



Category: International Congress on Education, Technology and Science (CIETYC 2024) Quindío Colombia

EDITORIAL

International Congress on Education, Technology and Science (CIETYC 2024) Quindío Colombia

Congreso Internacional de Educación, Tecnología y Ciencia (CIETYC 2024) Quindío Colombia

Organizing Committee

ABSTRACT

The International Congress on Education, Technology and Science (CIETYC 2024), held at the Universidad del Quindío, brought together more than 60 speakers from eight countries, highlighting research and reflections on science, education and technology in the fourth industrial revolution. The three-day event addressed topics such as artificial intelligence in education, university internationalization, social innovation and knowledge economy, promoting interdisciplinary collaboration networks. This event reaffirmed the commitment of the participating institutions to the transformation of educational ecosystems and regional development, inspiring new proposals and innovative projects.

Keywords: Artificial Intelligence, University Internationalization, Social Innovation, Digital Education, Collaborative Networks.

RESUMEN

El International Congress on Education, Technology and Science (CIETYC 2024), celebrado en la Universidad del Quindío, reunió a más de 60 ponentes de ocho países, destacando investigaciones y reflexiones sobre ciencia, educación y tecnología en la cuarta revolución industrial. Durante tres días, se abordaron temas como inteligencia artificial en la educación, internacionalización universitaria, innovación social y economía del conocimiento, promoviendo redes de colaboración interdisciplinaria. Este evento reafirmó el compromiso de las instituciones participantes con la transformación de los ecosistemas educativos y el desarrollo regional, inspirando nuevas propuestas y proyectos innovadores.

Palabras clave: Inteligencia Artificial, Internacionalización Universitaria, Innovación Social, Educación Digital, Redes de Colaboración.

Dear community:

It is with satisfaction that we present the proceedings of the International Congress on Education, Technology and Science (CIETYC 2024), an event that, once again, consolidated its position as a forum of excellence for the exchange of knowledge and the generation of innovative ideas. Held at the Universidad del Quindío, in the heart of Colombia, this congress brought together more than 60 distinguished speakers

and lecturers from eight countries: the United States, Peru, Argentina, Costa Rica, Venezuela, Guatemala, Panama and Colombia.

During three days of intense academic sessions, participants shared research, reflections and experiences on the challenges and opportunities in the fields of science, education and technology. This meeting not only explored solutions to contemporary challenges, but also facilitated the creation of interdisciplinary collaboration networks, strengthening the dialogue between national and international experts.

Among the topics discussed was the role of artificial intelligence in research and education, as well as its potential to transform learning ecosystems. Presentations on university internationalization, social innovation and the knowledge economy showed how these areas are key to driving regional and global development. In addition, practical workshops and inspiring lectures addressed aspects such as innovation in productive sectors and the impact of digital technologies in academia.

The rector of the Universidad del Quindío, Luis Fernando Polanía, said during the opening of the event: “This sixth version of the congress invites us to reflect on how to transform our educational institutions to adapt them to a world in constant change, marked by the advances of the fourth industrial revolution”. These words reflect the spirit of CIETYC 2024, which focused on promoting the adaptation of educational systems to the demands of the 21st century.

The articulation between science, education and technology was a central axis of the congress, highlighting the importance of using tools such as artificial intelligence and digital resources to enhance learning and human development. This approach reaffirms the commitment of the Universidad del Quindío and its allied institutions - Universidad Nacional de San Juan (Argentina), Universidad UNED (Costa Rica) and Universidad de La Guajira - to the construction of a more equitable and innovative future.

These proceedings reflect the work of brilliant researchers, professionals and academics who, with their contributions, have enriched the educational and scientific landscape. We are deeply grateful to all participants, organizing institutions and collaborators for making possible this event, which continues to make a difference in the field of education, technology and science.

We invite readers to explore the ideas compiled here, convinced that they will be a source of inspiration for future research and projects that will positively transform our communities and societies.

Sincerely yours,
Organizing Committee

ORGANIZING COMMITTEE

Organizing Universities

- Luis Fernando Polanía, Rector of the University of Quindío.
- Rodrigo Arias Camacho, Rector of the Universidad Estatal a Distancia.
- Tadeo Berenguer, Rector of Universidad de San Juan.
- Carlos Arturo Robles Julio, Rector of Universidad de la Guajira.

General Coordination of the Event

- Angélica Cordero Prendas, president.
- Américo Sirvente, coordinator for Argentina.
- Iris Jiménez Pitre, coordinator for Colombia.

EVENT REPORT

The CIETYC 2024 Congress was held from May 22 to 24 at the Universidad del Quindío, with a rich agenda of activities that combined conferences, workshops, lectures and cultural events. The following is a highlight of the event:

Day 1

The inaugural day began with a protocol ceremony led by Dr. Edgar Javier Carmona, president of CIETYC 2024, and Luis Fernando Polanía, rector of the Universidad del Quindío. During this session, Iris Jiménez Pitre and Américo Sirvente presented a historical review of CIETYC.

- Conference: Quality Higher Education: A path towards the transformation of the territory. Speaker: Erwin Fabián Álvarez, Management and quality assurance - Uniquindío.
- Lecture: Mathematics is incomplete without its identity, culture and history. Speaker: PhD. Ricardo Martínez, University of Pennsylvania, USA.
- Lecture: ICT Trends. Speaker: PhD. Andrés Epifanía, Peru.
- Lecture: Entrepreneurial motivation. Speaker: Ms. Michelle Janina Ramirez, Peru.
- Discussion: Scientific journals for the visibility of the researcher teacher in Colombia. Participants: Dr. Leanis Pitre Ruiz, Dr. Elizabeth Palma Cardosi, Dr. Ricardo Marino Martínez.

Day 2

- Theoretical-practical workshop: Artificial Intelligence for education. Facilitators: PhD. Rubén Cárdenas, Dr. Iris Jiménez Pitre.
- Lecture: AI for research and education. Speaker: PhD. Ruth Mujica, Docentes 2.0.
- Lecture: Innovation in the aquaculture productive sector of the Department of La Guajira. Speaker: Mg. Rubén Darío Tapias Chica.
- Conference: Internationalization of the University. Speaker: Mg. Olga Moscoso, Guatemala.
- Lecture: Information and knowledge economy. Speaker: PhD. Ricardo Coca, Argentina.
- Lecture: Contentitude. Eng. Américo Sirvente, Argentina.
- Lecture: Transforming territories through Social Innovation. PhD. Andrea Gómez-Escudero.

Day 3

- Lecture: Challenges of the transforming teacher. Speaker: PhD. Milagro Huamán, Peru.
- Lecture: From the teacher-transmitter to the teacher-provocateur: 5 pedagogical-didactic challenges. Speaker: PhD. Miguel Ángel Caro, University of Quindío.
- Lecture: Leadership and vision. Speaker: Mg. Luz Llamile Leblic. Topic: Development of leadership skills in the educational field.

Room Presentations

In addition to the main conferences, a number of face-to-face and virtual presentations were given in the following thematic areas:

- Education and ICT: Use of tools such as Scratch and Minecraft to enhance cognitive and mathematical skills in students.
- Sustainability: Development of projects to promote environmental education and ethnic ecotourism.
- Innovation: Integration of AI and innovative methodologies for teaching in rural areas.
- Entrepreneurship and leadership: Programs such as “Child President” to develop political leadership skills in children.
- Formative research: Models of integration of digital skills and technology in research.

PAPERS

1. Learning strategies in engineering: educational innovation with STEAM, IoT and AI through Design Thinking. Authors: Yair Rivera Julio, Cristian Camilo Revueltas Correa, Carlos Jesús Fabregas Rodado, Fabrielo Alfonso Jiménez Bolívar, Ángel Pinto Mangones, Julio Antonio Jiménez Márquez.
Digital intervention for active aging: design of a web application for older adults. Authors: Rubén Baena-Navarro, Mario Macea-Anaya, Ober Primera-Correa, Juan Pérez-Díaz.
3. Evaluation of a didactic model based on STEM for the development of scientific competences in high school students: a quasi-experimental study. Authors: Mario Macea-Anaya, Jhony Chimbo-Jumbo, Rubén Baena-Navarro.

4. Using Minecraft as a pedagogical tool to enhance mathematical logic and critical thinking in students of Colegio Remedios Solano de Barrancas, La Guajira. Authors: Omilcia Medina, Esther Socorro Zárate, Rosiris María Vergara Chinchia.
 5. Digital empowerment of rural teachers: towards an innovative pedagogy in the XXI century. Authors: Rubén Baena-Navarro, Javier Fernando-Bermúdez, Yulieth Carriazo-Regino.
 6. The pandemic as a factor of exclusion of students in vulnerable situations at the UPC. Authors: Cristian Arango Trillos, Pedro López Contreras, Romelio González Daza.
 7. Virtual learning environments based on the use of Scratch as a pedagogical strategy for the development of cognitive skills in fifth grade students in the municipality of Cereté, Córdoba, Colombia. Authors: Claudia Durango, Amparo María Estrada Martínez.
 8. English language skills and their influence on the academic performance of middle school students from public schools in Cereté, Córdoba. Authors: Amparo María Estrada Martínez, Claudia Durango Warnes.
 9. ICT as a dynamic axis in the generation of indicators for the social appropriation of knowledge in the research groups of the University of La Guajira. Authors: Doris Leonor Acuña Mendoza, Wilmer José Torres Brugés.
 10. Conceptual maps using the CMAP Tools and the learning of students of a national university in Bagua - 2023. Authors: Anita Valladolid, Reyes Joel Neyra Ozeta, Carlos Alberto Canelo Dávila, Orlando Hernández Hernández, John Albert Yarleque Mogollón.
 11. Innovative model for the integration of ICT in rural environmental education: towards a sustainable pedagogy. Authors: Rubén Baena-Navarro, Luis Serrano-Ardila, Yulieth Carriazo-Regino.
 12. Social resilience and higher education: strategies for educational continuity in times of pandemic from student perspectives. Authors: Tamara Abigail Bitar, Marta Pérez, Américo Sirvente, Luis Bonatti, Bettina Sassu.
 13. Development of political leadership skills in Panamanian children through the virtual program “Niño presidente”. Authors: Michelle Ramírez, Victoriano Rodríguez Otero.
 14. Decision-making styles developed by commercial enterprises in the municipality of Barrancas. Authors: Milangela del Carmen Romero Velázquez, Ángel Alberto Nava Chirinos, Alexi Vidal Brito.
 15. Financial strategies applied to the current assets of diesel spare parts importing companies in the district of Riohacha. Authors: Derber José Soto Rodríguez, José Alfonso Yaguna Núñez, Yimi Yesid Barros Farfán.
 16. Importance of strategic alliances for the achievement of profitability in the companies of the coal sector in the department of La Guajira. Authors: Marlene Leonor Mejía Reales, Angélica Barrios.
 17. Cultural entrepreneurship for social development in ethnic communities of the special tourist and cultural district of Riohacha. Authors: Horacio Bienvenido Suárez Barros, Miltza Margareth Mejía Jiménez, Iris Jiménez Pitre.
 18. Integration of artificial intelligence technologies in higher education and research: advantages and disadvantages. Authors: Iris Jiménez-Pitre, Rubén Darío Cárdenas Espinosa, Rubén Tapias Chica.
 19. Analysis of ICT policies for the social appropriation of knowledge in research groups of the University of La Guajira. Authors: Wilmer José Torres Brugés, Doris Leonor Acuña Mendoza.
 20. Digital skills in the use of artificial intelligence tools for the formulation of formative research projects from the TECSIS research group. Authors: Rubén Darío Cárdenas Espinosa, Julio Caicedo, Andrés David Epifanía Huerta.
 21. MEDHIME methodology: potentiator of OVA designs for learning. Authors: Américo Sirvente, Edgar Carmona Suárez, Iris Jiménez Pitre.
- Correlation model between strategic digital skills and formative research in distance technological programs in a framework of open innovation. Authors: Rubén Darío Cárdenas Espinosa, Julio Caicedo, Iris Jiménez Pitre.

23. The role of cultural tourism in the competitive empowerment of small and medium handicraft enterprises in the tourist and cultural district of Riohacha. Authors: Anyela Pinedo Frías, Iván José Sánchez Valbuena, Yina Magdaniel Socarrás.

Transforming the Salitre campus into a smart campus: proposal of intelligent initiatives for the Gerardo Barrios University of El Salvador. Authors: Gisela Jazmín García Espinoza.

25. Pedagogical model for the integration of ICT to the teaching practices of official educational institutions in the rural area of Monteria. Authors: Franklin José Doria Madariaga.

Theoretical foundations and methodological guidelines for the appropriation of ICT in the pedagogical practice of teachers. Authors: Ana Patricia Castro Genes.

27. Environmental education for sustainable development in the formation of the agronomist engineer from a comprehensive-edifying perspective. Authors: Alejandro González Tápanes, Zaray Losada López.

28. Didactic route in mediation and conflict resolution to promote peace culture from the teaching practice in elementary school. Authors: Liliana Margarita Castro Genes.

29. Technological mediations in environmental education. Analysis from the teacher's considerations. Authors: Kilia Piedrahita Hoyos.

30. Design and implementation of an IoT monitoring system for the optimization of solar stills in water desalination. Authors: Roger David Pimienta Barros.

31. Innovation in the aquaculture productive sector of the Department of La Guajira. Authors: Rubén Darío Tapias Chica, Iris Jiménez Pitre.

32. Policies applied in credit risk management in savings and credit cooperatives in the tourist and cultural district of Riohacha. Authors: José Gregorio Morales Bustamante, Luis Ángel Puche Pinto.

33. Impact of the reform to the general royalties system on employment and business development in the Department of La Guajira. Authors: José Gregorio Morales Bustamante, Luis Ángel Puche Pinto.

Reading comprehension levels in mestizo children of La Guajira: a comparative analysis between literary and scientific texts. Authors: Emérita Sofía Muñoz Estrada, Rafael Cuentas Figueroa, Norys Laudith Jiménez Pitre.

Importance of the knowledge and uses of popular music in the social learning of students. Authors: Delio Jacobo Mora Pontiluis, Edibeth Joselin Mora Atencio, Emérita Sofía Muñoz Estrada.

36. Critical reading: a challenge for early childhood education. Authors: Rafael Alfonso Cuentas Figueroa, Norys Laudith Jiménez Pitre, Emérita Sofía Muñoz Estrada.

37. Ethnic ecotourism: an alternative for the environmental sustainability of the Ranchería River delta, La Guajira. Authors: Emérita Sofía Muñoz Estrada, Miriam Rosiris Muñoz Estrada.

38. Marketing strategies: to activate customer perception and conquer the market. Authors: Nair Cantillo Campo, Carlos Julio Pedraza Reyes.

39. "I call myself a good reader": strategies to promote reading fluency. Authors: Norys Laudith Jiménez Pitre, Luz Celeste García Fernández, Viviana Paola Guerra Ramos.

40. International marketing mix for the export of seafood from the DETC of Riohacha. Authors: Carlos Julio Pedraza Reyes, Nair Cantillo Campo.

41. Data analysis using statistical graphics from an exploratory approach. Authors: Mailen Hoyos, Tulia Esther Rivera Flórez, Isabel Cristina Puerta Lopera.

42. Strategic thinking as a potential factor in the growth of companies in the dairy sector. Authors: Carlos Vera Pirela, Aneleth Olmedo Plata, Germán Lozano Hernández.

43. The behavior of the street vendor in the informal sector in relation to decision making as rational agents. Authors: Nolenis Mendoza Bolívar, Yuli Toro Cárdenas, Alexandra Mosquera Trujillo.

44. Emotional experiences of single mothers students at the University of La Guajira: an approach in the formation of entrepreneurs in emerging social environments. Authors: Ángel Nava Chirinos, Samara Ortega, Yelianys Marín.

45. Occupational and labor orientation: a new transforming experience in socially vulnerable communities. Authors: Alexandra Mosquera Trujillo, Águeda Yonelis Rojano Alvarado, Zaadry Vanessa Robles Julio.

46. Pedagogy of love on the way to the inclusion of people with Down syndrome through the offer of sports education. Authors: Laura Arévalo Aguilar.

47. Color in images: an artificial vision approach for the measurement of CIELAB coordinates in bovine loins. Authors: Olga Lucía Torres Vargas, Mateo Valencia Buitrago.

48. Computational thinking in the teaching-learning processes of mathematics in students with DAM. Authors: Jameson Jiménez, Edgar Javier Carmona.

49. Comparative study of AI code generation tools: quality evaluation and performance analysis. Authors: Michael Alexander Flores Muñoz, Juan Camilo Jaramillo De La Torre, Stefany Pareja López, Stiven Herrera, Christian Andrés Candela Uribe.

50. Exploration of regularities in bipartite graphs using GeoGebra software. Authors: Elisa Oliva, Mathias Díaz.

FINANCING

None.

CONFLICT OF INTEREST

None.