


**RECRIAR PROJECT: SUSTAINABILITY, DIGITAL INCLUSION, AND
PEDAGOGICAL INNOVATION THROUGH THE REUSE OF ILLICIT
TECHNOLOGICAL DEVICES**

**PROJETO RECRIAR: SUSTENTABILIDADE, INCLUSÃO DIGITAL E INOVAÇÃO
PEDAGÓGICA A PARTIR DA REUTILIZAÇÃO DE DISPOSITIVOS
TECNOLÓGICOS ILEGAIS**

**PROYECTO RECRIAR: SOSTENIBILIDAD, INCLUSIÓN DIGITAL E
INNOVACIÓN PEDAGÓGICA A PARTIR DE LA REUTILIZACIÓN DE
DISPOSITIVOS TECNOLÓGICOS ILEGALES**

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ABSTRACT

The Recriar Project, affiliated with the Universidade Estadual do Norte do Paraná (UENP), represents a proposal for pedagogical innovation, digital inclusion, and sustainability through the reuse of electronic devices of illegal origin, particularly TV Boxes seized by regulatory agencies such as the Federal Revenue Service of Brazil. Grounded in the principles of circular economy and transformative university outreach, the project aims to technologically refurbish these devices, converting them into secure digital learning platforms for public schools facing social and structural vulnerability. The methodology involves the technical screening of the devices, removal of illicit software, implementation of physical and digital security layers, customization of user-friendly interfaces, and installation of educational games aligned with the National Common Curricular Base (BNCC). The process is led by an interdisciplinary team working across the fields of pedagogy, engineering, computer science, and design. Data collected through field observations, interviews with teachers, and electronic surveys supports a systematic evaluation of the project's pedagogical, social, and environmental impact. Preliminary results demonstrate technical feasibility, community acceptance, and the strengthening of the university's institutional image as an agent of transformation.

Keywords: Digital Inclusion. Sustainability. Pedagogical Innovation. University Extension. Circular Economy. Educational Technology.

RESUMO

O Projeto Recriar, vinculado à Universidade Estadual do Norte do Paraná (UENP), constitui uma proposta de inovação pedagógica, inclusão digital e sustentabilidade, a partir da reutilização de dispositivos eletrônicos de origem ilegal, especialmente TV Boxes apreendidas por órgãos de controle como a Receita Federal. Fundado nos princípios da economia circular e da extensão universitária transformadora, o projeto visa recondicionar tecnologicamente esses dispositivos, convertendo-os em plataformas seguras de aprendizagem digital para escolas públicas em situação de vulnerabilidade social e estrutural. A metodologia envolve a triagem técnica dos aparelhos, a remoção de softwares ilícitos, a implementação de camadas de segurança física e lógica, a personalização de interfaces amigáveis, e a instalação de jogos educativos alinhados à Base Nacional Comum Curricular (BNCC). O processo é conduzido por equipe interdisciplinar com atuação em pedagogia, engenharia, informática e design. Os dados coletados por meio de observações em campo, entrevistas com professores e formulários eletrônicos subsidiam uma avaliação sistemática dos impactos pedagógicos, sociais e ambientais. Os resultados preliminares evidenciam a viabilidade técnica, a aceitação nas comunidades escolares e o fortalecimento da imagem institucional da universidade como agente de transformação. O Projeto Recriar se consolida, assim, como uma política pública inovadora, ética, replicável e comprometida com a democratização do acesso à tecnologia educacional.

Palavras-chave: Inclusão Digital. Sustentabilidade. Inovação Pedagógica. Extensão Universitária. Economia Circular. Tecnologia Educacional.

RESUMEN

El Proyecto Recriar, vinculado a la Universidade Estadual do Norte do Paraná (UENP), constituye una propuesta de innovación pedagógica, inclusión digital y sostenibilidad, basada en la reutilización de dispositivos electrónicos de origen ilegal, en particular de TV

Boxes incautadas por organismos de control como la Receita Federal. Fundado en los principios de la economía circular y de la extensión universitaria transformadora, el proyecto tiene como objetivo reacondicionar tecnológicamente estos dispositivos, convirtiéndolos en plataformas seguras de aprendizaje digital para escuelas públicas en contextos de vulnerabilidad social y estructural. La metodología comprende la selección técnica de los aparatos, la eliminación de software ilícito, la implementación de capas de seguridad física y lógica, la personalización de interfaces accesibles y la instalación de juegos educativos alineados con la Base Nacional Común Curricular (BNCC). El proceso es llevado a cabo por un equipo interdisciplinario que integra saberes de pedagogía, ingeniería, informática y diseño. Los datos recolectados mediante observaciones de campo, entrevistas con docentes y formularios electrónicos respaldan una evaluación sistemática de los impactos pedagógicos, sociales y ambientales. Los resultados preliminares demuestran la viabilidad técnica, la aceptación en las comunidades escolares y el fortalecimiento de la imagen institucional de la universidad como agente de transformación social. El Proyecto Recriar se consolida, de este modo, como una política pública innovadora, ética, replicable y comprometida con la democratización del acceso a la tecnología educativa.

Palabras clave: Inclusión Digital. Sostenibilidad. Innovación Pedagógica. Extensión Universitaria. Economía Circular. Tecnología Educativa.

INTRODUCTION

In recent decades, Brazil has faced structural challenges in combating the smuggling of electronic devices, a phenomenon that exposes vulnerabilities at border controls and in the regulation of high-demand technological products. A recurring example involves the so-called TV Boxes, devices that enter the country without certification from Anatel and are frequently used for illicit purposes, such as unauthorized access to paid content (Souza & Mendes, 2021). Once seized by security authorities, these devices are typically discarded, thereby constituting both a technological and environmental liability.

Simultaneously, Brazil continues to experience profound inequalities in access to digital technologies, particularly within public education systems. According to data from the National School Census (INEP, 2023), a significant number of schools lack the basic infrastructure required for the effective integration of educational technologies, especially in low-income regions. This digital divide exacerbates educational disparities and undermines students' holistic development, limiting their access to innovative pedagogical practices and to the digital culture itself (Moran, 2015; Kenski, 2012).

It is within this context that the Recriar Project (Figure 1) emerges, an initiative affiliated with the State University of Northern Paraná (UENP), which proposes the repurposing of seized TV Boxes as reconfigured educational tools. By transforming previously illegal devices into digital learning platforms, the project adopts an interdisciplinary and transformative approach that combines sustainability, inclusion, and innovation. This strategy aligns with the concept of a university committed to critical extension and the social transformation of the territories in which it operates (Santos, 2010).

Figure 1. Recriar Project Logo.



Org.: Authors, 2025.

The proposal is grounded in the principles of the circular economy, which advocates the reintegration of goods into the productive cycle, thereby reducing environmental impacts and promoting the ethical use of available resources (Costa & Silva, 2020). By reconditioning electronic devices, the Recriar Project also takes a stand against planned obsolescence—a practice that accelerates the disposal of equipment and undermines sustainability (Leite & Rocha, 2018).

In the field of education, the re-signification of these devices enables more interactive pedagogical practices through the use of educational games and digital content that stimulate critical thinking, creativity, and meaningful learning (Valente, 2005). Furthermore, it supports the inclusion of students in the digital culture, a right enshrined in the guidelines of Brazil's National Common Curricular Base (BNCC) and considered essential to citizenship education in the 21st century.

The overarching goal of the Recriar Project was to transform technological devices of illegal origin - especially TV Boxes seized by law enforcement agencies - into accessible educational tools for public schools in vulnerable contexts. It is an initiative that combines the pillars of digital inclusion, environmental sustainability, and pedagogical innovation, in alignment with the social mission of the public university.

The project directly engages with the concept of transformative university extension, which asserts that the university should play an active role in addressing social challenges and fostering collaboration across sectors of society (Santos, 2010; Ribeiro, 2022). The re-signification of these devices contributes to the fight against digital exclusion, still widespread in many Brazilian schools (INEP, 2023), and responds to the call for the democratization of access to educational technologies as advocated by authors such as Kenski (2012) and Moran (2015).

Strategically, the project unfolds into specific objectives, structured to ensure technical feasibility, educational impact, and social responsibility:

- Establishing partnerships with law enforcement agencies and public institutions for the collection of seized devices – Networked action involving universities, public authorities, and civil society is essential for the success of outreach initiatives with broad social impact.
- Carrying out triage, evaluation, and reconditioning of the received equipment – The technical reconditioning process aligns with the principles of the circular economy, which advocates the reuse of technological assets while combating the culture of disposability and planned obsolescence.
- Removing illicit software and installing appropriate educational content – This action ensured the project's legal and ethical compliance by replacing illegal content with educational environments aligned with the Brazilian National Common Curricular Base (BNCC), in accordance with Valente's (2005) guidance on meaningful use of educational technologies.
- Developing a user-friendly and secure interface for school use – Technological accessibility is a fundamental principle of contemporary educational design and a prerequisite for autonomous and intuitive use by both students and teachers.
- Selecting and organizing educational games and curricular content – When well integrated into the curriculum, playfulness and gamification promote active learning, student engagement, and retention, particularly in contexts of heightened social vulnerability (Prado & Valente, 2018).

This article aims to systematically present the conceptual foundations, strategic objectives, adopted methodology, and preliminary results of the Recriar Project. The intention is to demonstrate how the university can integrate technology, social responsibility, and innovative pedagogical practices to promote inclusion and sustainability within the school environment.

METHODOLOGY

The methodology of the Recriar Project was structured based on an integrated approach - technical, pedagogical, and social in nature - anchored in the principles of transformative university extension (Santos, 2010; Freitas, 2020), action research

(Thiollent, 2011), and technological sustainability (Costa & Silva, 2021). The project was developed as a practice of social innovation with educational objectives, articulating academic knowledge, territorial demands, and sustainable technological solutions.

Initially, the electronic devices were collected through institutional partnerships with the Federal Revenue Office in Londrina, via the formalization of donations of equipment seized due to misuse or non-compliance with technological certification regulations. This inter-institutional collaboration was fundamental for the legal and ethical viability of the initiative, ensuring traceability, accountability, and transparency in the use of technological resources (Brasil, 2014).

After receiving the equipment, a technical triage was conducted to assess the physical integrity and reuse feasibility of each unit (Figure 2). This phase made it possible to identify devices suitable for reconfiguration and to establish an efficient workflow in accordance with the principles of the circular economy and electronic waste reduction, aligned with the National Solid Waste Policy (Brasil, 2010).

Figure 2. election and handling of equipment in the Information Technology Sector at the UENP Rector's Office



Photo: Authors, 2025.

The next phase consisted of reconditioning the devices, which were transformed into digital learning platforms intended for public elementary schools. The technical interventions included the removal of illicit software, the reinstallation of secure systems, the customization of user-friendly interfaces, and the installation of educational content aligned with the National Common Curricular Base (BNCC). This stage reflected the principles of critical digital inclusion, as discussed by Kenski (2012) and Valente (2005), by promoting access to technology with structured pedagogical purposes.

RECONFIGURATION METHODOLOGY

Initial State of the Devices

The devices received were mostly in their original configuration but altered, with the Android operating system modified by third parties. Most of them had pre-installed applications aimed at illegal media consumption, including IPTV services, unauthorized channels, and suspicious streaming apps such as “MyFamily,” among others.

Maintenance of the Original Operating System

After technical evaluation, it was decided to maintain the modified version of the Android system, considering its compatibility with the Google Play Store and the possibility of reconfiguration without the need to install a new ROM. This choice minimized the risk of device bricking and optimized the reconditioning time.

System Cleaning

A factory hard reset was performed to remove unwanted customizations. The team accessed the BIOS/bootloader to check for persistent scripts and ensure boot integrity. Subsequently, the free version of the Link2SD application was installed, which was used for:

- Complete removal of unauthorized applications;
- Freezing of non-uninstallable apps such as YouTube and TikTok;
- Reorganization of system packages, prioritizing only the services essential to the project.

Implementation of Security Layers

The security of the environment was reinforced with the installation of the free version of AppLock, used to:

- Block access to system settings;
- Restrict manual network changes and resets;
- Prevent exit from the main launcher;
- Create administrative passwords for restricted functions.

Physical security measures were also adopted: the reset and update buttons, integrated into the logic board, were blocked using the equipment's own casing, preventing end-users from accessing these commands.

User Interface Customization

The paid version of ATV Launcher Pro was installed, which enabled:

- Replacement of the standard Android interface;
- Simplified visual organization, aimed at elementary school children;
- Hiding of irrelevant icons and apps;
- Highlighting of games and educational content defined by the pedagogical team.

Installation of Educational Games

After system preparation, carefully selected educational games were installed based on the following criteria:

- Pedagogical alignment with the guidelines of PROGRAD/UENP and the BNCC (Figure 3);
- Interactivity and accessibility;
- Absence of advertising or external connections;
- Compatibility with device hardware.

Figure 3. Pedagogical and Technical Alignment of the Recriar Project's Game Platform.



Photo: Authors, 2025.

Each unit was individually tested to ensure smoothness, stability, and continuous usability in the school environment.

RESULTS AND DISCUSSION

The Recriar Project advanced significantly in its initial phase of articulation and execution, consolidating strategic partnerships and beginning the technical and pedagogical implementation of the reconditioned devices. To date, three concrete fronts of action stand out: the formalization of institutional partnerships, the development of a functional prototype, and the project's presentation to public and community managers.

Formalized Strategic Partnerships

The first concrete step was institutional engagement with the Federal Revenue Service, responsible for custody of seized devices. After technical meetings and proposal presentation, a constructive dialogue was established aiming at the legal allocation of TV Boxes for educational use, as provided by Decree No. 8,241/2014 (Brazil, 2014). This articulation was essential to guarantee the initiative's legality and operational sustainability (Figure 4).

Figure 4. Project Presentation to the Federal Revenue Service in Londrina.



Source: Folha de Londrina, 2025.

Additionally, the project was presented to the management of the Cancer Hospital of Londrina (Figure 5), an institution recognized for its social leadership and participation in collaborative networks. The hospital showed interest in possible developments of the proposal, especially regarding the use of devices for educational health actions and digital inclusion of patients and companions undergoing treatment.

At the local government level, the Recriar Project team formally presented the proposal to the Municipal Governments of Jacarezinho and Bandeirantes, Paraná. Institutional reception was positive, recognizing the pedagogical, social, and environmental potential of the initiative. Engagement with public managers marks progress in

consolidating the project's support network, a factor considered critical in successful public policies (Freitas, 2020; Santos, 2010).

Figure 5. Presentation and delivery of a Recriar Project device at the Cancer Hospital of Londrina, to be used in the Pediatric Ward.



Source: UENP, 2025.

Technical Development and Prototype Validation

Simultaneously with institutional engagements, a functional version of the reconditioned devices was developed, featuring:

- Cleaned and protected operating system;
- User-friendly interface aimed at children and adolescents;
- Educational games selected according to BNCC guidelines;
- Physical and digital security layers.

The prototype was tested in a laboratory environment and is currently being prepared for pilots in municipal schools. Technical feasibility demonstrated that the reuse of seized devices is not only possible but replicable at low cost, expanding the proposal's scalability potential.

Strengthening UENP's Institutional Image

Another relevant outcome is the strengthening of UENP's image as an innovative public institution committed to digital inclusion and sustainability (Figure 6). The Recriar Project has proven to be a showcase of critical and applied extension, strengthening the bond between the university and the territories (Figure 7). This practice aligns with the foundations of emancipatory university extension, which proposes the insertion of the university into real social contradictions, overcoming the traditional unidirectional knowledge transmission model (Ribeiro, 2022; Santos, 2010).

Figure 6. Report aired on RPC/Globoplay's Jornal do Meio Dia about the Recriar Project.



Source: RPC/Globoplay, 2024.

Figure 7. RPC broadcasts the UENP Recriar Project that transforms smuggled devices into pedagogical tools.



Source: UENP, 2024.

Furthermore, the interdisciplinary nature of the project - with involvement of students and faculty from pedagogy, computer science, engineering, design, and communication courses - reinforces the formative vocation of the proposal. Interaction among different fields of knowledge to solve concrete social problems is recognized as one of the richest practices of meaningful university learning.

Expected Impacts Based on Actions Taken



Based on what has been done so far, the following impacts can be projected based on preliminary evidence:

- Expanded access to technology in public schools with precarious infrastructure;
- Awareness of municipal managers regarding sustainable use of seized technology;
- Generation of social and political interest in the model, indicating regional replication feasibility;


- Construction of a solid base for regular and formalized equipment donations by oversight bodies;
- Strengthening of a socio-environmental responsibility culture in the use of public goods.



In this material, we present a careful selection of educational games aimed at providing schools with the opportunity to allow students to interact with these games, combining the pleasure of playing with enhanced educational practice.

Table 1. Games Selected for the Recriar Project Platform.

	<p>Literacy, vowels and consonants, syllables, numeracy, sign language, addition and subtraction, geometric shapes, colors, opposites, animals, fruits, musical instruments, modes of transportation, among others.</p> <p>https://play.google.com/store/apps/details?id=com.bergman.lerecontar&hl=pt_BR&gl=US</p>
	<p>Recognizing numbers, logic, shape identification, counting, or the alphabet in English.</p> <p>Ages 3 to 7 years.</p> <p>https://play.google.com/store/apps/details?id=com.rvappstudios.baby.toddlr.kids.games.learning.activity</p>

13 JOGOS PROJETADOS PARA CRIANÇAS EM INGLÊS, ESPANHOL E PORTUGUÊS

	<p>The alphabet, letter drawing</p> <ul style="list-style-type: none"> • Improve memory, logic, and concentration <ul style="list-style-type: none"> • Distinguish shapes <ul style="list-style-type: none"> • Order by size • Solve logical patterns • Learn to paint and recognize colors <ul style="list-style-type: none"> • Distinguish colors • Board games • Logical paint solutions • Count objects and numbers <ul style="list-style-type: none"> • Solve puzzles • Develop motor skills and spatial vision <p>Ages 3 to 8 years</p>
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	<p>https://play.google.com/store/apps/details?id=com.pes_capps.gamekids5</p>
	<p>Literacy and literacy development.</p> <p>Ages 7 to 9 years</p> <p>https://play.google.com/store/apps/details?id=com.binibambini.MiniABCLite&hl=pt_BR&gl=US</p>
	<p>Dress-Up Game: Select the correct clothing items for the elephant and the lizard.</p> <p>Pattern Game: Match the cars by color to develop visual perception.</p> <p>Logic Game: Place bears, goats, and fish in their appropriate positions.</p> <p>Shape Game: Sort items while riding a sled to enhance coordination.</p> <p>Color Game: Place sea creatures, jungle animals, and fruits in the correct locations based on their colors.</p> <p>123 Game: Count and learn the numbers 1, 2, and 3 through a colorful activity designed for toddlers.</p> <p>Puzzle Game: Children must match objects with their corresponding shadows.</p> <p>Construction Game: Build a space scene and enjoy engaging animations and sound effects.</p> <p>Size Game: Organize the penguins' houses and dress them in a colorful game for children.</p> <p>Sorting Game: Identify the correct vegetables and place them in the basket.</p> <p>https://play.google.com/store/apps/details?id=com.bimi_boo.adventure</p>



Computer discovery: keyboard, mouse, touchscreen.

- Reading: letters, words, reading practice, text typing.
- Arithmetic: number operations, multiplication table memorization, enumeration, double-entry tables.
- Science: channel control, water cycle, renewable energy.
- Geography: countries, regions, culture.
- Games: chess, memory, connect four, hangman, tic-tac-toe.
- Others: colors, shapes, Braille, learning to tell time.

[https://play.google.com/store/apps/details?id=net.gcompris.full&hl=pt_BR
&gl=US](https://play.google.com/store/apps/details?id=net.gcompris.full&hl=pt_BR&gl=US)

JOGOS MATEMÁTICOS



Multiplication Game: This engaging mathematics game for children includes exercises, a multiplication table, the Chinese rod method, quizzes, and more.

<https://play.google.com/store/apps/details?id=com.rvappstudios.kids.multiplication.games.multiply.math>



Math with Beads: Children can learn counting and mathematics using the time-tested bead method. It features various mini-game modes.

Sequential Bead Counting: In this math game mode, children count beads. It is ideal for beginners.

Mixed Number Counting: Children count beads and choose from several math exercises.

Count and Match: In this game mode, children must match numbers to the correct quantity of beads.

Tens and Ones: This math game mode teaches place value using beads as visual aids.

Reverse Number Counting: A number is displayed, and the child must tap the option showing the same number of beads.

Fun Beads with Tens and Ones: Learn place value in numbers using bead counting in an engaging way.

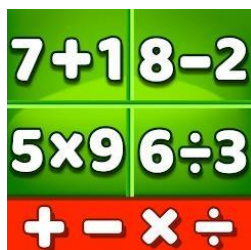
Number Addition: Count the beads and add numbers—a simple and fun way to practice addition.

Learning Subtraction with Beads: Count beads and learn to subtract numbers with ease.

Fun Bead Counting: Count beads to practice both addition and subtraction.

Compare Numbers with Beads: Count beads and use the greater than, less than, or equal to sign accordingly.

<https://play.google.com/store/apps/details?id=com.rvappstudios.montesori.math.games.kids.number.counting>



Addition Games – Practice addition with 1-digit, 2-digit, or 3-digit numbers, sequential addition, and other addition-based games.

Subtraction Games – Learn to subtract through games involving 1-digit, 2-digit, and 3-digit subtraction exercises.

Multiplication Games – A best-practice game mode for learning multiplication tables and various multiplication methods.

Division Games – Learn division by playing a variety of engaging and interactive division games.

Fractions – Step-by-step learning of fraction calculations, offering a fun and easy way to understand fractions.

Decimals – Enjoy fun modes to learn the addition, subtraction, multiplication, and division of decimal numbers.

Square Roots – Practice squares and square roots, and learn how to calculate the square of a number.

Exponents – Solve exercises involving exponentiation and develop an understanding of powers.

Mixed Operations – Test your knowledge by practicing addition, subtraction, multiplication, and division - all in a single integrated mode.

https://play.google.com/store/apps/details?id=com.rvappstudios.math.games.kids.addition.subtraction.multiplication.division&hl=pt_BR&gl=US



Periodic Table Quiz

- Name to Atomic Number
- Name to Atomic Symbol
- Name to Atomic Weight
- Atomic Number to Element Name
- Atomic Symbol to Element Name
- Atomic Weight to Element Name





<https://play.google.com/store/apps/details?id=com.maple.periodictablequiz>

INGLÊS



<https://play.google.com/store/apps/details?id=com.iz.kids.word.search.games.spelling.words.vocabulary.letters.kindergarten.preschool.learning>

MEMÓRIA

	<p>Memory Improvement and Cognitive Development</p> <ul style="list-style-type: none"> • Enhancement of Learning Skills <ul style="list-style-type: none"> • Brain Stimulation • Promotion of Socialization <ul style="list-style-type: none"> • Anxiety Reduction • Accessibility and Versatility <p>https://play.google.com/store/apps/details?id=com.nikiowo.memorygameforkids&hl=pt_BR</p>
	<p>Domino is a popular tabletop game that involves rectangular pieces known as "tiles" or "stones," typically made of plastic, wood, or bone. Each piece is divided into two squares, with each square marked by a number of dots ranging from 0 to 6.</p> <p>https://play.google.com/store/search?q=domino%20dreams&c=apps&hl=pt_BR</p>
	<p>Mental Exercise</p> <ul style="list-style-type: none"> • Training in Patience and Persistence <ul style="list-style-type: none"> • Accessibility and Versatility • Stimulation of Learning <p>Ages 7 to 9 years</p> <p>https://play.google.com/store/apps/details?id=com.edujoy.Word.Search.Kids&pcampaignid=web_share</p>
	<p>Mental Exercise</p> <ul style="list-style-type: none"> • Training in Patience and Persistence <ul style="list-style-type: none"> • Accessibility and Versatility • Stimulation of Learning <p>Ages 9 to 14 years</p> <p>https://play.google.com/store/apps/details?id=word.connect.cross.games.puzzle&pcampaignid=web_share</p>

Org.: Authors, 2025.

FINAL CONSIDERATIONS

The Recriar Project represents a concrete effort by the State University of Northern Paraná (UENP) to articulate science, technology, sustainability, and social commitment into a transformative action. Its emergence is directly related to the identification of a recurring paradox in Brazilian reality: on one side, the accumulation of illegal electronic devices seized by security agencies; on the other, the lack of technological resources in public schools, especially those located in socially vulnerable territories.

This diagnosis served as a starting point for the construction of an innovative, ethical, and technically feasible proposal, grounded in the logic of the circular economy and emancipatory university extension. By reusing illegal TV Boxes - devices previously associated with smuggling and misuse - and converting them into safe, functional pedagogical tools aligned with the BNCC, Recriar highlights how the public university can act directly in producing solutions to structural problems of Brazilian society.

Throughout the methodological process, the project was designed based on integrated stages that engage technical, pedagogical, institutional, and social dimensions. Initially, partnerships were established with control agencies such as the Federal Revenue Service, responsible for the custody of the devices. This institutional engagement was fundamental to guarantee the legal and institutional backing, ensuring the legality of device allocation and the public trust in the proposal.

From the moment the equipment arrived at the university, a technical screening process began, evaluating the physical condition and reconditioning potential of each unit. Subsequently, a protocol was implemented for system cleaning, illicit software removal, physical and digital security reinforcement, and interface customization for pedagogical use. The project opted to maintain the Android operating system, optimizing resources and avoiding the need for advanced flashing, which reduced costs and increased process security.

From a pedagogical perspective, the selection and installation of educational games represented a significant methodological advancement. The contents were chosen based on criteria such as interactivity, absence of advertising, curricular alignment, and accessibility. This pedagogical curation was conducted by groups linked to the Undergraduate Dean's Office (PROGRAD) and faculty members from teaching degree programs, ensuring coherence between the technological tool and learning objectives.

Beyond classroom results, the project also generated positive effects at the institutional and intersectoral levels. UENP has become recognized as an articulator of sustainable social solutions, with strong regional engagement and the ability to dialogue with public authorities and civil society. The presentation of Recriar to the Federal Revenue Service, the Cancer Hospital of Londrina, and the Municipalities of Jacarezinho and Bandeirantes demonstrates the reach and potential dissemination of the proposal. Such articulations reinforce the importance of university extension as one of the foundational pillars of Brazilian public universities, as defended by Santos (2010) and Freitas (2020).

The participation of different undergraduate courses and university sectors further evidences the interdisciplinary nature of the initiative. Professionals and students from pedagogy, engineering, computer science, communication, and design worked collaboratively to develop technical and didactic solutions. This interprofessional practice not only strengthens the development of academic competencies among the students involved but also represents an institutional innovation strategy aligned with 21st-century demands (Moran, 2015).

Another highlight of the Recriar Project is its operational and conceptual sustainability. By proposing the reuse of electronic materials for educational purposes, the project contributes to the mitigation of technological waste and acts in accordance with the National Solid Waste Policy (Brazil, 2010). Thus, it combines digital inclusion, reduction of environmental impacts, and democratization of access to technology - central elements for an educational agenda committed to the Sustainable Development Goals (SDGs), especially SDGs 4, 9, and 12.

From a methodological standpoint, the project also developed consistent evaluation strategies, applying electronic forms, field observations, and interviews with teachers. The data collected have supported continuous process improvement and provided important inputs for the preparation of impact reports, allowing the project to advance responsibly and empirically.

In summary, the Recriar Project represents a successful experience of social transformation stemming from university action. By converting illegal devices into knowledge promotion tools, the project expands access to technology, values public schools, strengthens UENP's extension work, and establishes a replicable model of educational innovation with positive environmental impact. It is an initiative that not only

responds to urgent challenges but also projects structural solutions for the future of Brazilian public education.

As future perspectives, the project foresees expanding the base of partner municipalities, increasing the number of reconditioned and distributed devices, formalizing new partnerships with municipal education departments, and continuing teacher training actions. Additionally, the development of an institutional results monitoring panel is underway, focusing on the evaluation of educational and social indicators.

Given the path already taken, Recriar consolidates itself as an innovative, feasible institutional policy strategically oriented toward the principles of equity, social innovation, and sustainability. Its legacy is not limited to equipment delivery but is expressed in building new meanings for technology, valuing the protagonism of public schools, and affirming the transformative role of the university in society.

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