

NAVIGATORS: AN EDUCATIONAL GAME WITH VARIOUS INDIGENOUS TERRITORIES

NAVEGANTES: UM JOGO EDUCACIONAL SOBRE TERRITÓRIOS INDÍGENAS DE DIVERSOS PAÍSES

NAVEGANTES: UN JUEGO EDUCATIVO SOBRE TERRITORIOS INDÍGENAS DE VARIOS PAÍSES



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ABSTRACT

Introduction: This article presents the development of a digital game that tells the story of four Indigenous peoples, addressing the curricular guidelines related to ethnic-racial issues, including Indigenous peoples. **Objective:** The objective is to introduce a mobile game in a 3D platform. **Methodology or Steps:** The methodological process involved a literature and systematic review focused on understanding the main Indigenous groups studied: the Māori, Inuit, Tuareg, and Yanomami peoples. After completing this stage, the construction of the Game Design Document began, aiming to create a game that would reflect the research findings. **Results:** As a result, a 3D mobile game was developed, showcasing the culture of four Indigenous peoples from different parts of the world.

Keywords: Indigenous. Digital Game. Culture. Original Peoples. Interdisciplinary.

RESUMO

Introdução: Este artigo traz o desenvolvimento de um jogo digital, relatando a história de quatro povos originários indígenas, abordando as diretrizes curriculares que tratam das questões étnico raciais, incluindo os povos indígenas. **Objetivo:** O objetivo é apresentar um jogo para dispositivos móveis e em plataforma 3D. **Metodologia ou Etapas:** O processo metodológico se deu com uma revisão literária e sistemática abordando e compreendendo sobre os principais povos indígenas aqui estudados: Maori, Inuit, Tuaregues e Yanomamis. Concluindo essa etapa, iniciou-se a construção do Game Design Document para apresentar um jogo que explorasse o que foi coletado no processo de pesquisa. **Resultados:** Como resultado, apresenta-se um game, desenvolvido para dispositivos móveis, em 3D, abordando a cultura de quatro povos originários de diversos países do planeta.

Palavras-chave: Indígenas. Jogo Digital. Cultura. Povos Originários. Interdisciplinar.

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RESUMEN

Introducción: Este artículo presenta el desarrollo de un juego digital que narra la historia de cuatro pueblos indígenas, abordando las directrices curriculares que abordan cuestiones étnico-raciales, incluyendo a los pueblos indígenas. **Objetivo:** Presentar un juego para dispositivos móviles en una plataforma 3D. **Metodología o pasos:** El proceso metodológico implicó una revisión sistemática de la literatura para abordar y comprender los principales pueblos indígenas estudiados: maorí, inuit, tuareg y yanomami. Al finalizar esta etapa, se elaboró el Documento de Diseño del Juego para presentar un juego que exploró los resultados de la investigación. **Resultados:** Como resultado, se presenta un juego desarrollado para dispositivos móviles en 3D, que aborda la cultura de cuatro pueblos indígenas de diversos países del mundo.

Palabras clave: Indígena. Juego Digital. Cultura. Pueblos Indígenas. Interdisciplinario.

1 INTRODUCTION

One of the great challenges faced by indigenous communities, quilombolas and others, without a doubt, is to keep their identity, beliefs and culture alive, making it a daily struggle to maintain this legacy. Therefore, it is important that several actions to strengthen culture are carried out to keep an entire legacy alive from generation to generation. Among one of the actions is the use of technologies and playful activities, including digital games. (Compto and Vaz, 2023).

In (Moraes, et al, 2023) present data from the Brazilian Institute of Geography and Statistics (IBGE) (Brazil, 2023), that currently the population declaring as indigenous exceeds more than 1,600,000, identifying a growth when compared to the period from 1991 to 2002, also highlighting that this number is mostly found in the north and northeast regions of Brazil and the country's ethnic groups are the Pataxós, Potiguaras, Guaranis, Tupis, Caiaganges or Caingangues, Guajajaras, Xavantes, Yanomamis, Ticunas, Macuxis and Terenas.

Also in (Moraes, et al, 2023) cites (BRASIL, 2010) bringing that in total there are more than 270 languages in the more than 300 existing ethnicities, that is, even though they have characteristics and belong to indigenous native peoples, among the communities there is still a diversity between languages, cultures and other social characteristics.

When consulting the 2022 census overview, available on the IBGE website, the exact amount available for the indigenous population is 1,694,836 total, of which 1,227,642 are indigenous color or race and 467,194 consider themselves indigenous. In the 2022 IBGE Census, the value of indigenous languages spoken is 274 per 305 ethnic groups. The names of indigenous peoples are Portugueseized and written with a lowercase initial, they stand out as indigenous peoples: Yanomamis, Carajás, Caiapós, Tupis, Caingangues, Guaranis, Uaimiris, Xavantes (Brazil, 2023).

Cited by (Moraes, et al, 2023), (Kayapó and Brito, 2014), it brings a reflection that in current times, valuing culture and customs has been a major problem faced by indigenous peoples. In addition, in the syllabus of schools and even in printed and digital materials, many misconceptions about indigenous culture are reported, including the discovery of Brazil, where there are distortions of this culture.

After so much reflection on the theme proposed here, this article believes that the teaching process is a path to the appreciation of native peoples, and can be expressed in different ways. Acknowledging the interdisciplinary and transversal process, as part of a partnership, this article comes from an integrative project carried out in each semester, which addresses themes required by the National Curriculum Guidelines for the Education of Ethnic-Racial Relations and for the Teaching of Afro-Brazilian and Indigenous History and

Culture (Law No. 11,645 of 03/10/2008; Resolution CNE/CP No. 01 of June 17, 2004), whose contents are worked on in curricular components that already have the objective of acclimatizing the student with the history of Brazil, in order to encourage the creation of games with national themes, involving plurality and the appreciation of Bahian and Brazilian cultures. (Sales, et al, 2024).

The Education of Ethnic-Racial Relations and Afro-Brazilian, African and Indigenous History and Culture has as its legal basis Law No. 9394/1996, as amended by Laws No. 10,639/2003 and No. 11,645/2008, and Resolution CNE/CP No. 1/2004, being based on Opinion CNE/CP No. 3/2004, which establishes: §1 Higher Education Institutions shall include in the contents of disciplines and curricular activities of the courses that teach the Education of Ethnic-Racial Relations, as well as the treatment of issues and themes that concern Afro-descendants, under the terms explained in Opinion CNE/CP 3/2004. (CNE/CP Resolution No. 1/2004). (Sales, et al, 2024).

The legal basis presented places the ethnic-racial issue on the national agenda and reinforces the importance of debating in undergraduate courses the recognition and appreciation of the history, culture and identity of indigenous peoples and African descendants, in an education that encourages the student to develop values, habits and behaviors that respect the differences and characteristics of groups and minorities, and that in their future professional practice will allow them to seek the correction of racial and social inequalities through changes in discourses, reasoning, logic, gestures and postures, developing practices that repudiate prejudice and discrimination. (Sales, et al, 2024).

In the digital age, thinking about working with technology as an ally is a valid pedagogical strategy, becoming one of the actions to strengthen the culture of native and indigenous peoples. Among the existing technologies, games have stood out for their playful and entertaining role, contributing to learning and in a fun way. The case study, presented by (Compto & Vaz, 2023), observes that students from an indigenous municipal school are unaware of the culture of the indigenous Kokama people, an ethnic group that is part of the same region as the school, but unknown to them. So, one of the strategies used by the research is the use of games to strengthen the Kokama indigenous culture so that the students of this school recognize and value the local culture.

Considering the importance of the ethnic-racial issue addressing indigenous culture, the game developed here embarked on an adventure that will unite indigenous peoples from different parts of the world, thus demonstrating that despite having characteristics in common, each territory has its culture, way of eating, its own climate, demonstrating how necessary it is to preserve the culture and customs of the original peoples.

In Navegantes, players embark on an epic journey through a vast open world, exploring territories inspired by four indigenous cultures: the Maori, the Yanomamis, the Tuaregs, and the Inuits. As a mysterious traveler, the player must cross oceans, dense forests, deserts, and icy lands to help these communities restore lost cultural ties. In each region, unique challenges reflect the reality and customs of these peoples, requiring exploration, puzzle-solving, and collaboration to rebuild harmony among civilizations.

The game developed here is available on the 3D platform and *Mobile (Android)* and in addition to the *singleplayer* For the game's campaign mode, the *multiplayer*.

2 THEORETICAL FOUNDATION

This section brings all the foundation and theoretical study, fundamental for the development of the game presented. Knowing each people, custom and culture undoubtedly contributed to the narrative and plot of this proposal.

With a stylized art style and cooperative gameplay, Navegantes highlights the importance of cultural diversity and collaboration to overcome challenges. Each culture brings not only new mechanics and quests, but also rich stories passed down by its elders. By connecting these peoples and rekindling forgotten traditions, the player becomes a true messenger of unity, reflecting on the need to preserve and respect the cultural heritage of indigenous nations around the world. And this knowledge was only possible with a lot of study and search for references for the original peoples mentioned here.

The Maori, inhabitants of the Pacific islands, teach the player the importance of connecting with the ocean, leading challenges based on navigation, canoeing and haka war rituals. In the territories of the Yanomamis, within the Amazon, the player must learn to live with the forest, using traditional knowledge of hunting, gathering and healing with medicinal plants. Once in the Sahara desert, the Tuareg share their wisdom about survival in extreme conditions, involving the player in dune orientation mechanics and nomadic trade. Finally, in the frigid lands of the Inuit, ice fishing, seal hunting, and igloo building become essential skills to face the hostile climate and understand the Inuit's way of life.

In the subsections, we highlight each original people studied.

2.1 ORIGINAL PEOPLE: MAORI

Originally from New Zealand, also known as indigenous people of the land. They are Polynesians, comprising 14% of the country's population. The native language of this people is Maoritanga, which is related to Tahitian and Hawaiian. According to history, it was in the period from the 9th to the 13th century AD that the Maori people of New Zealand migrated to

Polynesia. They inhabited the lands long before the British colonizers. In the year 1980, Maori culture was accepted, respecting traditions, language and history. But a feature that draws attention today is the dance of the warriors. (Bombonato & Xavier, 2021) (Walker, 1997).

2.2 ORIGINAL PEOPLE: YANOMAMI

Living between the Amazon and Orinoco basins, in a region full of mountains and with a unique tropical forest, the Yanomami people are located between the states of Brazil: Roraima and Amazonas and southeastern Venezuela. However, the territory belonging to Brazil is the majority (Lobo & Cardoso, 2023).

The region where this people lived together for many centuries contributed to the distancing of indigenous people from non-indigenous people, precisely because of its relief full of mountains. At the beginning of the twentieth century, the relationship between them began to be possible. (Toledo, et al, 2023). Despite the distance, these people stand out as people of good humor and with great territorial mobility. (Ramos, 2008).

For (Lobo and Cardoso, 2023), which he cites (Ferreira, et al, 2019), this people is subdivided into the following six subgroups: Sanöma, Ninam, Yanonami, Yaroamë, Yãnoma and Yanomam, sharing a cultural and linguistic unity.

In his work, (Lobo and Cardoso, 2023) cites The Lancet (2019):

They live in small villages and move for various reasons: hunting and management of natural resources and gardens; divisions of groups for political or family reasons; visits to strengthen ties and exchanges between groups; participation in ceremonies and rituals. The presence of religious missions, posts of the National Indian Foundation (FUNAI) and platoons of the Brazilian Army (military project of occupation and integration Calha Norte, 1985) interfere with this logic, exerting a centripetal force of population concentration around their installations. Illegal mining, roads and invasions in its territory have explosive magnitude: they drive away, attract, destroy, decimate. This has happened, with fluctuating intensity, over the last few decades, producing an enormous impact on Yanomami life, health, and society. However, in the last four years, it has acquired the contours of genocide, by deliberate government omission and encouragement of illegal activities The Lancet. (2019).

2.3 ORIGINAL PEOPLE: TUAREG

People living in North Africa, originating from the Sahara to Mali, encompassing Niger, Algeria, Libya and extending from the Sahara to Mali, Niger, Algeria, Libya and Burkina Faso. Its language is Berber and Tamasheq. Regarding the population, in the Mali region, there are more numbers in Kidal, which is in the northeast of the country, while in Niger, the population is estimated at 2 million people. In Lebanese territory, they live in the extreme southwest, in

Algeria in the south, in Nigeria in the extreme north of the country and Burkina Faso, the Tuareg live in the country. (Rasmussen, 2010).

Known as semi-nomads, they stand out for their physique and Arab influences and origins from the south of the Sahara. They are practitioners of the Sunni Islamic religion with very traditional beliefs. Another point that stands out are the camels used by them, known as meharis, a fast and resistant breed. (Rasmussen, 2010).

2.4 ORIGINAL PEOPLE: INUIT

Cited by (Silva, 2020), (CLOUTIER, 2005, p. 05) reports that these people live in colder and more extreme regions, so it is necessary to think about habits and logistics to live in an ice region. They inhabit Greenland, Russia, the United States and Canada and activities such as hunting and fishing are highlights in this people.

In his work (ROSA, 2011, p. 111), cited by (Silva, 2020), he estimates that until the year 2004 in Arctic reserves the housing population was 100 thousand. The supply of fat and protein is linked to whaling, through the hunting practices already mentioned in the previous paragraph. The religion of this people is shamanism. Including people from all parts of the world, it is estimated that there are approximately 180,000 Inuit people. Para (PINTO, 2018, p. 14), also cited by (Silva, 2020), presents a petition informing that this people is endangered, with the contribution and collaboration of the United States with predatory actions, thus contributing to environmental imbalance. Among the environmental actions are: environmental neglect, lack of mobilization, lack of actions to mitigate climate ills and actions that protect the Inuit people. (Silva, 2020). Next section, we move on to the developed game.

3 THE DEVELOPED GAME AND METHODOLOGICAL PATH

Before talking about the game developed, this project was based on the same methodological path, brought by (Rios, et al, 2022), classifying this work as a literature review process of an exploratory nature, with the objective of developing a digital game. The platform developed was for mobile, *singleplayer* and *multiplayer* devices, enabling users/players to entertain, learning and understanding all the culture related to the various indigenous indigenous peoples. Of the steps presented in the work by (Rios, et al, 2022), the only step not carried out was the field visit. Still in the methodological process, starting with the GDD (Game Design Document) was fundamental so that the plot and narrative could be developed, so that the construction of characters, scenarios, mechanics, could become reality.

Navegantes is an open-world adventure game that explores cultural diversity and the union between peoples. In the role of Wendel, an orphan raised by travelers on Cultural Island, the player navigates continents inspired by unique cultures, helping communities to reestablish lost ties, must navigate the seas, help isolated communities reestablish ties and seek the truth about the separation of the islands. With a stylized look and cooperative gameplay, the game highlights the importance of cultural connections and collaboration in a divided world. Players are invited to explore and connect culturally rich islands, which have lost touch over time, emphasizing cultural diversity, collaboration, and valuing differences through interactive quests and celebratory events.

The main scenarios are: Cultural Island, a neutral and commercial point, where travelers gather; Maori island, land of navigators, faces a problem with aggressive Kakapos birds; Tuareg Island, a desert inhabited by nomadic traders and finally Yanomami Island, a tropical forest with deep knowledge of nature.

3.1 GAME CHARACTERS

In this section the characters of the game will be demonstrated, the first is Wendell, a young man who grew up on Cultural Island, a port for travelers located in the middle of the ocean. Abandoned as a child, it was created by several navigators and merchants who passed through the island. Always immersed in stories about the outside world, he dreamed of exploring the four territories and discovering more about the mystery of the separation of the continents. Departing from the Cultural Island, you will get to know each of the four imaginary peoples, learning from them and developing your own identity as navigators and conflict mediators. It is represented in Figure 1.

Figure 1

Physical characteristics of the character

Visual	Idade: 15
	Tipo Corporal (Altura/Peso): Corpo ágil e levemente robusto
	Pele: Pardo
	Cabelo: Castanho
	Olhos: xxx
	Face: Quadrática
	Expressões faciais: E
	Trajes: Veste roupas leves de navegante



Source: From the authors

The Cultural Island stands out for being a meeting point for travelers from all over the world. Wendell grew up hearing stories about the unified continent's past and developed a

strong desire to understand its division. Being an orphan, he was raised collectively by the travelers of the Cultural Island, having a strong bond with the merchants, fishermen and storytellers who helped him grow up, spending his childhood helping travelers, observing trade exchanges and learning about navigation. An ancient merchant named Omar and a Maori navigator named Hina, helped create it. Curious and determined, but also realistic about the challenges of the outside world, he always sought to find a peaceful way to solve problems. Its main task is to understand the reason for the separation of the continents and to find a way to unite peoples again. The next characters, represented in figure 2, are the *NPCs* (*non-playable character*) of Maori territory. They are a warrior and spiritual people, deeply connected to the ocean and the traditions of their ancestors. Tattooing and dancing are ways to tell your stories and keep your identity alive.

Figure 2

Physical characteristics of the Maori and the Yanomami

Visual	Idade: 10 - 80	Visual	Idade: 10 - 70
	Tipo Corporal (Altura/Peso): Forte e musculoso, ideal para combate e navegação.		Tipo Corporal (Altura/Peso): Baixa estatura, corpo esguio e ágil
	Pele: Bronzeada pelo sol		Pele: Pardos
	Cabelo: Preto, curto ou longo.		Cabelo: Longo, liso e escuro
	Olhos: xxx		Olhos: xxx
	Face: Quadrática		Face: Quadrática
	Expressões faciais: imponentes		Expressões faciais: Atento
	Trajes: Saias de fibra, colares de ossos e mantos cerimoniais.		Trajes: Saias de fibra vegetal e ornamentos de penas
	Outras/Especiais: Uso de adornos como pulseiras e tornozeleiras		Outras/Especiais: Uso de adornos como colares e pulseiras

Source: From the authors

With the arrival of Wendell, the Maori will further strengthen their connection to the ocean by passing on their navigational techniques. Living in coastal villages or islands, they are structured in the Whānau community (extended family), where everyone protects each other, known as navigators, warriors and masters in the art of tattooing. Alongside the Maori, we have the *NPCs* from the Yanomami territory, who live in the dense Amazon forest, organized in longhouses, maintain a deep connection with nature, believing in the spirits of the forest to guide and protect them. It lives from hunting, fishing and sustainable agriculture and needs to protect the forest and maintain the spiritual balance between human beings and the spirits of nature. Living in cooperative groups, where the sharing of resources and the wisdom of the elders are essential. Healers and shamans serve as spirit guides and protectors of the forest. Each member has a strong connection to the community and the spirits and communicates through stories, chants, and shamanic rituals. The next characters are the *NPCs* of Tuareg territory. The Tuareg are the "blue men of the desert," known for their

indigo robes and their uncanny ability to navigate the Sahara. They are nomads who respect the secrets of the dunes and know the paths of the stars like few others.

Figure 3

Physical characteristics of the Tuareg and Inuit

Visual	Idade: 10 - 70	Visual	Idade: 10 - 65
	Tipo Corporal (Altura/Peso): Altos e esguios, adaptados ao calor extremo.		Tipo Corporal (Altura/Peso): Robusto, adaptado ao frio extremo.
	Pele: Negra, marcada pelo sol escaldante.		Pele: Tons pálidos ou bronzeados pelo frio, protegidos por peles de animais.
	Cabelo: Preto, curto.		Cabelo: Preto ou castanho, geralmente curto e escondido sob capuzes.
	Olhos: xxx		Olhos: xxx
	Face: Quadrática		Face: Quadrática
	Expressões faciais: Serenas e cheias de sabedoria.		Expressões faciais: Serenas e observadoras.
	Trajes: Mantos indigo, longos e protetores contra a areia e o calor.		Trajes: Roupas de pele e couro de animais, resistentes ao frio intenso.

Source: From the authors

The characters constantly move in caravans. They are family members who travel together, sharing stories and teachings. Made up of merchants, guides, warriors and storytellers, their dromedaries and the stars that guide them through the desert. Alongside the Tuareg, the characters stand out *NPCs* Inuit territory. They are a resilient people who live in the icy lands of the Arctic. They possess a deep knowledge of snow and ice, hunting and fishing to survive. The connection with the spirits of the Northern Lights and respect for animals are fundamental in their culture. They seek to keep their traditions alive while facing climate change that threatens their way of life. In small communities isolated on the ice, living from hunting and fishing. The family is united, sharing food and shelter in the midst of the cold. They are hunters, fishermen, igloo builders and spiritual shamans and have their sled dogs.

3.2 CHALLENGES AND GAME PHASES

The Cultural Island (figure 4) is a lush tropical island, with beaches, wooden villas, trading areas and a small port, it is surrounded by calm waters and full of diverse vegetation. Wendel, an orphan raised on Cultural Island, decides to start his journey when he turns 15, it is on this island that he learns the basic mechanics and hears stories that inspire his journey. More than 100 years ago, peoples lived together on a single continent, however, disunity awakened a mysterious force that made the tectonic plates move, separating them into isolated islands, with the exception of the Cultural Island, where differences are set aside in the name of peace and trade.

Figure 4

Cultural island image



Source: From the authors

The player receives a briefing of the main quest: explore the cultural island, learn basic skills, and prepare the raft for the journey. Among the activities are: learning basic navigation skills and interacting with NPCs (non-playable character), non-playable players, to obtain information. After completing these missions, the player prepares to leave Cultural Island, heading for Maori Island.

Figure 5

Maori Island



Source: From the authors

Maori Island (figure 5) is made up of several mountainous islands with coastal villages, agricultural areas, and ceremonial sites. The main village is where the Maori leader resides. The forests where the Kakapos live and where research must be conducted and the area of the ancestral tree is the climbable location of the mission. Wendel is informed about the problem with the Kakapos and the need to gain the trust of the Maori leader.

Figure 6

Kakapos Revolt Mission



Source: From the authors

After resolving the problem with the Kakapos, the Maori leader thanks Wendel and offers his support. Wendel prepares for his next adventure on Tuareg Island.

Figure 7

Tuareg Island



Source: From the authors

The Tuareg Island is formed by a Great desert with scattered oases and villages in regions with greater vegetation. A large river that cuts the island into three pieces of land, inhabited by animals and a small village under attack from Caracals, where the Caracals must be driven out of the small village. Wendel is informed about the problem with the Caracals and the need to gain the trust of the Tuareg leader.

3.3 SINGLEPLAYER AND MULTIPLAYER

In the *singleplayer campaign*, the player takes on the role of Wendel and embarks on a non-linear narrative, having the freedom to explore other islands, discovering the universe of Navegantes at their own pace. Your mission is to unravel the mysteries of this world and reconnect the tribes. For *multiplayer* mode, 2 to 4 players start on a platform that slowly descends to the sea. In a competitive environment, the most agile player stands out as the survivor, while everyone faces off against a hungry shark that roams the playing area. In addition, items that appear on the stones provide brief moments of relief.

Figure 8

Multiplayer Stage and Shark Enemies



Source: From the authors

Among the technologies and tools used are: for modeling, the *Blender*, for the animation, the *Blender*, *Mixamo* and the *Unity*, the programming to *Unity engine*, for making arts, menus, etc. *Inkscape* and the sound *Pixabay*.

4 CONCLUSION

This article presented the result of a digital game based on iconographic research and specific cultural references of each people portrayed, ensuring respect and visual authenticity.

The characters, creatures, and objects in the game were developed using the software *Blender*, focusing on 3D modeling in the style *Low Poly*. This aesthetic approach not only ensures a stylized and artistic look but also contributes significantly to performance on mobile devices, keeping the game lightweight and accessible to a wider user base.

The animal animations were developed directly in the *Blender* using systems of *rigging* com, allowing the creation of realistic movements such as running, jumping, swimming and interacting with the environment. Animal behavior was adjusted according to the biome (forest, ice, desert, ocean), with specific movements for each context. The multiplayer mode was implemented using the Photon Engine, a robust framework for online games in *Unity*. It allows matches of 2 to 4 players in real time, with efficient synchronization of states and low bandwidth consumption.

The sounds and soundtracks have been carefully selected from Pixabay, ensuring the use of copyright-free materials. The sound curatorship considered the specific settings of each biome represented in the game, resulting in compositions that follow the cultural identity of each region.

For Yanomami Island, forest sounds were used, with bird songs and the flow of rivers; On the Inuit island, crackling ice, biting winds, and distant howls were introduced; On the Maori island, the waves of the sea, the sound of oars and traditional haka rituals stand out; The Tuareg island is set with sandstorms, camel bells and percussive instruments typical of the desert.

Finally, this article developed a digital game for mobile devices, in 3D, exploring the history of different indigenous peoples, with ethnicities, geographic location and cultures totally diverse in other countries of the continent. This game can be used for history and geography classes and for the dissemination of knowledge of various people during classes, pedagogical activities.

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