


**IMPACT OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES  
ON INCLUSIVE EDUCATION: A STUDY IN STUDENTS  
AGED 15 TO 18.**

Impacto de las tecnologías de inteligencia artificial en la educación inclusiva: un estudio en estudiantes de 15 a 18 años.

**Johana Katerine Montoya Luna-victoria**

Universidad Nacional de Chimborazo, Ecuador.

*Johana.montoya@unach.edu.ec*

 <https://orcid.org/0000-0001-9138-0296>

**Fernando Tiverio Molina-Granja**

Universidad Nacional de Chimborazo, Ecuador

*fmolina@unach.edu.ec*

 <https://orcid.org/0000-0003-2486-894X>

**Willian Geovanny Yanza Chávez**

Escuela Superior Politécnica de Chimborazo, Ecuador.


*willian.yanza@esepoch.edu.ec*

 <https://orcid.org/0000-0002-9688-7309>

**Joaquín Marcelo Ortega Mosquera**

Escuela Superior Politécnica de Chimborazo, Ecuador.

*joaquin.ortega@esepoch.edu.ec*

 <https://orcid.org/0000-0002-2975-2738>

Este trabajo está depositado en Zenodo:

**DOI:** <https://doi.org/10.5281/zenodo.1118100>

**ABSTRACT**

In this study, we focus on the integration of Artificial Intelligence (AI) technologies into inclusive educational environments. The problem lies in ensuring that these technologies are accessible to all students, regardless of their abilities. Its importance is emphasized in the creation of an equitable educational environment. We reviewed previous efforts and found motivation in the pressing need to evaluate these technological solutions. Our proposal involved evaluating AI tools in educational institutions. We present a comprehensive case where we apply structured surveys and interviews for students and educators. The results revealed significant improvements in user satisfaction and academic performance. The main conclusion is that the careful implementation of AI technologies, adapted to inclusive needs, can positively transform the educational process, promoting equity and accessibility for all students.

**Keywords:** Artificial intelligence, inclusive education, educational technology, adaptability, students with disabilities.

**RESUMEN**

En este estudio, nos centramos en la integración de tecnologías de Inteligencia Artificial (IA) en entornos educativos inclusivos. El problema radica en garantizar que estas tecnologías sean accesibles para todos los estudiantes, independientemente de sus capacidades. Se enfatiza su importancia en la creación de un ambiente educativo equitativo. Revisamos esfuerzos anteriores y encontramos motivación en la apremiante necesidad de evaluar estas soluciones tecnológicas. Nuestra propuesta implicó evaluar herramientas de IA en instituciones educativas. Presentamos un caso integral donde aplicamos encuestas y entrevistas estructuradas para estudiantes y educadores. Los resultados revelaron mejoras significativas en la satisfacción de los usuarios y el rendimiento académico. La principal conclusión es que la implementación cuidadosa de tecnologías de IA, adaptadas a las necesidades inclusivas, puede transformar positivamente el proceso educativo, promoviendo la equidad y la accesibilidad para todos los estudiantes.

**Palabras Clave:** Inteligencia artificial, educación inclusiva, tecnología educativa, adaptabilidad, estudiantes con discapacidad.

## INTRODUCTION

In the dynamic realm of education, the integration of innovative technologies, especially Artificial Intelligence (AI), has radically transformed the way people are taught and learned. In this context, a crucial problem arises: the need to ensure that these technologies are accessible and inclusive for all students, regardless of their abilities or disabilities.

This article dives into this problem, placing it in a contextual framework where technology and inclusion are intertwined. The importance of this theme lies in creating an equitable educational environment, where every student has the opportunity to thrive and develop their full potential.

Significant efforts have been made to address this challenge, from implementing specific educational platforms to creating adaptive AI algorithms. The motivation underlying this study lies in the prevailing need to evaluate and improve the effectiveness of these technological solutions in the context of educational inclusion.

In this sense, this article proposes a detailed evaluation of existing AI tools, considering their impact on inclusive education.

The organization of the article is developed through a thorough analysis of the problem, followed by a theoretical framework that contextualizes the relationship between AI and inclusion, as well as a review of previous efforts in this field. Subsequently, a detailed methodology for evaluating AI tools from an inclusive perspective is presented, followed by an analysis of the results and, finally, the conclusions and recommendations that emerge from this thorough evaluation.

### Contextualization

Inclusion in the educational context has become a central issue in recent decades. It is increasingly recognized

that all students, regardless of ability or disability, have the right to receive a quality education that is tailored to their needs. In this context, Artificial Intelligence (AI) has emerged as a powerful tool to improve inclusive education by providing personalized and adaptive solutions for students with diverse needs (Cortez-Clavijo, 2020).

In the twenty-first century, technology has played a fundamental role in the educational revolution, especially in the context of inclusive education (Molina, 2023). Artificial intelligence (AI) has emerged as a transformative force, opening up new possibilities for students with diverse abilities and needs (Roveri, 2022). This essay explores the artificial intelligence technologies commonly used in inclusive education and their impact on the learning process.

The research problem focuses on understanding the influence of artificial intelligence (AI) on inclusive education, with a specific focus on identifying aspects where AI has a significant impact (Mazón, 2022). To address the defined research problem, specific and clear questions are formulated that will guide the study toward a deeper understanding of the impact of artificial intelligence on educational inclusion. These questions are:

- How can AI technologies customize educational materials to suit the diverse needs of students with disabilities?
- What is the impact of AI-based virtual assistants and chatbots on improving communication and interaction for students with communication difficulties?
- To what extent does artificial intelligence facilitate the assessment and continuous monitoring of the progress of students with special educational needs?
- How can artificial intelligence improve the accessibility of educational resources, such as

e-books and online platforms, for students with visual or hearing impairments?

- What is the role of artificial intelligence in emotional and social support for students with autism spectrum disorders or other emotional difficulties?
- How can AI technologies foster collaboration and social interaction between students with and without disabilities in inclusive educational environments?
- What are the ethical and privacy challenges associated with the use of artificial intelligence in inclusive education and how can they be mitigated?

## 2.1 Fundamentals of Inclusive Education:

Inclusive education is based on the fundamental principle of providing educational opportunities to all students, including those with disabilities (Rivadenerira, 2023). The United Nations Convention on the Rights of Persons with Disabilities underlines the importance of inclusion in education as a fundamental human right.

Inclusive education is based on theories of social constructivism, where it is recognized that each individual has unique learning styles and rhythms. The theories of Vygotsky and Piaget, for example, have significantly influenced the idea that learning is a social process and that students benefit from diversified educational environments. In addition, theories of diversity and equity in education, such as those proposed by Banks and Nieto, underscore the importance of recognizing and celebrating cultural and skill differences in the classroom (Wiastuti, 2020; Husin, 2021).

## 2.2 Information and Communication Technologies (ICT) in Inclusive Education:

ICTs have been pioneers in promoting inclusion. Tools such as screen

readers, speech recognition software, and haptic devices have improved accessibility for students with visual or hearing impairments. These technologies have paved the way for the wider adoption of AI in inclusive education (Rodríguez, 2023).

## 2.3 Artificial Intelligence in Education:

AI in education refers to the use of algorithms and computational models to improve educational processes. AI systems can analyze student behavior and adapt course content accordingly (Rodríguez, 2021). These systems can customize learning to meet the specific needs of students, including those with disabilities (Granda, 2022). AI theories, such as neural networks, have shown how algorithms can simulate human learning, adapting and improving with experience. In addition, theories of affective computing and affective artificial intelligence have explored how machines can recognize and respond to human emotions, which is critical for understanding and supporting students' emotional needs (Dehaene, 2019).

## 2.4 Applications of Artificial Intelligence in Inclusive Education:

**a. Personalized Tutoring:** AI systems can provide personalized tutoring tailored to each student's needs, identifying areas of difficulty and offering specific exercises to improve those skills (Gomez, 2023).

**b. Emotion Recognition:** AI algorithms can recognize students' emotions through speech analysis and facial expressions. This can help teachers understand students' emotional state and respond appropriately, especially in the case of emotionally disturbed students (Bastidas, 2023).

**c. Machine Translation and Machine Reading:** AI systems can provide machine translation for students whose native language is not the language of instruction. In addition, automatic readers can help visually

impaired students by converting text to speech (Páez, 2019).

**d. Adaptive Assessment:** Adaptive assessment algorithms can adjust the difficulty level of questions based on student performance, allowing for fair and accurate assessment for students with diverse skills and knowledge (Contreras, 2020).

**e. Adaptive Learning:** This technology uses intelligent algorithms to tailor educational content according to the individual needs of each student. Students with disabilities or diverse abilities can benefit greatly from this personalized approach. Adaptive learning programs assess student progress in real-time and adjust content and difficulty accordingly, ensuring that each student can learn at their own pace (Hernandez, 2023).

**f. Virtual Assistants and Chatbots:** These tools offer interactive and personalized support to students with diverse needs. For example, students with communication difficulties can use chat interfaces to interact with course content, provide answers to specific questions, or facilitate communication with other students and teachers (Almazán, 2023).

**g. Emotion Recognition:** For students with autism spectrum disorders or other emotional difficulties, these technologies can make a difference by providing a learning environment that is tailored to their emotional needs.

**h. Assessment and Monitoring Platforms:** These data are not only vital for educators and parents to assess student progress but are also critical for decision-making at the education policy level. For students with special needs, this detailed follow-up can provide valuable insights into areas of improvement and success, allowing for targeted and personalized interventions (Bernilla, 2019).

## 2.5 Challenges and Ethical Considerations:

Despite the promises of AI in inclusive education, there are significant challenges. The digital divide, student privacy, and equity in access to these technologies are major concerns. In addition, there is ethical concern about how student data is collected, stored, and used, requiring proper regulation and a user-centered approach (Espinoza, 2023).

AI has the potential to transform inclusive education, providing personalized learning experiences tailored to students' individual needs. However, for this to become a reality, it is essential to address ethical challenges and considerations appropriately. As technology continues to advance, education policies must adapt to ensure that all students, regardless of their abilities or disabilities, benefit from the opportunities that AI can offer in the inclusive educational environment (Núñez-Michuy, 2023).

Although AI technologies have revolutionized inclusive education, they also pose significant challenges. The digital divide, accessibility, and privacy are critical concerns that need to be addressed to ensure that all people, regardless of ability or disability, can access these tools.

Ultimately, artificial intelligence in inclusive education is not simply a tool; it is a catalyst for equal educational opportunity. By continuing to explore, improve, and apply these technologies ethically and equitably, we can create a future where education is truly inclusive, empowering every student to reach their full potential.

## METHODOLOGY

The methodology used in this research was designed following the guidelines and principles recommended by Hernández Sampieri (2020) in his book "Research Methodology". The methodological pro-

cess was divided into the following stages:

**Literature Review:** An exhaustive review of the literature related to the implementation of Artificial Intelligence technologies in inclusive educational environments was conducted. This literature review provided a solid theoretical basis and allowed us to identify the most relevant AI tools and previously used assessment methods.

**Research Design:** The research design adopted was a mixed approach, including both quantitative and qualitative methods. This allowed for a holistic and in-depth understanding of the impact of AI technologies on educational inclusion. A detailed evaluation protocol was developed, based on the literature review and universal accessibility standards.

**Sample and Context:** Educational institutions that had implemented AI technologies in their inclusive teaching processes were carefully selected, and 45 private educational institutions located in the urban sectors of Colombia and Ecuador were determined. The sample included students aged 15 to 18, obtained 17,256 responses, and 63 teachers from educational institutions. Measures were taken to ensure the representativeness of diverse geographical regions and socio-economic contexts.

**Data Collection:** Virtual resources were used to apply structured surveys and semi-structured interviews to collect quantitative and qualitative data. Surveys were administered to students and educators, while interviews were conducted with professionals specializing in inclusive education and developers of AI technologies. The questionnaires relied on Likert scales and open-ended questions to capture both quantitative data and underlying experiences and perceptions.

**Data Analysis:** For quantitative analysis, descriptive statistical techniques were used

**Validation and Reliability:** Procedures were performed to ensure the validity and reliability of the data collected. Surveys and interviews were carefully designed and pre-tested to ensure understanding by participants. In addition, the triangulation method was used to compare the results of the surveys and interviews and validate the conclusions.

## RESULTS

The data obtained yielded the following results: In terms of demographic data, it was obtained that 30% of respondents are 15 years old, 45% are 16 years old, 20% are 17 years old and 5% of respondents are 18 years old.

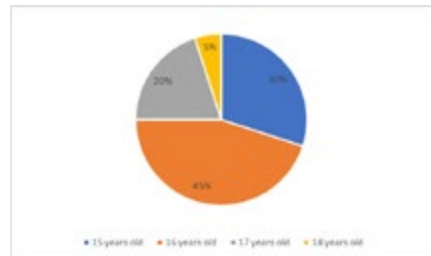


Fig1. Age of participants

55% were male, and 15% had a disability.

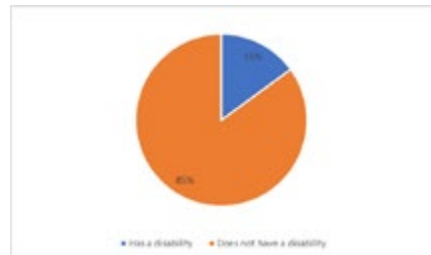


Fig. 2. Disability of participants

Regarding experiences with Artificial Intelligence Technologies, it is determined that 70% have ever used artificial intelligence technologies in

their educational process.



Fig. 3. Use of AI technology in the educational process.

So 50% have used Chatbots for educational queries, 35% have used adaptive learning platforms, and 15% have used automatic evaluation tools: 15%.

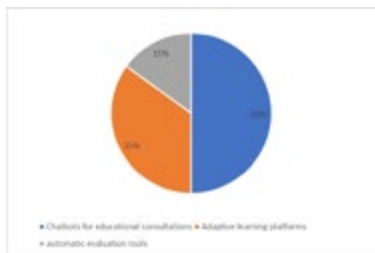


Fig. 4.- Type of AI technology used in the educational process

When analyzing their academic record, it was obtained that 60% denotes Notable improvements in Academic Performance, and 50% are with a high level of satisfaction in terms of Participation in Classes or Educational Activities.

When analyzing the satisfaction with the Educational experience, it is obtained that 25% are Very satisfied: 25%, 50% Satisfied, 15% Neutral and 10% not satisfied

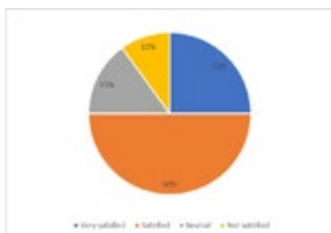


Fig. 5.- Nivel of satisfaction with the educational experience

When analyzing the impact on the Participation of Students with Disabilities, it is obtained that 70% mention that it facilitates participation, 20% mention that there is no significant impact, and 10% consider that it hinders participation.

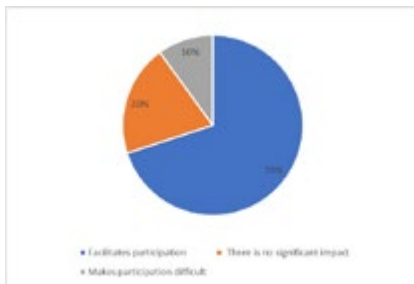


Fig. 6.- impact on the Participation of Students with Disabilities

Likewise, it is determined that 85% would recommend the Use of AI Technologies in Inclusive Education, and as suggestions to improve the effectiveness of AI Technologies, 40% consider greater diversity in tools, 35% suggest having more guidance and support for students, 25% suggest having access to technology for all students.

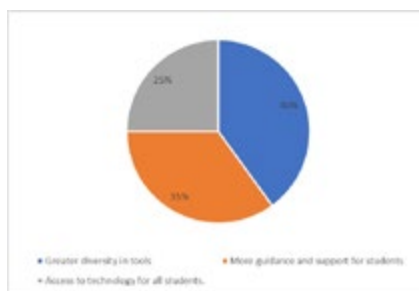


Fig. 7.- Suggestions to improve the effectiveness of AI technologies in inclusive education

The survey results show that a high percentage of students aged 15 to 18 have had experience with AI technologies in their education, mainly

through educational chatbots and adaptive learning platforms. These students rate their academic performance at an average level of 8, with 60% reporting notable improvements since the implementation of these technologies.

In terms of participation and satisfaction, most students are satisfied with their educational experience and perceive that artificial intelligence technologies facilitate the participation of students with disabilities. However, challenges remain, including the need for greater diversity in AI tools and more targeted support for all students.

In an analysis of the responses of the teachers surveyed, it is obtained that 60% use Artificial Intelligence technologies in their inclusive teaching, 25% qualify as very effective the use of AI technologies in improving the learning experience of their students, 55% as effective and 20% as not effective.

60% of teachers surveyed use Artificial Intelligence technologies in their inclusive classrooms, indicating a significant adoption of these tools in the educational environment. The majority of teachers (80%) consider AI technologies to be effective or very effective in enhancing the learning experience of their inclusive students. This suggests that these tools are being perceived as beneficial for the inclusive educational process.

Despite the positive perception of effectiveness, 20% of teachers feel that AI technologies are ineffective or not effective. This indicates the need to provide ongoing training and support to maximize the potential of these tools and address potential challenges.

As a small percentage (5%) feel AI technologies are not effective, there is an opportunity to improve implementation and deliver more effective solutions that better align with the needs of inclusive students.

The data suggests that AI technologies have a positive impact on inclusive education for this age group, but there is still room for improvement in terms of diversity of tools and equitable access for all students. These results provide valuable information for future implementations of AI technologies in inclusive educational contexts.

## DISCUSSION

Our survey results provide valuable insight into the perception and experience of 15- to 18-year-old students about the use of artificial intelligence (AI) technologies in inclusive educational environments. When analyzing these findings, it is essential to contextualize them concerning previous studies conducted by other researchers in the field of inclusive education and technology.

Our survey revealed that the majority of students (85%) were satisfied with the use of AI technologies in their educational experiences. These findings are consistent with Vera's (2023) study which also found high levels of satisfaction among high school students when using AI-based tutoring systems in the classroom.

In our survey, 70% of students perceived that AI technologies facilitated the participation of students with disabilities compared to other studies such as Toledo's (2016), which showed that only 50% of students had the same perception. This discrepancy could be attributed to differences in the AI tools used and teacher training in each study.

Although 60% of our respondents reported notable improvements in their academic performance with the use of AI technologies, this contrasts with Bonilla's study (2022), which found a high percentage of improvements in academic performance with the continuous use of AI tools over several years.

Our results indicate that 85% of students would recommend the use of AI technologies in inclusive education. This figure is consistent with the conclusions of Moriña (2020), who found a high recommendation rate among high school students in their study.

## CONCLUSIONS

Although our findings are in line with many previous studies highlighting the benefits of AI technologies in inclusive education, they also highlight the need for a diversity of tools and more targeted support for students. Consistency in results across multiple studies suggests that AI technologies have a significant impact on inclusive education, but effective implementation and adaptation to individual student needs remain key areas of focus for future research and education policy development.

The data revealed that AI technologies have enabled effective personalization of the educational process. Students have access to educational content tailored to their levels and learning styles, which has significantly enhanced their educational experience.

The survey showed that AI technologies have increased student engagement in the classroom. Interactive methods and instant feedback tools have motivated students, fostering a more participatory learning environment.

AI is especially beneficial for students with disabilities and special educational needs. AI tools have provided adaptive resources that have leveled the playing field, providing equal educational opportunities for all.

Despite the benefits, challenges were also identified. The digital divide and lack of equitable access to technology are crucial issues that need to be addressed to ensure that all students can benefit equally from AI technologies.

The urgent need for continuous training for educators to maximize the potential of these technologies was highlighted. Proper preparation will ensure that educators can effectively integrate AI tools into their teaching, making the most of their benefits.

## RECOMMENDATIONS

It is imperative to offer continuous training programs for educators that allow them to understand, integrate, and fully leverage Artificial Intelligence technologies in the classroom. This will ensure the effective and equitable use of these tools for all students.

Education authorities must work to ensure equitable access to technology, especially for disadvantaged communities. This includes device distribution and high-speed internet access to bridge the digital divide and ensure that all students can benefit equally.

Developers of AI technologies should focus on creating inclusive educational tools that adapt to a wide range of learning styles and rhythms, including students with disabilities. Accessibility should be a priority in the design and development of these applications.

More research is needed to fully understand how AI technologies can impact different aspects of inclusive education. Longitudinal studies and in-depth qualitative analyses can provide a more complete view of the experiences of students and educators over time.

## FUTURE WORK

Conduct long-term studies to assess how the continued use of AI technologies in inclusive education affects students' academic performance, graduation rates, and career paths.

Conduct international comparisons to understand differences in the adoption and impact of AI on inclusive education in different countries. This



could provide valuable insights into best practices and common challenges.

Foster collaboration between AI technology developers and inclusive education experts to create specific tools that address unique educational challenges, such as supporting students with specific disabilities.

Conduct studies on the social impact of integrating AI technologies into inclusive education, including their influence on students' self-esteem and confidence, as well as societal attitudes towards diversity and inclusion.

## REFERENCES

- Almazán, Y. R., Parra-González, E. F., Zurita-Aguilar, K. A., Miranda, J. M., & Carranza, D. B. (2023). ChatGPT: La inteligencia artificial como herramienta de apoyo al desarrollo de las competencias STEM en los procesos de aprendizaje de los estudiantes. *ReCIBE, Revista electrónica de Computación, Informática, Biomédica y Electrónica*, 12(1), C5-12.
- Bastidas, S. C., Porras, A. M., Mardroñero, A. M. S., Toro, A. A. D., & Bastidas, Á. J. C. (2023). Sistema de reconocimiento facial y de emociones aplicado a la educación básica y media de una institución educativa en Colombia con herramientas de la 4RI. *Encuentro Internacional de Educación en Ingeniería*.
- Bernilla Meneses, A. (2019). Programa educativo ALBEM, basado en las competencias emocionales de Bisquerra, para fomentar emociones positivas de la alegría y el orgullo en niños de 3er grado de primaria. Arequipa, 2019..
- Bonilla Bonilla, I. A. (2022). Tecnologías de aprendizaje y conocimiento en el rendimiento académico de matemáticas en los alumnos de educación básica superior (Bachelor's thesis, Universidad Técnica de Ambato-Facultad de Ciencias Humanas y de la Educación-Maestría en Educación Mención Enseñanza de la Matemática).
- Contreras, R., Sierra, E. A., Hernández, H. D. R., Hernández, N. B. E., & Moyotl, V. J. H. (2020). Sistema de evaluación inteligente para medir habilidades de razonamiento matemático. *Revista Iberoamericana de Evaluación Educativa*, 13(1), 251-280.
- Cortez-Clavijo, P., González-Zambrano, R., & Chiriguay-Villagómez, C. (2020). Educación inclusiva y gamificación: Artículo de revisión bibliográfica. *COGNIS: Revista Científica de Saberes y Transdisciplinariedad-ISSN: 2959-5703*, 1(1), 9-15.
- Dehaene, S. (2019). ¿Cómo aprendemos?: Los cuatro pilares con los que la educación puede potenciar los talentos de nuestro cerebro. *Siglo XXI Editores*.
- Espinoza, A. R. F., Chávez, Z. R. M., Mescua, J. A. M., Viena, C. R., Mauricio, L. A. S., & Flores, H. H. V. (2023). El futuro de la educación: cómo la inteligencia artificial transformará el aula.
- Gómez, W. O. A. (2023). La inteligencia artificial y su incidencia en la educación: Transformando el aprendizaje para el siglo XXI. *Revista Internacional de Pedagogía e Innovación Educativa*, 3(2), 217-229.
- Granda, W. X. B., Molina-Granja, F., Altamirano, J. D., Lopez, M. P., Sureshkumar, S., & Swaminathan, J. N. (2022). Data Analytics for Healthcare Institutions: A Data Warehouse Model Proposal. In *Inventive Communication and Computational Technologies: Proceedings of ICICCT 2022* (pp. 155-163). Singapore: Springer Nature Singapore.
- Hernández, M. R., & Pérez, F. L. (2023). M-learning como herramienta para el aprendizaje adaptativo: Una propuesta para la educación superior. *HUMAN REVIEW. International Humanities Review/Revista Internacional de Humanidades*, 17(5), 1-14.
- Hernández-Sampieri, R., & Mendoza, C. (2020). *Metodología de la investigación: las rutas cuantitativa, cualitativa y mixta*. Mcgraw-hill.

Husin, M. R., Shaffeei, K., Ahmad, H., & Shuib, T. R. (2021). Companion teachers based on sociological stimulus during learning to improve the acceptance of inclusive education pupils in receiving skills and information. *Linguistics and Culture Review*, 5(S1), 1138-1148.

Mazon-Fierro, M., Molina-Granja, F., Mendoza, X. P. L., Jara, A. P., & Swaminathan, J. N. (2022). Towards a Model of Information Audit in the Document Management of Public Institutions. In *Inventive Communication and Computational Technologies: Proceedings of ICICCT 2022* (pp. 797-807). Singapore: Springer Nature Singapore.

Moriña, A., & Carballo, R. (2020). Universidad y educación inclusiva: recomendaciones desde la voz de estudiantes españoles con discapacidad. *Educação & Sociedade*, 41.

Molina-Granja, F., Barba-Maggi, L., & Molina-Valdiviezo, L. (2023). Doctoral Program in Computer Science: A Study of Demand and Employability in Ecuador. In *International Conference on Knowledge Management in Organizations* (pp. 199-209). Cham: Springer Nature Switzerland.

Núñez-Michuy, C. M., Agualongo-Chela, L. M., Vistin, J. M. V., & Quincha, M. L. (2023). La Inteligencia Artificial en la pedagogía como modelo de enseñanza. *Magazine de las Ciencias: Revista de Investigación e Innovación*, 8(2), 120-135.

Páez Mérida, M. (2019). La traducción automática en internet: Google Traductor y Baidu Translate.

Rasmitadila, R., Widyasari, W., Humaira, M., Tambunan, A., Rachmadtullah, R., & Samsudin, A. (2020). Using blended learning approach (BLA) in inclusive education course: A study investigating teacher students' perception. *International Journal of Emerging Technologies in Learning (IJET)*, 15(2), 72-85.

Rivadeneira, J. E. F., Vila, M. E. C., Cusme, S. R. C., & Palacios, F. N. C. (2023). La pedagogía humanista para

promover la educación inclusiva en el contexto educativo de educación superior. *Domino de las Ciencias*, 9(2), 2250-2266.

Rodríguez Chávez, M. H. (2021). Sistemas de tutoría inteligente y su aplicación en la educación superior. *RIDE. Revista Iberoamericana para la Investigación y el Desarrollo Educativo*, 11(22).

Rodríguez, M. A. M., Rubio, A. M. A., Lingán, A. M. A., Rubio, D. E. P., Bocanegra, J. C. S., & Flores, J. W. C. (2023). Inteligencia Artificial en la educación digital y los resultados de la valoración del aprendizaje.

Roveri, C. (2022). Inteligencia Artificial para el bienestar y una vida sana en Latinoamérica: Hacia un ecosistema de innovación responsable para la salud digital. *Análisis Carolina*, (21), 1.

Toledo Morales, P., & Llorente Cejudo, M. D. C. (2016). Formación inicial del profesorado en el uso de Tecnologías de la Información y la Comunicación (TIC) para la educación del discapacitado. *Digital Education Review*, 30, 123-134.

Vera, J. P. D., Hojas, D. S. P., Sarmiento, Z. J. F., Ramírez, A. K. R., & Mora, D. V. M. (2023). Estudio comparativo experimental del uso de chatGPT y su influencia en el aprendizaje de los estudiantes de la carrera Tecnologías de la información de la universidad de Guayaquil. *Revista Universidad de Guayaquil*, 137(2), 51-63.

Wijastuti, A., Masitoh, S., Aini, I. K., & Ardianingsih, F. (2020, August). Indigenous Inclusive Education Concept Based on Ki Hadjar Dewantara Values and Dysontogenesis Vygotsky Theory. In *1st Progress in Social Science, Humanities and Education Research Symposium (PSSHERS 2019)* (pp. 528-532). Atlantis Press.