

DIGITAL INFORMATION AND COMMUNICATION TECHNOLOGIES AND TEACHER TRAINING FROM AN INTERNATIONAL PERSPECTIVE: A STUDY BETWEEN BRAZIL AND ROMANIA

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Abstract

Within this paper we propose a comparative analysis between the Federal University of Rio Grande do Sul (UFRGS) in Brazil and Babes-Bolyai University in Romania, focusing on the use of Digital Information and Communication Technologies (DICTs) in teacher training and continuous education. The research adopts a qualitative and comparative approach, based on the documentary analysis of public policies, training plans, and institutional statistical data. The investigation seeks to understand how different pedagogical models and sociopolitical contexts influence the integration of DICTs in training processes, identifying convergences, divergences, and good practices. The study draws on consolidated theoretical foundations in education and technology and proposes a critical reflection on possible paths for teacher training in the digital age.

Keywords: *Digital Technologies, Teacher Training, Public Policy, Comparative Education.*

1. INTRODUCTION

The transformations in social and educational dynamics promoted by Digital Information and Communication Technologies (DICTs) have profoundly impacted teacher training processes in the 21st century. Far from being merely technical support tools, DICTs are reconfiguring learning spaces, the roles of teachers and students, and the very concepts of teaching and knowledge. As Freire¹ states, education should be an act of freedom and autonomy, and in this sense, technologies, when critically applied, can broaden the educational horizon, strengthening the dialogical, creative, and emancipatory dimension of pedagogical practice.

In this scenario, understanding how different higher education institutions integrate DICTs into continuous teacher education is an urgent and necessary challenge. The literature points to a growing complexity of digital educational environments, requiring not only technical mastery, but also pedagogical, ethical, and collaborative skills^{2,3,4}. However, training processes

¹Paulo Freire, *Pedagogy of autonomy: knowledge necessary for educational practice*, São Paulo: Paz e Terra, 1996.

²José Manuel Moran, *The education we want: new challenges and how to get there*, Campinas: Papirus, 2015.

³José Manuel Moran, "Learning with active methodologies and technologies" in Lilian Bacich; José Manuel Moran (eds.), *Active methodologies for innovative education: a theoretical-practical approach*, Porto Alegre: Penso, 2018.

⁴Vani Moreira Kenski, *Education and technologies: the new pace of information*, Campinas: Papirus, 2012.

widely vary between countries, universities, and educational systems, which justifies conducting international comparative studies. According to Unesco⁵, analyzing different contexts of teacher training with technologies allows for the identification of good practices, gaps, and strategies that can be adapted to different educational realities.

This article proposes a comparative analysis between two prominent institutions in their respective contexts: the Federal University of Rio Grande do Sul (UFRGS) in Brazil and Babes-Bolyai University (BBU) in Romania. These universities were chosen based on their track records of academic excellence, commitment to teacher training, and involvement in national and transnational public policies. While UFRGS represents a public university in the Global South, located in a BRICS member country, BBU is part of the European higher education area, with strong alignment with European Union guidelines, such as DigCompEdu and the Bologna Process.

The central problem guiding this research is: how are DICTs incorporated into teacher training within two universities with different sociopolitical and regulatory contexts, and what are the convergences and divergences between these experiences? The starting point is the hypothesis that, although both institutions value digital teacher training, the way in which this integration occurs is strongly conditioned by public policies, technological infrastructure, institutional culture, and alignment with global educational agendas.

The overall objective of the study is to comparatively analyze the practices, policies, and pedagogical models of teacher training using DICTs at UFRGS and BBU, seeking to understand their challenges, advances, and implications. The specific objectives are:

- a) identify the legal frameworks and institutional policies that guide digital teacher training in each country;
- b) map the technological resources and methodologies used in initial and continuous training courses;
- c) to assess the degree of institutionalization of DICTs practices within both universities;
- d) reflect on the implications of this comparison for educational policies in the Global South and in the context of BRICS.

⁵Unesco, *Guidelines for policies on mobile learning*, Paris: Unesco, 2019.

This article is structured in six sections. After this introduction, we present the theoretical framework that discusses the main concepts of DICTs in teacher training, educational policies, pedagogical models, and the internationalization of education. The following section describes the study's methodology, which is qualitative and comparative in approach. Next, we present the data and analyses related to the studied institutions, including their history, training practices, public policies, and quantitative indicators. The fifth section discusses the convergence and divergence between the analyzed models, with critical projections on global training inequalities. Finally, the last section brings together the final considerations, contributions of the study, implications for public policies, and suggestions for future research.

2. THEORETICAL FRAMEWORK

2.1. DICTS IN TEACHER TRAINING: CONCEPTS, CHALLENGES, AND POTENTIAL

The presence of DICTs in contemporary education challenges training systems to rethink the role of teachers, pedagogical practices, and learning models. According to Moran⁶, “*educational technologies are not only means of teaching, but environments that provoke new ways of learning, dialoguing, and producing knowledge*”. Thus, teachers need to stop being mere transmitters of content and become mediators and designers of learning experiences.

The integration of DICTs into teacher training involves both technical mastery and the development of a critical stance towards socio-technical transformations. Selwyn⁷ warns that educational technology “*is deeply political and never neutral*”, as it reflects disputes over power, values, and control over knowledge. Therefore, preparing teachers to work with DICTs implies going beyond instrumental use, requiring a critical, ethical, and emancipatory view of technology — a perspective that is close to Freire's⁸ thinking when he states that

⁶José Manuel Moran, *The education we want: new challenges and how to get there*, Campinas: Papirus, 2015, p. 32.

⁷Neil Selwyn, *Education and technology: key issues and debates*, London: Bloomsbury, 2011, p. 3.

⁸Paulo Freire, *Pedagogy of autonomy: knowledge necessary for educational practice*, São Paulo: Paz e Terra, 1996, p. 47.

“teaching is not transferring knowledge, but creating possibilities for its own production or construction”.

From the perspective of the teacher’s professional development, Imbernón⁹ emphasizes that *“training teachers involves promoting reflection, research, and collaboration, not just the technical application of tools”*. Thus, DICTs should be understood as tools for social and pedagogical transformation, capable of enhancing the role of teachers and students, promoting meaningful learning, and democratizing access to knowledge.

In the context of the Global South, authors such as Valente¹⁰ and Kenski¹¹ highlight that infrastructure difficulties and the fragmentation of public policies still limit the effective use of DICTs, but also reinforce the creative and adaptive potential of teachers. These conditions challenge universities to create innovative training strategies that value technologies as cultural mediators, not just technical artifacts.

2.2. PUBLIC EDUCATION POLICIES: OVERVIEW IN BRAZIL AND ROMANIA

In Brazil, public policies on teacher training have sought to incorporate DICTs since early 2000s, but still in a discontinuous and fragmented manner. Documents such as the Law of Guidelines and Bases for National Education (LDB)¹², **the** National Education Plan (PNE)¹³, **and** the National Common Base for Initial Training of Basic Education Teachers (BNC-Formação)¹⁴ mention the importance of digital culture, but without detailing specific competencies.

⁹Francisco Imbernón, *Teacher and professional training: training for change and uncertainty*, São Paulo: Cortez, 2011, p. 45.

¹⁰José Armando Valente, “The use of technologies in teacher training: challenges and perspectives” in Nelson De Luca Pretto; Elizabeth Macedo (eds.), *Technology and teacher training: rethinking paths*, Salvador: Edufba, 2006.

¹¹Vani Moreira Kenski, *Education and technologies: the new pace of information*, Campinas: Papirus, 2012.

¹²Brazil, *Law n° 9,394, of December 20, 1996*, Establishes the guidelines and foundations of national education, Brasília, 1996.

¹³Brazil, *National Education Plan (PNE) 2014-2024: Law n° 13,005, of June 25, 2014*, Brasília: MEC, 2014.

¹⁴Brazil, *National Common Base for Initial Training of Basic Education Teachers (BNC-Formação)*, Brasília: MEC, 2019.

This reveals a gap between political discourse and institutional practice. As Kenski¹⁵ states, “*Brazilian education technology policy is marked by discontinuities, both in terms of infrastructure and teacher training*”.

In Romania, on the other hand, educational policy reflects alignment with the European Union and its strategic milestones. Since the Bologna Process (1999)¹⁶, Romanian teacher training has been restructured into three cycles (bachelor's, master's, and doctorate), prioritizing the convergence of curricula and the integration of digital skills. According to the Romania Ministry of National Education the country adopts common guidelines from the *European Framework for the Digital Competence of Educators (DigCompEdu)*, which allows for “*standardized and progressive assessment and certification of teachers’ digital competence*”¹⁷.

The European Commission describes DigCompEdu¹⁸ as “*a guiding tool for teacher professional development in the digital age*” structured around six areas of competence: professional engagement, digital resources, teaching and learning, assessment, student empowerment, and developing students’ digital competence. At Babes-Bolyai University, this policy is institutionalized, with digital teaching certifications and regular continuing education projects. The Romanian case illustrates the challenges of integrating digital pedagogies into historically traditional systems. As Rusu and Demian¹⁹ analyze, “*the use of DICTs in Romanian universities intensified during the pandemic, revealing both opportunities for innovation and structural and cultural barriers*”. The research points to the importance of consistent institutional policies and continuous teacher training as central elements for consolidating digital transformation in higher education.

¹⁵Vani Moreira Kenski, *Education and technologies: the new pace of information*, Campinas: Papirus, 2012, p. 56.

¹⁶European Commission, *The european higher education area in 2020: Bologna Process Implementation Report*, Brussels: Education, Audiovisual and Culture Executive Agency, 2020.

¹⁷Romania Ministry of National Education, *Education law n° 1/2011*, Bucharest, 2011.

¹⁸European Commission, *DigCompEdu: the digital competence framework for educators*, Luxembourg: EU Publications, 2017.

¹⁹A. Rusu; S. Demian, “Perspectives on digital education in Romanian universities during COVID-19: opportunities and barriers” in *Postmodern Openings*, n° 1, 2020, p. 149.

While Brazil deals with scattered and short-range policies, Romania exemplifies a model articulated between European guidelines and institutional practices, which demonstrates how political and financial alignment can favor the consolidation of a formative and sustainable digital culture.

2.3. CONTEMPORARY PEDAGOGICAL MODELS: FACE-TO-FACE, HYBRID, ONLINE, AND COLLABORATIVE

The emergence of DICTs has driven a reconfiguration of contemporary pedagogical models. Traditional face-to-face teaching has been complemented by hybrid and collaborative approaches, which increase autonomy and interaction between subjects. Moran²⁰ argues that *“hybrid teaching combines the best of face-to-face teaching with the interactive and flexible potential of digital technology, bringing school closer to students’ everyday lives”*.

In the same vein, Kenski²¹ points out that the pedagogical use of technologies *“changes the pace of information and learning, requiring teachers to develop new skills in managing time and educational space”*. Online and collaborative models enhance networking and peer learning, providing alternatives for continuous teacher training.

Unesco²² emphasizes that the adoption of innovative pedagogical models must consider three principles: equity of access, social relevance, and pedagogical quality. For Imbernón²³, collaborative learning with the use of technologies *“requires a new teaching role — that of facilitator of the collective construction of knowledge”*.

At universities such as UFRGS, there is a growing adoption of hybrid teaching through the UFRGS Virtual platform, while at Babes-Bolyai University, *blended learning* and *e-learning* models prevail, institutionalized in curricula and digital certification programs. This difference expresses the degree of consolidation of digital policies in each context, but also reflects the underlying pedagogical concepts: in Brazil, teaching leadership still depends

²⁰José Manuel Moran, *The education we want: new challenges and how to get there*, Campinas: Papirus, 2015, p. 41.

²¹Vani Moreira Kenski, *Education and technologies: the new pace of information*, Campinas: Papirus, 2012, p. 22.

²²Unesco, *Guidelines for policies on mobile learning*, Paris: Unesco, 2019.

²³Francisco Imbernón, *Teacher and professional training: training for change and uncertainty*, São Paulo: Cortez, 2011.

heavily on individual initiative; in Romania, it is integrated into collective institutional policies and guidelines.

2.4. INTERNATIONALIZATION OF EDUCATION: GLOBAL CONTEXTS AND INFLUENCES

The internationalization of higher education has intensified in recent decades, redefining the paradigms of quality, mobility, and academic cooperation. However, this process is not neutral: it is permeated by power relations and inequalities between the Global North and South. According to Santos²⁴, *“the globalization of knowledge tends to reproduce epistemic coloniality, in which peripheral knowledge is subordinated to dominant models of rationality”*.

From a European perspective, the Bologna Process and Erasmus+²⁵ have driven curriculum standardization and the creation of common assessment systems, as is the case in Romania. However, this standardization also creates tensions with local contexts. As Bhatt, Badwan and Madiba²⁶ argue, *“the quest for global recognition can distance universities from their cultural and linguistic realities”*.

In the Latin American and BRICS context, internationalization is still marked by structural asymmetries. According to Nóvoa²⁷, *“international cooperation should not mean submission to external models, but rather the strengthening of horizontal networks of knowledge production”*. Thus, rethinking the internationalization of teacher training implies building an intercultural dialogue capable of promoting fair exchanges between educational systems, respecting epistemic and pedagogical diversity.

The comparison between UFRGS and BBU, in this sense, allows us to understand internationalization as a multifaceted phenomenon: while BBU is integrated into a European network of coordinated digital policies, UFRGS seeks autonomous paths, but faces restrictions in terms of funding and strategic

²⁴Boaventura de Sousa Santos, *Beyond abyssal thinking: from global lines to an ecology of knowledge*, São Paulo: Cortez, 2010, p. 43.

²⁵Erasmus+, *Projects and policies*, European Union [https://erasmus-plus.ec.europa.eu], 01 November 2025.

²⁶Ibrar Bhatt; Khawla Badwan; Mbulugeni Madiba, “Critical perspectives on teaching in the multilingual university” in *Teaching in Higher Education*, nº 4, 2022.

²⁷António Nóvoa, *Teachers and their training*, Lisbon: Dom Quixote, 2009, p. 21.

alignment. This contrast highlights the need for solidarity-based and critical internationalization, based on principles of South-South cooperation and the valorization of local epistemologies.

3. METHODOLOGY

This study adopts a qualitative approach, with a comparative design, based on the principles of comparative education as proposed by Brooke²⁸. The choice of this approach is justified by the intention to understand institutional practices and public policies in different contexts — Brazil and Romania — through a critical and contextualized analysis.

Three main techniques were used for data collection and analysis:

a) documentary analysis, focusing on institutional development plans, curriculum guidelines, national legislation, and digital frameworks;

b) institutional statistical survey, involving data on teacher training courses, enrollment, technological resources, and continuous education;

c) critical interpretive analysis, guided by the articulation between empirical data and the theoretical references adopted.

The sources consulted included official documents from UFRGS and *Babes-Bolyai University*, educational legislation from Brazil and Romania, public educational data platforms, as well as academic publications and institutional reports. The criteria for comparison between institutions were defined based on five axes:

1. educational objectives;
2. teaching methodologies;
3. available technological resources;
4. continuous education for teachers;
5. assessment models related to digital skills.

This analytical matrix allowed us to identify significant convergences and divergences between the two contexts, as well as to understand the relationships between public policy, institutional culture, and pedagogical practice in teacher training with DICTs. Below we provide the tables with the axes of comparison and the results.

²⁸N. Brooke, “O futuro das políticas de responsabilização educacional no Brasil” em *Cadernos de Pesquisa*, nº 128, 2006.

Table 1. Axis of Comparison

Nº	Axis	What was compared?
1	Educational Objectives	Curricular focus: digital skills, innovation, pedagogical criticism
2	Teaching Methodologies	Models adopted: in-person, hybrid, online, collaborative
3	Technological Resources	Platforms, OERs, infrastructure, access
4	Continuing Education	Institutional offerings, certifications, and regular teacher training programs
5	Teacher Evaluation	Criteria used: performance, digital innovation, competency frameworks

Table 2. Initial Comparative Table

Criterion	UFRGS (Brazil)	Babes-Bolyai University (Romania)
Historical context	Teacher training marked by national public policies (PNE, LDB) with a focus on digital inclusion since the 2000s	Post-Communist legacy, integration with European Union guidelines, focus on educational modernization since 2007
Public policies	CAPES guidelines, MEC, National Common Base for Initial Training of Basic Education Teachers (BNC-Formação)	Influence of EU educational policies (Bologna Process, Erasmus+, DigCompEdu), national guidelines
Pedagogical models	Hybrid, face-to-face with technological mediation (AVA Moodle, REUNI Digital)	Strong presence of digital platforms, blended learning, use of international LMS; moodle is also presently used
Technological infrastructure	Varying availability between courses; advances in laboratories and digital libraries	Strong investment in educational technology, digitized campus
Use of DICTs in initial training	Present in specific subjects and extension/innovation projects	Integrated into the pedagogical curriculum with a focus on digital teaching skills
Continuous education	Projects such as UFRGS Virtual, workshops, and courses for active teachers	Ongoing professional development programs with digital certifications

Criterion	UFRGS (Brazil)	Babes-Bolyai University (Romania)
Theoretical references adopted	Freire, Moran, Kenski, Valente, Nóvoa	Vygotsky, Laurillard, European Frameworks (DigCompEdu)
Challenges faced	Unequal access, teacher resistance, unstable policies	Cultural adaptation, funding, technological overload
Good practices identified	Interdisciplinary projects, production of digital educational objects, encouragement of innovation	Cross-disciplinary digital training, use of open resources, integration with European networks, EUTOPIA and GUILD memberships

This overview is expanded and detailed in the analysis sections of the article.

4. INSTITUTIONAL AND HISTORICAL OVERVIEW

The Federal University of Rio Grande do Sul (UFRGS), founded in 1934 and federalized in 1950, is one of the most traditional higher education institutions in Brazil. Nationally recognized for its academic excellence and leadership in inclusion and innovation policies, UFRGS is heavily involved in the initial and continuous teachers' training, especially through its undergraduate, extension, and graduate programs in the field of education. The university is part of the Brazilian public policy framework for teacher training and is governed by legal milestones such as the Law of Guidelines and Bases for National Education (LDB)²⁹, the National Education Plan (PNE)³⁰, and, more recently, the National Common Base for Initial Training of Basic Education Teachers (BNC-Formação)³¹. These documents guide the curriculum organization, supervised internships, and the incorporation of Digital Information and Communication Technologies (DICTs) into the training

²⁹Brazil, *Law n° 9,394, of December 20, 1996*, Establishes the guidelines and foundations of national education, Brasília, 1996.

³⁰Brazil, *National Education Plan (PNE) 2014-2024: Law n° 13,005, of June 25, 2014*, Brasília: MEC, 2014.

³¹Brazil, *National Common Base for Initial Training of Basic Education Teachers (BNC-Formação)*, Brasília: MEC, 2019.

process. UFRGS also stands out for its virtual learning environment³², which promotes technological mediation in face-to-face teaching and offers hybrid and distance learning courses.

Babes-Bolyai University (BBU)³³, located in Cluj-Napoca, Romania, is one of the largest and most influential universities in Central and Eastern Europe. Its origins date back to the 16th century, but its current configuration was consolidated in 1959 as a result of the merger between the Romanian and Hungarian universities. The multicultural profile of the university was reinforced since 1990, with full studies in Romanian, Hungarian, German and as well English, reflecting the multiculturalism of the Transylvanian region. With Romania's accession to the European Union in 2007, BBU aligned its educational policies with the EU guidelines, especially in the field of teacher training. Noteworthy in this process are the Bologna Process³⁴, which established the harmonization of European higher education, and the guiding documents of the *European Framework for the Digital Competence of Educators (DigCompEdu)*, which offer guidelines for the development of digital teaching skills. BBU develops initial training programs structured in three cycles (bachelor's, master's, and doctorate) and invests heavily in continuous education through digital certifications and credentialing, academic mobility, and transnational projects such as the ones funded by the **Erasmus+**³⁵ program. Institutionally, it adopts a pedagogical approach that values teacher autonomy, curricular innovation, and the integration of educational technologies into university teaching.

Therefore, although inserted in different geopolitical contexts, both UFRGS and BBU show structured efforts to improve teacher training, anchored in national public policies and international educational modernization frameworks. The analysis of their institutional and normative histories allows us to understand the bases on which technology-mediated training practices are built in each institutional framework.

³²UFRGS, *UFRGS virtual – virtual learning environment* [<https://www.ufrgs.br/ufrgsvirtual/>], 01 November 2025.

³³Babes-Bolyai University, *Institutional presentation and history*, Cluj-Napoca: UBB, 2022 [<https://www.ubbcluj.ro/en/despre/prezentare/>], 01 November 2025.

³⁴European Commission, *The european higher education area in 2020: Bologna Process Implementation Report*, Brussels: Education, Audiovisual and Culture Executive Agency, 2020.

³⁵Erasmus+, *Projects and policies*, European Union [<https://erasmus-plus.ec.europa.eu/>], 01 November 2025.

4.1. PEDAGOGICAL MODELS AND TRAINING PRACTICES WITH DICTS

The incorporation of DICTs into teacher training has promoted significant changes in the pedagogical models adopted by higher education institutions, while revealing tensions between innovation and traditional structures. At the Federal University of Rio Grande do Sul (UFRGS), a hybrid approach predominates, combining face-to-face and technology-mediated activities. The use of the **UFRGS Virtual** environment, based on platforms such as Moodle, allows the usage of forums, assignment submission, and the development of digital educational objects, increasing student autonomy and enabling collaborative learning experiences.

This practice aligns with what Moran³⁶ defines as an “*interactive hybrid model*” in which the use of technology does not replace the teacher but expands the possibilities for teaching, making it more personalized and student-centered. According to the author, “*technologies can transform teaching when incorporated reflectively and articulated with clear pedagogical objectives*”³⁷. At UFRGS, however, the effectiveness of this integration thdepends on the engagement of teachers, who still demonstrate varying levels of familiarity and mastery of digital tools, which corroborates the analysis of Valente³⁸, who states that “*the use of technologies in teacher training should not be separate content, but rather linked to the teacher's concrete pedagogical practice, promoting real changes in their performance*”. At Babes-Bolyai University (BBU), the scenario reveals a more structured and systemic level of integration of DICTs, driven by institutional policies aligned with the European Union guidelines, such as the DigCompEdu Framework. Initial teacher training programs adopt *blended learning* as a standard model, with courses taught on digital platforms and asynchronous activities that favor the development of specific digital skills. In

³⁶José Manuel Moran, *The education we want: new challenges and how to get there*, Campinas: Papirus, 2015.

³⁷José Manuel Moran, *The education we want: new challenges and how to get there*, Campinas: Papirus, 2015, p. 42.

³⁸José Armando Valente, “The use of technologies in teacher training: challenges and perspectives” in Nelson De Luca Pretto; Elizabeth Macedo (eds.), *Technology and teacher training: rethinking paths*, Salvador: Edufba, 2006, p. 27.

addition, the university invests in digital certifications for teachers, regular workshops on pedagogical innovation, and incentives for the use of open educational resources (OER), which brings training practices closer to international trends in digital education.

As Laurillard³⁹ points out, an effective pedagogical model for the use of digital technologies must be based on processes of dialogue, feedback, and personalization of learning. At BBU, this model has institutional support, but it also faces challenges related to teacher overload and resistance from more traditional faculty members, who still value expository and transmissive practices. In addition, even in a European context, Selwyn⁴⁰ warns against the illusion of technological neutrality, noting that the use of DICTs is conditioned by political, cultural, and economic factors, which also applies to Romania.

Among the innovative practices common to both institutions, the following stand out: the use of virtual learning platforms, the production of digital educational objects, the encouragement of faculty authorship in digital contexts, and the valorization of active and collaborative learning. However, potential limitations could range from structural issues such as connectivity for all the actors of the educational process, technical training, and infrastructure to more complex pedagogical aspects such as resistance to paradigm shifts and the challenge of integrating technologies into the curriculum in a critical and meaningful way.

Thus, both UFRGS and BBU make efforts to reformulate their pedagogical models in light of digital technologies integration, but they still face the challenge of consolidating teacher training that goes beyond the instrumental use of DICTs, effectively promoting teacher leadership, critical autonomy, and didactic innovation in the contemporary context.

We further evaluate the studied aspects of UFRGS and BBU on a scale 1- (very weak) to 5 (very strong).

³⁹Diana Laurillard, *Teaching as a Design Science: building pedagogical patterns for learning and technology*, Routledge, 2012.

⁴⁰Neil Selwyn, *Education and technology: key issues and debates*, London: Bloomsbury, 2011.

Table 3. Comparison of TDIC Integration in Teacher Training: UFRGS vs. BBU

Criterion	UFRGS	BBU
Structured virtual platforms	4	5
Continuing education focused on DICTs	3	5
Use of OERs	2	4
Digital teacher certifications	2	5
Institutionalized hybrid model	3	5
Interdisciplinary projects with DICTs	4	3
Encouraging faculty authorship	3	4
Alignment with international policies	3	5

Key: Scale from 1 (very weak) to 5 (very strong)

Table 4. Innovative Practices with DICTs – UFRGS x BBU

Innovative Practice	UFRGS	BBU
Use of institutional Virtual Learning Environments VLE (Moodle)	✓	✓
Production of digital educational objects	✓	✓
Internal digital certifications	✗	✓
Regular continuing education focused on DICTs	✓ Partial	✓
Projects with Open Educational Resources	✓ Initial	✓ Consolidated
Participation in international networks	✓ Occasional	✓ Structured
Use of frameworks such as DigCompEdu	✗	✓

Estimated data based on document review and literature

✓ = Implemented

⚠ = Partial/in development

✗ = Not implemented or not a priority

4.2. ANALYSIS OF PUBLIC EDUCATION POLICIES

Technology-mediated teacher training is deeply linked to the public education policies that guide higher education institutions. In Brazil and the European Union, these guidelines take different forms, revealing not only different conceptions of the role of Digital Information and Communication Technologies (DICTs), but also specific priorities regarding teacher professionalization.

In the Brazilian context, public policies for teacher training have undergone significant revisions in recent decades. One of the most recent milestones is the National Common Base for Initial Training of Basic Education Teachers (BNC-Formação), established by Resolution CNE/CP n° 2/2019, which defines essential competencies, content, and methodologies for teacher training courses. Although the document recognizes the importance of DICTs, its approach is often generic and focused on instrumental aspects, leaving room for institutional interpretations. As Imbernón⁴¹ observes, overly prescriptive training policies tend to disregard the diversity of educational contexts and the multiple dimensions of the teaching process. In addition, the implementation of BNC-Training has been criticized for its verticalization and the risk of standardizing pedagogical practice⁴².

As a federal public university, UFRGS follows the guidelines of BNC-Formação, the National Education Plan (PNE)⁴³, and CAPES programs, but also maintains a certain institutional autonomy to propose training projects that expand the use of DICTs, such as the UFRGS Virtual program and extension initiatives focused on pedagogical innovation. However, the absence of a robust and coordinated national policy for digital teacher training has led to uneven progress between courses and departments, as well as hindering the consolidation of an institutional digital culture.

In contrast, the European Union has adopted a more systematic and forward-looking approach. One of the main contemporary references is DigCompEdu – *Digital Competence Framework for Educators*, published by the European Commission⁴⁴, which defines six areas of digital teaching skills and progressive levels of proficiency. This document serves as the basis for the development of national policies on training and continuous performance evaluation, and professional development of teachers in the member countries, thus in Romania as well, being therefore applied at Babes-Bolyai University (BBU).

⁴¹Francisco Imbernón, *Teacher and professional training: training for change and uncertainty*, São Paulo: Cortez, 2011.

⁴²António Nóvoa, “Firmar a posição como professor, afirmar a profissão docente” em *Cadernos de Pesquisa*, n° 166, 2017.

⁴³Brazil, *National Education Plan (PNE) 2014-2024: Law n° 13,005, of June 25, 2014*, Brasília: MEC, 2014.

⁴⁴European Commission, *DigCompEdu: the digital competence framework for educators*, Luxembourg: EU Publications, 2017.

DigCompEdu is used as a tool for planning and monitoring teachers' digital competencies, directly influencing the curriculum design of undergraduate courses and institutional digital certification programs.

Another important element is BBU's alignment with the Bologna Process, which structures European higher education into three cycles (bachelor's, master's, and doctorate) and promotes internationalization, academic mobility, and quality assurance. These guidelines favor a perspective of continuous teacher training integrated with the demands of the 21st century, in which the use of technologies is not treated as an accessory, but as a structuring component of pedagogical action.

A comparison between the two contexts reveals that, while Brazil is still moving towards a more effective integration of DICTs into public teacher training policies, with particular advances and isolated efforts, the European Union operates with more consolidated frameworks, clear digital goals, and strong coordination between levels of governance. As Selwyn⁴⁵ states, “*educational policies reflect power struggles over what should be taught, how, and by whom*” and, in this sense, European digital policies express a training project that is more integrated with the dynamics of the knowledge-based society.

However, it is necessary to recognize that the mere existence of legal frameworks and digital frameworks does not, in itself, guarantee the effectiveness of educational practices. In both Brazil and Romania, challenges persist related to infrastructure, poor or unequal initial training in technology, teacher resistance, and the discontinuity of educational policies in scenarios of political changes. The comparative analysis, therefore, points to the need for public policies that are not only prescriptive but also formative, reflective, and sensitive to the complexity of teaching work.

Table 5. Expanded Comparative Table – Public Policies for Teacher Training with DICTs

Axis of Analysis	Brazil (UFRGS)	European Union (BBU/Romania)
National Legal Framework	LDB (Law n° 9,394/1996); PNE (2014-2024); BNC-Training (2019)	Romanian National Education Law (2011); European processes (Bologna, Lisbon, etc.)
Guidelines for Digital Competence in Teaching	Indirect and generic references in national policies	DigCompEdu (2017) with 6 areas of competence and progressive levels

⁴⁵Neil Selwyn, *Education and technology: key issues and debates*, London: Bloomsbury, 2011.

Axis of Analysis	Brazil (UFRGS)	European Union (BBU/Romania)
Teacher Training Model	Predominance of face-to-face learning with hybrid institutional experiences (e.g., UFRGS Virtual)	Blended learning model formalized and structured by EU guidelines
Continuing Teacher Education	Specific actions via extension and projects; little national coordination	Continuous digital certifications; national policies aligned with DigCompEdu
Integration between Policy and Practice	University autonomy; lack of central coordination	Multilevel coordination: EU → Ministry → University
Internationalization and Cooperation	Occasional participation in international projects	Active participation in networks (Erasmus+, ENQA, EUA) with faculty mobility and structured exchanges
Promotion of innovation with DICTs	Institutional projects (e.g., Open Educational Resources, workshops, UFRGS Virtual)	Institutional culture focused on digital pedagogical innovation with continuous support
Axis of Analysis	Brazil (UFRGS)	European Union (BBU/Romania)
Funding for training with DICTs	Variable and unstable resources, dependent on specific calls for proposals or policies	Systematic funding via European programs (Erasmus+, Horizon Europe, structural funds)
Teacher evaluation with a digital focus	Evaluation based on traditional criteria; few digital metrics	Assessment based on digital skills and pedagogical innovation (tools like SELFIE)
Institutional impact of policies	Internal variations between courses; relevant but scattered initiatives	Standardization of practices, monitoring of results, and digital goals
Main challenges	Political discontinuity, digital inequality, resistance to change	Bureaucratization of reports, adaptation to local diversity, balance between innovation and standardization

4.3 INDICATORS AND QUANTITATIVE DATA ON DICTS IN TEACHER TRAINING

A quantitative analysis of institutional indicators available on the institutional websites provides insights into the extent to which Digital Information and Communication Technologies (DICTs) are implemented in

teacher training, as well as their relationship with the curriculum, technological infrastructure, and the scope of training policies. Below are comparative data between the Federal University of Rio Grande do Sul (UFRGS) in Brazil and Babes-Bolyai University (BBU) in Romania.

Table 6. Number of Courses and Enrollments in Teacher Training

Indicator	UFRGS (2023)	BBU (2023)
On-site Bachelor's Degree Courses	17 courses	23 courses
Enrollments in teacher training courses	5,450 (undergraduate + postgraduate) ¹	7,800 (undergraduate + postgraduate) ²
Continuing education courses focused on DICTs	12 courses per year (extension and distance learning) ³	+40 certified courses annually ⁴
Stricto sensu graduate programs in the area of Education/Technology	3 programs (PPGEDU, PPGIE, PPGEPI)	5 master's/doctoral programs in digital and pedagogical education

Source: <https://www.ufrgs.br/site/> , <https://www.ubbcluj.ro/>

Table 7. Digital Platforms Used

Platform/Resource	UFRGS	BBU
Virtual Learning Environment (VLE)	Moodle (UFRGS Virtual)	Moodle, MS Teams
Digital Library	BDTD + LUME Repository	Central Library + eLIBRARY.ro
Synchronous Tools	Webconf, Zoom, MConf	Microsoft Teams, Zoom
Production of OER (Open Educational Resources)	Yes, via isolated projects	Yes, with institutional guidelines and own repositories
Digital certification platforms	Not institutionalized	Yes – internal platform based on DigCompEdu

Table 8. Technology and Infrastructure Indicators

Indicator	UFRGS	BBU
Educational computer labs	7 in operation in education/teaching degree programs	+15 digital teaching centers on various campuses
Teachers with specific training in DICTs	39%	68%

Indicator	UFRGS	BBU
Average annual investment in digital infrastructure (last 3 years)	R\$ 3.2 million (estimated) ⁷	€1.5 million ⁸
Access to devices for students (institutional loan)	Yes, but limited to projects and public notices	Yes, with permanent loan programs for low-income students

Sources and Notes

1. Data extracted from the UFRGS Institutional Development Plan (2022-2026)⁴⁶
2. BBU Annual Report (2023)
3. Data from PROEXT and SEAD/UFRGS
4. BBU Continuing Professional Development Program (institutional website)
5. Internal PPGIE/UFRGS survey (2022)
6. BBU institutional survey based on DigCompEdu Selfie (2023)
7. Estimate based on PROPLAN/UFRGS data (2021-2023)
8. Data from the Erasmus+ Report and EU funding for BBU

Although both universities have evolved in the adoption of digital platforms and teacher training focused on DICTs, the results reveal significant differences in capillarity, institutional investment, **and** systemic integration. BBU stands out for the number of courses with digital certification, the consistency of platforms, and alignment with European policies, while UFRGS, despite being a national reference, still depends on decentralized initiatives and faces challenges in funding and faculty adherence. Based on the same data sources, we provide the comparison tables below:

Table 9. Teacher Training – Courses and Enrollments

Indicator	BR UFRGS	EU BBU
Bachelor's Degree Courses	17	23
Enrollments in Teacher Training	5,450	7,800
Continuing education courses focused on DICTs	12/year	40+/year

⁴⁶Federal University of Rio Grande do Sul, *Institutional Development Plan (PDI) 2022-2026*, Porto Alegre: UFRGS, 2021 [<https://www.ufrgs.br/proplan/pdi/>], 01 November 2025.

Table 10. Platforms and Technologies

Resource	UFRGS	BBU
AVA Platform	Moodle (UFRGS Virtual)	Moodle, MS Teams
Digital Teaching Certification	✗ Absent	✓ Institutionalized
Production of REAs	✓ Occasional	✓ Systematized
Synchronous tools	Webconf, MConf, Zoom	Teams, Zoom

Table 11. Infrastructure and Investment

Indicator	UFRGS	BBU
Digital Laboratories	7	15
Teachers trained in DICTs	39	68
Annual digital investment	R\$ 3.2 million	€1.5 million
Device loan program	Partial	Permanent

Icon legend (for visual design):

✓ Established practice ; ✗ Absent ; ⚠ Under development

4.4. CONVERGENCES AND DIVERGENCES: UFRGS (BRAZIL) AND BABES-BOLYAI UNIVERSITY (ROMANIA)

A comparative analysis between the Federal University of Rio Grande do Sul (UFRGS) in Brazil and Babes-Bolyai University (BBU) in Romania reveals both significant similarities and differences in terms of teacher training mediated by DICTs. These institutions operate under different legal frameworks and respond to different political and economic contexts, but they share the common challenge of preparing teachers to work in a complex and constantly changing digital educational reality.

Below we provide a comparative table with key elements that highlight these convergences and divergences, based on institutional documents, curriculum guidelines, and observed practices.

Table 12. Comparison – Convergences and Divergences

Element	UFRGS (Brazil)	BBU (Romania)	Comparison
Educational Objectives	Develop teaching and pedagogical skills with specific technological mediation	Develop integrated and certified digital teaching skills	✓ Partial convergence

Element	UFRGS (Brazil)	BBU (Romania)	Comparison
Teaching Methodologies	Face-to-face classes with increasing use of AVA and hybrid activities	Blended learning model with systematic curriculum integration	□ Moderate divergence
Technological Resources	Moodle (UFRGS Virtual), Webconf, educational computer labs	Moodle, Teams, institutional Open Educational Resources, curated digital repositories	✓ Convergence
Continuing Education	Extension projects and individual courses on DICTs; no unified national policy	Regular digital certifications based on DigCompEdu	✗ Significant divergence
Teacher Evaluation	Traditional criteria: performance evaluation with a pedagogical focus	Assessment based on digital skills and innovation (SELFIE, DigCompEdu)	✗ Significant divergence
Production of OER	Encouraged by specific projects, but without a formal policy	Institutionalized, with its own platform and encouragement of authorship	□ Moderate divergence
Technological Infrastructure	Expanding, with inequalities between units	Extensive, standardized, funded by EU programs	✗ Significant divergence
Alignment with external policies	Follows national guidelines (BNC-Training, PNE); little international coordination	Aligned with DigCompEdu and the Bologna Process, with clear digital goals	✗ Significant divergence
Teaching autonomy	High, but with no unified digital policy	High, within a well-defined digital regulatory framework	✓ Convergence
Digital institutional culture	Consolidating, with resistance from part of the teaching staff	Strongly established, with incentives for innovation and continuous training	✗ Significant divergence

We can observe that the convergences are concentrated on the used technological resources and on the teachers' autonomy for innovation, although this autonomy occurs in very different normative contexts. The divergences, on the other hand, are accentuated in the continuous education

policies, teacher evaluation practices, alignment with digital frameworks, and the degree of institutionalization of digital culture.

While UFRGS advances through decentralized projects, with an increased use of virtual environments and production of educational components, it still lacks a structured national model of digital teaching competencies. In contrast, BBU stands out for articulating its training practices with the goals of the European Union, operating with greater cohesion between policy, curriculum, and evaluation.

These findings reinforce the importance of considering not only the available resources but also the pedagogical models and policies that support the integration of DICTs, which is the critical issue for the consolidation of innovative and effective teacher training.

4.5. EXPANDED ANALYSIS: DICTS IN TEACHER TRAINING IN THE CONTEXT OF THE GLOBAL SOUTH AND THE BRICS

The analysis of quantitative and qualitative data on teacher training using Digital Information and Communication Technologies (DICTs), based on the experiences of the Federal University of Rio Grande do Sul (UFRGS) and Babes-Bolyai University (BBU), allows us to establish connections with broader debates on global educational asymmetries, especially between countries in the Global North and Global South, as well as between geopolitical blocks such as **BRICS** (Brazil, Russia, India, China, and South Africa) and the **European Union**.

Located in the Global South, UFRGS represents the advances and limitations of Brazilian public universities in contexts of budgetary constraints, political instability, and structural socioeconomic inequalities. Even though it is an institution of academic excellence, UFRGS faces the same challenges as other BRICS universities: irregular funding, dependence on public notices, lack of consolidated digital public policies, and poor coordination between national guidelines and pedagogical innovation with DICTs.

This reality aligns with the analysis of Altbach and Marginson⁴⁷, according to which universities in the Global South have technical and scientific capacity but operate under asymmetrical conditions of funding, infrastructure,

⁴⁷Philip G. Altbach; Simon Marginson, "The global asymmetries of higher education" in *International Higher Education*, 2014.

and normative influence, which limit their strategic performance in facing the demands of the knowledge-based society. The lack of a common reference framework for digital skills, such as the European DigCompEdu, accentuates these inequalities, hindering international mobility, the recognition of knowledge, and full integration into the geopolitics of knowledge.

Within the BRICS, countries such as China and India have made significant progress in digital education policies in recent years, especially through massive platforms (MOOCs, educational AI, large-scale e-learning), often with strong support from the state and large corporations. Brazil, on the other hand, has made localized technical and institutional advances, such as the ones observed at UFRGS, but lacks continuity and national coordination. At this point, a paradoxical situation becomes obvious: even with high human and academic potential, digital training actions remain fragmented and vulnerable to political fluctuations, as Diniz-Pereira⁴⁸ already warned when discussing the structural crisis of teacher training in Brazil.

In contrast, Babes-Bolyai University, located in Romania, is part of an educational system marked by the alignment with European digital integration goals, receiving continuous funding from the European Union and operating within transnational frameworks such as DigCompEdu, the Bologna Process and the ERASMUS+ program. This gives the institution normative stability, incentives for innovation, and standardization in teacher evaluation, elements that are absent or fragile in BRICS universities.

This comparison reinforces a dynamic of structural dependence in the Global South, in which Latin American, African, and some Asian countries not only import pedagogical and technological models from the North, but do so without necessarily adapting them to their socio-educational realities. As Santos⁴⁹ argues, there is a process of “*coloniality of knowledge*” that also manifests itself in educational technologies, when digital training policies are adopted without critical contextualization.

Therefore, comparative data show that the absence of a national framework for digital teaching skills in Brazil, the lack of stable funding, and the fragmentation of institutional practices limit the strategic advancement of universities in the Global South, even in the framework of relevant initiatives

⁴⁸Júlio Diniz-Pereira, “Teacher training in Brazil: limits and possibilities” in *Revista Brasileira de Educação*, n° 68, 2017.

⁴⁹Boaventura de Sousa Santos, *Beyond abyssal thinking: from global lines to an ecology of knowledge*, São Paulo: Cortez, 2010.

such as the ones developed by UFRGS. In contrast, universities in the Global North — including the ones in Eastern Europe aligned with the EU — operate with more integrated, predictable, and assessable policies, leading to a global scenario of asymmetries in teacher training for the digital age.

Overcoming this situation requires not only technical investment on the part of the BRICS countries and the Global South, but above all an autonomous political-pedagogical project that recognizes technologies as a field of cultural, epistemological, and educational advancement. The valorization of local references, the development of proprietary frameworks, the strengthening of regional networks, and sustainable public financing are strategic elements for reversing this logic of digital and curricular subordination.

Table 13. Comparison – Teacher Training Indicators with DICTs: BRICS vs. Global North (EU)

Indicator	Brazil / BRICS	Global North (EU)
National policy on digital teaching skills	✗ Absent or incipient (except China and India)	✓ Consolidated (e.g., DigCompEdu, TET-SAT, SELFIE)
Structured and continuous funding	□ Unstable and dependent on calls for proposals/political cycles	✓ Permanent programs (Erasmus+, Horizon Europe, national and regional education funds)
Continuous education for teachers with DICTs	□ Predominantly isolated actions, workshops, and institutional projects	✓ National policy with mandatory and progressive digital certifications
Digital infrastructure in universities	□ Expanding, with regional and institutional inequalities	✓ High coverage, institutional standardization and permanent technical support
Teacher evaluation with a digital focus	✗ Based on traditional pedagogical criteria; rarely considers digital skills	✓ Integrated with digital frameworks, with systems such as DigCompEdu and regular self-assessments
Curricular references on DICTs	□ Present across the board, but not systematized (e.g., BNC-Training mentions DICTs occasionally)	✓ DICTs structured in matrices of skills, content, and innovative methodologies
Production and use of Open Educational Resources OER	□ Encouraged occasionally; no consolidated national repositories	✓ Institutional OER policies, with dedicated funding and platforms

Indicator	Brazil / BRICS	Global North (EU)
University autonomy for innovation	✓ High, but without coordination with coherent national public policies	✓ High, with strong alignment between public policies, educational goals, and pedagogical autonomy
Participation in international networks	□ Occasional, via bilateral projects or specific calls for proposals	✓ Extensive and structured via mobility and transnational cooperation programs (Erasmus+, USA, ENQA)

Visual legend for use in infographics

Symbol Meaning

- ✓ Consolidated practice
- Under development / partially present
- ✗ Absent or weak

4.6. INTERNATIONALIZATION OF EDUCATION AND DIGITAL TEACHING CULTURE

The internationalization of higher education has expanded through strategies that do not necessarily involve physical mobility. In this context, the concept of internationalization at home (IaH) stands out, which, according to Stallivieri⁵⁰, “*seeks to ensure that all students, including those who do not participate in exchange programs, have access to internationalization experiences in their institutional environment*”. In this scenario, DICTs play a fundamental role in enabling transnational interactions, multilingual resources, and intercultural pedagogical practices.

The author also warns of the importance that this internationalization “*should not be restricted to symbolic or showcase activities*”, but rather be integrated into the curriculum, the institutional pedagogical plan, and teacher training policies⁵¹. By promoting the critical and contextualized use of DICTs in teacher training, institutions contribute to a more equitable, democratic, and inclusive internationalization.

⁵⁰L. Stallivieri, “Internationalization at home: challenges and possibilities for Brazilian HEIs” in Maria Beatriz Lima; Carla Regina Maranhão (eds.), *Internationalization of higher education: challenges and perspectives*, Belo Horizonte: UFMG, 2017, p. 51.

⁵¹L. Stallivieri, “Internationalization at home: challenges and possibilities for Brazilian HEIs” in Maria Beatriz Lima; Carla Regina Maranhão (eds.), *Internationalization of higher education: challenges and perspectives*, Belo Horizonte: UFMG, 2017, p. 54.

DICTs play a central role in this process by enabling synchronous and asynchronous activities, collaborations between institutions, access to multilingual learning objects, and participation in transnational research and teacher training networks. According to Altbach and Knight⁵², “*the internationalization of higher education is shaped by historical, cultural, and economic asymmetries, in which countries in the Global South often assume subordinate roles in networks of knowledge production and circulation*”.

These authors warn that, although internationalization brings benefits, it can deepen inequalities between academic centers and peripheries if it is not accompanied by policies of equity and horizontal cooperation.

From the perspective of the Global South, digital teaching culture should be understood as a field of dispute between hegemonic training models — often centered in the Global North — and alternative, more contextualized, and pluralistic proposals. As Diniz-Pereira⁵³ points out, “*teacher training needs to incorporate the epistemologies of the South, valuing local knowledge and transformative educational practices that dialogue with the historical and cultural realities of educators*”. This critical view proposes a digital teaching culture that is not limited to technological adaptation, but promotes the intellectual and pedagogical autonomy of teachers.

In the European context, Romanian authors have contributed to the understanding of the effects of digitization on teacher training and its relationship with the internationalization of education. Amid the rapid changes brought about by the pandemic, Romanian universities were challenged to develop digital training practices for teachers very rapidly. According to Vlad and Gheorghe⁵⁴, “*the success of digitization in higher education depended directly on the implementation of continuous teacher training programs adapted to the pedagogical challenges of virtual platforms*”. The good practices identified in this process reveal possible paths for more structured policies for a digital teaching culture.

⁵²Philip G. Altbach; Jane Knight, “The internationalization of higher education: motivations and realities” in *Journal of Studies in International Education*, n° 3-4, 2007, p. 290.

⁵³Júlio Diniz-Pereira, “Teacher training in Brazil: limits and possibilities” in *Revista Brasileira de Educação*, n° 68, 2017, p. 84.

⁵⁴S. Vlad; A. Gheorghe, “Digital transformation of Romanian higher education during the COVID-19 pandemic: the role of teacher training” in *Postmodern Openings*, n° 3, 2020, p. 32.

Babes-Bolyai University has invested in digital teacher training strategies aligned with European guidelines, especially after the COVID-19 pandemic.

As Dumitrașcu and Ciornei⁵⁵ analyze, “*Romanian universities faced the challenge of quickly adapting to digital pedagogical practices, revealing a gap in teacher training focused on the critical and creative use of technologies*”. These authors highlight the need to institutionalize digital culture policies for teachers in Romanian higher education. The comparison between UFRGS and BBU, therefore, highlights different stages and strategies of digital internationalization. While UFRGS has advanced in internationalization through specific projects and the use of platforms such as UFRGS Virtual, its performance still lacks a clear institutional policy for teacher training focused on internationalization at home. On the other hand, BBU operates within a framework of structured European cooperation, with stable funding, standardized frameworks, and strategic digital training actions with transnational reach.

Within this scenario, it is essential to rethink the role of DICTs in building critical and non-hegemonic internationalization, especially in countries of the Global South. This requires, as Jordão and Martines⁵⁶ point out, the strengthening of an internationalized curricula based on cognitive justice and respect for linguistic and cultural diversity. Far from being mere means, DICTs become political and pedagogical instruments for reinventing internationalization, with the potential to connect knowledge, territories, and plural teaching experiences.

5. FINAL CONSIDERATIONS

The comparative analysis between the Federal University of Rio Grande do Sul (UFRGS) in Brazil and Babes-Bolyai University (BBU) in Romania identified specific convergences and significant divergences in the use of Digital Information and Communication Technologies (DICTs) in teacher training. Both institutions recognize the strategic importance of digital technologies for

⁵⁵L. Dumitrașcu; S. Ciornei, “Digital pedagogy in romanian universities: adaptation and challenges” in *Journal of Educational Sciences & Psychology*, n° 2, 2022, p. 40.

⁵⁶Clarissa M. Jordão; Juliana Z. Martines, “Between the quotation marks of borders: internationalization as an agonistic practice” in Cláudia Hilsdorf Rocha *et al.* (eds.), *Perspectives on internationalization and political crisis scenarios: brazilian experiences in focus*, Campinas: Pontes, 2021.

contemporary education, but operate under different political, economic, and regulatory realities.

While BBU benefits from the educational policies integrated into the European Union space, such as DigCompEdu, with stable infrastructure, continuous funding, and systematized evaluation mechanisms, UFRGS — despite its academic excellence — operates in a context of political instability, discontinuity of public policies, and fragmentation in digital teacher training. The absence of a national framework for digital skills in Brazil compromises the coherence between curriculum, assessment, and professional development, requiring universities to assume, autonomously and in isolation, responsibilities that should be shared with the state.

This asymmetry reflects a geopolitical division in the field of education, where countries in **the Global North** consolidate digital policies with strong supranational coordination, while countries in **the Global South**, including those in the **BRICS** block, face structural challenges in integrating technologies into teacher training in a critical and sustainable manner. The analysis indicates that Brazil, like other BRICS countries, has relevant technical capacity and institutional experience, but still lacks stable public policies, continuous funding, and regulatory frameworks aligned with the challenges of the digital society.

In the field of teacher training, this inequality manifests itself in four main areas: (1) lack of national benchmarks for digital skills; (2) poor coordination between public policies and institutional practices; (3) funding vulnerable to macroeconomic instability; and (4) limited presence in international teacher training networks.

The geopolitical projection that emerges from this analysis suggests that, if they want to overcome their condition of epistemological and technological dependence, countries in the Global South will need to invest in building their own teacher and digital training frameworks, based on their cultural, linguistic, and pedagogical realities. This construction includes: strengthening sovereign educational policies; creating contextualized digital competency frameworks; continuous investment in educational technological infrastructure and expanding South-South regional partnerships, especially in the field of open educational resources and open science.

This study significantly contributes to the field of teacher training by offering an unprecedented comparative analysis between two universities from different geopolitical contexts — UFRGS (Brazil) and Babes-Bolyai University

(Romania) — with a specific focus on the integration of Digital Information and Communication Technologies (DICTs) in training processes. By articulating quantitative data, institutional policies, theoretical references, and legal frameworks, the research broadens the understanding of how teacher training models are conditioned by public policies, institutional cultures, and international agendas. In addition, the study reveals the importance of understanding digital teacher training not only as a technical dimension, but as a steady, critical, and strategic practice for strengthening the teaching profession facing the 21st century challenges.

The findings of this research point to the urgent need to restructure Brazilian public policies aiming at teacher training, with an emphasis on creating a **national framework of digital competencies** that dialogues with local and global realities. The absence of clear guidelines on DICTs in the BNC-Formação regulation, coupled with the fragmentation of continuous education initiatives, creates gaps that compromise the effectiveness of technological integration in pedagogical practices. The European experience, especially with the use of DigCompEdu and the alignment between policy and practice, offers important references — which, although should not be copied, can inspire contextualized adaptations in Brazil and other countries in the Global South. At the institutional level, the results suggest the need for internal policies to encourage pedagogical innovation, structured continuous education programs, and teacher evaluations that consider digital skills as part of teacher professionalization and educational quality.

This research opens up multiple avenues for future studies. We recommend conducting qualitative empirical research to deepen the understanding of pre-service teachers and trainers on the use of DICTs, both at UFRGS and at other Brazilian and international institutions. Expanded comparative studies involving other universities in the BRICS countries and the Global North could reveal broader and more complex patterns of asymmetries in digital teacher training. In addition, there is room for research on the impact of institutional digital policies on pedagogical practice in different areas of knowledge, as well as on the effectiveness of international frameworks (such as DigCompEdu) when applied outside the European context. Finally, we suggest the development of research that explores the **production of specific benchmarks for digital teaching skills in the Global South**, as a strategy for curricular decolonization and the strengthening of autonomous educational policies.

Ultimately, the digital transformation of teacher training is not only a technical challenge, but as well a matter of cognitive justice and pedagogical sovereignty. Overcoming the global digital divide requires Brazil and its BRICS peers to move from the logic of technological adaptation to the logic of critical and collaborative production of digital knowledge, based on a vision of teacher training as a strategic pillar of autonomous, inclusive, and sustainable development.

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