

Accessibility and innovation: IEB Minecraft as a tool for collection exploration

[Acessibilidade e inovação: o IEB Minecraft como
ferramenta para exploração de acervos

Pedro B. de Meneses Bolle^r

ABSTRACT • The Instituto de Estudos Brasileiros (IEB) has designed a video game in which players create their own characters and enter the institution's building to playfully explore the collections distributed among the Archives, the Library and the Visual Arts Collection. The aim of the launch of IEB Minecraft is to promote the Institute to a new audience – with an estimated age between 12 and 20 years old –, already accustomed to using the digital language and the world of games, becoming an innovative way to provide young people with access to the IEB collections playfully and interactively. The collections chosen for the game highlight themes related to the lives and work of Afro-Brazilian individuals and Black history – including intellectuals, artists, and poets – in all their diverse forms of expression.

• **KEYWORDS** • Minecraft; exploring

collections; IEB; videogame. • **RESUMO** • O Instituto de Estudos Brasileiros (IEB) concebeu um jogo de videogame no qual os participantes criam seus próprios personagens e entram no prédio da instituição para explorar de forma lúdica os acervos distribuídos entre o Arquivo, a Biblioteca e a Coleção de Artes Visuais. O objetivo do lançamento do IEB Minecraft é divulgar o Instituto para um público novo – com idade estimada de 12 a 20 anos –, já acostumado com a linguagem digital e o mundo dos games, tornando-se uma forma inovadora de disponibilizar aos jovens o acesso às coleções do IEB de forma lúdica e interativa. A seleção do acervo para o jogo engloba temas relacionados a obras e trajetórias de brasileiros de matriz africana – intelectuais, artistas, poetas –, em suas múltiplas expressões. • **PALAVRAS-CHAVE** • Minecraft; acesso a acervos; IEB; jogo.

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Before getting into the project itself, let's characterize what exactly the IEB Minecraft game is.

Minecraft is a platform and sandbox game² that allows players to explore a randomly generated world, building and interacting with the environment in different ways. Created in 2011 by Markus Persson known as "Notch", developed by Mojang Studios and later sold to Microsoft, it stands out for its blocky graphic style and the freedom it offers: players can mine resources, build structures, create machines, grow crops and even face creatures. The game has different modes of interaction, such as creative mode, which allows you to build without limitations, and survival mode, in which players must manage the resources they collect and face challenges in order to survive. With a vibrant community and a plethora of mods³, Minecraft has become a platform for learning, creativity and collaboration (GOLDBERG; LARSSON, 2013).

THE IMPORTANCE OF GAMIFICATION

Turning something static into something dynamic is one of the roles of gamification, a strategy that uses game elements in contexts not necessarily related to entertainment, such as education, to increase learner engagement and motivation. This approach is based on experiential learning theory, which suggests that people learn better when they are actively involved in activities that stimulate their emotions and participation (BRAY; MCCLASKEY, 2016). Among the functions of gamification in the learning process, we can mention increased engagement, as this strategy makes

² Sandbox games provide an open environment where you can explore, create and interact with the virtual world in a variety of innovative ways.

³ It's a term used to describe a change to a game that makes it operate differently from the original.

learning more attractive and thought-provoking. Elements such as scores, badges⁴ and levels help to capture players' attention and encourage them to participate more actively. According to Karl Kapp, in *The gamification of learning and instruction* (2012), these elements can turn uninteresting tasks into exciting challenges. There is also the possibility of immediate *feedback*, collaborative learning, which often encourages collaboration and healthy competition. In our case, gamification has created an environment where students and players work together to achieve common goals, which reinforces social learning. In *The multiplayer classroom* (2012), Lee Sheldon explores how collaboration in gamified learning environments can improve interpersonal skills.

In the game, we prioritize development that requires the application of various cognitive and social skills, such as problem-solving, critical thinking and communication. Through gamification, players have the opportunity to develop and hone these skills in a safe and controlled environment. It is also important to mention the UN's Sustainable Development Goals (SDGs), created in 2015, which aim to promote a fairer, more equal and sustainable future for the planet. These goals can be especially relevant when it comes to the video games industry, and that's where we designed the framework in SDG 4.3, which seeks to ensure equal access for all young people to quality technical, vocational and higher education, and SDG 10.2, which is based on promoting the social, economic and political inclusion of all, regardless of their individual characteristics, such as ethnic origin, gender or social *status*.

For video game developers in general, and for the IEB game specifically, aligning their products with these goals is not only a matter of social responsibility, but also an opportunity to positively influence society through their platforms.

SDG 4.3: Access to quality education for all

A video game can be a powerful learning and educational tool, as long as it is designed to provide accessible, quality educational content. Games that stimulate cognitive skills, creativity and problem-solving can be extremely beneficial. In addition, game offerings that address topics such as science, history, mathematics, and even socio-emotional skills, can be a fun and effective way to engage young people in learning that might otherwise be less appealing. In the context of SDG 4.3, the creation of educational games that are accessible to different sections of the population, including through mobile or low-cost platforms, can ensure that more young people, especially in disadvantaged areas, have access to a quality education.

SDG 10.2: Promoting social, economic and political inclusion

Alignment with SDG 10.2 is equally crucial, especially in an industry that has historically been criticized for its lack of diversity and inclusion. Creating games that represent a diverse range of characters and settings, reflecting varied cultures,

⁴ Digital badges are virtual credentials awarded to a person for mastering a skill, completing a predetermined objective or achieving a specific learning outcome within a video game.

genders, ethnicities and sexual orientations, can contribute to social inclusion and the reduction of inequalities. Games with representation help to break down stereotypes and allow players from different backgrounds to feel more connected to the content, promoting empathy and understanding. In addition, creating opportunities within the industry for people from different backgrounds and social classes is also an important step towards economic and political inclusion. One of the reflections of SDG 10.2 is to ensure that everyone, regardless of their social or economic background, has the same opportunities to get involved with the video games industry and contribute their unique perspectives.

Overall, the video games industry, by aligning itself with SDGs 4.3 and 10.2, can play a transformative role in the development of a more inclusive, equal and educated society. Games are not just a form of entertainment, but also a powerful means of education and social inclusion. It is therefore essential that developers are aware of their social responsibility and create experiences that not only promote gaming enjoyment, but also contribute to a fairer and more sustainable world, respecting and promoting diversity, accessible education and equal opportunities for all (UN, 2015).

An interaction is established, in this way, between the video game, the internet, and devices such as smartphones and personal computers; it really is multiple media working together to personalize learning. The player does not necessarily need to have all of them, but they can use the ones they do have, making progress in the game possible even with restricted access. This gamification of IEB Minecraft allows players and students to progress at their own pace, choosing challenges that match their level of skill and interest. This is covered in the book *How to personalize learning*, by Barbara Bray and Kathleen McClaskey, which discusses the importance of adapting learning to individual needs.

Contextualizing the game in the IEB environment, it was necessary to develop a method for this purpose, namely the creation of QR Codes, codes generated through black and white blocks, which simulate access codes to the IEB website, videos, podcasts, lectures, books, among many other diverse media within the game.

In fact, the creation of IEB Minecraft takes us to a videogame in which participants create their characters and visit the Institute's building to explore the collections in a playful way. The aim of launching the game was to spread the word about the institution to a new audience that is already used to digital language and the world of electronic games. The target audience ranges from 12 to 20 years old⁵, a choice that was determined by a very clear demand during the pandemic and lockdown, when the university stopped its face-to-face activities and turned them into virtual ones. At that time, USP stopped holding its biggest face-to-face event, the Feira USP e as Profissões, in the usual way.

And here is a parenthesis. The Feira USP e as Profissões is an annual event

⁵ This is the same age group as the audience at the Feira USP e as Profissões, which includes students from elementary school II (6th to 9th grade) up to pre-university age.

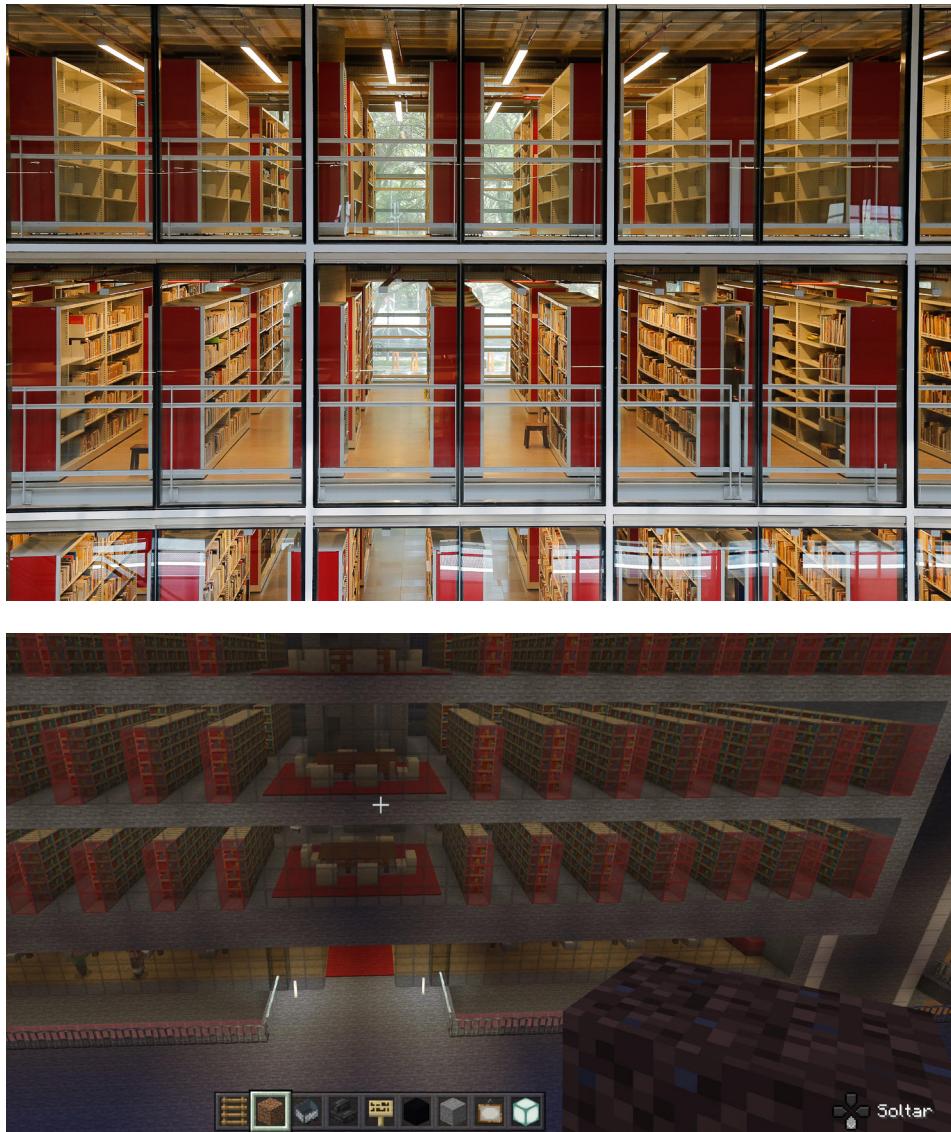
aimed at university students and others interested in finding out about the degree courses offered by USP. It shows young people from high school and pre-university courses what academic life is like at a university, providing them with important information for making an informed choice about their future profession. At the same time, the event helps students to develop an integrated relationship not only with the university community, but also with society, taking advantage of the many academic, cultural and social activities that USP offers (FEIRA USP..., n. d.).

It is important to note that the Feira USP e as Profissões, in that year of the pandemic and social isolation, became USP's largest virtual event, obtaining more than 1 million accesses in 2020 (CRUZ, 2020).

IEB Minecraft, the name given to the project from the outset, was created from the idea of changing the pattern of online fairs, where participants only watch videos via *lives*, a form commonly used in many events even today and already somewhat saturated. The intention at that time was to innovate and use the energy concentrated in that difficult period - when everything intensified and migrated to the virtual to launch a game within the University, a task that was promptly supported by the IEB management (in 2020) as a way of transforming and betting on the unknown with the promise of renewing change.

The game was developed on a platform well known among gamers (COX, 2020). Minecraft was the second best-selling game in the world by 2020, with more than 300 million copies, 176 million of which were physical units (AMOS, 2020, p. 33), second only to the 1984 classic Tetris, bringing multiple dimensions and possibilities for creation. Its characteristic graphic, in which the entire visual is made up of "enlarged pixels"⁶, allows for the construction of literally infinite shapes and combinations.

6 An expression we often use comparing game blocks to pixels, which in the end translate into shapes, constructions and artifacts to refer to the process of enlarging an image.



Figures 1 and 2 - Comparison between the IEB Library (photo: Cecília Bastos/Jornal da USP) and the image that represents it in the game with the necessary adaptation

In addition to developing all the graphics in a way that is faithful to the Institute's premises, the idea is to present the works of art, books and documents that make up the IEB's collection to an external audience. An initial study was carried out on the construction of a preliminary version that could resemble a museum, where the works should appear to attract the players' attention (NEEDLER; SOUTHAM, 2015).

From this initial construction test, it was realized that the most used materials would be glass and concrete, due to the architecture of the building itself. How to include these shapes in the game was the first challenge. The first image discovered

in this research was that of a colored mosaic that simulated a stained glass window from a French Gothic cathedral, made entirely of square pieces of glass that, within the game, are formed by sand collected (mined) placed inside a furnace together with dyes, also discovered within the game in plants, stones, crystals or even vegetables. This process allowed the first ideas to come out of the paper and become this virtual reality.

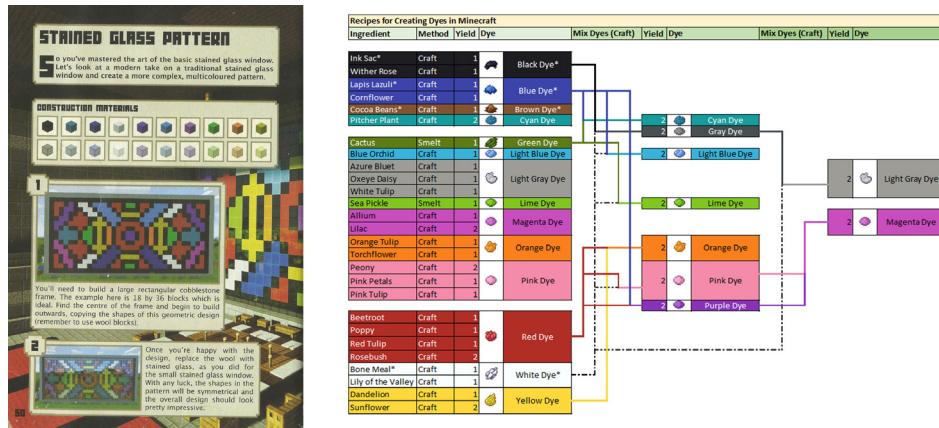


Figure 3 - On the left, stained glass window with mosaic; on the right, table with color patterns and dyes found in the game Minecraft. Source: Needler (2015, p. 55)

With this in mind, after a technical definition of the possibility of development, the game began to be created and thought of in a beta version *from* the end of 2020. Tests were carried out, constructions that were still a little out of place were worked on, and after a while it was realized that one person wouldn't be able to build everything on their own in time. By the beginning of September 2021, when the Feira USP e as Profissões would begin, everything should have been online.

It was important to consider the need for a clear purpose and concept to guide what players would be doing or exploring within the game, as well as what content would be made available to them. The idea was to focus on a fundamental issues in Brazilian society, against the backdrop of the fight against the structural racism that stigmatizes us. After centuries of slavery shaping our social history, it's high time we seize every opportunity to recognize the cultural legacy that Afro-Brazilians have contributed to our society – and the IEB has extraordinary resources to help us do just that.



Figure 4 - Beginning of the assembly of the game, still in the foundations and construction of the main structures. Photo: Reproduction

From then on, we began to put together a specialized team⁷ in game construction, programming, research, architecture, copyright and, above all, curation. When the concept itself was created, a digital curatorship was carried out, which prepared a special selection on themes related to the works and trajectories of black people as intellectuals, artists, poets, in short, in their multiple expressions present in the collections of the Archive, the Library and the Visual Arts Collection. Studies and research published in editions of the *Revista do Instituto de Estudos Brasileiros* (OLIVA; MORAES; MARRAS, 2015) through the Dossier on Afro-Brazilian History and Cultures (AMARAL, 2015), along with podcasts (PODCAST, 2021) and webinars⁸ (IEBINÁRIO, 2021), also make up the material and were the start of everything, giving participants a dimension of what they would find when they were there in person.

⁷ Members: Alessandra Miranda, Denise de Almeida Silva, Diego Ávila Lopes, Flávio Luis de Ávila Lopes, Flávio Ribeiro Mariano, Guilherme Lassabia de Godoy, Jimmy Ponderosa, Karen Grujicic Marcelja, Mariana do Nascimento Ananias, Maxwell Rodrigues, Pedro B. de Meneses Bolle, Renato Takeshi Hamatu and Ricardo Bathó free of charge and on a voluntary basis.

⁸ Our webinars are called IEBinars.



Figure 5 - One of the rooms available in the game, where you will find lots of research material

The team of curators⁹ selected part of the collections specifically for the game, for the target audience and with the chosen theme in mind there were nine items in the first phase, each represented by hidden rooms in the game, to be unraveled, discovered, explored, where the major themes marked below are to be found, each located in a room.

MUSIC ROOM

The gamer watches the TV USP video *Mulheres no topo: a ascensão feminina no rap*, listens to audios via the Radio USP program “O samba pede passagem”, by Moisés da Rocha, which has been on the air since 1978; watches the *live* recorded with the conversation between Professor Walter Garcia and the students Guilherme Botelho, Raquel Sciré and Lucas Marquezin, who portray their research in the worlds of samba and rap; and also has access to important manuscripts on rap and samba, found in the *Revista do Instituto de Estudos Brasileiros* n. 70, 2018. 70, 2018.

RELIGIOSITY ROOM

In the collection of Mário de Andrade, who collected objects from religions of African origin, there are discussions about intolerance and religious freedom, covering religion and magic, music and dance. Also available in the game, within this section, is the podcast “Religious freedom is a fundamental right”, with Professor Eunice

⁹ Curators: Denise de Almeida Silva, Guilherme Lassabia de Godoy and Mariana do Nascimento Ananias.

Prudente, from USP's Faculty of Law, who talks to Rádio USP. From articles in the *Jornal da USP* we found topics on repression and Afro-Brazilian religiosity, such as the interviews with Professor Vagner Gonçalves da Silva, who talks about the intolerance that marks the trajectory of religions of African origin in Brazil.



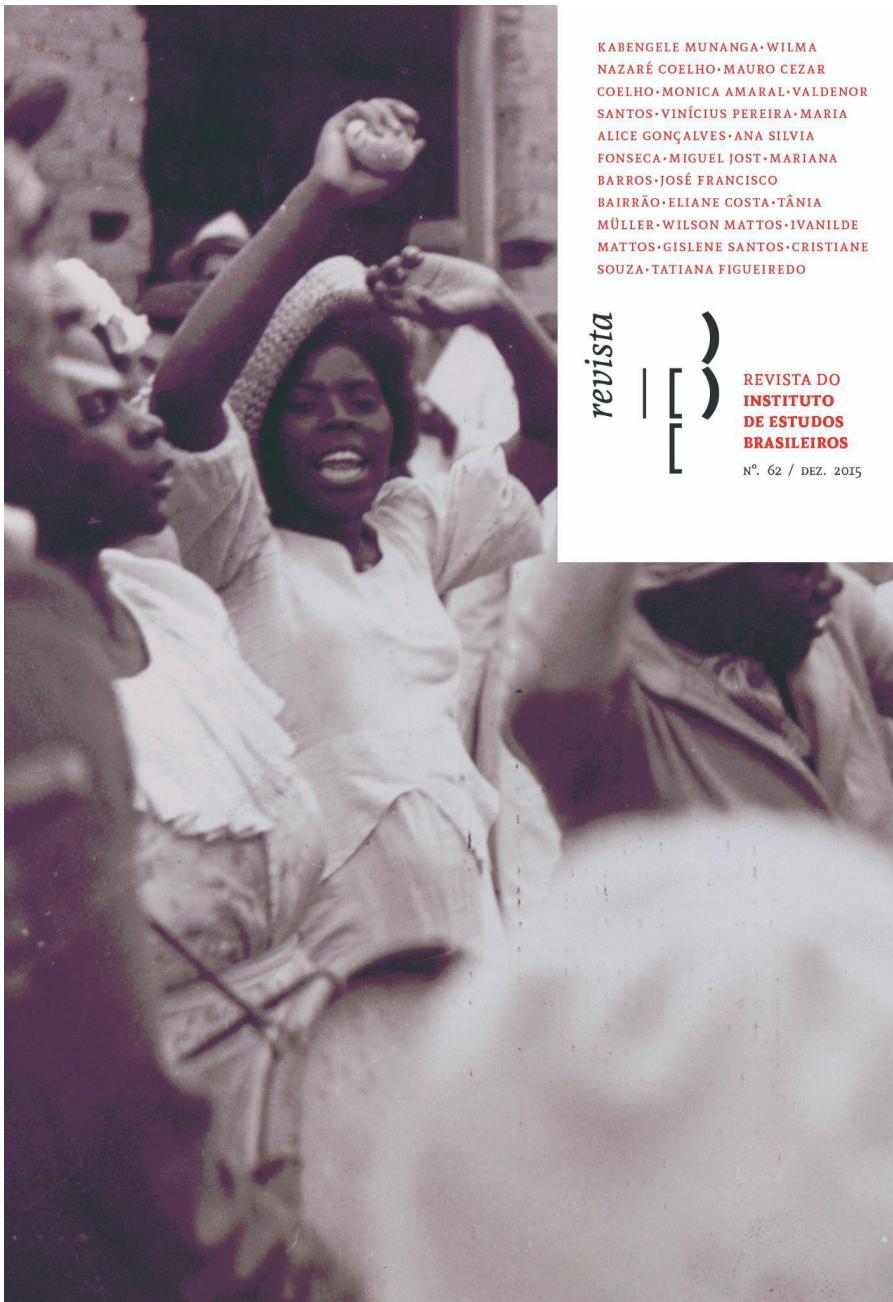
Figures 6 and 7 - On the left, portrait of Luiz Gama published in the article “Centenario de Luiz Gama: o Brasil comemora hoje o primeiro centenário do nascimento do illustre abolicionista” (IEB/USP Archive, Mário de Andrade Fund, MA-R020-05); on the right, excerpt from the newspaper article “Os direitos humanos, a luta de Luís Gama” (IEB/USP Archive, Ernani Silva Bruno Fund, ESB (75A) I-II4)

LIBRARY ROOM

A space centered on Luiz Gama. Two of the rare copies of the 1859 first edition of the poetry book *Primeiras trovas burlescas de Getulino*, written by Luiz Gama, are part of the IEB Library's collection and are on display in this game room. The article “Human rights: Luiz Gama's struggle”, by Ernani Silva Bruno, is also there, and is part of the Ernani Silva Bruno Fund in the IEB's collection. There is also an exhibition of a seminar held by the IEB, “Luiz Gama at the IEB and the BBM”, in which Professor Lígia Ferreira talks about the works of the abolitionist poet in conversation with Professor Marcos Antonio de Moraes.

ARCHIVE ROOM

Room dedicated to André Rebouças. Among other texts, there is the Diary of André Rebouças published during the Paraguayan War in May 1866.



KABENGELE MUNANGA·WILMA
NAZARÉ COELHO·MAURO CEZAR
COELHO·MONICA AMARAL·VALDENOR
SANTOS·VINÍCIUS PEREIRA·MARIA
ALICE GONÇALVES·ANA SILVIA
FONSECA·MIGUEL JOST·MARIANA
BARROS·JOSÉ FRANCISCO
BAIRRÃO·ELIANE COSTA·TÂNIA
MÜLLER·WILSON MATTOS·IVANILDE
MATTOS·GISLENE SANTOS·CRISTIANE
SOUZA·TATIANA FIGUEIREDO

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REVISTA DO
INSTITUTO
DE ESTUDOS
BRASILEIROS
Nº. 62 / DEZ. 2015

Figure 8 - Samba de rua (detail). [1937]. IEB/USP Archive, Mário de Andrade Fund. Cover of *Revista do Instituto de Estudos Brasileiros* n. 62

BLACK WOMEN ROOM

Here we have Vanderli Custódio, a professor at the IEB who, after a long career studying water resources, retired in 2018. Through excerpts from the video *Café expresso*, she discusses globalization and the fragmentation of society and the renewal of universities by peripheral intellectuals. Carolina Maria de Jesus is featured in a video produced by the São Paulo State Research Foundation (Fapesp), in which IEB post-doc Elena Pajaro Peres talks about the writer's life and work. Chica Barrosa appears in Mariana Ananias' podcast "Chica Barrosa: uma violeira negra no sertão oitocentista".

MÁRIO DE ANDRADE ROOM

Mário de Andrade traveled around Brazil collecting material on different Brazilian cultural expressions. In the game you get to know the route of one of the ethnographic trips he made around Brazil. Mário de Andrade, director of São Paulo's Department of Culture in the 1930s, planned the celebrations for the 50th anniversary of the abolition of slavery in Pauliceia and in the country's capital. To find out more about this story, the game shows the podcast "As comemorações do Cinquentenário da Abolição planejadas por Mário de Andrade", by Angela T. Grillo. You can also learn about the Mário de Andrade House in this room through the film directed by Professor Telê Ancona Lopez and Luiz Bargmann, which shows Mário de Andrade's residence at Rua Lopes Chaves, 546, in Barra Funda, São Paulo. With archive images, films, photographs and pieces from his collection of art, books and records, a glimpse is offered of the writer's home. Mário was curious about the many elements of Brazilian cultures, including cuisine. The seminar "Stomach hunger for Brazil: Mário de Andrade and Brazilian cuisine" is also presented, in a tasty discussion with Professor Marcos Antonio de Moraes, Viviane Aguiar, Claude Guy Papavero, Jakeline Fernandes Cunha and Paula de Oliveira Feliciano.

MACHADO DE ASSIS ROOM

Here, we present information about the author, one of the greatest figures in Brazilian literature, along with excerpts from the *Livros da Fuvest* video, available on the USP YouTube Channel. According to Professor Thaís Toshimitsu, the book *Memórias Póstumas de Brás Cubas* explores the contradictions of 19th-century Brazilian society: a society that was both slave-owning and, at the same time, capitalist and a defender of liberal ideas. These excerpts, along with much more, can be found in this room, alongside photographs from the IEB Archives.

AFRICAN AND BLACK HISTORY ROOM

Here you can explore the thinking of Kabengele Munanga, a Brazilian-Congolese anthropologist and professor who specializes in the anthropology of the Afro-Brazilian population, focusing on the issue of racism in Brazilian society. Texts such as "Por que ensinar a história da África e do negro no Brasil de hoje?", published in *Revista do Instituto de Estudos Brasileiros* n. 62, 2015, are presented, as well as the story of this professor and intellectual in the TV USP program *Trajetórias*.

MILTON SANTOS ROOM

In this space, you can learn a little about the internationally renowned geographer Milton de Almeida Santos who produced groundbreaking work on the concept of space and the relationship between the individual and capitalism including his career, work and personal archive with the podcast "Milton Santos: um intelectual inovador e surpreendente, falando a partir da geografia", produced by Professor Jaime Tadeu Oliva.

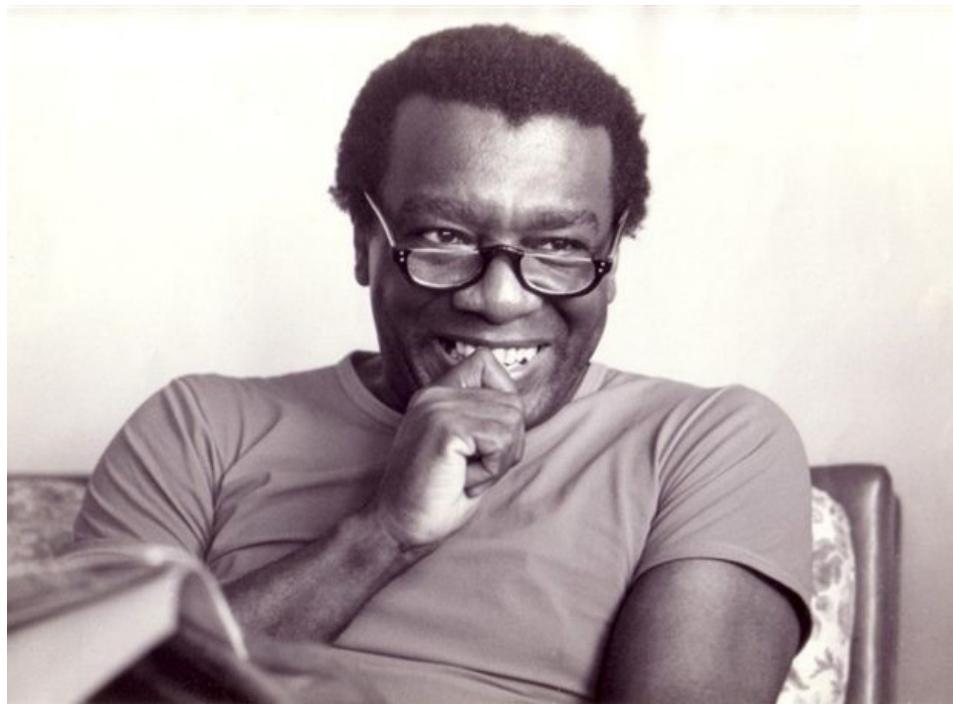


Figure 9 - Milton Santos, 1977 (IEB/USP Archive, Milton Santos Fund)

The room also contains clippings from the article "Aspectos da produção teórica e da organização do arquivo de documentos do geógrafo Milton Santos", published in the *Revista do Instituto de Estudos Brasileiros* by researcher Flavia Grimm,

which presents the author's contribution to geographical theory based on the systematization of his personal archive.

That's the end of the nine rooms. There may well be dozens or hundreds of other rooms and studies of other rich IEB collections that can be added to the game at any time – there is no shortage of ideas. Encouraging culture among teenagers through the IEB's collections is a promising way to enrich learning and cultivate an appreciation of Brazil's cultural diversity. With interactive and reflective approaches, we can transform teaching into a meaningful and impactful experience.



Figure 10 - Creation of personalized QR Codes within IEB Minecraft, with the possibility of including new media such as videos, podcasts, texts, audios, among many others

Finally, it's important to note that when the players start the game, they choose their character. Upon reaching the main entrance of the IEB, they receive instructions to explore the previously hidden rooms, familiarize themselves with the building and interact with the available collections. They will find these nine themed rooms, where are hidden codes that allow them to access the IEB *website* and see the full pages of the collection in question, unraveling a playful and thought-provoking puzzle. To take part, it is necessary to have the game installed. To do this, a server has been created where players can meet virtually at the IEB and interact with the building, the works or each other. One of the distinguishing features of Minecraft and the virtual reality dimension is the multiplatform integration that brings players together. It can be accessed via PC, using Windows 11 and earlier versions, Apple devices, with their Mac versions, and even the Linux platform in a Java edition. It is also possible on simple cell phones. Multiplatform does not end there: it also brings together Sony through its Playstation Vita, PS3, PS4, PS5 and PS5 Pro video game

consoles, as well as Nintendo, with Switch, Switch Lite, 3DS and WiiU consoles and, of course, Microsoft's own consoles, such as the XBOX and its X, S, One and 360 variations. It is also possible to access it via the latest handhelds, such as Rog Ally, Steam Deck and Legion Go. The version chosen for the game was Bedrock, which covers more than half of the platforms on the market, making it possible to expand the player audience.

The launch of the game during the Feira USP e as Profissões 2021 was successfully achieved, through collaborative work at no cost to USP, meeting the deadline set for the development of the graphic part of the game and curating the content to be promoted, which made it possible to publicize the Institute in its aspects of innovative architecture and the collection as heritage.



Figure 11 - IEB's entrance into the game. Photo: Reproduction

A seminar with developers and curators was held to publicize the development of the project from the initial idea, the challenges, the completion and future prospects. Being able to read the collection from a cross-cutting theme (namely the issue of the cultural influence of Afro-Brazilians), and not just those already known from the collection's holders, made it possible to recognize and value the richness of the IEB's artistic and documentary heritage, as well as to pay tribute to the researchers who make use of it and publish the results of their research in articles, podcasts and webinars made available as a form of entertainment for players. In addition to the collections in question, all the research work of IEB professors¹⁰ was taken into account, many of whom are cited in the game, in the different collections.

¹⁰ IEB professors: Alexandre de Freitas Barbosa, Ana Paula Cavalcanti Simioni, Fernando Paixão, Flávia Camargo Toni, Inês Cordeiro Gouveia, Jaime Tadeu Oliva, Luciana Suarez Galvão, Luiz Armando Bagolin, Marcos Antonio de Moraes, Monica Duarte Dantas, Paulo Teixeira Iumatti, Stelio Alessandro Marras, Walter Garcia, Antônio Dimas, Dulcilia Helena Schroeder Buitoni, Telê Ancona Lopez and Walnice Nogueira Galvão.

From September 3rd to October 13th, 2021, the game had more than 100 interactions and visits per day, totaling around 3,000 visits each month. This number grew steadily over time as access continued to increase. These statistics are still manual, as the system itself does not allow a clear view of access control. There is the prospect of growth from the conversation we had with the Municipal Department of Educationⁱⁱ, which took place in 2022, in which we discussed the dissemination to schools through the Minecraft Education edition, which will considerably expand access to the system.

It was therefore 40 weeks of gestation with different phases and 10 people who made an incredible contribution to the realization of the product. The game is flexible and adaptable, allowing for constant updates and interaction between participants. It reinforces the idea of future collaborative curatorships with society so that new themes can be explored and the collection can be seen from different angles and by different audiences.

I was recently invited to participate in the Games for Change Türkiye Festival in Istanbul in December 2024, at Bahçeşehir Üniversitesi (BAU), to disseminate the Institute's experience in creating IEB Minecraft. In our view, this invitation highlights the significance of the initiative and recognizes the value of such tools in sharing collections with a global, diverse audience, extending beyond mere entertainment.

Visit, get to know and explore is the initial call of IEB Minecraft (2021), so that everyone feels encouraged to embark on the adventure of unveiling the Institute's collection, helping it to fulfill its social function of studying the Brazilian reality.

COMPARATIVE OVERVIEW - PHYSICAL SPACE / VIRTUAL SPACE

In the following figures, we present a comparison between photographs of the Institute's physical environments and their corresponding representations within IEB Minecraft. All images are from the author's personal archive.

ⁱⁱ Conversation between the team and Daniela Harumi Hikawa, general coordinator of the Municipal Department of Education /SME/Coped.

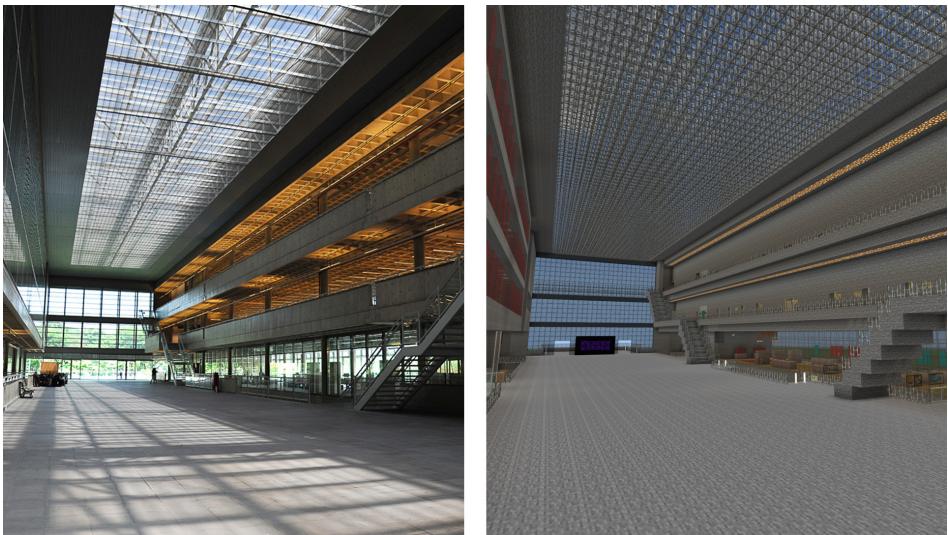


Figure 12 - Real internal space and in-game space



Figure 13 - Real external space (István Jancsó Auditorium) and inside the game

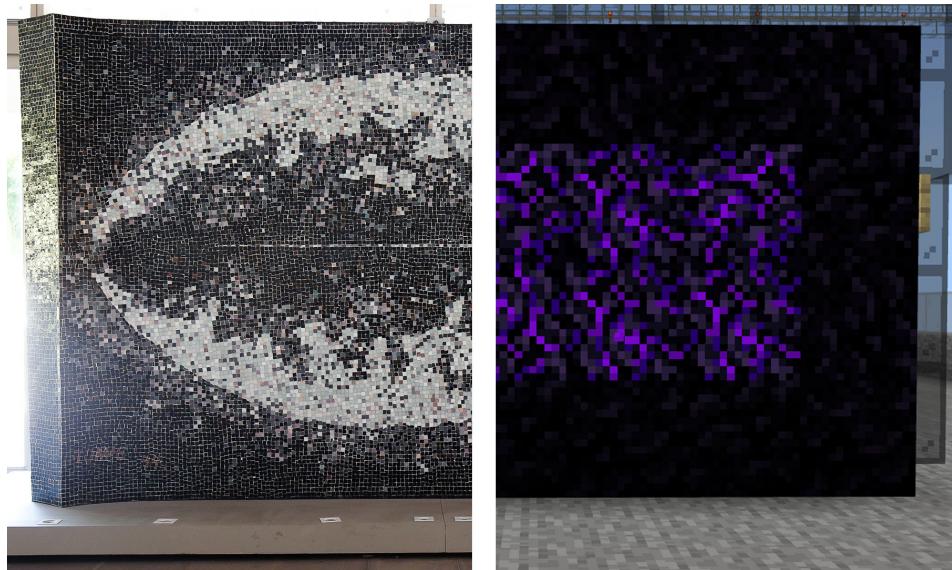


Figure 14 - Glass tablet mosaic by artist Tomie Ohtake and the work reproduced in the game



Figure 15 - Real library and space created within the game simulating a library



Figure 16 - Real meeting room and in-game space

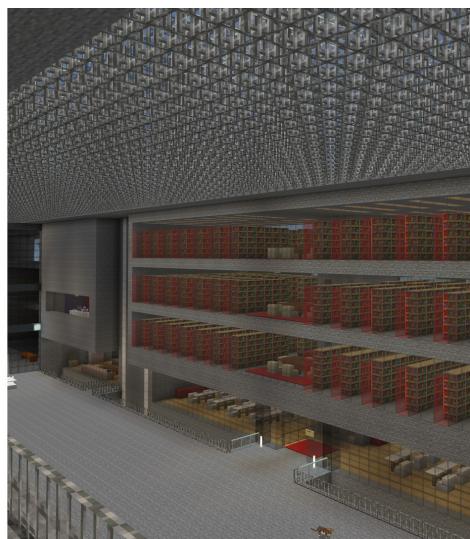


Figure 17 - Panoramic view of the real central space and in-game space from the same perspective

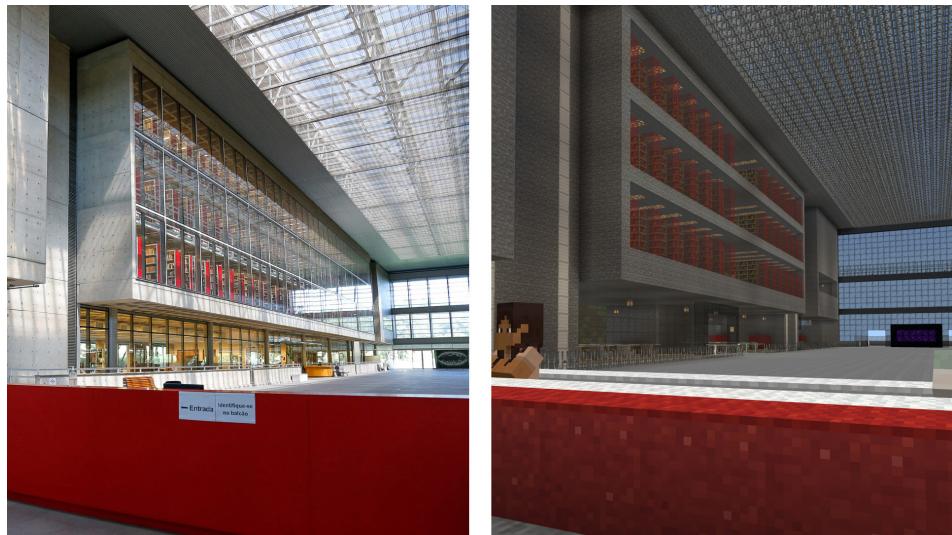


Figure 18 - Real IEB reception and virtual reception inside IEB Minecraft

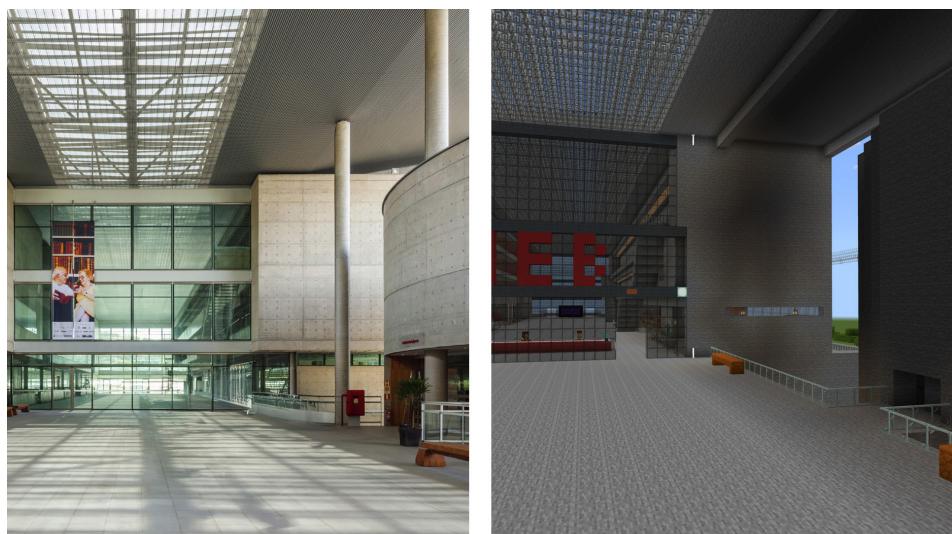


Figure 19 - Central space of Espaço Brasiliiana/IEB and virtual space in the game

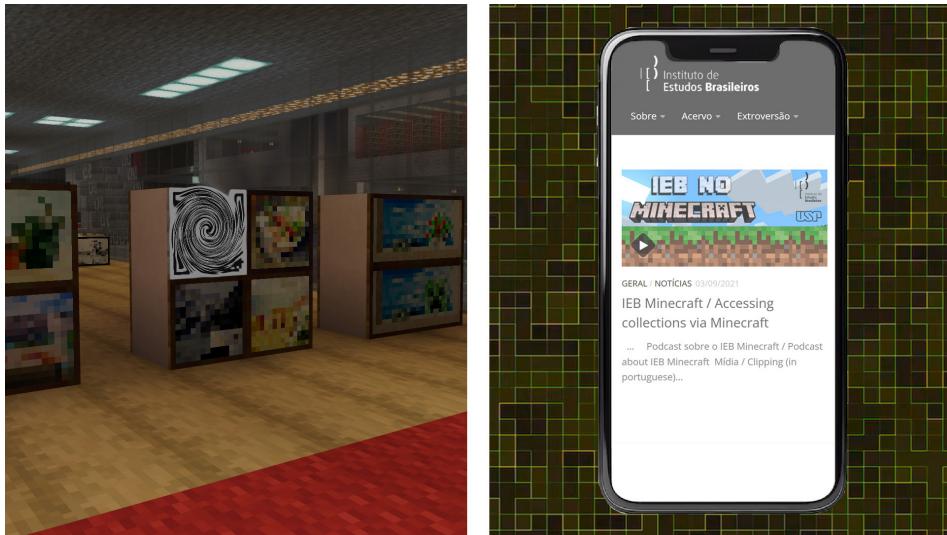


Figure 20 - Distorted QR code (as it can only be accessed within the game) and mobile access to the contents of the collections

SOBRE O AUTOR

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