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Assistive Technology in Pedagogy Degree Programmes: A Documentary Analysis of PPCs in Public-Sector Universities in Northern and Northeastern Brazil

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Abstract

This study aimed to identify and analyse modules addressing Assistive Technology (AT) in the Pedagogical Course Projects (*Projetos Pedagógicos de Curso*; PPCs) of Pedagogy degree programmes at public-sector universities (municipal, state and federal) in Brazil's North and Northeast. A documentary analysis was conducted. Programmes were identified in the e-MEC system and PPCs obtained from university websites. After screening module descriptions, only those explicitly mentioning "assistive technology", "technical aids" or related terms were included. Modules were described by status (compulsory/optional), semester and contact hours, and classified as CAT-1 (foundations and concepts), CAT-2 (pedagogical application) or CAT-3 (legislation and policies). Fifty-one programmes were mapped in the North and 105 in the Northeast; 30 and 61, respectively, provided PPCs. Fourteen PPCs in the North and 13 in the Northeast contained AT-related modules, totalling 19 and 17 modules. Only two modules (one per region) were dedicated solely to AT; elsewhere, AT appeared alongside other content. Compulsory modules predominated (78.9% North; 70.6% Northeast) and were mainly offered in later semesters (North) or intermediate semesters (Northeast). In most programmes, AT represented about 2% of the 3,200-hour curriculum, reaching 6% where up to three modules existed. The North prioritised CAT-1 (63.2%), whereas the Northeast prioritised CAT-3 (52.9%). AT therefore occupies limited space in the prescribed curriculum, suggesting the need for stronger integration in initial teacher education.

Keywords: Assistive Resources, Teacher Education, Educational Technology, Higher Education Policy, Learning Support Strategies.

1. Introduction

According to Brazilian Law No. 13,146, which establishes the Inclusion of Persons with Disabilities (*Estatuto da Pessoa com Deficiência* - Statute of the Person with Disabilities), Assistive Technology (AT) is defined as a multidisciplinary field encompassing resources, strategies, practices, and services aimed at promoting autonomy, independence, and social participation for individuals with disabilities and other specific needs (Brazil, 2015a; 2021). Within the educational context, AT constitutes a key instrument for ensuring the participation of students with disabilities in both the education system and society, fostering accessibility and inclusion with greater equality of opportunity (Abdelwahab et al., 2025; Ahmad, 2015; Motta & Santos, 2024).

Globally, AT has increasingly been recognised as a structural component of inclusive education, as it enables the removal of barriers and the adaptation of teaching practices to diverse learning profiles (Navas-Bonilla et al., 2025; Saabi et al., 2025). Documents such as *Innovative Technologies for Inclusive Education: A Review of Best Practices from Global Resource Centres* (UNESCO, 2025) demonstrate how the adoption of effective practices in integrating AT with digital pedagogy can enhance both learning outcomes and the social participation of students with disabilities and special educational needs.

In the scientific literature, studies such as Fernández-Batanero et al. (2022) and Navas-Bonilla et al. (2025) show that the effectiveness of AT is directly dependent on the quality of pedagogical mediation and its integration into the school curriculum. Furthermore, systematic reviews, such as Pang and Datu (2025), indicate that AT contributes not only to improved learning outcomes but also to the well-being of students with disabilities, supporting more favourable conditions for their development and participation in society.

Despite the evidence that AT is essential for effective inclusion, studies such as Abdelwahab et al. (2025), Reis and Coutinho (2025), and Heredia-Solorzano and Villafuerte-Holguin (2025) highlight that the lack of specific teacher training in AT remains one of the main barriers to its pedagogical integration. In Brazil, notwithstanding the existence of a robust legal framework governing the use of AT (Brazil, 2006; 2015a; 2021), the effective implementation of these guidelines in public schools continues to face significant challenges, particularly with regard to school infrastructure and initial teacher education (Bezerra et al., 2024; Reis & Coutinho, 2025).

This issue is also connected to Brazilian curricular guidelines for teacher education. Resolution No. 2/2015 of the National Education Council/Full Council (*Conselho Nacional de Educação/Conselho Pleno — CNE/CP*) established national guidelines for initial and continuing teacher education and stated that graduates of teacher education programmes should be prepared for the "competent use of Information and Communication Technologies (ICT)" to improve pedagogical practice and broaden the cultural education of teachers and students (Brazil, 2015b, Article 5, item VI). Subsequently, Resolution CNE/CP No. 2/2019 and, more recently, Resolution CNE/CP No. 4/2024 reaffirmed the need to align teacher preparation with the demands of basic education, including inclusive pedagogical practices, accessibility, and the pedagogical use of educational technologies (Brazil, 2019; 2024). In this sense, Pedagogical Course Projects (*Projetos Pedagógicos de Curso — PPCs*), understood as the institutional curriculum documents that define the structure, objectives, pedagogical organisation, and training components of undergraduate programmes, are expected to translate national curricular and policy orientations into concrete training components within teacher education degrees.

Given that initial teacher education has been identified as a key factor for the successful implementation of AT (Abdelwahab et al., 2025; Ahmad, 2015; Bezerra et al., 2024; Motta & Santos, 2024; Reis & Coutinho, 2025), this study aims to identify and analyse modules addressing AT within the PPCs of Pedagogy degree programmes at public-sector universities (municipal, state, and federal) in the North and Northeast regions of Brazil.

The selection of the North and Northeast regions is justified by evidence from the *Continuous National Household Sample Survey — ICT supplement* (PNAD_Contínua), which reveals significant regional inequalities in access to and use of information and communication technologies across Brazil. In particular, the North and Northeast exhibit lower levels of internet access and availability of technological devices, especially among children and students in basic education (IBGE, 2024). These indicators point to structural limitations that directly affect opportunities for technology-mediated learning, thereby exacerbating existing educational inequalities.

Moreover, socio-economic factors, such as household income and the educational level of guardians, directly influence access to and use of these technologies, further intensifying these disparities in the regions (IBGE, 2024). In this context, investigating teacher education in relation to AT becomes especially relevant, as insufficient training in these technologies may further restrict students with disabilities from accessing appropriate pedagogical resources, thereby compromising their participation and learning.

2. Methods

2.1 Research Design

This study adopts a documentary, descriptive research design.

2.2 Research Phases and General Procedure

The study was conducted in three phases: (1) identification of undergraduate Pedagogy programmes through the official electronic system of the Brazilian Ministry of Education (e-MEC), followed by the manual retrieval and download of the corresponding PPCs from university websites; (2) identification of disciplines addressing AT within each PPC; and (3) analysis of the extracted data based on the following criteria: year of PPC development, course title, syllabus, workload, semester of delivery, course status (mandatory, elective, or optional), whether AT constituted the main subject or appeared as a secondary topic, and the primary and secondary thematic focus assigned to AT. These foci were classified into: (1) Foundations and Conceptualisation of AT; (2) Pedagogical Instrumentalisation (use/selection/adaptation); and (3) Legislation, Policy, and Organisation of Provision. Each phase is described in detail below.

2.2.1 Phase 1

In this phase, Pedagogy programmes were identified in the e-MEC system across all states in Brazil's North (Acre, Amapá, Amazonas, Pará, Rondônia, Roraima, and Tocantins) and Northeast (Alagoas, Bahia, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, and Sergipe) regions.

For each state, filters available in the "Advanced Search" section of e-MEC were applied. The "Search for" field was set to "Undergraduate Courses", and the "Course" field was restricted to "Pedagogy". Only tuition-free programmes ("*Gratuidade do Curso: Sim*") offered by public institutions and delivered in a face-to-face format were included, excluding distance education programmes. Both Bachelor's and Licentiate degrees were considered. Regarding programme status, only those classified as "Active" were included, excluding discontinued or cancelled courses. The selection process and reasons for exclusion were documented for each identified programme (see Appendix A and Appendix B).

2.2.2 Phase 2

In this phase, data on disciplines addressing AT within each PPC were identified. An initial exploratory reading of a sample of PPCs was conducted to understand how AT was represented in these documents. Based on this preliminary analysis, a set of search terms was defined to maximise retrieval of relevant information: "assist" (to capture assistência/assistance, assistiva/assistive and related forms), "educação especial"/"special education", "educação inclusiva"/"inclusive education", "ajuda" (to capture references to ajudas técnicas/technical aids), "tecn" (to capture tecnologia/technology, tecnologias/technologies, tecnológico/technological and related forms), and "comunicação alternativa"/"alternative communication". The complete bilingual list of search terms is provided in Appendix C.

These terms were applied systematically in a two-step process. First, a broad search was conducted across PPCs to maximise sensitivity and identify potentially relevant disciplines. Second, the full syllabi of retrieved components were examined, and eligibility was determined exclusively based on textual content. A discipline was included only if it explicitly referenced "Assistive Technology", "assistive aids", or closely related concepts (e.g., "augmentative and alternative communication (AAC)", "adapted pedagogical resources" targeting students with disabilities, or accessibility linked to support technologies). Disciplines lacking explicit reference to AT were excluded, thereby reducing the inclusion of courses addressing technology in a generic sense.

For each eligible discipline, the following information was extracted: year of the PPC, course title, syllabus, workload, semester of delivery, and status (mandatory, elective, or optional).

2.2.3 Phase 3

This phase involved sample characterisation, including the distribution of programmes by state and administrative category (state, federal, and municipal), as well as a descriptive analysis of AT-related disciplines. The analysis considered course requirements, semester of delivery, number of AT-related disciplines per programme, total workload, and the proportion of the overall curriculum dedicated to AT content.

Subsequently, the thematic focus of each discipline was analysed based on syllabus content. Three categories were defined:

(1) **Foundations and Conceptualisation of AT (CAT-1)** – covering definitions, scope (resources, strategies, methodologies, practices, services), and purposes (functionality, participation, autonomy/inclusion);

(2) **Pedagogical Instrumentalisation (CAT-2)** – addressing the application of AT in educational contexts, including the selection, adaptation, development, and use of resources (e.g., AAC systems, communication boards, symbols, adapted materials), aligned with pedagogical planning;

(3) **Legislation, Policy, and Organisation of Provision (CAT-3)** – focusing on legal frameworks, public policies, rights, accessibility, Specialised Educational Assistance (*Atendimento Educacional Especializado* — AEE), organisational aspects, implementation conditions, intersectoral collaboration, and professional training.

As a single discipline could encompass multiple categories, the analysis was conducted in two stages: a primary focus, representing the central theme, and a secondary focus, capturing complementary or peripheral content. Each discipline was assigned one primary category

(CAT-1, CAT-2, or CAT-3) and could include additional categories as secondary. When no secondary dimension was identified, it was recorded as "Not applicable".

In cases where the primary focus could not be clearly determined, it was assumed that conceptual aspects of AT were at least addressed; therefore, CAT-1 was assigned as the primary focus, with no secondary classification. The analysis was conducted independently by two researchers, and discrepancies were resolved by a third researcher. Examples of coded syllabi, including one case of disagreement and adjudication, are provided in Appendix D.

To assess the reliability of the thematic classification, inter-rater agreement was calculated using Cohen's kappa coefficient (κ) (Cohen, 1960), which estimates agreement between two independent coders while correcting for agreement expected by chance. The coefficient was computed separately for the primary CAT classification and, when applicable, for the secondary CAT classification, using the initial classifications made independently by the two researchers before any disagreements were discussed or resolved by the third researcher. Cohen's kappa coefficients were reported with 95% confidence intervals estimated through non-parametric bootstrap resampling with 10,000 replications; in each replication, disciplines were resampled with replacement and Cohen's kappa was recalculated, with the 2.5th and 97.5th percentiles of the bootstrap distribution used as the lower and upper bounds of the confidence interval. All calculations were performed in Python, and the code used for the analysis is provided in Appendix E.

3. Results

In Brazil's North region, a total of 51 Pedagogy programmes offered by public institutions were identified, with a predominance of the federal sector (n = 32; 62.7%), followed by state institutions (n = 18; 35.3%) and a marginal presence of municipal provision (n = 1; 2.0%). Across all states in the region, the number of programmes offered by federal institutions is equal to or greater than that provided by state and municipal institutions. The only municipal programme was identified in Tocantins (n = 1; representing 100% of the region's municipal provision). In terms of spatial distribution, there is a marked concentration in Pará, which accounts for 25 programmes (49.0%), followed by Tocantins (n = 10; 19.6%) and Rondônia (n = 6; 11.8%).

In the Northeast region, 105 Pedagogy programmes in public institutions were identified, with a greater share in the state sector (n = 57; 54.3%) compared to the federal sector (n = 47; 44.8%), while municipal provision remains residual (n = 1; 1.0%), located in Pernambuco. The highest concentrations are observed in Piauí (n = 26; 24.8%) and Bahia (n = 24; 22.9%), which together account for 47.7% of all programmes identified in the region. In some states, federal provision exceeds state provision, as in Paraíba (7 vs. 2) and Piauí (14 vs. 12), whereas in Bahia and Maranhão the state sector predominates.

These distributions are presented in Table 1, which details the number of programmes by state and administrative category. Overall, the results highlight regional differences in the organisation of public higher education provision, with federal institutions playing a more prominent role in the North, and state institutions assuming greater relevance in the Northeast.

Table 1: Number of Programmes by State (UF) and Administrative Category

State (UF)	State Public		Federal Public		Municipal Public		Total per State	
	N	(%)	N	(%)	N	(%)	N	(%)
North Region								
Acre (AC)	0	0.0%	2	6.3%	0	0.0%	2	3.9%
Amazonas (AM)	2	11.1%	2	6.3%	0	0.0%	4	7.8%
Amapá (AP)	1	5.6%	1	3.1%	0	0.0%	2	3.9%
Pará (PA)	12	66.7%	13	40.6%	0	0.0%	25	49.0%
Rondônia (RO)	0	0.0%	6	18.8%	0	0.0%	6	11.8%
Roraima (RR)	1	5.6%	1	3.1%	0	0.0%	2	3.9%
Tocantins (TO)	2	11.1%	7	21.9%	1	100.0%	10	19.6%
Total by category	**18**	**35.3%**	**32**	**62.7%**	**1**	**2.0%**	**51**	**100.0%**
Northeast Region								
Alagoas (AL)	3	5.3%	3	6.4%	0	0.0%	6	5.7%
Bahia (BA)	19	33.3%	5	10.6%	0	0.0%	24	22.9%
Ceará (CE)	4	7.0%	5	10.6%	0	0.0%	9	8.6%
Maranhão (MA)	9	15.8%	3	6.4%	0	0.0%	12	11.4%
Paraíba (PB)	2	3.5%	7	14.9%	0	0.0%	9	8.6%
Pernambuco (PE)	3	5.3%	5	10.6%	1	100.0%	9	8.6%
Piauí (PI)	12	21.1%	14	29.8%	0	0.0%	26	24.8%
Rio Grande do Norte (RN)	5	8.8%	3	6.4%	0	0.0%	8	7.6%
Sergipe (SE)	0	0.0%	2	4.3%	0	0.0%	2	1.9%
Total by category	**57**	**54.3%**	**47**	**44.8%**	**1**	**1.0%**	**105**	**100.0%**

Source: Authors (2026).

Table 2 presents the distribution of Pedagogy programmes with available PPCs by state (UF) and administrative category in the North and Northeast regions of Brazil. To increase transparency regarding the sampling process, the full lists of programmes identified, including those included and excluded from the analysis and the reasons for exclusion, are provided in Appendix A for the North region and Appendix B for the Northeast region.

In the North region, 30 programmes with available PPCs were identified, with a marked predominance of federal public institutions (n = 26; 86.7%) compared to state public institutions (n = 4; 13.3%), and no PPCs available from municipal institutions. A clear

concentration is observed in Pará, which accounts for 11 programmes (36.7%), followed by Rondônia and Tocantins (n = 6; 20.0% each). In the Northeast region, 61 programmes with available PPCs were identified, distributed between state public institutions (n = 35; 57.4%) and federal public institutions (n = 26; 42.6%), again with no representation from the municipal sector. The highest concentration is found in Bahia, with 17 programmes (27.9%), followed by Maranhão (n = 11; 18.0%) and Piauí (n = 7; 11.5%). An intermediate level of concentration is observed in Alagoas, Pernambuco, and Rio Grande do Norte, each with 6 programmes (9.8%), while Ceará and Paraíba each have 3 programmes (4.9%), and Sergipe presents the lowest number (n = 2; 3.3%).

Table 2: Number of Programmes with Available PPCs by State (UF) and Administrative Category

State (UF)	**State Public**		**Federal Public**		**Municipal Public**		**Total per State**	
	N	**(%)**	**N**	**(%)**	**N.**	**(%)**	**N.**	**(%)**
North Region								
Acre (AC)	0	0%	1	3.8%	0	0%	1	3.3%
Amazonas (AM)	0	0%	2	7.7%	0	0%	2	6.7%
Amapá (AP)	1	25.0%	1	3.8%	0	0%	2	6.7%
Pará (PA)	0	0%	11	42.3%	0	0%	11	36.7%
Rondônia (RO)	0	0%	6	23.1%	0	0%	6	20.0%
Roraima (RR)	1	25.0%	1	3.8%	0	0%	2	6.7%
Tocantins (TO)	2	50.0%	4	15.4%	0	0%	6	20.0%
Total by category	**4**	**13.3%**	**26**	**86.7%**	**0**	**0%**	**30**	**100.0%**
Northeast Region								
Alagoas (AL)	3	8.6%	3	11.5%	0	0%	6	9.8%
Bahia (BA)	15	42.9%	2	7.7%	0	0%	17	27.9%
Ceará (CE)	0	0%	3	11.5%	0	0%	3	4.9%
Maranhão (MA)	9	25.7%	2	7.7%	0	0%	11	18.0%
Paraíba (PB)	2	5.7%	1	3.8%	0	0%	3	4.9%
Pernambuco (PE)	3	8.6%	3	11.5%	0	0%	6	9.8%
Piauí (PI)	0	0%	7	26.9%	0	0%	7	11.5%
Rio Grande do Norte (RN)	3	8.6%	3	11.5%	0	0%	6	9.8%
Sergipe (SE)	0	0%	2	7.7%	0	0%	2	3.3%
Total by category	**35**	**57.4%**	**26**	**42.6%**	**0**	**0%**	**61**	**100.0%**

Source: Authors (2026).

In the North region, 30 PPCs were analysed. Of these, 15 PPCs did not include any disciplines with content related to assistive technologies, and one PPC did not provide a syllabus, which prevented verification of its curricular content. Consequently, the identification and extraction of disciplines relevant to this study were based on the remaining 14 PPCs, which had available syllabi and included at least one discipline addressing assistive technologies (30 − 16 = 14). Appendix A provides the programme-level classification for the North region, distinguishing PPCs included in the AT analysis from those excluded because no AT-related discipline was identified, the syllabus was unavailable, the PPC was not publicly accessible, or the institutional website could not be located.

A similar pattern was observed in the Northeast region, where 61 PPCs were collected; however, 48 did not contain disciplines with assistive technology content, resulting in 13 PPCs eligible for the extraction of disciplines (61 − 48 = 13). The corresponding programme-level classification for the Northeast region is provided in Appendix B.

Regarding the initial year of implementation of the most recent PPC available on each Pedagogy programme's website that included assistive technology disciplines, the North region showed the following distribution: 2 PPCs initiated between 2009 and 2015, 7 between 2016 and 2021, and 3 between 2022 and 2024. Two PPCs did not provide date information and were therefore retained as cases with missing temporal data. This pattern suggests that the majority of PPCs in the North correspond to versions that are at least five years old, although more recent versions and instances of incomplete information are also present.

In the Northeast region, 5 PPCs had an initial implementation between 2016 and 2021, and 8 between 2022 and 2024. This distribution indicates a predominance of more recent PPCs (2022–2024), although older versions are still observed.

Given the relatively small number of PPCs including assistive technology content, Table 3 summarises the distribution of identified disciplines by state (UF) and administrative category (federal public, state public, and municipal public). It should be noted that the percentages presented in the administrative category columns represent each state's share within the regional total of that category, whereas the "Total per State" column (n and %) reflects each state's contribution to the regional total number of disciplines.

As shown in Table 3, in the North region, a total of 19 disciplines with some assistive technology content were identified. There is a clear predominance of disciplines linked to federal public institutions (n = 17; 89.5%), with limited participation from state public institutions (n = 2; 10.5%) and no representation from municipal institutions. In terms of distribution by state, Pará accounts for the largest share (n = 11; 57.9% of the regional total), followed by Tocantins (n = 4; 21.1%) and Rondônia (n = 3; 15.8%). Amazonas recorded one discipline (5.3%), while Acre, Amapá, and Roraima showed no disciplines in this category.

In the Northeast region, 17 disciplines with assistive technology content were identified, again with no representation from municipal institutions. Most of these disciplines are associated with federal public institutions (n = 11; 64.7%), followed by state public institutions (n = 6; 35.3%). Regarding distribution by state, Rio Grande do Norte presents the highest concentration (n = 6; 35.3% of the regional total), followed by Bahia (n = 4; 23.5%), Pernambuco (n = 3; 17.6%), and Alagoas (n = 2; 11.8%). Ceará and Maranhão each recorded one discipline (5.9%), while Paraíba, Piauí, and Sergipe did not present any disciplines with assistive technology content.

Table 3: Number of Disciplines with Assistive Technology Content by State (UF) and Administrative Category

State (UF)	**State Public**		**Federal Public**		**Municipal Public**		**Total per State**	
	N	**(%)**	**N**	**(%)**	**N.**	**(%)**	**N.**	**(%)**
North Region								
Acre (AC)	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Amazonas (AM)	0	0.0%	1	5.9%	0	0.0%	1	5.3%
Amapá (AP)	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pará (PA)	0	0.0%	11	64.7%	0	0.0%	11	57.9%
Rondônia (RO)	0	0.0%	3	17.6%	0	0.0%	3	15.8%
Roraima (RR)	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tocantins (TO)	2	100.0%	2	11.8%	0	0.0%	4	21.1%
Total by category	**2**	**10.5%**	**17**	**89.5%**	**0**	**0.0%**	**19**	**100.0%**
Northeast Region								
Alagoas (AL)	0	0.0%	2	18.2%	0	0.0%	2	11.8%
Bahia (BA)	0	0.0%	4	36.4%	0	0.0%	4	23.5%
Ceará (CE)	1	16.7%	0	0.0%	0	0.0%	1	5.9%
Maranhão (MA)	0	0.0%	1	9.1%	0	0.0%	1	5.9%
Paraíba (PB)	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pernambuco (PE)	2	33.3%	1	9.1%	0	0.0%	3	17.6%
Piauí (PI)	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Rio Grande do Norte (RN)	3	50.0%	3	27.3%	0	0.0%	6	35.3%
Sergipe (SE)	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total by category	**6**	**35.3%**	**11**	**64.7%**	**0**	**0.0%**	**17**	**100.0%**

Source: Authors (2026).

Table 4 presents the distribution of disciplines containing assistive technology content according to course requirement (compulsory versus elective/optional) and semester of delivery in the North and Northeast regions. Overall, disciplines are predominantly offered as compulsory components in both regions, although the presence of elective/optional courses is notable, particularly in the Northeast. No disciplines were identified in the first semester in either region, indicating the absence of this content at the beginning of initial teacher education.

In the North region (n = 19), 15 disciplines (78.9%) are classified as compulsory, distributed between the second and eighth semesters. The highest concentrations occur in the

seventh semester (n = 4; 21.1%) and the fifth semester (n = 3; 15.8%), suggesting that assistive technology content is more frequently addressed in later stages of the programme. In addition, 4 disciplines (21.1%) are elective/optional, indicating that, despite the predominance of compulsory provision, a relevant portion of this content remains dependent on student choice.

In the Northeast region (n = 17), there is a higher relative proportion of elective/optional disciplines compared to the North: 5 disciplines (29.4%) are elective/optional, whereas 12 (70.6%) are compulsory. Among compulsory disciplines, the greatest concentration is found in the third semester (n = 4; 23.5%), followed by the second, fourth, and fifth semesters (n = 2; 11.8% each). These findings suggest a tendency in the Northeast to introduce assistive technology content at intermediate stages of the programme, alongside a considerable share of non-compulsory provision.

Table 4: Requirement and Semester of Disciplines

Requirement and Semester	**North Region**	**(%)**	**Northeast Region**	**(%)**
Compulsory				
1st semester	0	0.0%	0	0.0%
2nd semester	2	10.5%	2	11.8%
3rd semester	1	5.3%	4	23.5%
4th semester	1	5.3%	2	11.8%
5th semester	3	15.8%	2	11.8%
6th semester	2	10.5%	0	0.0%
7th semester	4	21.1%	1	5.9%
8th semester	2	10.5%	1	5.9%
Elective/Optional	4	21.1%	5	29.4%
Total	19	100.0%	17	100.0%

Source: Authors (2026).

The descriptive statistics for the workload allocated to disciplines containing assistive technology content, as well as their relative share of the minimum total workload of Pedagogy programmes (3,200 hours; Brazil, 2024), are summarised in Table 5.

In the North region, a clear pattern emerges in which both the total workload and its relative share increase as the number of disciplines containing this content rises. In programmes offering a single discipline (n = 11), the mean workload is 68 hours (median = 60; SD = 9.8), corresponding to approximately 2.1% of the minimum programme workload. In programmes with three disciplines (n = 2), the mean reaches 206 hours (SD = 26.9), equivalent to 6.4%. For programmes with two disciplines, only one case was identified (150 hours; 4.7%), which limits any inference regarding variability.

A similar trend is observed in the Northeast region, although restricted to programmes offering one or two disciplines. In programmes with a single discipline (n = 9), the mean workload is 66.6 hours (median = 64; SD = 17.5), corresponding to 2.1%, with greater

variability (ranging from 30 to 90 hours). In programmes offering two disciplines (n = 4), the mean is 116.3 hours (median = 120; SD = 18.9), equivalent to 3.6%.

Overall, the findings indicate that increasing the number of disciplines with assistive technology content is associated with a higher total workload and a greater relative share within the curriculum. However, even in programmes with multiple disciplines, this share remains limited, generally ranging between 2% and 5%, and exceeding this range (approximately 6%–7%) only in a small number of programmes in the North region. These results suggest that the inclusion of assistive technology content occurs predominantly through specific modules with relatively low curricular weight, rather than as a central component of initial teacher education in the analysed PPCs.

Table 5: Descriptive Statistics of Workload Allocated to Disciplines with Assistive Technology Content

Statistics	**Number of Disciplines per Programme**		
	1	**2**	**3**
North Region			
Number of programmes	11	1	2
Mean	68 (2.1%)	150 (4.7%)	206 (6.4%)
Median	60 (1.9%)	150 (4.7%)	206 (6.4%)
Standard Deviation	9.8 (0.3%)	- (-)	26.9 (0.8%)
Minimum	60 (1.9%)	150 (4.7%)	187 (5.8%)
Maximum	80 (2.5%)	150 (4.7%)	225 (7.0%)
Northeast Region			
Number of programmes	9	4	
Mean	66.6 (2.1%)	116.3 (3.6%)	
Median	64 (2.0%)	120 (3.8%)	
Standard Deviation	17.5 (0.5%)	18.9 (0.6%)	
Minimum	30 (0.9%)	90 (2.8%)	
Maximum	90 (2.8%)	135 (4.2%)	

Note: Percentages in parentheses represent the share of the total programme workload allocated to disciplines containing assistive technology content.

Source: Authors (2026).

Inter-rater agreement was assessed using Cohen's kappa coefficient (Cohen, 1960). For the primary classification of disciplines into CAT-1, CAT-2, and CAT-3, agreement between the two independent coders was $\kappa = 0.91$, 95% CI [0.78, 1.00], indicating almost perfect agreement (Landis & Koch, 1977). For the secondary classification, agreement was $\kappa = 0.92$, 95% CI [0.78, 1.00], also indicating almost perfect agreement (Landis & Koch, 1977).

Table 6 summarises, based on the syllabi of disciplines containing assistive technology content, the degree of confirmation regarding what is explicitly indicated to be taught (hereafter referred to as *evidence*), as well as the thematic focus derived from the combination of primary and secondary categories for the North and Northeast regions.

In the North region, the distribution of disciplines shows a predominance of syllabi classified as high evidence (n = 15; 78.9%), compared to those classified as low evidence (n = 4; 21.1%). Regarding thematic focus, CAT-1 emerges as the most frequent primary category (n = 12; 63.2%), followed by CAT-3 (n = 6; 31.6%) and, marginally, CAT-2 (n = 1; 5.3%). Within the high-evidence group, the most frequent combination is CAT-3 as the primary category with CAT-1 as the secondary (n = 5; 26.3% of the total). This is followed by configurations with CAT-1 as the primary category: CAT-1 with CAT-3 (n = 3; 15.8%), CAT-1 without an applicable secondary category (n = 3; 15.8%), and CAT-1 with CAT-2 (n = 2; 10.5%). Other combinations occur only sporadically, including CAT-2 with CAT-3 and CAT-3 without a secondary category (both n = 1; 5.3%). Among low-evidence disciplines, all are classified as CAT-1 without a secondary category (n = 4; 21.1%), indicating limited explicit articulation of thematic integration within this subset.

In the Northeast region, a similar predominance of high-evidence disciplines is observed (n = 14; 82.4%), compared to low-evidence ones (n = 3; 17.6%). However, unlike the North, the distribution by primary category indicates a predominance of CAT-3 (n = 9; 52.9%), followed by CAT-2 (n = 5; 29.4%) and CAT-1 (n = 3; 17.6%). Within the high-evidence group, the most frequent combination is again CAT-3 (primary) with CAT-1 (secondary) (n = 5; 29.4%), followed by CAT-3 without a secondary category (n = 4; 23.5%). Disciplines with CAT-2 as the primary category are distributed across CAT-2 with CAT-1 (n = 2; 11.8%), CAT-2 with CAT-3 (n = 2; 11.8%), and CAT-2 without a secondary category (n = 1; 5.9%). As in the North, all low-evidence disciplines are classified as CAT-1 without a secondary category (n = 3; 17.6%), indicating a similar pattern of limited specification.

From a comparative perspective, both regions exhibit a predominance of high-evidence disciplines and converge in the most frequent configuration: CAT-3 as the primary category combined with CAT-1 as the secondary (26.3% in the North; 29.4% in the Northeast). However, the regions differ in their dominant thematic focus. In the North, CAT-1 is central as the primary category (63.2%), with a wider variety of secondary associations (including CAT-2 and CAT-3). In contrast, the Northeast shows a predominance of CAT-3 as the primary category (52.9%) and a greater presence of CAT-2 as a primary focus (29.4%), a pattern largely absent in the North. These differences suggest regional variations in how assistive technology content is framed and integrated within course syllabi.

It should be noted that, in cases where the syllabi did not clearly specify the direction of the discipline (low evidence), it was assumed that at least the conceptual foundations of assistive technology would be addressed. Based on this assumption, CAT-1 was assigned as the primary category, with no secondary category identified.

Table 6: Evidence and Thematic Focus of Disciplines by Primary and Secondary Category

Evidence	**Discipline Focus**		**Number of Disciplines**	
	Primary Category	**Secondary Category**	**North Region**	**Northeast Region**
High	CAT-1	CAT-2	2	0
		CAT-3	3	0

		Not applicable	3	0
	CAT-2	CAT-1	0	2
		CAT-3	1	2
		Not applicable	0	1
	CAT-3	CAT-1	5	5
		Not applicable	1	4
Low	CAT-1	Not applicable	4	3
Total			19	17

Source: Authors (2026).

4. Discussion

The results indicate that assistive technology (AT) is absent from a substantial proportion of the PPCs analysed in both regions. These findings are consistent with previous research suggesting that initial teacher education does not yet adequately address this topic (Abdelwahab et al., 2025; Reis & Coutinho, 2025; Heredia-Solorzano & Villafuerte-Holguin, 2025), which may hinder the promotion of full inclusion for individuals with specific needs within the school context.

This situation becomes even more concerning when considering that a relatively large share of the identified disciplines is elective or optional, meaning that access to AT content depends largely on students' individual choices or institutional availability. Furthermore, the limited workload devoted to AT—generally ranging between approximately 2% and 5% of the minimum total workload and reaching about 6%–7% only in a small number of programmes—indicates that this topic occupies a marginal position within teacher education programmes. This suggests that curricula continue to prioritise other areas over demands aligned with national and international policies that advocate inclusion and the integration of technology in education (Brazil, 2006; 2015a; 2021; UNESCO, 2025).

From the perspective of Brazilian curricular guidelines for teacher education, these findings indicate a partial misalignment between the prescribed curriculum of the analysed Pedagogy programmes and national expectations for initial teacher preparation. Although Resolution CNE/CP No. 2/2015 explicitly referred to the competent use of ICT as part of teacher education, and Resolution CNE/CP No. 2/2019 and, more recently, Resolution CNE/CP No. 4/2024 reinforced the need to align teacher preparation with the demands of basic education, including inclusive, accessible, and technologically mediated pedagogical practices, AT remains weakly represented in the PPCs examined (Brazil, 2015b; 2019; 2024). This suggests that the formal inclusion of technology and inclusion in national guidelines has not yet been fully translated into systematic curricular provision in the analysed programmes.

This partial misalignment is particularly significant given that most PPCs analysed are relatively recent (2016–2024), pointing to a misalignment with the contemporary educational context, characterised by the central role of digital technologies. In other words, despite the increasing prominence of technology in education, the curricula examined do not fully reflect this reality in their training proposals (UNESCO, 2025).

In addition, the results reveal regional differences in the thematic emphasis assigned to AT categories, reinforcing the notion that the topic is incorporated only partially. In the North, there is a predominance of content focused on the foundations and conceptualisation of AT (CAT-1), whereas in the Northeast, greater emphasis is placed on legislation, public policies, and the organisation of provision and services (CAT-3). Moreover, the absence of secondary categories in some disciplines suggests that AT content is, in certain cases, addressed in isolation, without integration across complementary dimensions. These findings point to regional variations in how AT is structured within course syllabi, reflecting differing priorities but also indicating that AT education remains fragmented and insufficiently comprehensive. This runs counter to the guidelines established in national and international frameworks, as well as findings in the literature (Brazil, 2015b; 2019; 2024; UNESCO, 2025).

Finally, some limitations of this study should be acknowledged, which may inform future research. As a documentary analysis, the study was restricted to publicly available PPCs and to the information explicitly recorded in these documents. This restriction has two important implications. First, institutions that did not make their PPCs available could not be included. Second, because the identification of eligible disciplines relied on explicit mentions of AT or closely related terms in course syllabi, the study may have underestimated AT-related content in disciplines where this topic was addressed only implicitly, for example through broader references to accessibility, adapted pedagogical resources, or inclusive practices. Moreover, the analysis was limited to the prescribed curriculum and therefore could not assess the extent to which the formal curriculum is effectively implemented in pedagogical practice. Given evidence that the prescribed curriculum does not always correspond to the enacted curriculum, future studies should adopt broader methodological approaches, such as interviews with programme coordinators and lecturers or in situ observations. They could also conduct sensitivity checks using broader search terms and manual review of related syllabi, particularly those addressing special education, inclusive education, accessibility, and adapted pedagogical resources, in order to achieve a more comprehensive understanding of curriculum implementation in higher education institutions (Reis & Coutinho, 2025).

5. Conclusion

The findings of this study indicate that assistive technology (AT), as explicitly recorded in the analysed PPCs, continues to occupy a limited and fragmented position within initial teacher education in Pedagogy programmes in Brazil's North and Northeast regions. This is evidenced both by the absence of AT in a considerable proportion of PPCs and by its partial inclusion, characterised by low workload allocation and weak integration across conceptual, pedagogical, and regulatory dimensions.

Despite recent advances in the field of inclusive education, a clear misalignment persists between the legal and policy frameworks guiding teacher education and the curricular proposals formally documented in the analysed PPCs (Brazil, 2015b; 2019; 2024; UNESCO, 2025). The regional differences identified further highlight that, beyond expanding the presence of AT, it is essential to improve the quality and coherence of its integration, ensuring a more comprehensive and articulated approach aligned with contemporary educational demands.

In this regard, the study underscores the urgency of curricular reform aimed at systematically incorporating AT into initial teacher education. Such reform should not be limited to increasing the number of disciplines, but should also ensure adequate workload, early curricular integration, and stronger connections between theoretical foundations, pedagogical practices, and policy frameworks. Strengthening these dimensions is fundamental to fostering

more inclusive teaching practices and enabling the effective participation of students with disabilities in educational processes.

Furthermore, the findings suggest that AT should be treated not as an isolated topic but as a cross-cutting component of teacher education, embedded throughout the curriculum and integrated with broader discussions on digital technologies, accessibility, and inclusive pedagogy. Addressing this gap is particularly important in regions marked by structural inequalities in access to technology, where the role of well-prepared teachers becomes even more critical.

Finally, this study contributes to the literature by providing empirical evidence on the curricular treatment of AT in teacher education programmes and by highlighting key gaps that must be addressed to advance inclusive education. It is expected that these findings may inform policymakers, curriculum designers, and higher education institutions in the development of more effective and equitable teacher education frameworks.

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Appendix A

Programmes Included and Excluded in the Northern Region.

Acre (AC)

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
UNIVERSIDADE FEDERAL DO ACRE	Pedagogy — Floresta (PPC 2017)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO ACRE	Pedagogy — Rio Branco	Not publicly available	No	PPC could not be retrieved from the institutional website.

Amapá (AP)

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
UNIVERSIDADE DO ESTADO DO AMAPÁ	Pedagogy — Macapá (PPC 2019)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO AMAPÁ	Pedagogy — Macapá (PPC 2009)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

Amazonas (AM)

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
UNIVERSIDADE DO ESTADO DO AMAZONAS	Indigenous Intercultural Pedagogy (Pedagogia Intercultural Indígena)	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE DO ESTADO DO AMAZONAS	Pedagogy	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO AMAZONAS	Pedagogy — Manaus (formação indigena) (PPC 2019)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO AMAZONAS	Pedagogy — Manaus (pedagogia) (PPC 2019)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: PLANEJAMENTO, CURRÍCULO E AÇÕES PEDAGÓGICAS INCLUSIVAS

Pará (PA)

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
INSTITUTO FEDERAL DE EDUCAÇÃO, CIÊNCIA E	Pedagogy — Belém	Not publicly available	No	PPC could not be retrieved from the institutional website.

Institution	**Programme/Campus**	**PPC status**	**Included in AT analysis?**	**Reason/observation**
TECNOLOGIA DO PARÁ				
INSTITUTO FEDERAL DE EDUCAÇÃO, CIÊNCIA E TECNOLOGIA DO PARÁ	Pedagogy — Paragominas (PPC 2024)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: TECNOLOGIAS APLICADAS À EDUCAÇÃO; EDUCAÇÃO ESPECIAL E INCLUSIVA II
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified.
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified.
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified.
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified.
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified

Institution	**Programme/Campus**	**PPC status**	**Included in AT analysis?**	**Reason/observation**
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified
UNIVERSIDADE DO ESTADO DO PARÁ	Pedagogy — campus not identified	Not publicly available	No	The institutional website could not be located; therefore, the PPC and campus information could not be verified
UNIVERSIDADE FEDERAL DO OESTE DO PARÁ	Pedagogy — Óbidos (PPC 2018)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO OESTE DO PARÁ	Pedagogy — Santarém (PPC 2015)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

Institution	**Programme/Campus**	**PPC status**	**Included in AT analysis?**	**Reason/observation**
UNIVERSIDADE FEDERAL DO PARÁ	Pedagogy — Abaetuba (PPC 2024)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO ESPECIAL EM PERSPECTIVA INCLUSIVA
UNIVERSIDADE FEDERAL DO PARÁ	Pedagogy — Altamira (PPC 2019)	Available, but incomplete	No	PPC available, but syllabi/discipline descriptions were not provided, preventing verification of AT content.
UNIVERSIDADE FEDERAL DO PARÁ	Pedagogy — Belém (PPC undated)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: TECNOLOGIAS E EDUCAÇÃO
UNIVERSIDADE FEDERAL DO PARÁ	Pedagogy — Bragança (PPC 2012)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: FUNDAMENTOS TEÓRICO-METODOLÓGICOS DA EDUCAÇÃO ESPECIAL
UNIVERSIDADE FEDERAL DO PARÁ	Pedagogy — Breves-Marajo (PPC 2011)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO PARÁ	Pedagogy — Cameta (PPC 2015)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO PARÁ	Pedagogy — Castanhal	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO SUL E SUDESTE DO PARÁ	Pedagogy — Marabá (PPC 2018)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: FUNDAMENTOS DA EDUCAÇÃO ESPECIAL; VIVÊNCIAS EM EDUCAÇÃO ESPECIAL NA PERSPECTIVA INCLUSIVA;

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
				TECNOLOGIAS ASSISTIVAS E INCLUSÃO ESCOLAR
UNIVERSIDADE FEDERAL RURAL DA AMAZÔNIA	Pedagogy — Belém (PPC 2019)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO ESPECIAL E INCLUSIVA; TECNOLOGIAS, EDUCAÇÃO E PRÁTICA DOCENTE; INFORMÁTICA NA EDUCAÇÃO

Rondônia (RO)

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
FUNDAÇÃO UNIVERSIDADE FEDERAL DE RONDÔNIA	Pedagogy — Ariquemes (PPC 2018)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
FUNDAÇÃO UNIVERSIDADE FEDERAL DE RONDÔNIA	Pedagogy — Guajará-Mirim (PPC 2016)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: METODOLOGIAS DE NECESSIDADES EDUCACIONAIS ESPECIAIS
FUNDAÇÃO UNIVERSIDADE FEDERAL DE RONDÔNIA	Pedagogy — Ji-paraná (PPC 2018)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: ESTÁGIO SUPERVISIONADO EM EDUCAÇÃO INCLUSIVA
FUNDAÇÃO UNIVERSIDADE FEDERAL DE RONDÔNIA	Pedagogy — Porto Velho (PPC 2012)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
FUNDAÇÃO UNIVERSIDADE	Pedagogy — Rolim de Moura (PPC 2008)	Available and analysed	No	PPC available and reviewed; no AT-

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
FEDERAL DE RONDÔNIA				related discipline was identified.
FUNDAÇÃO UNIVERSIDADE FEDERAL DE RONDÔNIA	Pedagogy — Vilhena (PPC 2009)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: LÍNGUA BRASILEIRA DE SINAIS - LIBRAS

Roraima (RR)

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
UNIVERSIDADE ESTADUAL DE RORAIMA	Pedagogy — Boa Vista (PPC 2021)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DE RORAIMA	Pedagogy — Boa Vista (PPC 2023)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

Tocantins (TO)

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
FACULDADE DE EDUCAÇÃO CIÊNCIAS E LETRAS DE PARAÍSO	Pedagogy	Not publicly available	No	No institutional website was located; PPC could not be retrieved.
FUNDAÇÃO UNIVERSIDADE FEDERAL DO TOCANTINS	Pedagogy — Arraias (PPC 2018)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
FUNDAÇÃO UNIVERSIDADE FEDERAL DO TOCANTINS	Pedagogy — Miracema (PPC 2018)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
FUNDAÇÃO UNIVERSIDADE FEDERAL DO TOCANTINS	Pedagogy — Palmas (PPC 2022)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: ESTÁGIO NA

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
				ÁREA DE SERVIÇOS E APOIO ESCOLAR
INSTITUTO FEDERAL DE EDUCAÇÃO, CIÊNCIA E TECNOLOGIA DO TOCANTINS	Pedagogy — Porto Nacional (PPC 2021)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO INCLUSIVA
UNIVERSIDADE ESTADUAL DO TOCANTINS	Pedagogy — Araguatins (PPC undated)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: POLÍTICA DE INCLUSÃO E DIFICULDADES DE APRENDIZAGEM
UNIVERSIDADE ESTADUAL DO TOCANTINS	Pedagogy — Palmas (PPC 2021)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: POLÍTICA DE INCLUSÃO E DIFICULDADES DE APRENDIZAGEM
UNIVERSIDADE FEDERAL DO NORTE DO TOCANTINS	Pedagogy - Araguaína	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO NORTE DO TOCANTINS	Pedagogy - Tocantinópolis	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO NORTE DO TOCANTINS	Pedagogy - campus not identified	Not publicly available	No	PPC could not be retrieved from the institutional website.

Note. The table lists Pedagogy programmes initially mapped in the Northern region and indicates whether each PPC was available, analysed, and included in the AT-specific analysis. Official institution names and course/campus names are preserved in Portuguese where applicable; selection status and reasons are provided in English.

Source: Authors (2026).

Appendix B

Programmes Included and Excluded in the Northeastern Region.

Alagoas (AL)

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
UNIVERSIDADE ESTADUAL DE ALAGOAS - UNEAL	Pedagogy — Arapiraca (PPC 2022)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL DE ALAGOAS - UNEAL	Pedagogy — Palmeira dos Índios (PPC 2023)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO INCLUSIVA
UNIVERSIDADE ESTADUAL DE ALAGOAS - UNEAL	Pedagogy — União dos Palmares (PPC 2022)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO INCLUSIVA
UNIVERSIDADE FEDERAL DE ALAGOAS	Pedagogy — Arapiraca (PPC 2018)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DE ALAGOAS	Pedagogy — Delmiro Gouveia (PPC 2018)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DE ALAGOAS	Pedagogy — Maceió (PPC 2019)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

Bahia (BA)

Institution	Programme/Campus	PPC status	Included in AT analysis?	Reason/observation
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Alagoinhas	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Barreiras (PPC 2011)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Bom Jesus da Lapa (PPC undated)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Brumado	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Guanambi (PPC 2010)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Irece (PPC 2008)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Itaberaba (PPC undated)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Juazeiro (PPC 2011)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Paulo Afonso (PPC 2020)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO INCLUSIVA
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Salvador (PPC 2020)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO ESPECIAL E INCLUSIVA; ARTE E TECNOLOGIA
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Seabra	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Senhor do Bonfim (PPC 2019)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Serrinha (PPC undated)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Teixeira de Freitas (PPC 2012)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE DO ESTADO DA BAHIA	Pedagogy — Valença	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DE FEIRA DE SANTANA	Pedagogy — Feira de Santana	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DE SANTA CRUZ	Pedagogy — Ilhéus (PPC 2024)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified:

				EDUCAÇÃO ESPECIAL E INCLUSIVA
UNIVERSIDADE ESTADUAL DO SUDOESTE DA BAHIA	Pedagogy — Itapetinga (PPC 2011)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL DO SUDOESTE DA BAHIA	Pedagogy — Jequie (PPC 2014)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL DO SUDOESTE DA BAHIA	Pedagogy — Vitória da Conquista (PPC 2012)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DA BAHIA	Pedagogy — Salvador	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO RECÔNCAVO DA BAHIA	Pedagogy — Amargosa (PPC 2019)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO RECÔNCAVO DA BAHIA	Pedagogy — Cruz das Almas (PPC 2023)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO RECÔNCAVO DA BAHIA	Pedagogy — Feira de Santana	Not publicly available	No	PPC could not be retrieved from the institutional website.

Ceará (CE)

Institution	**Programme/Campus**	**PPC status**	**Included in AT analysis?**	**Reason/observation**
INSTITUTO FEDERAL DE EDUCAÇÃO, CIÊNCIA E TECNOLOGIA DO CEARÁ	Pedagogy — Canindé (PPC 2018)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL VALE DO ACARAÚ	Pedagogy — Acaraú	Available, but incomplete	No	Only the curriculum matrix was located; the full PPC and syllabi/discipline descriptions were not provided.

UNIVERSIDADE ESTADUAL VALE DO ACARAÚ	Pedagogy — Ibiapaba	Available, but incomplete	No	Only the curriculum matrix was located; the full PPC and syllabi/discipline descriptions were not provided.
UNIVERSIDADE ESTADUAL VALE DO ACARAÚ	Pedagogy — Sobral	Available, but incomplete	No	Only the curriculum matrix was located; the full PPC and syllabi/discipline descriptions were not provided.
UNIVERSIDADE FEDERAL DO CARIRI	Pedagogy — Brejo Santo (PPC 2023)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO CEARÁ	Pedagogy — Fortaleza (PPC 2016)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO ESPECIAL
UNIVERSIDADE REGIONAL DO CARIRI	Pedagogy — Crato	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE DA INTEGRAÇÃO INTERNACIONAL DA LUSOFONIA AFRO-BRASILEIRA	Pedagogy	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DO CEARA	Pedagogy	Not publicly available	No	The PPC of a distance learning course appears on the in-person course website

Maranhão (MA)

Institution	**Programme/Campus**	**PPC status**	**Included in AT analysis?**	**Reason/observation**
UNIVERSIDADE ESTADUAL DA REGIÃO TOCANTINA DO MARANHÃO	Pedagogy — Imperatriz (PPC 2023)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO ESPECIAL E INCLUSIVA
UNIVERSIDADE ESTADUAL DO MARANHÃO	Pedagogy — Bacabal (PPC 2008)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL DO MARANHÃO	Pedagogy — Balsas (PPC 2015)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL DO MARANHÃO	Pedagogy — Barra do Corda (PPC 2022)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

UNIVERSIDADE ESTADUAL DO MARANHÃO	Pedagogy — Caxias (PPC 2018)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL DO MARANHÃO	Pedagogy — Pinheiro (PPC 2016)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL DO MARANHÃO	Pedagogy — Santa Ines (PPC 2017)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL DO MARANHÃO	Pedagogy — São Luíz (PPC 2020)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL DO MARANHÃO	Pedagogy — Timon (PPC 2015)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO MARANHÃO	Pedagogy — Codó	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO MARANHÃO	Pedagogy — Imperatriz (PPC 2022)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO MARANHÃO	Pedagogy — São Luíz (PPC 2007)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

Paraíba (PB)

Institution	**Programme/Campus**	**PPC status**	**Included in AT analysis?**	**Reason/observation**
UNIVERSIDADE ESTADUAL DA PARAÍBA	Pedagogy — Campina Grande (PPC 2016)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE ESTADUAL DA PARAÍBA	Pedagogy — Guarabira (PPC 2016)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DA PARAÍBA	Pedagogy – Social Movements in Rural Areas (Pedagogia - Movimentos Sociais do Campo) — João Pessoa	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DA PARAÍBA	Pedagogy — João Pessoa	Available, but incomplete	No	Only approval/enrolment documents were located; PPC and syllabi/discipline

				descriptions could not be retrieved.
UNIVERSIDADE FEDERAL DA PARAÍBA	Psychopedagogy (Psicopedagogia) — João Pessoa	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DA PARAÍBA	Rural Education Pedagogy (Pedagogia - Educação do Campo) — João Pessoa	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DA PARAÍBA	Pedagogy — Mamanguape	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DE CAMPINA GRANDE	Pedagogy — Cajazeiras (PPC 2009)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DE CAMPINA GRANDE	Pedagogy — Campina Grande	Not publicly available	No	PPC could not be retrieved from the institutional website.

Pernambuco (PE)

Institution	**Programme/Campus**	**PPC status**	**Included in AT analysis?**	**Reason/observation**
FACULDADE DE CIÊNCIAS HUMANAS E SOCIAIS APLICADAS DO CABO DE SANTO AGOSTINHO	Pedagogy — Cabo de Santo Agostinho	Not publicly available	No	PPC could not be retrieved from the institutional website.
INSTITUTO FEDERAL DE EDUCAÇÃO, CIÊNCIA E TECNOLOGIA DE PERNAMBUCO	Indigenous Intercultural Pedagogy (Pedagogia Intercultural Indígena) — campus not identified	Not publicly available	No	Course page could not be located on the institutional website; PPC could not be retrieved.
UNIVERSIDADE DE PERNAMBUCO	Pedagogy — Garanhuns (PPC 2024)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE DE PERNAMBUCO	Pedagogy — Nazaré da Mata (PPC 2024)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

UNIVERSIDADE DE PERNAMBUCO	Pedagogy — Petrolina (PPC 2024)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO INCLUSIVA
UNIVERSIDADE FEDERAL DE PERNAMBUCO	Pedagogy — Caruaru (PPC 2010)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DE PERNAMBUCO	Pedagogy — Recife (PPC 2024)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: ASPECTOS PEDAGÓGICOS DA INCLUSÃO DE PESSOAS COM DEFICIÊNCIA INTELECTUAL E MOTORA; ENSINO DE BRAILE E TECNOLOGIAS ASSOCIADAS
UNIVERSIDADE FEDERAL DO AGRESTE DE PERNAMBUCO	Pedagogy — Garanhuns	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL RURAL DE PERNAMBUCO	Pedagogy — Dois irmãos (PPC 2018)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

Piauí (PI)

Institution	**Programme/Campus**	**PPC status**	**Included in AT analysis?**	**Reason/observation**
UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — Bom Jesus	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — Campo Maior	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — Corrente	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — Floriano	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — Oeiras	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — Parnaíba	Not publicly available	No	PPC could not be retrieved from the institutional website.

UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — Picos	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — Piripiri	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — São Raimundo Nonato	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — Teresina	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE ESTADUAL DO PIAUÍ	Pedagogy — Uruçuí	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO DELTA DO PARNAIBA	Pedagogy — Parnaiba (PPC 2011)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Baixa Grande do Rio Ribeiro (PPC 2023)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Batalha	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Bom Jesus	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Castelo do Piauí	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Currais (PPC 2023)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Esperantina	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Floriano (PPC 2011)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Luzilândia	Not publicly available	No	PPC could not be retrieved from the institutional website.

UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Miguel Alves	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Pedro II	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Picos	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Piripiri (PPC 2023)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Teresina (PPC 2018)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DO PIAUÍ	Pedagogy — Uruçuí (PPC 2023)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

Rio Grande do Norte (RN)

Institution	**Programme/Campus**	**PPC status**	**Included in AT analysis?**	**Reason/observation**
INSTITUTO DE EDUCAÇÃO SUPERIOR PRESIDENTE KENNEDY - CENTRO DE FORMAÇÃO DE PROFISSIONAIS DE EDUCAÇÃO	Pedagogy — Natal (PPC 2023)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE DO ESTADO DO RIO GRANDE DO NORTE	Pedagogy — Assu (PPC 2023)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: PROCEDIMENTOS E PRÁTICAS DE ENSINO EM CONTEXTOS DA EDUCAÇÃO ESPECIAL E INCLUSIVA
UNIVERSIDADE DO ESTADO DO RIO GRANDE DO NORTE	Pedagogy — Mossoró	Not publicly available	No	PPC could not be retrieved from the institutional website.
UNIVERSIDADE DO ESTADO DO RIO GRANDE DO NORTE	Pedagogy — Patu	Not publicly available	No	PPC could not be retrieved from the institutional website.

UNIVERSIDADE DO ESTADO DO RIO GRANDE DO NORTE	Pedagogy — Pau dos Ferros (PPC 2024)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO ESPECIAL EM UMA PERSPECTIVA INCLUSIVA; TECNOLOGIAS E MEDIAÇÃO PEDAGÓGICA
UNIVERSIDADE FEDERAL DO RIO GRANDE DO NORTE	Pedagogy — Caico (PPC 2018)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: EDUCAÇÃO ESPECIAL E EDUCAÇÃO INCLUSIVA
UNIVERSIDADE FEDERAL DO RIO GRANDE DO NORTE	Pedagogy — Natal (PPC 2017)	Available and analysed	Yes	PPC included; AT-related discipline(s) identified: TECNOLOGIAS ASSISTIVAS; ACESSIBILIDADE, EDUCAÇÃO E AMBIENTES CULTURAIS
UNIVERSIDADE FEDERAL RURAL DO SEMI-ÁRIDO	Pedagogy — Angicos (PPC 2016)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

Sergipe (SE)

Institution	**Programme/Campus**	**PPC status**	**Included in AT analysis?**	**Reason/observation**
UNIVERSIDADE FEDERAL DE SERGIPE	Pedagogy — Itabaiana (PPC 2020)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.
UNIVERSIDADE FEDERAL DE SERGIPE	Pedagogy — São Cristovão (PPC 2008)	Available and analysed	No	PPC available and reviewed; no AT-related discipline was identified.

Note. The table lists Pedagogy programmes initially mapped in the Northeastern region and indicates whether each PPC was available, analysed, and included in the AT-specific analysis.

Official institution names and course/campus names are preserved in Portuguese where applicable; selection status and reasons are provided in English.

Source: Authors (2026).

Appendix C

Bilingual search terms/roots used to identify AT-related disciplines in PPCs.

English Terms	**Portuguese Terms/Roots used in the Search**

assistance / assistive	assist
special education	educação especial
inclusive education	educação inclusiva
technical aids	ajuda / ajudas técnicas
technology / technologies / technological	tecn
alternative communication	comunicação alternativa

Note. The Portuguese terms/roots were used to retrieve inflected or related forms in the PPC documents; the English terms are provided for reader transparency.

Source: Authors (2026).

Appendix D

Coded syllabus exemplars for CAT-1, CAT-2 and disagreement resolution

Case / purpose	**Syllabus excerpt analyzed (original Portuguese)**	**Coding decision**	**Analytical rationale**
Example 1 Clear primary CAT-1	Abordagens e conceitos em educação especial e educação inclusiva. Contexto histórico e políticas educacionais da educação especial e educação inclusiva. Teorias pedagógicas, gestão e organização do trabalho pedagógico em educação especial e educação inclusiva. Práticas pedagógicas da educação inclusiva. Famílias de pessoas público-alvo da educação especial e da educação inclusiva. Tecnologias para a educação especial e educação inclusiva. Tecnologia assistiva. Ensino colaborativo. Acessibilidade, desafios sociais e contemporâneos.	Final coding: Primary category: CAT-1	The syllabus is centered on approaches, concepts and foundations of special and inclusive education, with Assistive Technology mentioned as part of the conceptual field. Although policy and practice are also present, they do not appear as the organizing focus of the discipline.
Example 2 Clear primary CAT-2	O profissional de educação e as possibilidades de atuação em ambientes escolares e não escolares em contexto da Educação Especial inclusiva. Conhecimento e utilização dos recursos didáticos e das tecnologias assistivas. O trabalho do pedagogo em equipes multidisciplinares para a atuação na perspectiva do atendimento ao público-alvo da Educação Especial Inclusiva.	Final coding: Primary category: CAT-2	The central emphasis is on professional action and on the knowledge and use of didactic resources and Assistive Technologies. For this reason, the discipline was classified as pedagogical instrumentalization, rather than primarily as conceptual foundations or policy.
Example 3	A educação inclusiva, o ensino regular e o atendimento	Researcher 1:	CAT-3 was retained as the primary category because the

Disagreement and final decision	educacional especializado a partir da política nacional de educação inclusiva e os projetos políticos pedagógicos. Sujeitos com história de deficiência na educação básica: questões de currículo e gestão escolar. Experiências de processos educativos na escola de educação inclusiva. Fundamentos e recursos pedagógicos para inclusão: acessibilidade, tecnologia assistiva, desenho universal. Dinâmica do serviço de apoio pedagógico especializado nas salas de recursos multifuncionais.	Primary category: CAT-3 Secondary category: CAT-1 Researcher 2: Primary category: CAT-1 Secondary category: CAT-3 Final coding after adjudication: Primary category: CAT-3 Secondary category: CAT-1	syllabus is organized around the National Policy on Inclusive Education, specialized educational support (AEE), pedagogical-political projects, curriculum and school management, and multifunctional resource rooms. CAT-1 was retained as the secondary category because the final focus refers to foundations for inclusion, where accessibility, Assistive Technology and universal design are mentioned. The CAT-2 interpretation was not retained because the excerpt does not explicitly emphasize selection, adaptation, development or use of AT resources in pedagogical planning.

Note. CAT-1 = foundations and conceptualization of Assistive Technology; CAT-2 = pedagogical instrumentalization; CAT-3 = legislation, policy and organization of provision. Syllabus excerpts are presented in the original Portuguese, as analyzed in the PPCs.

***Source**: Authors (2026).*

Appendix E

Python code used to compute Cohen's kappa

```
import numpy as np
import pandas as pd
from sklearn.metrics import cohen_kappa_score

# ----------------------------------------------------------
# Input data
# ----------------------------------------------------------

data = [
 [1, "CAT-3", "CAT-3", "Not applicable", "Not applicable"], [2, "CAT-1", "CAT-1", "Not applicable", "Not applicable"],
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    [13, "CAT-2", "CAT-2", "CAT-1", "CAT-1"], [14, "CAT-3", "CAT-3", "CAT-1", "CAT-1"],
    [15, "CAT-2", "CAT-2", "CAT-1", "CAT-1"], [16, "CAT-3", "CAT-3", "CAT-1", "CAT-1"],
    [17, "CAT-3", "CAT-3", "CAT-1", "CAT-1"], [18, "CAT-3", "CAT-1", "CAT-1", "CAT-3"],
    [19, "CAT-1", "CAT-1", "CAT-3", "CAT-3"], [20, "CAT-1", "CAT-1", "Not applicable", "Not applicable"],
    [21, "CAT-3", "CAT-3", "CAT-1", "CAT-1"], [22, "CAT-1", "CAT-1", "Not applicable", "Not applicable"],
    [23, "CAT-1", "CAT-1", "Not applicable", "Not applicable"], [24, "CAT-1", "CAT-1", "Not applicable", "Not
applicable"],
    [25, "CAT-1", "CAT-1", "CAT-3", "CAT-3"], [26, "CAT-1", "CAT-1", "CAT-3", "CAT-3"],
    [27, "CAT-3", "CAT-3", "Not applicable", "Not applicable"], [28, "CAT-3", "CAT-3", "CAT-1", "CAT-1"],
    [29, "CAT-3", "CAT-3", "CAT-1", "CAT-1"], [30, "CAT-1", "CAT-1", "Not applicable", "Not applicable"],
    [31, "CAT-1", "CAT-1", "Not applicable", "Not applicable"], [32, "CAT-2", "CAT-2", "CAT-3", "CAT-3"],
    [33, "CAT-1", "CAT-1", "CAT-2", "CAT-2"], [34, "CAT-3", "CAT-3", "CAT-1", "CAT-1"],
      [35, "CAT-1", "CAT-2", "CAT-2", "Not applicable"], [36, "CAT-1", "CAT-1", "Not applicable", "Not
applicable"],
]

df = pd.DataFrame(
    data,
    columns=[
        "Discipline ID", "R1 Primary", "R2 Primary", "R1 Secondary", "R2 Secondary"
    ]
)

# ------------------------------------------------------------
# Function to compute Cohen's kappa and bootstrap CI
# ------------------------------------------------------------

def kappa_with_bootstrap_ci(rater1, rater2, labels, n_bootstrap=10000, seed=123):
    rater1 = np.array(rater1)
    rater2 = np.array(rater2)
    n = len(rater1)

    kappa = cohen_kappa_score(rater1, rater2, labels=labels)

    rng = np.random.default_rng(seed)
    bootstrap_kappas = []

    for _ in range(n_bootstrap):
        idx = rng.choice(np.arange(n), size=n, replace=True)
        kappa_b = cohen_kappa_score(rater1[idx], rater2[idx], labels=labels)
```

```
        if not np.isnan(kappa_b):
            bootstrap_kappas.append(kappa_b)

    ci_lower = np.percentile(bootstrap_kappas, 2.5)
    ci_upper = np.percentile(bootstrap_kappas, 97.5)

    return kappa, ci_lower, ci_upper

# ------------------------------------------------------------
# Cohen's kappa for primary and secondary classifications
# ------------------------------------------------------------

primary_labels = ["CAT-1", "CAT-2", "CAT-3"]
secondary_labels = ["CAT-1", "CAT-2", "CAT-3", "Not applicable"]

primary_kappa, primary_ci_low, primary_ci_high = kappa_with_bootstrap_ci(
    df["R1 Primary"], df["R2 Primary"], labels=primary_labels
)

secondary_kappa, secondary_ci_low, secondary_ci_high = kappa_with_bootstrap_ci(
    df["R1 Secondary"], df["R2 Secondary"], labels=secondary_labels
)

# ------------------------------------------------------------
# Output
# ------------------------------------------------------------

print("Primary CAT classification")
print(f"Cohen's kappa = {primary_kappa:.4f}")
print(f"95% CI = [{primary_ci_low:.4f}, {primary_ci_high:.4f}]")

print("\nSecondary CAT classification")
print(f"Cohen's kappa = {secondary_kappa:.4f}")
print(f"95% CI = [{secondary_ci_low:.4f}, {secondary_ci_high:.4f}]")
```