

Interactive Website with Animations and Illustrations to Teach Children Aged 7 to 10 about Marine Ecosystems and Wildlife in Colombia.

AUTORES

Natalia González Araque

- ORCID: <https://orcid.org/0009-0000-8349-5384>
- GOOGLE SCHOLAR: nataliagonzaleza@usantotomas.edu.co

Amme Tanisha Jay Jackson

- ORCID: <https://orcid.org/0009-0008-2786-784X>
- Google Scholar: Ammetjackson@gmail.com

RESUMEN

AquaKidi: pequeños exploradores del océano es un proyecto que busca diseñar una página web interactiva con animaciones e ilustraciones para enseñar a niños de 7 a 10 años sobre los ecosistemas y la fauna marina en Colombia. Surge ante la falta de recursos digitales amigables y educativos enfocados en esta temática para el público infantil. Aprovecha el interés natural de los niños por la tecnología, integrando elementos visuales, narrativos y lúdicos que facilitan el aprendizaje y fomentan la conciencia ambiental desde temprana edad.

La metodología combina enfoques cuantitativos y cualitativos, incluyendo encuestas, observaciones y análisis de usabilidad, para desarrollar una plataforma atractiva e intuitiva. Se basa en teorías pedagógicas modernas que promueven el aprendizaje significativo y participativo.

Este proyecto contribuye al Objetivo de Desarrollo Sostenible #14, promoviendo el conocimiento y la protección de los océanos, e inspira a los niños a convertirse en guardianes de los ecosistemas marinos a través del juego y la tecnología.

PALABRAS CLAVE: Infancia, Interactividad, Educación ambiental, Experiencia de usuarios (UX), Animaciones en la educación.

ABSTRACT

AquaKidi: Little Ocean Explorers is a project aimed at designing an interactive website with animations and illustrations to teach children aged 7 to 10 about ecosystems and marine wildlife in Colombia. It arises from the lack of friendly and educational digital resources focused on this topic for young audiences. The project leverages children's natural interest in technology by integrating visual, narrative, and playful elements that facilitate learning and foster environmental awareness from an early age.

The methodology combines quantitative and qualitative approaches, including surveys, observations, and usability analysis, to develop an attractive and intuitive platform. It is based on modern pedagogical theories that promote meaningful and participatory learning.

This project contributes to Sustainable Development Goal #14 by promoting knowledge and protection of the oceans, inspiring children to become guardians of marine ecosystems through play and technology.

KEYWORDS: Childhood, Interactivity, Environmental education., User experience (UX), Animations in education.

INTRODUCTION.

The *AquaKidi: Little Ocean Explorers* project arises from the need to improve environmental education in Colombia, especially for children aged 7 to 10, who lack interactive digital resources focused on the country's ecosystems and marine wildlife. Currently, there is a limited supply of engaging educational platforms that address these topics in a playful and visual way, which restricts ocean literacy from an early age.

This project proposes the design of an interactive website with animations and illustrations, leveraging the digital environment as a teaching tool tailored to the cognitive and emotional characteristics of children. To achieve this, objectives were set around analyzing environmental content, identifying child-centered design criteria, and integrating visual and narrative elements. The methodology used followed a mixed approach, combining quantitative analysis of the platform's use with qualitative observations to evaluate the user experience. The main result was the development of a functional and appealing website that promotes understanding of Colombian marine ecosystems through interactivity.

In conclusion, the creation of an interactive website is proposed, incorporating all the features analyzed and required to ensure effective engagement with the target audience.

LITERATURE REVIEW.

The research titled “Environmental Education in Colombia, Utopia or Reality” (2019) argues that environmental education should be mandatory and approached interdisciplinarily from preschool through secondary education, allowing students to integrate and apply this knowledge across social, political, and cultural areas. Colombia, with its rich marine biodiversity due to coastlines on two oceans, faces low ocean literacy despite the importance of protecting these ecosystems. The project aims to help improve this situation through an interactive website for children, promoting environmental education and ocean literacy.

Additionally, the educational plan of the Colombian Marine Natural History Museum (2024) proposes an innovative pedagogical approach called “Teaching for Understanding,” focused on children and youth. It encourages meaningful learning through games and challenges that foster creativity and deep comprehension.

Lastly, the Spanish project eJunior (2015) uses augmented reality and serious games to enhance learning in primary education, based on pedagogical theories such as experiential learning and multiple intelligences. This initiative serves as a methodological reference for the project, highlighting the effectiveness of technology in interactive environmental education.

OBJECTIVES

- **General objective:**
Design an interactive website with animations and illustrations to teach children aged 7 to 10 about ecosystems and marine wildlife in Colombia.

- **Specific objectives:**
 - Analyze existing content about ecosystems and marine wildlife in Colombia.
 - Identify the characteristics of a child-friendly and intuitive website.
 - Establish the functional attributes and visual scheme for the website development, integrating user interaction criteria and visual narrative elements.

METHODOLOGY.

A mixed-methods approach was used, combining quantitative and qualitative analysis to evaluate the educational impact and children's experience interacting with the website.

The main steps were:

1. **Data Collection:**
 - Review of educational materials about ecosystems and marine wildlife in Colombia.
 - Analysis of children's websites to identify illustrations, animations, and usability.
 - Study of UX/UI design focused on children to understand navigation patterns and visual preferences.
 - Surveys conducted with children, parents, and teachers to understand needs and preferences.
2. **Analysis:**
 - Organization and selection of relevant information for development.
 - Prototyping ideas for animations, illustrations, and site structure.
 - Designing a User Journey to visualize usability from the children's perspective.
3. **Development:**
 - Creation of illustrations and animations based on the analysis.
 - Programming the website integrating graphic elements.
 - Usability testing with children to make necessary adjustments.
4. **Outcome:**
 - Launch of an interactive website for children aged 7 to 10 about ecosystems and marine wildlife in Colombia.
 - Creation of a social media campaign to promote the project to schools and interested institutions.

RESULTS.

Upload the interactive website with animations and illustrations to teach children aged 7 to 10 about ecosystems and marine wildlife in Colombia, and create a social media campaign to ensure the project reaches children, schools, or institutions interested in marine wildlife education.

Referencias Bibliográficas

1. Camargo, P. A. (2023). Diagnóstico del conocimiento oceánico en estudiantes de educación básica y media secundaria en el departamento del Magdalena, Colombia. Recuperado de: <http://hdl.handle.net/11349/39472>
2. García, J. A. (2024). Plan educativo del museo de historia natural marina de Colombia (MHNMC) - Makuriwa del Invemar, para la conservación de la biodiversidad marina. Recuperado de: <http://hdl.handle.net/11349/41035>
3. García Aretio, L. (2019). Necesidad de una educación digital en un mundo digital. Revista Iberoamericana de Educación a Distancia, 22(1), 9-24. <https://www.redalyc.org/journal/3314/331460297001/331460297001.pdf>
4. García Noguera, L. J. C., Panameño Viveros, Y. F., & Valencia Montañó, C. Y. (2024). Estrategias pedagógicas para fomentar la conciencia ambiental en la conservación de los esteros marinos: Un enfoque integral. Universidad Popular del Cesar. https://doi.org/10.37811/cl_rcm.v8i6.15822
5. González Blancas, E. (2015). Diseño de una herramienta web educativa para apoyar el aprendizaje de la geografía en niños de primaria (Tesis de licenciatura). Benemérita Universidad Autónoma de Puebla.
6. Hassan, A., Martín Fernández, F., & Iazza, G. (2014). Diseño orientado a niños. No Solo Usabilidad. https://www.nosolousabilidad.com/articulos/disenio_orientado_ninos.htm
7. Hernández Contreras, JD. (2024). El color intertextual, activo y transversal en la ilustración de cuentos clásicos: una mirada artístico-práctica a Blancanieves y Alicia en el País de las Maravillas a lo largo de los siglos XIX y XX [Tesis doctoral]. Universitat Politècnica de València. <https://doi.org/10.4995/Thesis/10251/213916>
8. Hernandez, J., y Oliveros Aya, C. . (2023). El color en los cuentos de hadas y los derechos humanos: la transversalidad del color detrás de la narrativa de Alicia y Blancanieves. Novum Jus, 17(2), 301–328. <https://doi.org/10.14718/NovumJus.2023.17.2.12>
9. Hernández, J. (2023). El color como elemento sémico y narrativo de características políticas y socioculturales en la ilustración de cuentos clásicos. cultura latinoamericana, 1(37), 194–207. recuperado a partir de <https://editorial.ucatolica.edu.co/index.php/revclat/article/view/544>
10. Henao Hueso, Osieris, & Sánchez Arce, Luis. (2019). La educación ambiental en Colombia, utopía o realidad. Conrado, 15(67), 213-219. Recuperado en 10 de marzo de 2025, de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1990-86442019000200213&lng=es&tlng=es
11. López, D. C. P. (2015). eJUNIOR: Sistema de Realidad Aumentada para el conocimiento del medio marino en educación primaria. QUID: Investigación, Ciencia y Tecnología, (24), 35-42.
12. Martínez Castillo, R. (2010). La importancia de la educación ambiental ante la problemática actual. Revista Electrónica@ Educare, 14(1), 97-111. <https://www.redalyc.org/journal/3314/331460297001/331460297001.pdf>
13. Nielsen Norman Group. (2019). Children's UX: Usability issues in designing for young people. Nielsen Norman Group. <https://www.nngroup.com/articles/childrens-websites-usability-issues/>

14. ONU (S. F.). Océanos - Desarrollo sostenible. Desarrollo Sostenible.
<https://www.un.org/sustainabledevelopment/es/oceans/>
15. Ramírez, S. U., & Solano-Fernández, I. M. (2021). Tecnologías digitales para la enseñanza en Educación Infantil. Edutec, Revista Electrónica de Tecnología Educativa, (76), 1-6.
16. Pico, L. M. & Díaz, W. Y. (2024). Aprendizaje Basado En Juegos Para Potenciar Las Operaciones Concretas Por Medio De Un Objeto Virtual De Aprendizaje (OVA) Con Niños De 6 A 8 Años Del Grado 1-01 De La I.E. Nieves Cortes Picón Del Municipio De Girón/Santander. Recuperado de: <http://hdl.handle.net/11634/59606>
17. Flórez, D. A., Hernández, A. N. & Ramírez, M. A. (2020). Co-diseño para la creación y desarrollo del producto editorial digital interactivo: «Toc-Toc: Mi nuevo amigo Monsterlorc». Recuperado de: <http://hdl.handle.net/11634/28119>