

CHALLENGES OF DOUBLE DEGREE BETWEEN UTFPR AND IPB IN TEACHER TRAINING

DESAFIOS DA DUPLA DIPLOMAÇÃO ENTRE UTFPR E IPB NA FORMAÇÃO DOCENTE

DESAFÍOS DE LA DOBLE TITULACIÓN ENTRE UTFPR E IPB EN LA FORMACIÓN DOCENTE



Elizane Maria de Siqueira WILHELM¹
e-mail: elizanew@utfpr.edu.br



Luiz Alberto PILATTI²
e-mail: lapilatti@utfpr.edu.br

How to reference this article:

WILHELM, E. M. S.; PILATTI, L. A. Challenges of double degree between UTFPR and IPB in teacher training. **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 19, n. 00, e024100, 2024. e-ISSN: 1982-5587. DOI: <https://doi.org/10.21723/riace.v19iesp.2.18481>



| **Submitted:** 15/09/2023
| **Revisions required:** 23/01/2024
| **Approved:** 12/03/2024
| **Published:** 06/09/2024

Editor: Prof. Dr. José Luís Bizelli
Deputy Executive Editor: Prof. Dr. José Anderson Santos Cruz

¹ UTFPR, Ponta Grossa – Pr - Brazil. Master in Planning and Public Governance, PhD student in the Postgraduate Program in Production Engineering (PPGEP).

² UTFPR, Ponta Grossa – Pr - Brazil. Full Professor at UTFPR, linked to the Postgraduate Program in Production Engineering (PPGEP).

ABSTRACT: The present study aims to understand the challenges of the Double Degree (DD) process between the Federal Technological University of Paraná and the Polytechnic Institute of Bragança in undergraduate courses focused on teacher training. This qualitative and exploratory work utilizes official documents and semi-structured interviews with institutional managers, experts in the DD process. The Content Analysis technique was applied to the collected data. It was observed that the cooperation between IPB and UTFPR in engineering is highly successful, possibly becoming the most significant recent DD partnership between Brazil and Portugal. However, the success achieved in engineering did not have a parallel in teacher training courses, mainly due to differences in educational systems. It was concluded that challenges in DD for teacher training between UTFPR and IPB include balancing differences in educational systems, aligning curricula, overcoming resistances, building trust, addressing graduation constraints, and ensuring legal compliance.

KEYWORDS: Double Degree. International Cooperation. Teacher Training. IPB. UTFPR.

RESUMO: *O presente estudo visa compreender os desafios do processo de Dupla Diplomação (DD) entre a Universidade Tecnológica Federal do Paraná e o Instituto Politécnico de Bragança nos cursos de graduação voltados para a formação docente. Este trabalho qualitativo e exploratório utiliza documentos oficiais e entrevistas semiestruturadas com gestores das instituições, especialistas no percurso da DD. A técnica de Análise de Conteúdo foi aplicada aos dados coletados. Constatou-se que a cooperação entre o IPB e a UTFPR nas engenharias é altamente bem-sucedida, tornando-se possivelmente a maior parceria recente de DD entre Brasil e Portugal. Contudo, o sucesso alcançado nas engenharias não teve paralelo nos cursos de formação docente, principalmente devido a diferenças nos sistemas educacionais. Concluiu-se que os desafios na DD para formação docente entre a UTFPR e o IPB incluem equilibrar diferenças nos sistemas educacionais, compatibilizar currículos, superar resistências, construir confiança, lidar com restrições de graduação e garantir conformidade legal.*

PALAVRAS-CHAVE: *Dupla Diplomação. Cooperação Internacional. Formação Docente. IPB. UTFPR.*

RESUMEN: *El presente estudio tiene como objetivo comprender los desafíos del proceso de Doble Titulación (DD) entre la Universidad Tecnológica Federal do Paraná y el Instituto Politécnico de Bragança en los cursos de pregrado orientados a la formación docente. Este trabajo, de naturaleza cualitativa y exploratoria, utiliza documentos oficiales y entrevistas semiestruturadas con los administradores de las instituciones, quienes poseen un amplio conocimiento del recorrido de la DD. La técnica de Análisis de Contenido se aplicó a los datos recopilados. Se observó que la cooperación entre el IPB y la UTFPR en ingeniería es altamente exitosa, posiblemente constituyendo la mayor asociación reciente de DD entre Brasil y Portugal. Sin embargo, el éxito logrado en ingeniería no tuvo paralelo en los cursos de formación docente, principalmente debido a diferencias en los sistemas educativos. Se concluyó que los desafíos en la DD para la formación docente entre la UTFPR y el IPB incluyen equilibrar las disparidades en los sistemas educativos, armonizar currículos, superar resistencias, construir confianza, abordar limitaciones de graduación y garantizar conformidad legal.*

PALABRAS CLAVE: *Doble Titulación. Cooperación Internacional. Formación Docente. IPB. UTFPR.*

Introduction

The increasing globalization and regionalization of economies and societies, combined with the acceleration of processes driven by digital technologies, have brought significant changes in the channels and modes of technology and knowledge transfer (Amaro De Matos; Pina e Cunha; De Berredo, 2022; OECD, 2017). In this dynamic context, Higher Education Institutions (HEIs) face the challenge of building development strategies aligned with current trends. This challenge requires the training of individuals capable of meeting the growing demand for intercultural skills and a wide variety of soft and hard skills necessary to face global challenges (De Oliveira *et al.*, 2020; OECD, 2017; Sitnicki, 2018). Among the various development strategies adopted by HEIs, internationalization emerges as one of the most prominent (Amaro De Matos; Pina e Cunha; De Berredo, 2022). Internationalization not only introduces elements of flexibility and innovation in educational institutions (Wit; Altbach, 2021), but also expands the scope of scientific and technological development (De Oliveira *et al.*, 2020). The strategy allows the construction of processes that can culminate in the transfer of technology between the HEIs themselves (De Moortel; Crispeels, 2018) and incorporates international concepts into students' curricula (Steagall *et al.*, 2021). In these terms, internationalization is not only a strategic challenge, but also a fundamental criterion in the evaluation of HEIs, playing a central role in educational, institutional and research growth (Robson *et al.*, 2022; Teixeira, 2022; Wit; Altbach, 2021). Initially carried out through individual activities, this trend evolved into organized international education programs, with emphasis on bilateral cooperation agreements (Wit; Altbach, 2021).

International Double Degree (DD) programs emerge as one of the most advanced and successful forms of international academic collaboration (Kompanets; Väättänen, 2019). These programs represent an attractive opportunity for students and HEIs to engage in transnational education (Nizamov *et al.*, 2021). Through DD, students have the opportunity to develop essential skills, such as managing cultural differences, experience in different educational systems and strengthening their international networks. The entire process enriches your learning and increases your chances of employability (Nizamov *et al.*, 2021; Steagall *et al.*, 2021). On the other hand, HEIs can expand their international presence, share best practices in teaching, research and extension, explore efficiencies, share resources and foster research and publications (Nizamov *et al.*, 2021).

In this context, a DD program is established through an agreement signed by two institutions which, at the end of the program, grant the student to obtain two diplomas, one from

each institution, the issuance of which is the individual responsibility of each granting institution (Palermo; Bisignano; Mercado, 2018).

In Europe, the Bologna Process and its ramifications, such as the creation of the Erasmus mobility platform and the Horizon Research Program, which are also available to institutions outside the European Union (Amaro De Matos; Pina e Cunha; De Berredo, 2022; Wit; Altbach, 2021), were crucial to reducing transnational and international barriers in the organization of academic study (Wit; Altbach, 2021). They played a key role in promoting academic mobility and building partnerships for DD programs.

This set of actions promoted quality standards and implemented accreditation and mobility tools, facilitating the recognition of diplomas and enabling the creation of a dynamic higher education market. This approach attracted the interest of institutions from different parts of the world (Amaro De Matos; Pina e Cunha; De Berredo, 2022). In addition to creating conditions to expand and intensify academic mobility on the European continent, this initiative boosted the international dimension of higher education, with significant impacts in Latin America, particularly in Brazil (Luce; Fagundes; Mediel, 2016).

The internationalization process of Brazilian universities became more evident with the Science without Borders Program. Between 2011 and 2016, the program granted 101,446 mobility grants (Brazil, sd). In the last decade, the Ministry of Education (MEC) encouraged the creation of international agreements and the publication of notices, with the aim of promoting and strengthening international mobility (Neves; Barbosa, 2020) In addition, the search for recognition and position in international university rankings has driven institutions to intensify their internationalization efforts (Righi Cechin, Ramond, Pilatti, 2023).

The partner institutions examined in this study are the Brazilian Federal Technological University of Paraná (UTFPR) and the Portuguese Instituto Politécnico de Bragança (IPB).

UTFPR is a century-old institution that became a university in 2005. Located in the state of Paraná, Brazil, it has 13 campuses in different cities, with approximately 2,500 teachers and around 35,000 students in 108 undergraduate courses, 49 master's courses (13 professional and 36 academics), nine professional master's degree centers on a national network and 14 doctoral courses, of which two are professional, distributed across 58 postgraduate programs (Utfpr, 2022).

UTFPR has internationalization as one of its strategic objectives, seeking to expand and strengthen this dimension to become a multicultural university aligned with global demands (Utfpr, 2018). The internationalization process at UTFPR began when the institution was still

a technical school, the Federal Center for Technological Education of Paraná (CEFET-PR), which already offered higher-level courses. This process began in the last decades of the last century through international partnerships aimed at technical and instrumental strengthening (Cichoski; Rubin-Oliveira, 2018).

Since the 1990s, several partnerships have been established with foreign universities, mainly in Germany and France, which involved the mobility of students and staff (Utfpr, 2018). Later, these partnerships were expanded to include institutions from Portugal, Italy, Spain, Japan and the United States (Tavares, 2016). In 2002, the institution's first DD agreement was signed, with the Université de Technologie de Compiègne (Righi Cechin; Ramond; Pilatti, 2023). From 2012 to 2015, through the Science without Borders Program, UTFPR sent more than 2,000 undergraduate students to around 100 universities in 23 countries (Cichoski; Rubin-Oliveira, 2018). The number of DD agreements continues to increase and represents a consolidated institutional policy (Lara *et al.*, 2021).

At the same time, IPB is made up of five schools, four of which are located on the Bragança Campus and one in Mirandela. The institution offers a total of 44 Bachelor's degrees, equivalent to Undergraduate courses in Brazil, in addition to 36 Master's courses and 43 Higher Professional Technical Courses. It currently has approximately 400 teachers and more than 10,000 students (IPB, 2022a). Internationalization is an important facet of IPB, not only at the European level, but also through partnerships with Portuguese-speaking countries (Lievore; Pilatti; Bilynkievycz, 2022).

At IPB, internationalization, especially with regard to mobility and DD, is in line with the European Higher Education Area. This is promoted by the Bologna Process, the Erasmus Program and the European Credit Transfer and Accumulation System (ECTS), which seek to guarantee equitable access to education (IPB, 2022c; Rueda; Lima, 2016). These initiatives not only facilitate mobility between European countries, but also challenge paradigms within the country's own educational institutions, positively impacting each institution, department and course (Lievore; Pilatti; Teixeira, 2022).

Since 1999, with the Bologna Declaration, Portuguese institutions, including IPB, have stood out in expanding mobility, with a significant increase in the number of students studying abroad and those entering the country (Sin; Tavares; Neave, 2017). IPB, as a reference among Portuguese polytechnics, plays an important role in this context, being a protagonist in the internationalization scenario of higher education in Portugal (Teixeira, 2022).

The topic of Double Degree has been widely studied (Kompanets; Väättänen, 2019; Obst; Kuder, 2015; Ramírez-Adrados *et al.*, 2022; Steagall *et al.*, 2021), including the partnership between IPB and UTFPR (Centenaro, 2019; De Souza, 2020; Lievore; Pilatti, 2022), but no study focused on the process and, in particular, on degrees.

Despite the differences in higher education systems between countries, these two institutions established a partnership that overcame the discrepancies and difficulties encountered during the process. Together, they developed what can be considered one of the largest, if not the largest, DD program between Brazil and Portugal in the area of engineering. However, both institutions offer a limited number of places for teacher training, and, for these courses, it has not yet been possible to achieve complete integration. In this gap, the objective of this article is to understand the challenges of the DD process between UTFPR and IPB in undergraduate courses aimed at teacher training.

Methods

This research, of a qualitative and exploratory nature, is characterized as documentary due to the technical procedures adopted. This qualitative approach allows for an in-depth understanding of the phenomena under study, while the exploratory nature allows for an open and flexible exploration of the research questions.

The main objective of this research was to answer the following question: What are the obstacles to implementing the DD process between IPB and UTFPR in undergraduate courses aimed at teacher training?

To achieve this objective, a research corpus was created consisting of documents and semi-structured interviews. The documents included in the corpus cover relevant legislation, institutional reports and information available on the websites of the researched universities, accessible on the world wide web. The interviews were conducted with representatives from IPB, UTFPR and a representative of the student body.

To create the sample of interviewees, specific inclusion criteria were adopted. The selected participants worked or still work in the management of institutions and have extensive knowledge of the path of DD in the institutions examined. In the case of the student, the one who participated in the DD process among the institutions examined was selected. To determine the sample size, we used the technique known as snowballing, which is based on the indication

of new participants by the original interviewees until a point of saturation of the information collected is reached (Vinuto, 2014).

The semi-structured interviews were conducted virtually, through the Web Conferencing Platform (WebConf) of the Brazilian government's National Education and Research Network (RNP), during the months of October and November 2022. The initial interview script went through a pre- test, with a pilot interview. The interview was conducted with a UTFPR manager who was familiar with the unfolding process, but was not chosen for the interview due to his lack of direct involvement in the negotiations of the agreements. After the pre-test, it was not necessary to make substantial changes or revisions to the interview items, but only minor wording adjustments were made to ensure that the questions were phrased in a clearer and more understandable way for the participants. The procedures adopted in the pilot interview were identical to those of subsequent interviews. The pilot interview was conducted on 10/10/2022 and lasted 43 minutes. The questions were grouped into previously defined analysis categories, which include international cooperation, DD, curriculum and graduation for teacher training.

For this study, seven interviews were conducted, one given by a representative of IPB (E6, 2022), five by representatives of UTFPR (E1, E2, E3, E4, E7, 2022) and one by a student representative of IPB- UTFPR (E5, 2022). The length of the interviews varied between 23 minutes and 16 seconds and 58 minutes and 53 seconds, with an average of 38 minutes and 57 seconds. The interviews were carried out in October and November 2022.

The interviews were conducted according to the availability of the interviewees. All interviews were recorded on the platform used and later transcribed in full. The transcriptions underwent careful editing, focused mainly on grammatical adjustments to the written language, without changing the content relevant to the research. To identify the interviewees and guarantee confidentiality, the letter "E" was used in capital letters, followed by the respective number.

The organization and analysis of data collected in the interviews followed the Content Analysis approach proposed by Bardin (2011). The process was guided by the prescribed steps of this method: data organization, coding, categorization and analysis itself. During data organization, the material was explored and a pre-analysis was carried out, which involved editing and organizing the interviews. In the coding stage, registration units were created and enumeration rules were established. The interview responses were categorized using a grouping that considered criteria of mutual exclusion, productivity, homogeneity, relevance, objectivity

and fidelity. During the analysis, the data was explored based on the categories generated from the coding. Fragments of the interviews were selected to illustrate the research.

Results and discussion

Strategic cooperation for Dual Degrees: the vision of IPB and UTFPR

For IPB, the construction of bilateral cooperation outside the European context represents a strategic objective, based on the opportunity provided by the existence of almost 300 million Portuguese speakers (IPB, 2022d). Based on this observation, in just over a decade, a cooperation network was established between IPB and more than 50 Brazilian universities, institutes and colleges (IPB, 2022a; Teixeira, 2022). This network, at the beginning of the 2020s, already represented an annual mobility of around 400 students (Teixeira, 2022). The model designed, according to interviewee E7, sought to “build a program that would have an impact on students, which it obviously does. Which, in addition to adding value to students with international impact, allows them to enhance their CV and expand their professional opportunities”.

In the context of UTFPR, international cooperation activities are fundamental to achieving the institution's objective of becoming a world-class university (UCM) (Utfpr, 2017). With this vision, the promotion and expansion of undergraduate and postgraduate DD agreements with higher education institutions in other countries have become institutional strategic objectives. In the last decade, the number of agreements in force to carry out DD increased from one in 2013 to 48 in 2021 (Utfpr, 2022).

Among the agreements established, cooperation with IPB stood out as a strategic partnership (Utfpr, 2017, 2023). This partnership enabled rich learning, based on the Portuguese experience in the construction of DD projects in the post-Bologna period and on the mobility tools and best practices of the Erasmus Program (E1; E2, 2022). According to interviewee E1:

Through cooperation with IPB and the lessons learned from the construction of DD agreements with this institution, UTFPR opened itself to a change of mentality, which combined the global ambition of becoming UCM, with the search for academic excellence (E1, 2022, our translation).

Although there are no official numbers that consolidate the total number of Brazilian or Portuguese students who obtained DD with foreign institutions, the results of the cooperation between IPB and UTFPR allow representatives of both institutions to affirm that this is, without

a doubt, one of the largest, if not the largest, DD agreement between Brazil and Portugal (E1; E2; E6; E7, 2022). E7 states that “The partnership between UTFPR and IPB culminated in one of the most successful Double Diploma cases in which Brazil is part, perhaps the largest of them”. In the words of E2, “In terms of DD, UTFPR should still be the champion in the Federal Education Network, in terms of numbers, mainly due to the partnership with IPB, possibly the largest partnership signed by a Brazilian HEI to date”. Of the 1197 students registered on the IPB DD Platform from 2014 to 2022, 626 are from UTFPR (E6, 2022).

The cooperation between IPB and UTFPR in engineering became unique not only due to its success, but also because it brought together higher education institutions that, although they share the same profile and objective, are prominent international educational institutions, although they have different concepts very different educational systems and legislation. The result of this IPB-UTFPR partnership rescues the thesis of the importance of organizational diversity presented by (Beerkens; Derwende, 2007), in which, to be successful in cooperation, partners need to be similar, but different. Even with differences, there must be a sufficient degree of compatibility and correlation so that partners can complement each other (Beerkens; Derwende, 2007).

On the UTFPR side, efforts were needed to overcome regulatory obstacles, adapt documents and guidelines, and be open to modifying practices and processes (E1; E2; E4, 2022), according to E2 “the first step was to change the regulations, we started to change the way of calculating the workload, without necessarily using face-to-face classes, as is done abroad”; “Changes were made regarding the entry of courses to provide reciprocity to Portuguese students who came here”.

According to E4 “Adjustments were made to the procedures of the academic departments to adapt the existing system to the model required by DD”; Furthermore, “a term of agreement was defined that precedes the student's departure and must be fulfilled by him with the partner institution, and accepted, in its entirety, by UTFPR upon his return”. E1 highlighted the carrying out of “publicity and incentive work with UTFPR departments, as well as adaptation of institutional documents and processes”.

In other words, this effort included the adaptation of academic systems to internationalize documents (Utfpr, 2016), the flexibility and compatibility of curricula, with an emphasis on practical activities as curricular components of undergraduate courses (Utfpr, 2017) and the creation of documents that supported the scope and formalization of the DD (Utfpr, 2018). On the IPB side, aware of the differences and perceptions in relation to Brazilian

curricula, there was a strong willingness to be flexible to assist and contribute to the best possible alignment in the construction of DD agreements (E1; E2, 2022).

A word that is emphasized in all interviews and deserves to be highlighted is “confidence”. Considered the main ingredient in joint work (Rosyidah; Matin; Rosyidi, 2020), trust stood out as a predominant factor in the success of IPB-UTFPR International Cooperation. This perception is corroborated by the statement from interviewee E6 who highlights:

[...] there was a mutual understanding that we have to recognize the value of the institutions, considering that both went through the scrutiny of national evaluation, accreditation and quality assurance systems. Therefore, although the paths to applied learning are often different, we understand that the end is the same, and we achieve as a result the training of good professionals (E6, 2022, our translation).

Based on mutual trust, IPB and UTFPR used their diverse approaches and experiences throughout their trajectories as catalysts in the development of the DD process. These strategic tools, according to Kompanets and Väättänen (2019), increase the value and benefits of cooperation, contributing to internationalization. This partnership is an example of this scenario.

The educational systems of IPB and UTFPR differ considerably. In Brazil, undergraduate courses generally fall into broad areas of knowledge or offer professional training of a broader nature (Neves; Barbosa, 2020; Santos; Mororó, 2019). With durations ranging from 2 to 6 years, granting bachelor's, licentiate's and technology degrees (Brazil, 2015). On the other hand, Portugal, as a member of the European Union, adopts the Bologna Process, which organizes higher education into three cycles: 1st cycle - bachelor's degree lasting three years, 2nd cycle - master's degree lasting two years and 3rd cycle - doctorate lasting 3 to 4 years (European Commission, 2017). To establish DD agreements, IPB and UTFPR needed to balance the differences between their educational systems, which required recognition of student achievements at both institutions (E6, 2022).

The construction of agreements for the granting of DD between IPB and UTFPR involves course coordinators from both institutions who carry out a prior reconciliation of the undergraduate curricular programs at UTFPR with the undergraduate and master's programs at IPB, corresponding to the desired training. (E6, 2022). The program resulting from this process is reviewed and approved by professors from both institutions, being a fundamental requirement for obtaining the DD (E2; E3; E4; E6, 2022). Student mobility occurs in the last academic year, during which they attend curricular units that complement both curricula, carry out course

completion work and internships, as well as master's theses, always under the joint guidance of professors from both institutions (Teixeira, 2022).

The DD project between IPB and UTFPR was designed to promote not only mobility, but also a collaborative relationship between professors from both institutions, seeking to internationalize this cooperation (E1; E6, 2022). The accreditation of master's credits at IPB to obtain the DD resulted in joint co-supervision projects, which often extend beyond the initial objectives of the DD agreement.

These collaborations often lead to scientific partnerships between teachers and researchers, expanding the scope of the original project (E2; E6, 2022). Additionally, this international collaboration had a positive impact on UTFPR's postgraduate courses, "contributing to significant improvements during the quadrennial evaluation carried out by the Coordination for the Improvement of Higher Education Personnel (CAPES) in the period from 2017 to 2020" (E7, 2022). Over time, the institutions began to share teaching resources, with professors from IPB and UTFPR teaching courses together, in person or virtually, in addition to promoting joint notices for research (E2; E6, 2022).

The results achieved through the DD between IPB and UTFPR highlight the success of this partnership. Between 2014 and 2022, 626 co-supervisions, 208 indexed joint publications and 124 joint communications were registered. The agreements established between 13 IPB courses and 18 UTFPR courses resulted in the participation of more than 630 students in DD programs (E6, 2022). These numbers highlight the innovative nature of this DD, which promotes the integration and complementation of different teaching systems and training experiences between two institutions with such different profiles and located on different continents (Nizamov *et al.*, 2021). Overcoming the differences between educational systems was a complex but essential task (E1; E2; E6, 2022). The implementation of DD agreements required the implementation of the concept of interdisciplinary education and the development of relevant skills (Nizamov *et al.*, 2021). IPB and UTFPR courses are not identical, not only in terms of duration, such as, for example, a Civil Engineering course that lasts 5 years in Brazil and 3 + 2 years in Portugal (E2; E3; E4, 2022), but also due to differences in subjects, workload, number of subjects, legislation and regulations (E6; E7, 2022). Overcoming these differences was a challenge that needed to be faced (E2; E3; E4; E6, 2022).

Successes and Challenges in the Implementation of Double Degree between UTFPR and IPB

UTFPR faced significant challenges in successfully implementing DD, including the need for curricular flexibility and the promotion of independent and autonomous study practices among students. In Brazil, there is still no consolidated culture in making curricula versatile. According to E2 (2022, our translation), “the country still produces rigid curricula, with an education system that prioritizes content, resulting in a significantly higher workload in the classroom compared to practical hours”.

As in Europe, UTFPR has adopted a successful approach, reformulating its curriculum structure to focus on student workload rather than simply seeking content equivalence. This meant “prioritizing the compatibility of learning outcomes” (E6, 2022). Only when this barrier was overcome could DD be implemented on a large scale. This change made it possible to overcome challenges, such as the resistance of some UTFPR course coordinators towards students who came to DD in Brazil and were forced to take almost the entire course again (E1; E2; E3 and E7, 2022).

One approach adopted consisted of defining a specific period to adapt compatibility with the particularities of the Brazilian curriculum, covering aspects such as curricular structure, flexibility, mobility, and workload calculation, both in practical and theoretical activities (E7, 2022, our translation).

In this process, the construction of the necessary curriculum for DD between IPB and UTFPR highlighted the importance of focusing on student training, allowing various forms of learning, such as individual and group study, projects and internships with companies. This approach must be meticulous and open to appropriate interpretations of the disciplines, while allowing flexibility in educational paths, recognizing that different paths can lead to the same degree (Wit; Altbach, 2021).

In Brazil, the Education Guidelines and Bases Law (LDB) grants autonomy to universities to decide on their curricula, respecting the regulations of specific councils (Brazil, 1996). By adopting university autonomy as a guideline, UTFPR sought to create personalized training for its students, allowing the transfer and accumulation of credits. This resulted in the flexibilization of curricula, allowing diplomas to no longer necessarily need to include 100% of all the institution's curricular units, but rather a sum of the curricular units completed by the student, with a higher percentage in the institution of origin (E2; E6, 2022).

Unlike Brazil, where the term "degree" generally refers to the training of educators, in Portugal, the term refers to the first academic degree obtained after completing a 1st cycle of higher studies, equivalent to an undergraduate degree in Brazil (E6, 2022). Therefore, in this study, we chose to adopt the term "teacher training" to refer to the degree focused on the training of educators, both in Brazil and in Portugal.

The way in which IPB and UTFPR overcame curricular differences in engineering, resulting in the joint training of more than 630 students, can serve as a model for other higher education institutions. However, although both institutions offer teacher training courses, there are still barriers to be overcome to establish DD agreements in these courses.

According to the 2009-2019 Higher Education Census, UTFPR is the Federal University that offers the most places for undergraduate courses in the State of Paraná, offering 1623 places per year, in 27 courses, distributed among the institution's 13 campuses (Brazil, 2021). The institution's focus is on degrees in the area of exact sciences (E7, 2022), in which UTFPR offers places for courses in Biological Sciences, Physics, IT, Interdisciplinary in Natural Sciences, Interdisciplinary in Rural Education, Literature, Mathematics and Chemistry (Brazil, 2021).

In Portugal, Polytechnic Institutes are essentially dedicated to training teachers for primary education. IPB offers 308 undergraduate places for courses in Basic Education, Environmental Education, Social Education, Sports, Foreign Languages: English and Spanish (IPB, 2022b), as well as offering places in specific and mandatory master's programs for teacher training. Furthermore, the Basic Education Research Center, integrated into the IPB Higher Education School, allows researchers from different areas who are interested in the topic to carry out investigations applied to the specificities of basic education, also counting on the collaboration of students (E6, 2022).

As with engineering degrees, Brazilian and Portuguese teacher training degrees also present dissimilarities (E3; E6, 2022). In the Portuguese model, for the initial training of teachers, the Basic Law of the Educational System (LBSE) separated the training bodies, having as a criterion the level of performance of future teachers (Nunes; Nunes, 2013; Portugal, 1986). This model constitutes a binary system with distinct training institutions, based on the objectives they propose in teacher training (Neves, 2020; Nunes; Nunes, 2013). The Polytechnic Institutes, through the Higher Education Schools (ESEs), are responsible for training teachers for early childhood education and teachers for the 1st and 2nd cycles of basic education (1st to 6th year). Universities are responsible for training teachers in the 3rd cycle of

basic education (7th, 8th and 9th year) and secondary education (Portugal, 1986; Ramos *et al.*, 2016).

In Portugal, following the Bologna Process, professional training for teachers is achieved for all levels of education (early childhood education, 1st, 2nd and 3rd cycle of basic education) with the achievement of a master's degree (Neves, 2020). In this way, there is a sequential and two-stage initial training, which begins with generalist, basic training and, in the subsequent stage, develops in a more specialized, more professional way (Nunes; Nunes, 2013). For teaching in any of the cycles of Portuguese basic education (infant, 1st, 2nd and 3rd), there is a limitation in the choice of degrees (Neves, 2020), making it impossible, for example, for an engineer, even after a specialization in teaching, to, can teach mathematics, physics and chemistry subjects, as in Brazil (E6, 2022).

In Brazil, legislation allows teacher training to be offered by various institutions, including degrees (for example, pedagogy, mathematics, Portuguese, chemistry, biology, physics) that enable teachers to work at all levels of basic education, from pre- -school to primary education I, II and secondary education, as well as Pedagogical Training courses for holders of bachelor's degrees who wish to teach in primary education II and secondary education (Brazil, 1996). Brazilian educational legislation is more flexible, responding to social and economic changes (Suficier; Azadinho; Muzzeti, 2020).

The successful implementation of DD, in engineering courses, between IBP and UTFPR represents an important milestone in the search for academic training that is more flexible and adaptable to the needs of students. Overcoming challenges such as curricular flexibility and promoting student autonomy were essential to this success. By focusing on learning outcomes and compatibility between curricula, institutions offered an enriching experience to students, regardless of their academic backgrounds. The flexibility of curricula and the commitment to personalizing training, in accordance with university autonomy and Brazilian educational legislation, reflect UTFPR's adaptability to the demands of society. However, the implementation of DD in teacher training courses still faces significant obstacles, highlighting the intricate nature of this process. These challenges include specific restrictions related to DD in degrees and teacher training, such as difficulties in curricular harmonization, overcoming differences in educational systems, and the need to deal with specific regulations in each country. These limitations reflect the complexity involved in DD processes, especially when it comes to programs aimed at training educators.

Conclusion

The partnership between IPB and UTFPR demonstrates that international cooperation in education is possible, even when institutions have different approaches and educational systems. The key to success is mutual trust, flexibility and commitment to improving academic training. This experience serves as a valuable model for other institutions seeking to promote internationalization and flexibility in their educational programs, facing and overcoming challenges along the way.

The challenges in the DD between IPB and UTFPR in teacher training include: balancing differences in the educational systems of Brazil and Portugal, involving flexibility of courses in Brazil and study cycles defined in Portugal; make undergraduate curricula compatible, requiring reconciliation between institutions and review by professors; make UTFPR's curricular structure more flexible, prioritizing compatibility of learning outcomes and allowing transfer of credits; overcome resistance from course coordinators towards DD students; build mutual trust between institutions as a key factor for success; deal with restrictions in choosing undergraduate courses for teacher training in Portugal; comply with different educational legislation regulations in both countries; and the need for continuous adjustments and constant collaboration to maintain and expand DD.

REFERENCES

- AMARO DE MATOS, J., PINA E CUNHA, M., DE BERREDO, R. F. Leading university internationalization: the future of Euro-Chinese academic cooperation. **European Journal of Education**, v. 57, n. 1, p. 65–77, 2022. Available at: <https://doi.org/10.1111/ejed.12490>. Access: 29 Aug. 2023.
- BARDIN, L. **Análise de Conteúdo**. Tradução: Luís Antero Reto e Pinheiro. (ed.); 3^a). Almedina Brasil, 2011.
- BEERKENS, E.; DERWENDE, M. The paradox in international cooperation: Institutionally embedded universities in a global environment. **Higher Education**. v. 53, n. 1, p. 61-79, 2007. Available at: <https://www.jstor.org/stable/29735042>. Access: 04 Sept. 2023.
- BRASIL. **Lei nº 9.394, de 20 de Dezembro de 1996**. Estabelece as diretrizes e bases da educação nacional. 1996. Available at: http://www.planalto.gov.br/ccivil_03/leis/19394.htm. Access: 04 Sept. 2023.
- BRASIL. **Resolução CNE/CP nº 2, de 1º de Julho de 2015**. Define as Diretrizes Curriculares Nacionais para a formação inicial em nível superior (cursos de licenciatura, cursos de formação pedagógica para graduados e cursos de segunda licenciatura) e para a

formação continuada. Brasília, DF: MEC, 2015. Available at: https://normativasconselhos.mec.gov.br/normativa/view/CNE_RES_CNECPN22015.pdf?query=LICENCIATURA. Access: 04 Sept. 2023.

BRASIL. Ministério da Educação. **Painel Universidade 360**. Brasília, DF: MEC, 2021. Available at: <https://www.gov.br/mec/pt-br/universidade360/painel-universidade-360>. Access: 04 Sept. 2023.

BRASIL. Ministério da Ciência, Tecnologia e Inovações. Conselho Nacional de Deenvolvimento Científico e Tecnológico. **Ciências sem Fronteira**, [S. d.] Available at: <https://www.gov.br/cnpq/pt-br/Accesso-a-informacao/acoes-e-programas/programas/ciencia-sem-fronteiras>. Access: 30 Aug. 2023.

CENTENARO, G. L. **Internacionalização de Instituições do Ensino Superior**: uma comparação de dados entre IPB e UTFPR. Orientadores: Paula Odete Fernandes e Aurea Niada. 2019. 83 f. Dissertação (Mestrado em Gestão das Organizações) – Instituto Politécnico de Bragança. Bragança, PT, 2019. Available at: https://bibliotecadigital.ipb.pt/bitstream/10198/22750/1/Centenaro_Giulia.pdf. Access: 28 Aug. 2023

CICHOSKI, P. B.; RUBIN-OLIVEIRA, M. Universidade em contextos emergentes: o processo de internacionalização da UTFPR. **Perspectiva**, Erechim, RS, v. 42, n. 160, p. 7–17, 2018. Available at: https://www.uricer.edu.br/rperspectiva/inicio_old.php?id_numero=85. Access: 03 Sept. 2023.

DE MOORTEL, K.; CRISPEELS, T. International university-university technology transfer: Strategic management framework. **Technological Forecasting and Social Change**, v. 135, p. 145–155, 2018. Available at: <https://doi.org/10.1016/j.techfore.2018.05.002>. Access: 30 Aug. 2023.

DE OLIVEIRA, G. X.; VESTENA, D.; RÖHRIG DA COSTA, C. R.; TRAVERSO, L. D.; SHOPRONI BICUETI, R. Internacionalização das universidades: estudo sobre a produção científica. **Gestão e Desenvolvimento**, v. 17, n. 1, p. 195–211, 2020. Available at: <https://www.redalyc.org/journal/5142/514262385013/514262385013.pdf>. Access: 30 Aug. 2023.

DE SOUZA, J. C. D. **Internacionalização da Educação Superior no Contexto da Formação Profissional**: o processo de dupla-diplomação do curso de administração da UTFPR e do Instituto Politécnico de Bragança. Orientadoras: Paula O. Frnandes e Giovana Pizarico. Dissertação (Mestrado em Gestão das Organizações, Ramo de Gestão de Empresas) – IPB. Bragança, 2020. Available at: <http://hdl.handle.net/10198/22690>. Acesso em 28 Aug. 2023.

EUROPEAN COMMISSION. **ECTS users' guide 2015**. London: Publications Office, 2015. Available at: <https://op.europa.eu/en/publication-detail/-/publication/da7467e6-8450-11e5-b8b7-01aa75ed71a1>. Access: 30 Aug. 2023.

IPB. **IES parceiras em países de expressão portuguesa e extracomunitários**. Relações Internacionais - Instituto Politécnico de Bragança. 2022a.

<https://portal3.ipb.pt/index.php/pt/gri/mobilidade-internacional>. Access: 03 Sept. 2023.

IPB. **Instituto Politécnico de Bragança - Cursos**. 2022b. Instituto Politécnico de Bragança. Available at: <https://portal3.ipb.pt/index.php/pt/guiaects/cursos>. Access: 04 Sept. 2023.

IPB. **Instituto Politécnico de Bragança - Mobilidade Internacional**. Instituto Politécnico de Bragança. 2022c. Available at: <https://portal3.ipb.pt/index.php/pt/ipb/estudar-no-ipb/mobilidade-internacional>. Access: 03 Sept. 2023.

IPB. **Plataforma de Empreendedorismo Empregabilidade e Inovação Formativa - Projeto DEMOLA**. Instituto Politécnico de Bragança. 2022d. Available at: <https://if.ipb.pt/>. Access: 04 Sept. 2023.

KOMPANETS, V.; VÄÄTÄNEN, J. Different, yet similar: factors motivating international degree collaboration in higher education. The case of Finnish-Russian double degree programmes. **European Journal of Engineering Education**, v. 44, n. 3, p. 379–397, 2019. Available at: <https://doi.org/10.1080/03043797.2018.1520811>. Access: 30 Aug. 2023.

LARA, L. de M.; PILATTI, L. A.; BILYNKIEVYCZ, C. dos S.; PEDROSO, B. Das escolas de aprendizes artífices à Universidade Tecnológica Federal do Paraná: percursos da educação tecnológica no Brasil. **Revista Tecnologia e Sociedade**, Curitiba, v. 17, p. 49-67, 2021. Available at: <https://periodicos.utfpr.edu.br/rts/article/view/14437>. Access: 03 Sept. 2023.

LIEVORE, C.; PILATTI, L. A.; TEIXEIRA, J. A. S. **Mobilidade estudantil internacional**. Curitiba: EDUTFPR, 2022. Available at: <http://repositorio.utfpr.edu.br/jspui/handle/1/29298>. Access: 30 Aug. 2023.

LUCE, M. B.; FAGUNDES, C. V.; MEDIEL, O. G. Internacionalização da educação superior: a dimensão intercultural e o suporte institucional na avaliação da mobilidade acadêmica. **Avaliação: Revista da Avaliação da Educação Superior**, Campinas, SP, v. 21, n. 2, p. 317–340, 2016. Available at: <https://doi.org/10.1590/S1414-40772016000200002>. Access: 30 Aug. 2023.

NEVES, C. E. B.; BARBOSA, M. L. de O. Internationalization of higher education in Brazil: advances, obstacles, and challenges. **Sociologias**, v. 22, n. 54, p. 144–175, 2020. Available at: <https://doi.org/10.1590/15174522-99656>. Access: 30 Aug. 2023.

NEVES, R. Ser Professor em Portugal: a problemática do Acesso à formação/profissão. **Revista de Estudo e Pesquisa em Educação**, v. 22, n. 2, p. 216–230, 2020. Available at: <https://doi.org/10.34019/1984-5499.2020.v22.30715>. Access: 31 Aug. 2023.

NIZAMOV, I. D.; NASIBULLOV, R. R.; OLEJNIKOVA, O. N.; GORYLEV, A. I. Algumas características da sistematização de Programas Internacionais Conjuntos de Ensino Superior. **Revista on Line de Política e Gestão Educacional**, Araraquara, SP, v. 25, n. esp. 1, p. 567–576, mar. 2021. Available at: <https://doi.org/10.22633/rpge.v25iesp.1.14997>. Access: 30 Aug. 2023.

NUNES, C. S. C.; NUNES, H. S. C. A formação inicial de professores em Portugal: hoje em dia, todo professor deve ser. **Educação em Perspectiva**, Viçosa, MG, v. 4, n. 1, p. 224–237,

2013. Available at: <https://periodicos.ufv.br/educacaoemperspectiva/article/view/6624/0>. Access: 04 Sept. 2023.

OBST, D.; KUDER, M. International Joint- and Double-Degree Programs. **International Higher Education**, v. 66, 2015. Available at: <https://doi.org/10.6017/ihe.2012.66.8585>. Access: 01 Sept. 2023.

ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD). **OECD Science, Technology and Industry Scoreboard 2017**. Paris: OECDiLibray, 2017. Available at: <https://doi.org/10.1787/9789264268821-en>. Access: 30 Aug. 2023.

PALERMO, O. A.; BISIGNANO, A. P.; MERCADO, S. The design of international dual degree programmes as effective transnational education experiences. In: TSILIGIRIS, V.; LAWTON, W. (ed.). **Exporting Transnational Education**. Cham: Palgrave Macmillan, 2018, p. 45-66. Available at: https://doi.org/10.1007/978-3-319-74739-2_4. Access: 30 Aug. 2023.

PORTUGAL. **Lei de Bases do Sistema Educativo**. Lei nº 46/86, Pub. L. No. Sério I de 1986-10-14, 3067 (1986). 1986. Available at: <https://dre.pt/dre/detalhe/lei/46-1986-222418>. Access: 01 Sept. 2023.

RAMÍREZ-ADRADOS, A.; FERNÁNDEZ-ELÍAS, V. E.; FERNÁNDEZ-MARTÍNEZ, S.; MARTÍNEZ-PASCUAL, B.; GONZALEZ-DE-RAMOS, C.; CLEMENTE-SUÁREZ, V. J.; The Effect of Studying a Double Degree in the Psychophysiological Stress Response in the Bachelor's Thesis Defense. **International Journal of Environmental Research and Public Health**, v. 19, n. 3, p. 1207, 2022. Available at: <https://doi.org/10.3390/ijerph19031207>. Access: 02 Sept 2023.

RAMOS, C. C.; FARIA, E.; RAMOS, F.; RODRIGUES, I. P. **A condição docente: contributos para uma reflexão [Relatório técnico]**. Lisboa: Conselho Nacional de Educação, 2016. Available at: www.cnedu.pt. https://www.cnedu.pt/content/edicoes/estudos_e_relatorios/RTAcondicaodocente.pdf. Access: 04 Sept. 2023.

RIGHI CECHIN, M.; RAMOND, B.; PILATTI, L. A. Universidade Tecnológica no Brasil e na França: um estudo comparativo. **Revista Pesquisa Qualitativa**, v. 11, n. 26, p. 83–105, 2023. Available at: <https://doi.org/10.33361/RPQ.2023.v.11.n.26.562>. Access: 28 Aug. 2023.

ROBSON, S.; KAMPPFF, A. J. C.; MOROSINI, M.; GUILHERME, A. A. Internationalization at home: policies, practices and perspectives from the global north and south. **Humanidades & Inovação**, Palmas, v. 9, n. 2, p. 12–22, 2022. Available at: <https://repositorio.pucrs.br/dspace/handle/10923/23842?mode=full>. Access: 30 Aug. 2023.

ROSYIDAH, N.; MATIN, M.; ROSYIDI, U. Internationalization in higher education: University's effective promotion strategies in building international trust. **European Journal of Educational Research**, v. 9, n. 1, p. 351–361, 2020. Available at: https://pdf.eu-jer.com/EU-JER_9_1_351.pdf. Access: 04 Sept. 2023.

RUEDA, J. L.; LIMA, P. G. Sobre a formação universitária centrada em competências: o

Processo de Bolonha em debate. **Laplage em Revista**, São Carlos, SP, v. 2, n. 3, p. 163-179, 2016. Available at: <https://www.redalyc.org/articulo.oa?id=552756517015>. Access: 03 Sept. 2023.

SANTOS, C. W.; MORORÓ, L. P. O desenvolvimento das licenciaturas no Brasil. **Revista HISTEDBR On-Line**, v. 19, e019018, 2019. Available at: <https://periodicos.sbu.unicamp.br/ojs/index.php/histedbr/article/view/8652339>. Access: 04 Sept. 2023.

SIN, C.; TAVARES, O.; NEAVE, G. Student mobility in Portugal. **Journal of Studies in International Education**, v. 21, n. 2, p. 120–135, 2017. Available at: <https://journals.sagepub.com/doi/10.1177/1028315316669814>. Access: 03 Sept. 2023.

SITNICKI, M. W. Determining the priorities of the development of EU research universities based on the analysis of rating indicators of world-class universities. **Baltic Journal of European Studies**, v. 8, n. 1, p. 76–100, 2018. Available at: <https://doi.org/10.1515/bjes-2018-0006>. Access: 30 Aug. 2023.

STEAGALL, J. W.; FALK, P.; GALLO, A. PORTER, T. W. International Double Degree Programs as Accelerators for Internationalization: Lessons from the Trans-Atlantic Business School Alliance, **Journal of Teaching in International Business**, v. 2, n. 1, p. 7–35, 2021. Available at: <https://www.tandfonline.com/doi/abs/10.1080/08975930.2021.1906378>. Access: 30 Aug. 2023

SUFICIER, D. M.; AZADINHO, M. P. M.; MUZZETI, L. R. Exigências legais para a atuação de professores nos anos iniciais do ensino fundamental (1996-2019). **Revista on Line de Política e Gestão Educacional**, v. 24, n. 3, p. 1461–1473, set./dez. 2020. Available at: <https://periodicos.fclar.unesp.br/rpge/article/view/13597>. Access: 04 Sept. 2023.

TAVARES, M. **Internacionalização da educação superior: estratégias e ações da Universidade Tecnológica Federal do Paraná**. 2016. Dissertação (Mestrado em Desenvolvimento Regional - Área de Concentração: Desenvolvimento Regional Sustentável) – Universidade Tecnológica Federal do Paraná, Pato Branco, PR, 2016. Available at: [https://repositorio.utfpr.edu.br/jspui/bitstream/1/1741/1/PB_PPGDR_M_Tavares%2C Marcelo_2016.pdf](https://repositorio.utfpr.edu.br/jspui/bitstream/1/1741/1/PB_PPGDR_M_Tavares%2C%20Marcelo_2016.pdf). Access: 03 Sept. 2023.

TEIXEIRA, J. A. S. Mobilidade Estudantil Internacional – Introdução. *In*: LIEVORE, C.; PILATTI, L. A.; TEIXEIRA, J. A. S. (ed.). Mobilidade Estudantil Internacional. Curitiba - PR: EDUTFPR, p. 10–13. 2022. Acesso em 30 Aug. 2023.

UTFPR. **Relatório de Gestão - Exercício 2015**. 2016. Available at: http://portal.utfpr.edu.br/documentos/reitoria/documentos-institucionais/prestacao-de-contas/deliberacao-01_2016-couni-relatorio-de-gestao.pdf/view. Access: 30 Apr. 2023.

UTFPR. **Plano de Desenvolvimento institucional da UTFPR (PDI) 2018-2022**. 2017. Available at: <http://www.utfpr.edu.br/documentos/reitoria/documentos-institucionais/pdi>. Access: 30 Aug. 2023.

UTFPR. **Política de Internacionalização da UTFPR**, 2018. Available at:

http://www.utfpr.edu.br/internacional/politica-de-internacionalizacao/deliberacao-e-politica_2018.pdf. Access: 30 Aug. 2023.

UTFPR. **Relatório de Gestão - Exercício 2021**. 2022.

<http://www.utfpr.edu.br/documentos/reitoria/documentos-institucionais/prestacao-de-contas/2012-relatorio-de-gestao/view>

UTFPR. **Relatórios de Gestão 2001 a 2023**. 2023. Available at:

<https://portal.utfpr.edu.br/documentos/reitoria/documentos-institucionais/prestacao-de-contas>. Access: 30 Aug. 2023.

VINUTO, J. A amostragem em bola de neve na pesquisa qualitativa: um debate em aberto.

Temáticas, Campinas, SP, v. 22, n. 44, p. 203–220, 2014. Available at:

<https://econtents.bc.unicamp.br/inpec/index.php/tematicas/article/view/10977>. Access: 31 Aug. 2023.

WIT, H. DE; ALTBACH, P. G. Internationalization in higher education: global trends and recommendations for its future. **Policy Reviews in Higher Education**, v. 5, n. 1, p. 28–46, 2021. Available at: <https://www.tandfonline.com/doi/full/10.1080/23322969.2020.1820898>. Access: 30 Aug. 2023.

Acknowledgments: Not applicable.

Funding: There were no financial resources for this work.

Conflicts of interest: There are no conflicts of interest on the part of the authors.

Ethical approval: Not applicable.

Availability of data and material: Not applicable.

Author contributions: The authors contributed equally to the preparation of the article.

Processing and editing: Editora Ibero-Americana de Educação.
Review, formatting, standardization, and translation.

