and neutral tending to satisfaction), which makes it different from previous literature. Thus, it is important to apply the ESA in order to obtain data in a more systematized way, in combination with the individual analysis of each assessed institution, as well as the target public student from special education.

Thus, it is possible to understand that such investigations could be present in the PEI involving professionals from the health area by means of the establishment of interventions that could overcome such challenges. We recommend that the future structures of the PEI, especially when applied with the ASD population, guarantee such investigations in these areas aiming at quality of life for students.

Data from illustration 4 represent performance that is previous to the production of the PEI with the student with a long record of drop outs (two 4-month terms and 7 for disciplines) and failures (4), in addition to great difficulty to realize disciplines of practical character, in the total sum of 6 analyzed four-month terms. With the employment of the PEI, that student reduced her history of discipline cancellations (1), and did not cancel any four-month term and did not fail in any discipline, in addition to being able to attend fully for the first time in her university trajectory a discipline of brecht called character and pass. Such data corroborate the importance of creating conditions for the implementations of actions aiming at curricular planning, and at academic success by the target public of special education (Agran, Alper, & Wehmeyer, 2002; Nozu et al., 2018; Martin et al., 2006).

This result also reveals that for the PEI to take place effectively it is fundamental that there is collaboration by the different social actors in their process of production and development, especially active participation by

professionals, teachers, and the students themselves. On the other hand, literature describes little participation by teachers, by families, and by the students themselves. Studies by Martin et al, (2006) and Van Dycke, Martin and Lovett, (2006) Described that over 50% of the reports in the meeting for the production of the PEI are made by teachers in special education, while the rest was divided by the groups: family, students, teacher, professionals, administrators, and multidisciplinary team. specifically, in the case of the teacher, participation was assessed as very low, approximately 6% of the participations in the meetings. in this context, the present study guaranteed the presence and the protagonism of the student with ASD during the whole process of production, application and decision making, in order to fill in the blank identified in the literature, as well as the involvement of the teacher responsible for the discipline fulfilling in the differentiations table.

The results of the study corroborate the importance of the PEI as is specialized inclusive educational service and lead to questions on the reasons why it is still not predicted by the educational legislation in the use of this practice, since basic education until higher education while replicating preoccupations from previous studies (Costa, 2016; Glat, Vianna, & Redig, 2012; Tannús-Valadão & Mendes, 2018).

After data analysis, it is still possible to reflect on the use of the PEI as a viable strategy for continued formation in special education for university professors that operate in different knowledge areas. The PEI established behavioral contingencies that connected university students, teachers in the areas of humanities and exact sciences, and specialized researchers. The connected contingencies operated in a recurrent way and generated the aggregated product (a document containing information on the trajectory student, decisions made for guaranteeing equity for each discipline and records of the educational strategies of success and lack of success). The interconnected contingencies were maintained by individual consequences provided by the teachers in the theoretical and practical disciplines and operated as an environment that selected behavior. Thus, it was possible to characterize the PEI as a meta-contingency.

By analyzing the PEI as a meta-contingency, kept by individual contingencies, that generates an aggregated product (Written updated document for each discipline attended by the student) and operates in a selecting environment (And has provided by the teachers and the disciplines) led to the identification and description of a behavior technology that served the purpose of educational support in order to guarantee equity at public universities. Furthermore, the use of the PEI as planning (planning action that connects individual contingencies) and not only as a plan (aggregated product generated by the PEI).

The product (document in constant updating, at

every new enrollment in the discipline) that the PEI generates might lead to a situation where teachers are well informed on strategies that are already used in previous disciplines realized by the university student with good results and adjustments for replication in their discipline teaching plans. Thus, we advocate the use of the PEI as a strategy that guarantees the permanence of the student in the university and is conducive to the conclusion of the studies. It is also fundamental that the PEI gets institutionalized by university administrators in their institutional development plans, as well as pedagogical projects for graduation and post-graduation courses.

In this context, we recommend that future studies investigate the application of the PEI as a strategy for the continued formation of teachers, in the realm of Inclusive Special Education, despite the blanks identified in previous studies that highlight preoccupations with the preparation and formation of teachers, in addition to considering strategies that aim at a universal learning plan (Agran, Alper, & Wehmeyer, 2002; Costa, 2016; Zerbato & Mendes, 2018).

The implementation of the study led to further scientific knowledge on the PEI, especially for the community of university teachers, and to more research data that led to a guarantee of the permanence of ASD students in higher education. The PEI as a fundamental strategy for support to ASD students led to a collaborative practice among researchers, teachers of diverse disciplines (especially in the areas of humanities and exact sciences) and the ASD student, as protagonist of the educational process. The data on the importance of collaboration among different actors present in the university space replicated the same positive effects documented in Basic Education (Machado et al., 2015).

Even though the data from the present work referred to a case study, involving a single student with ASD, the findings might be considered concrete actions that promoted the permanence of the student at the university, rather than segregating, colonizing practices that aim at exclusion from the schooling process, by means of a justification focused on the impediments of students in the school context, as documented in previous literature, with this target public and practiced by specialized professionals (Benitez et al., 2017; Nozu et al., 2018; Rodrigues et al., 2012).

Thus, it was possible to guarantee the education rights of the student with ASD, and fill in a blank in the literature on concrete, efficient strategies to guarantee inclusion in higher education, b means of collaborations by the teachers, researchers, and the ASD student as a protagonist in her own educational process.

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