

**DIALOGUES BETWEEN BRAZIL AND SÃO TOMÉ AND PRÍNCIPE: TRAINING,  
INTERNATIONALIZATION, AND INCLUSIVE EDUCATION**

***DIÁLOGOS ENTRE BRASIL E SÃO TOMÉ E PRÍNCIPE: FORMAÇÃO,  
INTERNACIONALIZAÇÃO E EDUCAÇÃO INCLUSIVA***

***DIÁLOGOS ENTRE BRASIL Y SANTO TOMÉ Y PRÍNCIPE: FORMACIÓN,  
INTERNACIONALIZACIÓN Y EDUCACIÓN INCLUSIVA***



Samara de Oliveira PEREIRA<sup>1</sup>  
e-mail: samaradeoliver23@gmail.com



Claudete da Silva Lima MARTINS<sup>2</sup>  
e-mail: claudetemartins@unipampa.edu.br



Cristiano Corrêa FERREIRA<sup>3</sup>  
e-mail: cristianoferreira@unipampa.edu.br

**How to reference this paper:**

PEREIRA, Samara de O.; MARTINS, Claudete da S. L.; FERREIRA, Cristiano C. Dialogues between Brazil and São Tomé and Príncipe: training, internationalization, and inclusive education. **Plurais - Revista Multidisciplinar**, Salvador, v. 10, n. 00, e025009. e-ISSN: 2177-5060. DOI: 10.29378/plurais.v10i00.22838



| **Submitted:** 22/12/2023

| **Revisions required:** 17/09/2024

| **Approved:** 14/02/2025

| **Published:** 29/10/2025

---

**Editors:** Prof. Dr. Célia Tanajura Machado  
Prof. Dr. Kathia Marise Borges Sales  
Prof. Dr. Rosângela da Luz Matos

**Deputy Executive Editor:** Prof. Dr. José Anderson Santos Cruz

---

<sup>1</sup> Federal University of Pampa (UNIPAMPA), Bagé – Rio Grande do Sul (RS) – Brazil. Ph.D. candidate in the Graduate Program in Teaching at the Federal University of Pampa (UNIPAMPA). Substitute EBTT Professor at the Federal Institute of Southern Rio Grande do Sul (IFSul).

<sup>2</sup> Federal University of Pampa (UNIPAMPA), Bagé – Rio Grande do Sul (RS) – Brazil. Professor at the Federal University of Pampa (UNIPAMPA), Bagé Campus, and in the Academic Master's Program in Teaching (MAE). Vice-Rector for Communities, Affirmative Actions, Diversity, and Inclusion (PROCADI) at UNIPAMPA.

<sup>3</sup> Federal University of Pampa (UNIPAMPA), Bagé – Rio Grande do Sul (RS) – Brazil. Associate Professor IV at the Federal University of Pampa.

---

**ABSTRACT:** This article presents a study on the training experience of teachers from the University Institute of Accounting, Administration and Informatics (IUCAI), in São Tomé and Príncipe, in the course “DUA in Practice.” The course was promoted by the Pampa Inclusive Gatherings program and SECADI/MEC. The objective was to analyze how continuing education based on the principles of Universal Design for Learning (UDL) can contribute to the elimination of barriers and the promotion of inclusive pedagogical practices in challenging contexts such as that of São Tomé and Príncipe. The qualitative research investigated the perceptions of nine teachers through questionnaires. The results showed progress in pedagogical planning, in the understanding of inclusion, and in the creation of accessible materials. Despite technological limitations, participants highlighted significant transformations in their teaching practices and recommended the expansion of the course and the implementation of similar trainings as strategies to strengthen educational inclusion.

**KEYWORDS:** Inclusion. Training. Teachers. Internationalization

**RESUMO:** Este artigo apresenta uma pesquisa sobre a experiência formativa de professores do Instituto Universitário de Contabilidade, Administração e Informática (IUCAI), de São Tomé e Príncipe, no curso “DUA na Prática”. O curso foi promovido pelo Programa Tertúlias Inclusivas do Pampa e pela SECADI/MEC. O objetivo foi analisar como a formação continuada, baseada nos princípios do Desenho Universal para a Aprendizagem (DUA), pode contribuir para a eliminação de barreiras e a promoção de práticas pedagógicas inclusivas em contextos desafiadores, como o de São Tomé e Príncipe. A pesquisa, de abordagem qualitativa, investigou as percepções de nove professores por meio de questionários. Os resultados evidenciaram avanços no planejamento pedagógico, na compreensão da inclusão e na criação de materiais acessíveis. Apesar das limitações tecnológicas, os participantes destacaram transformações significativas em suas práticas docentes e recomendaram a expansão do curso e a realização de formações similares como estratégias para fortalecer a inclusão educacional.

**PALAVRAS-CHAVE:** Inclusão. Formação. Professores. Internacionalização.

**RESUMEN:** Este artículo presenta un estudio sobre la experiencia de formación de docentes del Instituto Universitario de Contabilidad, Administración e Informática (IUCAI), en Santo Tomé y Príncipe, en el curso “DUA en la Práctica”. El curso fue promovido por Programa de Encuentros Inclusivos de Pampa y SECADI/MEC. El objetivo fue analizar cómo la educación continua basada en los principios del Diseño Universal para el Aprendizaje (DUA) puede contribuir a la eliminación de barreras y a la promoción de prácticas pedagógicas inclusivas en contextos desafiantes como el de Santo Tomé y Príncipe. La investigación cualitativa investigó las percepciones de nueve docentes a través de cuestionarios. Los resultados mostraron avances en la planificación pedagógica, en la comprensión de la inclusión y en la creación de materiales accesibles. A pesar de las limitaciones tecnológicas, los participantes destacaron transformaciones significativas en sus prácticas docentes y recomendaron la expansión del curso y la implementación de capacitaciones similares como estrategias para fortalecer la inclusión educativa.

**PALABRAS CLAVE:** Inclusión. Formación. Profesores. Internacionalización.

---

## **Introduction**

Educational inclusion is a global commitment that requires coordinated efforts to ensure the right to equitable and quality education for all, regardless of individuals' socioeconomic, cultural, or physical conditions (UNESCO, 2017). In an increasingly interconnected world, international partnerships and exchanges of experiences among education professionals have emerged as essential tools for promoting inclusion. According to Mittler (2003), collaboration across different educational contexts is fundamental for sharing best practices, overcoming common challenges, and building more equitable and accessible educational systems.

In this regard, inclusive education has become a cornerstone in the construction of equitable and democratic educational systems capable of addressing students' diverse needs. Authors such as Booth and Ainscow (2002) emphasize that inclusion requires not only structural changes but also an ethical and practical commitment to diversity and accessibility. It is important to understand that students should not be expected to adapt to the school; rather, the school must be transformed to meet students' needs, creating appropriate conditions for teaching and learning for all (Pereira, 2019).

Promoting diversity within regular education systems, fostering coexistence with difference, and implementing structural changes are some of the key elements of inclusive education. As highlighted by Batalla (2009), these principles aim to create conditions that guarantee education for all students, regardless of their individual characteristics or specific needs.

In this context, accessibility plays a crucial role in achieving inclusion. As established by the Brazilian Inclusion Law (Law No. 13,146/2015) and Decree No. 7,611/2011, ensuring physical, communicational, methodological, instrumental, and attitudinal accessibility is essential to remove barriers that hinder the full participation of students with disabilities. These legal frameworks emphasize that accessibility extends beyond the physical adaptation of spaces; it also involves adapting pedagogical materials and teaching methodologies.

In this regard, Universal Design for Learning (UDL) emerges as a powerful approach to addressing these dimensions. Grounded in flexibility and personalization, UDL promotes the creation of accessible learning environments from the stage of pedagogical planning, eliminating barriers that may compromise students' access and learning (Sebastián-Heredero, 2020).

According to the Center for Applied Special Technology (CAST, 2018), UDL seeks to eliminate barriers to learning by fostering accessibility and developing services, products, and educational solutions that meet the diverse needs of students. These principles and strategies enable teachers to define more inclusive teaching objectives, design materials, and develop assessment methods that accommodate all learners. In doing so, each student can progress according to their individual needs and real conditions, rather than assumptions about expected performance (CAST, 2018; Sebastián-Heredero, 2020). By prioritizing flexibility and personalization in teaching, UDL facilitates inclusive and equitable learning, promoting the active participation of all students in the educational process.

Continuous teacher education is therefore a crucial aspect of achieving inclusive education. According to Alarcão (2011), teacher training should go beyond the mere transmission of content, fostering critical reflection on pedagogical practices and encouraging a more sensitive understanding of students' diverse needs. In this sense, Schön (2000) highlights the importance of the teacher as a reflective practitioner whose professional practice is constantly revisited and reconstructed in light of new knowledge and experiences.

Teacher education should be conceived as an ongoing process, nurtured by the interaction between theoretical knowledge, practical experience, and educators' sociocultural contexts (Tardif, 2014). This dynamic process allows teachers to develop a broader and deeper understanding of their practice, considering the specific demands of their students and school environments. Regarding inclusive education, teacher training must be regarded as a strategic action. Educators need to be equipped with the competencies and skills required to address the diversity present in classrooms. According to Mantoan (2003), understanding each student's specificities and adopting pedagogical methodologies that meet everyone's needs are essential steps toward building an inclusive school. Furthermore, the UDL framework reinforces the importance of flexible and accessible pedagogical practices that remove barriers and ensure the participation of all students in the educational process (CAST, 2018).

Thus, continuous professional development not only enriches teachers' pedagogical repertoire but also strengthens their ability to create more welcoming and inclusive learning environments. By adopting reflective practices grounded in inclusive principles, educators can make a significant contribution to building a school culture that values and respects diversity, promoting equity and access to education for all.

With the aim of disseminating these principles, the advanced training course "*UDL in Practice: Development of Accessible Digital Didactic Materials and Open Educational*

*Resources (OERs)*” was designed to provide continuing education for teachers from different regions of Brazil, enabling them to produce accessible educational resources and materials. The course, consisting of 180 hours of theoretical and practical instruction, was offered in a distance-learning format and made available nationwide with 600 slots—all of which were filled. Additionally, 21 slots were offered to an international cohort composed of teachers from São Tomé and Príncipe, a country in Central Africa, thereby expanding the initiative’s global and social impact.

In this regard, the participation of teachers from São Tomé and Príncipe in the course “UDL in Practice” can be understood through the lens of the Collaborative Online International Learning (COIL) approach, a contemporary internationalization strategy that promotes collaborative learning between institutions from different countries through technological mediation, without requiring physical mobility. According to Rubin (2017), the COIL model enhances cultural and academic exchange by articulating transnational educational experiences within virtual learning environments. By integrating an international cohort into an online course developed in Brazil, the initiative analyzed in this study aligns with the principles of COIL by fostering intercultural dialogue, the sharing of pedagogical practices, and the construction of inclusive knowledge from a global perspective.

Within this context, the present article aims to analyze how continuing education based on UDL principles can contribute to eliminating barriers and promoting inclusive pedagogical practices in challenging contexts such as São Tomé and Príncipe. This reflection constitutes the central research problem that guides the study.

The research investigates the contributions of the course to teachers’ pedagogical practices, drawing from the participants’ perceptions expressed through a structured questionnaire. It highlights both the challenges and the potential of implementing UDL in diverse sociocultural contexts.

The choice of this topic reflects a commitment to understanding how UDL principles can be applied across different sociocultural settings, contributing to the broader goal of education for all (Unesco, 2017).

## **The Course “UDL in Practice” – Training for Inclusive Education**

The course was designed with the objective of providing training for teachers from various regions of Brazil and beyond, including São Tomé and Príncipe in Central Africa. With a total workload of 180 hours of theoretical and practical instruction, the course was offered in a distance-learning format, addressing the demand for continuing education focused on inclusive education in diverse contexts. The participation of educators from São Tomé and Príncipe underscores the course’s relevance in strengthening inclusion within a culturally diverse and regionally challenging educational landscape.

This training initiative was promoted by the *Tertúlias Inclusivas do Pampa* Program, which anchors the course in the social model of disability, emphasizing the elimination of barriers to ensure meaningful learning for all students. The specialization course was offered in partnership with the Instituto Universitário de Contabilidade, Administração e Informática (IUCAI), the Federal University of Pampa (Unipampa) – Bagé Campus and its Graduate Program in Teaching, and the Secretariat for Continuing Education, Literacy of Youth and Adults, Diversity, and Inclusion. The initiative also involved the General Coordination of Special Education Pedagogical Policy and the Directorate of Policies for Inclusive Special Education, both under Brazil’s Ministry of Education.

It is also important to highlight the articulation with the National Network for Continuing Education of Basic Education Teachers, which has made it possible to develop nationwide extension and specialization courses through distance learning.

The course was structured into five interconnected modules, focusing on the implementation of UDL and the use of Open Educational Resources (OERs) in digital and accessible formats. Each module was designed to balance theory and practice, enabling educators to immediately apply concepts within their educational contexts. This approach not only broadened participants’ pedagogical perspectives but also provided concrete tools to foster inclusion in their classrooms.

## **The São Tomé and Príncipe Cohort: Understanding the Participants**

The course included the participation of teachers from São Tomé and Príncipe, a Portuguese-speaking archipelago located in Central Africa. These professionals possess specific characteristics that reflect local realities, both in their sociocultural contexts and in their pedagogical practices.

São Tomé and Príncipe is a country deeply influenced by African cultural and local traditions, combined with aspects inherited from Portuguese colonialism. This context is reflected in an education system that values orality and community-based practices, which play a central role in a society where interpersonal relationships are highly significant. Teachers often work with large and heterogeneous classes in schools that frequently face challenges related to infrastructure and access to pedagogical resources.

Teacher education in São Tomé and Príncipe is primarily provided by IUCAI, one of the country's leading institutions. The process is characterized by an initial training that seeks to meet local demands with limited resources, combined with continuing education that often depends on external projects and international partnerships. Courses that address active methodologies, inclusion, and the use of educational technologies are especially valued, given the nation's growing efforts to modernize its education system.

The São Toméan educational curriculum seeks to balance local traditions with the global educational objectives set by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the Community of Portuguese Language Countries. It is organized into basic cycles that prioritize literacy, numeracy, and, more recently, the integration of digital technologies. However, access to continuing education and content that promotes inclusive education, such as UDL, remains limited, underscoring the importance of initiatives like this course.

These characteristics reveal the necessity of a pedagogical approach that both respects and integrates the cultural specificities of São Tomé and Príncipe while offering innovative tools to address the challenges of inclusion and diversity in the classroom.

### **Course Implementation Methodology**

The course was structured to provide a theoretical and practical learning experience focused on the implementation of UDL principles and the use of digital and accessible Open Educational Resources (OERs). The stages of the course are described below in Table 1.

**Table 1 – Course Stages**

<b>Module Structuring</b>	The course was divided into five modules, each addressing specific themes. Each module was accompanied by a theoretical booklet, which served as the main study material for participants, presenting foundational concepts, guidelines, and practical examples related to the topic.
<b>Didactic Materials</b>	The theoretical booklets were developed to provide a solid and practical foundation for the topics covered. In addition, the course included video lectures and recorded live sessions that reinforced concepts and promoted deeper discussions. These materials were made available weekly through the Google Classroom platform, ensuring continuous and organized access to the content.
<b>Use of Platforms</b>	Google Classroom platform was the main tool to support course interaction and monitoring. This platform allowed the creation of class groups, the distribution of learning materials, and the implementation of assessment activities. In parallel, synchronous meetings were held weekly via Google Meet. These live sessions facilitated the discussion of course topics, real-time clarification of questions, and the exchange of experiences among participants, fostering collaborative and dynamic learning.
<b>Theoretical-Practical Training</b>	Throughout the course, participants were encouraged to apply UDL principles and educational technologies in the creation and sharing of accessible learning materials. These practical activities were essential for bridging theory and practice, empowering educators to develop inclusive pedagogical strategies within their own educational contexts. The modules included specific activities aimed at promoting critical reflection on the challenges and possibilities of implementing UDL in their professional practice.
<b>Assessment and Feedback</b>	The evaluation process included the submission of practical activities, participation in synchronous sessions, and engagement in activities proposed through Google Classroom. Continuous feedback was provided by tutors, encouraging the improvement of pedagogical practices and ensuring that the course objectives were achieved. This instructional design ensured that participants had access to up-to-date and applicable content while fostering critical reflection on how to apply UDL principles within inclusive education.

Source: Authors (2025).

This structure was designed to ensure that participants had access to current and relevant content, allowing them to apply the concepts learned directly to their pedagogical practices. In doing so, the course contributed to the promotion of inclusive and equitable education.

## Research Methodology

This study adopts a qualitative approach, as defined by Gerhardt and Silveira (2009) and Minayo (2001), which is characterized by an in-depth investigation of phenomena within their natural contexts. Such an approach enables a detailed understanding of the meanings participants attribute to their experiences, allowing for the exploration of perceptions, opinions, and practices. Accordingly, this study aims to analyze the experiences of nine higher education instructors from IUCAI, in São Tomé and Príncipe, who participated in the course “*UDL in Practice: Development of Accessible Digital Teaching Materials and Open Educational Resources (OER)*”. The research seeks to understand how the course content and practices influence their pedagogical approaches and to examine the challenges and opportunities related to implementing UDL within the sociocultural context of these educators.

The participants were the graduates of the course’s international cohort, identified anonymously as P1, P2, P3, and so forth. Data collection was conducted through a structured questionnaire consisting of both open- and closed-ended questions, administered at the end of the course. The questionnaire focused on four key areas: the contextualization of inclusive education in São Tomé and Príncipe; the course’s contributions to participants’ pedagogical practices; the challenges faced during the course; and an overall evaluation of the course, including suggestions for improvement. The questions explored aspects ranging from the relevance of the course content to the local educational context to participants’ perceptions of the materials and resources provided.

The questionnaire aimed to investigate the challenges faced within the inclusive education context of São Tomé and Príncipe, participants’ perceptions of the course’s relevance and applicability to their pedagogical practices, and their suggestions for improving the training program. This approach enabled an in-depth exploration of the teachers’ experiences, linking UDL strategies to local educational realities. Thus, the study sought to examine the course’s contributions to these educators’ pedagogical practices, emphasizing the challenges encountered, the potential identified, and the significance of UDL as a framework for promoting inclusive education.

The questionnaire combined multiple-choice items (for objective questions) and open-ended items (to elicit detailed opinions and reflections). The data collection instrument was distributed two months after the course concluded, on November 10, 2024, ensuring that the teachers had sufficient time to internalize the concepts and apply some of the strategies

discussed. This timing also allowed participants to reflect more comprehensively on their learning and its potential integration into future pedagogical practices. Furthermore, participants signed an informed consent form, acknowledging their voluntary participation and confirming that they had been fully informed about the study's objectives and procedures. Anonymity and confidentiality of responses were also ensured.

## **Data Analysis**

The data collected through the structured questionnaire were analyzed using content analysis, as proposed by Bardin (1977). This qualitative method enables the identification, categorization, and interpretation of patterns in participants' responses, providing an in-depth understanding of their perceptions and experiences. The process comprised three main stages: pre-analysis, material exploration, and data treatment and interpretation.

In the pre-analysis phase, all responses were thoroughly reviewed to ensure familiarization and organization into an analytical corpus, with participants coded as P1, P2, P3, and so on. Five main thematic categories were defined: (1) Challenges in the Educational Context of São Tomé and Príncipe; (2) Knowledge of UDL; (3) Course Relevance and Contributions to the Educational Context; (4) Course Quality and Participant Satisfaction; and (5) Overall Experience and Relevance of Materials.

The material exploration stage involved coding responses according to key words and significant expressions, followed by the organization of subcategories within each main theme. During the data treatment and interpretation phase, the findings were synthesized, enabling a critical interpretation complemented by a descriptive analysis of the responses. Links between the findings and existing literature on inclusive education and UDL were established, highlighting how the course influenced participants' pedagogical practices.

## **Definition and Exploration of Thematic Categories**

The category addressing the challenges within the inclusive educational context was designed to identify institutional, technological, pedagogical, and social barriers that hinder the implementation of inclusive practices in São Tomé and Príncipe. Regarding the theme related to knowledge of UDL, the focus was on assessing participants' initial understanding of the concept and the transformations brought about by the course in this regard. The category concerning the course's relevance and its impact on the educational context was explored

through questions aimed at understanding how the course content was perceived in relation to the teachers' actual needs and the resulting changes in their pedagogical practices.

The category of recommendations for course improvement sought to gather participants' suggestions concerning technological adjustments, content adequacy, and the need for pedagogical support, taking into account the challenges encountered throughout the training. Finally, the category related to overall experience and material relevance was structured to assess participants' perceptions of the course's positive aspects—such as the clarity and usefulness of the materials—and to identify areas for enhancement, including accessibility and the practical applicability of resources.

## Results and Discussion

### *Challenges in the Educational Context of São Tomé and Príncipe*

Despite legislative advancements in São Tomé and Príncipe—particularly with the enactment of the *Basic Law of the Educational System No. 4/2018*, which introduced significant changes to the national education framework—the effective realization of educational inclusion still faces serious limitations. Although the law addresses important administrative and regulatory aspects of the educational system, it does not clearly outline provisions for the inclusion of students with disabilities or learning difficulties. This normative gap undermines the establishment of a truly accessible education for all, revealing that the mere existence of legislation is not sufficient to ensure comprehensive inclusion.

Similarly, the *Framework Law on Special Education No. 5/2021*, while establishing fundamental principles for the inclusion of students with special needs, continues to face significant practical barriers. The lack of adequate infrastructure, insufficient teacher training, and scarcity of adapted pedagogical resources remain persistent challenges that hinder the effective implementation of this legislation. This situation indicates that, beyond the existence of these legal instruments, what remains missing is concrete execution and the development of consistent public policies to ensure quality education for all students, regardless of their conditions.

These challenges are reflected in the findings of the present study, in which participants highlighted the lack of articulation between special and mainstream education, as well as the absence of ongoing professional development opportunities for teachers. As noted by P3, within

the regular education system, teachers “do not have appropriate methodologies or adapted materials to meet special educational needs.” This limitation aligns with Mantoan’s (2003) critique, which emphasizes the absence of dialogue between traditional pedagogical practices and the diverse needs of students—an issue that perpetuates exclusion. Another obstacle identified by participants was the precariousness of educational infrastructure. According to P5, “teachers face planning difficulties and lack adequate means,” a condition that compromises both inclusion and the overall quality of education.

According to Carvalho (2014), for inclusion to be truly effective, substantial investment in both human and material resources is required to ensure that appropriate learning conditions are provided for all. These findings reinforce the urgent need to overcome structural barriers that limit the implementation of educational laws and hinder the realization of an inclusive and high-quality education in São Tomé and Príncipe.

Within the context of the UDL course, some participants reported difficulties in attending certain sessions due to the instability of local internet and electricity services. P6 stated, “the greatest challenge faced during the course was technological—access to the internet.” P7 added, “there were many interruptions in the internet connection.” P2 also reported technological challenges, emphasizing:

I experienced difficulties in the course in terms of technology due to the lack of computers. Most participants followed the sessions through their mobile phones, and the way the content was displayed made it harder to understand. There were constant power outages and poor internet quality, which, overall, made comprehension difficult.

These reports highlight a crucial dimension of educational exclusion: digital exclusion, particularly in contexts with precarious infrastructure. As noted by Selwyn (2010), educational inclusion in the digital era depends not only on access to technology but also on qualified conditions of use—such as stable connectivity, adequate devices, and technical and pedagogical support. The absence of these conditions can deepen inequalities, limiting the full participation of students and teachers in technology-mediated learning processes. Kennedy, Mejía-Rodríguez, and Strello (2022) similarly point out that, in countries affected by structural inequalities, the digitalization of education—when not accompanied by effective public policies for digital inclusion—tends to reinforce historical barriers. Therefore, the challenges faced by teachers in São Tomé and Príncipe are not merely operational but structural, requiring training initiatives that consider both material and symbolic realities.

### ***Knowledge of UDL***

Prior to the course “*UDL in Practice*,” none of the participants had previous contact with the concept of Universal Design for Learning (UDL). However, they already recognized the need to make their pedagogical practices more accessible to address classroom diversity. The introduction to UDL took place in the second module of the course, titled “*Universal Design for Learning: Principles and Guidelines*,” which presented its theoretical foundations and practical applications. Based on the principles outlined by Rose and Meyer (2002), the module emphasized multiple means of representation, expression, and engagement as essential pillars for creating more accessible educational environments.

As discussed by Hall, Meyer, and Rose (2012), UDL promotes flexibility in teaching by proposing that learning barriers be removed during the pedagogical planning stage. The “*UDL in Practice*” course adopted this approach through theoretical booklets, video lessons, and synchronous sessions, where participants were encouraged to share experiences and design activities tailored to the specificities of the educational context of São Tomé and Príncipe. The exchange of experiences during live sessions was essential for educators to reflect on how diversity can be treated as a resource rather than an obstacle in the teaching and learning process (Booth; Ainscow, 2002).

Furthermore, the practices suggested throughout the course align with the most recent CAST (2018) guidelines, which emphasize the importance of integrating accessible technologies and active methodologies into pedagogical planning. This was highlighted by P6, who reported that, upon adopting UDL principles, they began to “design learning environments that take differences into account and use diversified strategies.”

Finally, Sebastián-Herederó (2020) reinforces that UDL is an indispensable tool in educational contexts with limited resources, as it prioritizes the creation of pedagogical strategies that employ accessible and adaptable materials. This perspective resonates with the participants’ accounts, who stated that the course helped them structure more objective teaching practices and select methodologies that prioritize inclusion and the participation of all students.

### ***Relevance of the Course and Contributions to the Educational Context***

The participants evaluated the course “*UDL in Practice*” as highly relevant to their pedagogical practices and well aligned with the educational needs of São Tomé and Príncipe. Throughout the course, the methods presented broadened educators’ understanding of how to

include all students in the teaching and learning process. P4 emphasized that “the multiple and flexible methods of presenting the content were fundamental in expanding the understanding of how to include all students.” This perspective aligns with the educational literature, which underscores the importance of pedagogical strategies that address the diversity of learning styles, as highlighted by Booth and Ainscow (2002).

One of the most frequently mentioned contributions by teachers was the transformation in pedagogical planning. P2 stated that “the training contributed to a new way of planning lessons.” This change reflects the principles of UDL, which guide teachers to eliminate learning barriers by designing accessible and flexible pedagogical practices from the outset (CAST, 2018). According to Zerbato and Mendes (2018), UDL fosters inclusion by recognizing heterogeneity as a starting point for planning.

The principles of UDL were gradually incorporated by the participants. P9 commented that the course “provided practical tools to improve the student experience,” while P6 highlighted that UDL enabled them to “design learning environments that take differences into account and use diversified strategies.” This view aligns with Sebastián-Heredero (2020), who argues that UDL represents a crucial theoretical and methodological framework for challenging educational contexts, as it provides teachers with tools to transform their practices even in resource-constrained settings.

Moreover, Alonso et al. (2022) emphasize that continuing education programs, such as the “*UDL in Practice*” course, are essential for transforming pedagogical practices, particularly in contexts with limited resources. In this regard, participants suggested that similar training programs be offered regularly, as mentioned by P5: “future courses should include teachers from all levels of education and be offered regularly.” These accounts reinforce the relevance of the course as a transformative tool, aligned with Carvalho’s (2014) argument that inclusive pedagogical practices must be contextually responsive and promote equitable, accessible education for all.

### ***Course Quality and Participant Satisfaction***

Although the course received positive evaluations, participants suggested some important improvements. P5 and P1 proposed that future editions should include teachers from all educational levels and be offered periodically. According to Alonso *et al.* (2022), continuing education plays a vital role in the professional development of educators, equipping them to effectively implement pedagogical strategies. Within the UDL framework, such programs

become even more relevant, as they allow teachers to understand and intentionally apply its principles, adapting their practices to meet students' diverse needs.

Most of the participants expressed strong appreciation for the training experience. One teacher stated, "I believe the methodologies applied were good; they were inclusive of everyone" (P6). Another emphasized, "the content was clear and easy to understand; the adaptation of these contents to the São Tomé and Príncipe context was excellent" (P8). Additionally, a participant remarked, "at first, I see nothing wrong; everything was fine, with no reason for complaint" (P3). These statements reflect both the quality of the course and the satisfaction of the participants, reaffirming the positive impact of the training on expanding inclusive pedagogical practices.

### ***Overall Experience and Relevance of the Course Materials***

Overall, the teaching materials used in the course were evaluated as accessible and useful for instructional practice. Participant P1 stated that the resources "allowed for better organization of content presentation and made it more engaging." P7 added that "it was a positive experience that enhanced my knowledge, enabling me to develop various ways of approaching the teaching and learning process while respecting each student's individual learning style." This perception was reinforced by P5, who highlighted that "the content was accessible and useful because it has helped in retrieving certain information we may forget or in further substantiating a topic."

P2 also considered the materials valuable, noting that they "helped me become familiar with and better understand the principles of UDL." Similarly, P6 emphasized that the materials were "illustrative and explanatory, easy to read and comprehend." The idea that the training provided a new perspective on inclusive education was echoed by several participants, including P9, who remarked that the materials shared through the course "can help teachers improve students' learning experiences and better organize content presentation."

These reflections resonate with Mantoan's (2003) assertion that inclusion is an ongoing process that requires a joint effort among training, planning, and pedagogical practice. Furthermore, according to Andrade, Silva, and Cavalcante (2020), the use of accessible educational materials is essential to ensure the active participation of all students, especially those with specific educational needs, thereby promoting meaningful learning.

Within the UDL framework, the resources provided in the course demonstrated the effectiveness of differentiated approaches in addressing diversity in educational environments. As proposed by Rose and Meyer (2002), the creators of UDL, adapting materials with a focus on flexibility and accessibility, aligns with the core principles of inclusive education.

### ***Contribution of UDL-Based Continuing Education to Overcoming Barriers and Promoting Inclusive Pedagogical Practices in Challenging Contexts***

Based on the data analysis, the continuing education program grounded in UDL principles proved effective in supporting educators to overcome barriers and implement inclusive pedagogical practices in challenging contexts, such as those of São Tomé and Príncipe. The Open Educational Resources (OER) made available during the course played an essential role in this process by providing accessible, adaptable, and collaborative materials that enable teachers to customize their instructional methods according to local and student needs.

Moreover, the course emphasized three fundamental UDL pillars: providing multiple means of engagement, representation, and action/expression. These approaches helped teachers develop practices that promote more flexible learning environments, responsive to individual differences. For example, the OER introduced during the training served as practical models of accessibility, allowing educators to experiment with and adapt pedagogical strategies that could be effectively implemented even under limited infrastructure or resource conditions.

Another significant aspect was the encouragement of student-centered pedagogical planning, motivating educators to use digital tools and active learning methodologies to ensure that all students have equitable learning opportunities. The integration of specific content on digital accessibility, material adaptation, and the use of simple yet effective technologies strengthened participants' ability to address the challenges of heterogeneous classrooms.

Despite the limitations faced, the knowledge acquired throughout the course demonstrated that inclusive practices do not rely solely on substantial financial investment, but rather on creativity, flexibility, and continuous support through training and resources aligned with the local context. The continuity of professional development, combined with the creation of collaborative networks among teachers and the exchange of experiences guided by the principles of UDL, is crucial to fostering inclusive and equitable education in challenging settings such as São Tomé and Príncipe.

## Final considerations

Inclusive education has become a fundamental pillar in building a more just and equitable society, and UDL has emerged as an effective framework for promoting pedagogical practices that respect and respond to student diversity. The objective of this study was to analyze the experience of teachers from São Tomé and Príncipe who participated in the professional development course “*UDL in Practice: Development of Teaching Materials and Accessible Digital Open Educational Resources (OER)*,” examining the course’s contributions to their pedagogical practices, with emphasis on the challenges faced, the potential identified, and the relevance of UDL as a tool to promote inclusive education. The research question guiding this study was: *How can continuing education based on UDL principles contribute to overcoming educational barriers and promoting inclusive pedagogical practices in challenging contexts such as São Tomé and Príncipe?*

The data analysis revealed the positive impact of this approach on educators’ pedagogical practices, despite the obstacles encountered. Participants emphasized the course’s relevance to their teaching, noting that the content and strategies presented helped them restructure lesson planning and develop accessible materials that better addressed all students’ needs. The reported changes align with UDL principles, which emphasize flexibility in teaching and the creation of diverse learning environments capable of accommodating different learning styles.

However, the study also identified significant challenges within the educational context of São Tomé and Príncipe, such as limited infrastructure and restricted access to technology. Although these issues hindered the full implementation of UDL principles, they did not prevent teachers from beginning to adopt new practices, including the use of multiple methods for content presentation and a pedagogical approach centered on students’ needs.

The suggestions for improvement—such as including teachers from all educational levels and offering training sessions on a regular basis—are essential to ensure the continuity of professional development and the deepening of inclusive practices. Furthermore, participants highlighted the importance of teaching materials, which were perceived as both accessible and useful, confirming the effectiveness of UDL in adapting materials and methodologies to the specificities of each educational context.

From a theoretical perspective, the findings of this study reinforce the contributions of Mantoan (2003), Zerbato and Mendes (2018), and Carvalho (2014), who advocate for

pedagogical approaches that place diversity and inclusion at the core of education. The course “*UDL in Practice*” demonstrated its potential to transform educational practice in São Tomé and Príncipe, aligning with the principles of inclusive, equitable, and high-quality education that respects individual differences and fosters learning for all students.

Therefore, this study contributes to a broader understanding of how UDL can be implemented across diverse educational contexts and underscores the importance of preparing educators to effectively address the needs of all learners, regardless of their characteristics. The continuation of professional development and the adaptation of training programs to local realities will be essential for advancing inclusive education, both in São Tomé and Príncipe and in other regions around the world.

## REFERENCES

- ALONSO, Monserrat; SANTOS, Tarsio Paula dos; REIS, Marlene Barbosa de Freitas; ABREU, Sandra Elaine Aires de. A Educação Inclusiva e a Formação Continuada Docente. **Revista Humanidades e Inovação**, v. 9, n. 13, p. 34-45, 2022. Available at: <https://revista.unitins.br/index.php/humanidadeseinovacao/article/view/7716>. Accessed in: 14 Dec. 2024
- ANDRADE, Wellington Santos de; SILVA, Ailton Clemente da; CAVALCANTI, Danilo Ramos. A utilização de materiais didáticos inclusivos no ensino de ciências e de biologia na educação especial de deficientes visuais. *In*: CONGRESSO NACIONAL DE EDUCAÇÃO – CONEDU, 2022. **Anais** [...]. Available at: [https://editorarealize.com.br/editora/anais/conedu/2020/TRABALHO\\_EV140\\_MD4\\_SA10\\_ID4695\\_01102020201006.pdf](https://editorarealize.com.br/editora/anais/conedu/2020/TRABALHO_EV140_MD4_SA10_ID4695_01102020201006.pdf). Accessed in: 14 Dec. 2024.
- BARDIN, Laurence. **Análise de conteúdo**. Lisboa: Edições 70, 1977. p. 225.
- BATALLA, Denise Valduga. Política Nacional de Educação especial na perspectiva da educação inclusiva brasileira. **Fundamentos em Humanidades**, v. 10, n. 19, p. 77-89, 2009.
- BOOTH, Tony; AINSCOW, Mel. **Index for inclusion: developing learning and participation in schools**. Bristol: CSIE, 2002.
- BRASIL. Lei n.º 13.146, de 6 de julho de 2015. Institui a Lei Brasileira de Inclusão da Pessoa com Deficiência (Estatuto da Pessoa com Deficiência). **Diário Oficial da União**: seção 1, Brasília, DF, 7 jul. 2015. Available at: [https://www.planalto.gov.br/ccivil\\_03/\\_ato2015-2018/2015/lei/113146.htm](https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2015/lei/113146.htm). Accessed in: 22 Oct. 2025.
- BRASIL. Decreto n.º 7.611, de 17 de novembro de 2011. Dispõe sobre a educação especial, o atendimento educacional especializado e dá outras providências. **Diário Oficial da União**: seção 1, Brasília, DF, 18 nov. 2011. Available at: [https://www.planalto.gov.br/ccivil\\_03/\\_ato2011-2014/2011/decreto/d7611.htm](https://www.planalto.gov.br/ccivil_03/_ato2011-2014/2011/decreto/d7611.htm). Accessed in: 22 Oct. 2025.
- CARVALHO, Rosita Edler. **Removendo barreiras para a aprendizagem, educação inclusiva**. 10. ed. Porto Alegre: Mediação, 2014.
- CAST. **Universal Design for Learning Guidelines**. version 2.2. [S. l.]: CAST Universal Design for Learning Guidelines, 2018. Available at: <https://udlguidelines.cast.org/>. Accessed in: 20 Nov. 2024.
- GERHARDT, Tatiana Engel; SILVEIRA, Denise Tolfo. **Métodos de Pesquisa**. 8. ed. Porto Alegre: Editora da UFRGS, 2009. p. 120.
- HALL, Tracey; MEYER, Anna; ROSE, David. **Universal design for learning in the classroom: practical applications**. New York: Guilford Press, 2012.
- KENNEDY, Alec I.; MEJÍA-RODRÍGUEZ, Ana María; STRELLO, Andrés. Inequality in remote learning quality during COVID-19: student perspectives and mitigating factors.

**Large-Scale Assessments in Education**, v. 10, art. 29, 2022. DOI: 10.1186/s40536-022-00143-7.

LARCÃO, Isabel. **Professores reflexivos em uma escola reflexiva**. 2. ed. São Paulo: Cortez, 2011.

MANTOAN, Maria Teresa Eglér. **Inclusão Escolar: o que é? Por quê? Como fazer?** 2. ed. São Paulo: Moderna, 2003. p. 51.

MINAYO, Maria Cecília de Souza. **Pesquisa Social**. Teoria, método e criatividade. 18 ed. Petrópolis: Vozes, 2001.

MITTLER, Peter. **Educação Inclusiva: contextos sociais**. Porto Alegre: Artmed, 2003

PEREIRA, Samara de Oliveira. **Desenho Universal para a Aprendizagem como possibilidade para o ensino de Química a estudantes com Síndrome de Down**. 2019. 128 f. Trabalho de Conclusão de Curso (Licenciatura em Química) – Universidade Federal do Pampa, Bagé, 2019. Available at: <https://dspace.unipampa.edu.br/jspui/handle/rii/4851>. Accessed in: 2 Jan. 2023

REPÚBLICA DEMOCRÁTICA DE SÃO TOMÉ E PRÍNCIPE. Lei n.º 4, de 7 de novembro de 2018. Lei de Bases do Sistema Educativo. **Diário da República**, I Série, n.º 14, 18 fev. 2019, p. 115-137. Available at: [https://natlex.ilo.org/dyn/natlex2/files/download/113411/L%204%2018.pdf?utm\\_source=chatgpt.com](https://natlex.ilo.org/dyn/natlex2/files/download/113411/L%204%2018.pdf?utm_source=chatgpt.com). Accessed in: 21 Oct. 2025.

ROSE, David; MEYER, Anne. **Teaching every student in the digital age: universal design for learning**. Alexandria: Association for Supervision and Curriculum Development, 2002. Available at: [https://www.researchgate.net/publication/225336097\\_David\\_H\\_Rose\\_Anne\\_Meyer\\_Teaching\\_Every\\_Student\\_in\\_the\\_Digital\\_Age\\_Universal\\_Design\\_for\\_Learning](https://www.researchgate.net/publication/225336097_David_H_Rose_Anne_Meyer_Teaching_Every_Student_in_the_Digital_Age_Universal_Design_for_Learning). Accessed in: 19 Oct. 2025.

RUBIN, Jon. Embedding collaborative online international learning (COIL) at higher education institutions: an evolutionary overview with exemplars. *In*: DE WIT, Hans; HUNTER, Fiona; HOWARD, Laura; EGRON-POLAK, Eva (Ed.). **The Internationalisation of Higher Education Handbook**. Berlim: Raabe Academic Publishers, 2017.

SASSAKI, Romeu Sasaki. Inclusão: acessibilidade no lazer, trabalho e educação. **Revista Nacional de Reabilitação (Reação)**, Ano XII, p. 10-16, 2009. Available at: [https://files.cercomp.ufg.br/weby/up/211/o/SASSAKI\\_-\\_Acessibilidade.pdf?14732033](https://files.cercomp.ufg.br/weby/up/211/o/SASSAKI_-_Acessibilidade.pdf?14732033). Accessed in: 26 Nov. 2024.

SCHÖN, Donald. **Educando o profissional reflexivo: um novo design para o ensino e a aprendizagem**. Porto Alegre: Artmed, 2000.

SEBASTIÁN-HEREDERO, Eladio. Diretrizes para o Desenho Universal para a Aprendizagem (DUA). **Revista Brasileira de Educação Especial**, v. 26, n. 4, p. 733-767, 2020. DOI: 10.1590/1980-54702020v26e0155. Available at:

<https://www.scielo.br/j/rbee/a/F5g6rWB3wTZwyBN4LpLgv5C/?format=pdf&lang=pt>.  
Accessed in: 20 Nov. 2024

SELWYN, Neil. **Education and technology: key issues and debates**. London: Continuum International Publishing Group, 2010.

TARDIF, Maurice. **Saberes docentes e formação profissional**. Petrópolis: Vozes, 2014.

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT. Lei Quadro da Educação Especial – São Tomé e Príncipe: “Lei Quadro da Educação Especial, que estabelece as normas para a inclusão de alunos com deficiência”. **Diário da República**, São Tomé e Príncipe, n. 5, 26 jan. 2021. Available at: <https://unctad.org/system/files/non-official-document/ntfc-db-ist-st.pdf>. Accessed in: 24 Nov. 2024.

UNESCO. **Education for sustainable development goals: learning objectives**. Paris: UNESCO, 2017. Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000247444>. Accessed in: 22 Jun. 2025.

ZERBATO, Ana Paula; MENDES, Enicéia Gonçalves. Desenho universal para a aprendizagem como estratégia de inclusão escolar. **Educação Unisinos**, v. 22, n. 2, p. 147-155, 2018. Available at: <https://revistas.unisinos.br/index.php/educacao/article/view/edu.2018.222.04>. Accessed in: 24 Nov. 2024

### ***CRediT Author Statement***

---

- Acknowledgements:** We would like to thank Professor Célia Tanajura for her support and for disseminating our work. Our sincere gratitude.
  - Funding:** No funding was provided by any institution.
  - Conflicts of interest:** There were no conflicts of interest.
  - Ethical approval:** The study adhered to ethical standards during the research process, and submission to an ethics committee was not required.
  - Data and material availability:** All data used in this work are properly cited and available in the referenced bibliographic sources.
  - Authors' contributions:** Jônatas David contributed to Section 1, which addressed the “Escola Sem Partido” (Non-Partisan School); Mariana Pacheco contributed to Section 2, which discussed homeschooling; Adriano de Freitas Alves contributed to Section 3, which explored the militarization of education in Brazil; and Aline Daiane Nunes Mascarenhas wrote the abstract and the final considerations.
- 

**Processing and editing: Editora Ibero-Americana de Educação**  
Proofreading, formatting, standardization and translation

