South American Publishing

SAP Multidisciplinary Open. 2024; 2:27
doi: 10.62486/mo202427

ORIGINAL

Analysis of ICT policies for the social appropriation of knowledge in research groups at the University of La Guajira

Análisis de las políticas en TIC para la apropiación social del conocimiento en Grupos de Investigación de La Universidad de La Guajira

Wilmer Jose Torres Brugés[1] ✉, Doris Leonor Acuña Mendoza[1] ✉

[1]Universidad de La Guajira. Colombia.

Cite as
Torres Brugés WJ, Acuña Mendoza DL. Analysis of ICT policies for the social appropriation of knowledge in research groups at the University of La Guajira. SAP Multidisciplinary Open. 2024; 2:106. https://doi.org/10.62486/mo202427

Publication History
Submitted: 01-01-2024
Revised: 03-04-2024
Accepted: 27-07-2024
Published: 28-07-2024

Corresponding Author
Wilmer Jose Torres Brugés ✉

ABSTRACT

Globally, a transformation in the concept of Social Appropriation of Knowledge has been observed due to the implementation of public policies and advances in science, technology and innovation. This concept has been widely disseminated in recent years thanks to public policy instruments that promote the relationship between science and society. In addition, investment in research has been recognized as a crucial factor for the growth and advancement of science and technology, as well as for the promotion of innovation, generating a direct impact on the development and projection of higher education in Colombia. In this context, the research seeks to establish an essential connection between public policies in science, technology and innovation and the promotion of research in the research groups of the University of La Guajira. For this purpose, it has been based on theoretical contributions of several authors such as Albornoz, Escobar Ortiz and Daza-Caicedo. The research adopts a descriptive, non-experimental, field and cross-sectional approach. The results indicate that there is an effective policy to promote the social appropriation of knowledge, which contributes significantly to improve the quality and relevance of the research developed by the research groups at the University of La Guajira.

Keywords: Appropriation; Knowledge; Technologies; Research.

RESUMEN

A nivel global, se ha observado una transformación en el concepto de Apropiación Social del Conocimiento debido a la implementación de políticas públicas y los avances en ciencia, tecnología e innovación. Este concepto se ha difundido ampliamente en los últimos años gracias a instrumentos de política pública que promueven la relación entre la ciencia y la sociedad. Además, la inversión en investigación se ha reconocido como un factor crucial para el crecimiento y el avance de la ciencia y la tecnología, así como para la promoción de la innovación, generando un impacto directo en el desarrollo y la proyección de la educación superior en Colombia. En este contexto, la investigación busca establecer una conexión esencial entre las políticas públicas en ciencia, tecnología e innovación y el fomento de la investigación en los grupos de investigación de la Universidad de La Guajira. Para ello, se han basado en aportes teóricos de varios autores como Albornoz, Escobar Ortiz y Daza-Caicedo. La investigación adopta un enfoque descriptivo, no experimental, de campo y transeccional. Los resultados indican que existe una política efectiva de promoción de la apropiación social del conocimiento, la cual contribuye significativamente a mejorar la calidad y relevancia de las investigaciones desarrolladas por los grupos de investigación en la Universidad de La Guajira.

Palabras clave: Apropiación; Conocimiento; Tecnologías; Investigación.

© 2024; The Authors. This Open access article is distributed under the Creative Commons Attribution 4.0 license (https://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Investment in research is recognized as a fundamental factor for social progress, scientific and technological advancement, and the promotion of innovation, which directly impacts the design and implementation of plans and programs at the national level. In this context, this study seeks to establish an essential connection between public policies in science, technology, and innovation (STI) and the promotion of research in the research groups of the University of La Guajira in Colombia.

This research is based on the need to characterize the various approaches to public policies for the social appropriation of knowledge in the context of STI, as well as the participation of research groups in generating new knowledge in higher education. This effort will guide knowledge management in this institution and serve as a valuable reference for future research in this field.

Ultimately, this study will provide relevant information to improve the implementation of public policies of Social Appropriation of Knowledge (SAC) in the framework of STI within the context of higher education. It is hoped that this contribution will promote the development of a society with higher quality in these areas and that higher education institutions will consolidate themselves as fundamental actors in this process.

METHOD

The present study determined that a solid and integral basis to characterize the public policy of CSA in higher education research groups in La Guajira, Colombia, was established. In order to achieve this objective, a set of methodologies and key theoretical concepts that are developed globally and support the contextualization of the research will be used. Likewise, special attention will be paid to the relationship between the public policy of CSA and the framework of science, technology, and innovation (STI). Because this interaction plays an important role in encouraging and fostering research at the university level.

Conceptual framework

ASC knowledge Since its emergence, this concept has been studied from different angles, giving it pluralism since no theoretical support has been accompanied. For example, we can cite a study by academics Marcela Lozano Borda and Tania Pérez Bustos (2012). They reviewed the Ibero-American literature from 2000 to 2010, explicitly mentioning the term ASCyT to define the definition. We will contribute to developing the national strategy for science, technology, and innovation, focusing on the concept of ASCyT. The evaluation results show that Colombian authors represent 45 % of the analyzed documents, followed by Spain with 20 %. However, Spanish production comes from the academic field, and Colombian production comes from the context of public policy.

From their analysis of the literature, the authors identified three trends. The first concept refers to appropriation as a social process in which the nature of scientific knowledge is understood to be incorporated into cultural and social contexts. The second trend is linked to a process that emphasizes the link between science, technology, and society as a driving force for development and growth. The last part addresses science as a public good and participatory scenario (Borda & Pérez-Bustos, 2012, p.11).

Public policy To introduce this study, it is important to define what public policy is in general. According to Roth (2014), public policy represents the existence of one or more common objectives and a set of measures and actions to be addressed that are considered necessary or desired and considered satisfactory or problematic, at least in part, by a government agency or institution to direct the actions of individuals or groups to correct a perceived situation. Research Hernández Sampieri (2014) defines *research* as a formal and systematic process to answer scientific questions or problems and seek to generate new knowledge. For his part, Creswell (2018) describes research as the systematic, reflective, and ethical research process that seeks to answer questions or solve problems. Researchers According to Robert K. Merton (1938), researchers are individuals engaged in the pursuit of new knowledge and the creation guided by standards of altruism and objectivity that are important in scientific research. Michael T. Clark (2004) emphasizes that researchers play a fundamental role in producing and communicating informed knowledge through research and teaching, especially in higher education.

Technology Christopher Freeman (1987) argues that technology refers to advances and practical applications derived from science and significantly impacts the economy and society. In the "Three Helixes" framework proposed by Henry Etzkowitz and Loet Leydesdorff (2000), technology is a key element of collaboration between academia, industry, and government.

Innovation Bengt-Ake Lundvall (1992) argues that innovation is a complex process involving introducing new ideas, products, processes, and organizational forms into the economy and society and is influenced by policy. Christopher Freeman (1987) associates innovation with successfully applying new technologies to an economy, contributing to economic growth and overall progress.

RESULTS AND DISCUSSION

Characterization of the Social Appropriation of Knowledge (SCA) from the perspective of public policy: Identification of key programs such as "Ideas for Change" and "Open Science." Recognition of calls for proposals that finance proposals for projects related to SCA. Use the instrument for Measuring Groups and Researchers to approach the community's needs and generate solutions to local problems. Promotion of CSA at the University of La Guajira through its research groups. Possibility of developing products related to the social appropriation of knowledge in projects financed by Colciencias and other national institutions.

CONCLUSIONS

Recognition of the importance of promotion policies: It is concluded that policies aimed at promoting the social appropriation of knowledge in the framework of the CTeI are fundamental to strengthening the linkage between the research groups of the University of La Guajira, thus facilitating the transfer of knowledge and technologies.

Impact on the quality and relevance of research: It is observed that an effective policy to promote the social appropriation of knowledge contributes significantly to improving the quality and relevance of the research developed by the research groups at the University of La Guajira by aligning their activities with social needs and demands.

Promotion of innovation and development: Implementing policies that promote the social appropriation of knowledge stimulates innovation and socioeconomic development by facilitating the transfer of technologies and knowledge generated in the research groups to the productive sector of the Region.

Need for inter-institutional coordination: It was concluded that it is essential to promote collaboration and coordination between higher education institutions, government entities, businesses, and civil society to maximize the impact of policies to promote the social appropriation of knowledge.

Challenges and future opportunities: Challenges such as the need to strengthen the culture of social appropriation of knowledge and ensure sufficient resources for its implementation are identified, as well as opportunities such as the integration of multidisciplinary approaches and the internationalization of research activities.

FINANCING

The authors did not receive funding for the development of this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Wilmer Jose Torres Brugés, Doris Leonor Acuña Mendoza.
Formal analysis: Wilmer Jose Torres Brugés, Doris Leonor Acuña Mendoza.
Research: Wilmer Jose Torres Brugés, Doris Leonor Acuña Mendoza.
Original writing-drafting: Wilmer Jose Torres Brugés, Doris Leonor Acuña Mendoza.
Writing-revision and editing: Wilmer Jose Torres Brugés, Doris Leonor Acuña Mendoza.

REFERENCES

1. Albornoz, M. (2014). La universidad iberoamericana en debate. Revista Iberoamericana de Ciencia, Tecnología y Sociedad - CTS, 9(27), 49-61.

2. Arias. (2017). Diseño de la metodología de investigación. Enfoques consultingeirl prolongación avenida ejercito 618telef. + 51 967702156 Arequipa Perú.

3. Colciencias. (2010). Estrategia Nacional de Apropiación Social de la Ciencia, la Tecnología y la Innovación. En M. L. Borda & O. J. Maldonado (Eds.), Bogotá.

4. Colciencias. (2018). Lineamientos Para Una Política De Ciencia Abierta En Colombia.

5. Recuperado de https://minciencias.gov.co/mision-sabios/documentos

6. Creswell, J. W. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Sage Publications.

7. Daza-Caicedo, S. (2013). La Apropiación social de la ciencia y la tecnología como un objeto de frontera. En C. Vogt (Ed.), Comunicação, divulgação e percepção pública de ciência e tecnologia (pp. 49-62). Rio de Janeiro: De Petrus.

8. Daza-Caicedo, S., & Lozano Borda, M. (2013). Actividades hacia "otros públicos". Entre la difusión, la Apropiación y la gobernanza de la ciencia y la tecnología. En M. Salazar (Ed.), Colciencias cuarenta años. Entre la legitimidad, la normatividad y la práctica (pp. 280-354). Bogotá D.C: Observatorio Colombiano de Ciencia y Tecnología.

9. Daza-Caicedo, S., Maldonado, O., Arboleda-Castrillón, T., Falla, S., Moreno, P., Tafur- Sequera, M., & Papagayo, D. (2017). Hacia la medición del impacto de las prácticas de Apropiación social de la ciencia y la tecnología: propuesta para una batería de indicadores. Historia, Ciencias, Saúde-Manguinhos, 24(1), 145-164.

10. Escobar, J. M. (2018). La apropiación social de la ciencia y la tecnología como eslogan: Un análisis del caso colombiano. Revista CTS, 13(38), 29-57.

11. Escobar Ortiz, J. M. (2017). Los orígenes del discurso de apropiación social de la ciencia y la tecnología en Colombia. Análisis Político, 30(91), 146-163. https://doi.org/10.15446/anpol.v30n91.70269

12. Hernández-Sampieri, R., & Mendoza, C. (2018). Metodología de la investigación. Las rutas cuantitativa, cualitativa y mixta.

Ciudad de México, México: Editorial Mc Graw Hill Education.

13. Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, P. (2014). Metodología de la investigación (6ª ed.). McGraw-Hill Interamericana.

14. Hernández, R., Fernández, C., & Baptista, L. (2014). Metodología de la investigación. 6ta Edición. México: McGraw-Hill.

15. Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, P. (2014). Metodología de la investigación. McGraw-Hill.

16. Ministerio de Ciencia, Tecnología e Innovación. (2021). Política Pública de Apropiación Social del Conocimiento en el marco de la Ciencia, Tecnología e Innovación, Pub.

17. L. No. Resolución 0643, 1 de 2021.

18. Ministerio de Ciencia, Tecnología e Innovación. (2021). Documento CONPES 4069. Política Nacional de Ciencia, Tecnología e Innovación 2022 – 2031. Recuperado de https://minciencias.gov.co/mision-sabios/documentos

19. Miranda, E. M., & Salto, D. J. (2012). Cooperación académica internacional: entre la política y la gestión. Educación global. Edición universitaria. Revista Argentina de Educación Superior, 4, 34–52.

20. Morresi, S. (2015). La internacionalización y la cooperación en la Educación Superior. El caso de la Universidad Nacional del Sur. Debate Universitario, 3(6), 137–148.

21. Piedra-Salomón, Y., & Martínez-Rodríguez, A. (2007). Producción científica. Ciencias de la Información, 38(3), 33-38.

22. Roth, A. (2014). Políticas públicas. Formulación, implementación y evaluación. Bogotá: Ediciones Aurora.

23. Tamayo y Tamayo, M. (2014). El proceso de la investigación científica (6ª ed.). Limusa. Leyes y normas:

24. Ley 1286 de 2009: Esta ley establece el Sistema Nacional de Ciencia, Tecnología e Innovación (SNCTI) y define la política nacional en estas áreas. Dentro de esta ley, se promueve la ASC como un componente fundamental de la investigación y la innovación en Colombia. Decreto 2200 de 2005: Regula el Sistema Nacional de Ciencia y Tecnología e incorpora la Apropiación Social del Conocimiento como uno de los elementos centrales del SNCTI

25. Resolución 222 de 2021: Establece las directrices para la implementación del Sistema de Gestión de la Ciencia, la Tecnología y la Innovación en Colombia y fomenta la ASC como parte integral de la política pública en este ámbito. Ministerio de Ciencia, Tecnología e Innovación (Minciencias): Esta entidad gubernamental es responsable de implementar y supervisar las políticas relacionadas con la ciencia, tecnología e innovación en Colombia. A través de Minciencias, se promueven programas, convocatorias y financiamiento para proyectos de investigación que incluyen la ASC como parte de sus objetivos

26. Amado, A. M. S., Bernal, M. S. M., & Tiuzo, S. C. (2022). Knowledge Management Model As A Strategic Tool For Agricultural Associations In Colombia. Journal of Language and Linguistic Studies, 18(3), Article 3. https://www.jlls.org/index.php/jlls/article/view/5105

27. Arteaga, J. V., Gravini-Donado, M., & Riva, L. Z. (2021). Digital Technologies for Heritage Teaching: Trend Analysis in New Realities. International Journal of Emerging Technologies in Learning (iJET), 16(21), 132–148. https://www.learntechlib.org/p/220526/

28. Chamorro Burgos, D. F. (2023). From the company to the school: Reconstruction of knowledge management in the educational field. Revista Educación, 47(1), 644–662. https://doi.org/10.15517/revedu.v47i1.52026

29. Choccata-Cruz, E., Villanueva-Figueroa, R., Galvez-Aurazo, V., Zarate-Ruiz, G., & Miranda-Aburto, E. (2024). Regional Educational Policies and Critical Interculturality in Rural Areas of the Province of Abancay—Apurímac, 2023. Salud, Ciencia y Tecnología - Serie de Conferencias, 3, 637–637. https://doi.org/10.56294/sctconf2024637

30. de la Cruz-Campos, J. C., Ramos-Navas-Parejo, M., Vázquez, C. R.-R., & Cevallos Uve, G. E. (2023). From the Digital Divide to Digital Inclusion: An Ecuadorian Perspective. In Ł. Tomczyk, F. D. Guillén-Gámez, J. Ruiz-Palmero, & A. Habibi (Eds.), From Digital Divide to Digital Inclusion: Challenges, Perspectives and Trends in the Development of Digital Competences (pp. 243–262). Springer Nature. https://doi.org/10.1007/978-981-99-7645-4_11

31. de la Cruz-Campos, J.-C., Victoria-Maldonado, J.-J., Martínez-Domingo, J.-A., & Campos-Soto, M.-N. (2023). Causes of academic dropout in higher education in Andalusia and proposals for its prevention at university: A systematic review. Frontiers in Education, 8. https://doi.org/10.3389/feduc.2023.1130952

32. García, Ó. F. (2023). ITCs for the management of learning in health: Drug services in the Americas. HUMAN REVIEW. International Humanities Review / Revista Internacional De Humanidades, 17(4), Article 4. https://eaapublishing.org/journals/index.php/humanrev/article/view/1584

33. Gaviria-Yepes, L. M., Valencia-Arias, A., & Hincapié-Montoya, E. M. (2023). Design-proposal of a conceptual model of intellectual property management and technology transfer in the context of higher education in Latin America. International Journal of Economic Policy in Emerging Economies, 18(1), 102–116. https://doi.org/10.1504/IJEPEE.2023.134813

34. Gómez-Galán, J., Martínez-López, J. Á., Lázaro-Pérez, C., & García-Cabrero, J. C. (2021). Open Innovation during Web Surfing: Topics of Interest and Rejection by Latin American College Students. Journal of Open Innovation: Technology, Market, and Complexity, 7(1), Article 1. https://doi.org/10.3390/joitmc7010017

35. Honorato-Errazuriz, J., & Ramirez-Montoya, M. S. (2021a). Randomized Evaluation of Reading Skills: An Opportunity for Systematic Literature Review. Ninth International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'21), 616–623. https://doi.org/10.1145/3486011.3486527

36. Honorato-Errazuriz, J., & Ramirez-Montoya, M. S. (2021b). Randomized Evaluation of Reading Skills: An Opportunity for Systematic Literature Review. Ninth International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'21), 616–623. https://doi.org/10.1145/3486011.3486527

37. Hosman, L., Gómez Zermeño, M. G., & Alemán de la Garza, L. (2020). SolarSPELL Assessment: Impact of a Solar-Powered Digital Library as a Teaching-Learning Resource on Climate Change. Sustainability, 12(16), Article 16. https://doi.org/10.3390/su12166636

38. Ibarra-Vazquez, G., Ramírez-Montoya, M. S., & Buenestado-Fernández, M. (2024). Forecasting Gender in Open Education Competencies: A Machine Learning Approach. IEEE Transactions on Learning Technologies, 17, 1236–1247. IEEE Transactions on Learning Technologies. https://doi.org/10.1109/TLT.2023.3336541

39. Jaramillo, A. C., Osorio, C. A. Z., Jaramillo, S. C., & Garzik, L. (2022). Medellín Innovation System. In L. Garzik (Ed.), Successful Innovation Systems: A Resource-oriented and Regional Perspective for Policy and Practice (pp. 127–142). Springer International Publishing. https://doi.org/10.1007/978-3-030-80639-2_8

40. Jonek-Kowalska, I., & Wolniak, R. (2021). The Influence of Local Economic Conditions on Start-Ups and Local Open Innovation System. Journal of Open Innovation: Technology, Market, and Complexity, 7(2), Article 2. https://doi.org/10.3390/joitmc7020110

41. Lamy, C., Aristizábal-Velásquez, M. E., Obregón-Gómez, E. C., & Osorio-Atehortua, U. A. (2021). Case Study: How Medellin Is Creating a Hub for Impact Start-ups. In M. I. Sánchez-Hernández, L. Carvalho, C. Rego, M. R. Lucas, & A. Noronha (Eds.), Social Innovation and Entrepreneurship in the Fourth Sector: Sustainable Best-Practices from Across the World (pp. 103–122). Springer International Publishing. https://doi.org/10.1007/978-3-030-75714-4_6

42. Montenegro-Trujillo, I. (2021). Adequacy of Governance of Science, Technology and Innovation in Developing Countries: The Colombian Case. In G. Ordóñez-Matamoros, L. A. Orozco, J. H. Sierra-González, I. Bortagaray, & J. García-Estévez (Eds.), Policy and Governance of Science, Technology, and Innovation: Social Inclusion and Sustainable Development in Latin América (pp. 285–310). Springer International Publishing. https://doi.org/10.1007/978-3-030-80832-7_11

43. Nunes, C. H., Cavalcante, A. L. M., Campos, A. de S., Cozendey-Silva, E. N., Mattos, R. de C. O. da C., Moura-Correa, M. J., & Teixeira, L. R. (2022). Information and Communication Network on the Exposure of Workers to Sars-CoV-2 in Brazil. Saúde Em Debate, 46, 411–422. https://doi.org/10.1590/0103-11042022E128I

44. Ramírez-Montoya, M. S., Álvarez-Icaza, I., Sanabria-Z, J., Lopez-Caudana, E., Alonso-Galicia, P. E., & Miranda, J. (2021). Scaling Complex Thinking for Everyone: A Conceptual and Methodological Framework. Ninth International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM'21), 806–811. https://doi.org/10.1145/3486011.3486562

45. Ramírez-Montoya, M.-S., & Lugo-Ocando, J. (2020). Revisión sistemática de métodos mixtos en el marco de la innovación educativa. Comunicar: Revista Científica de Comunicación y Educación, 28(65), 9–20. https://doi.org/10.3916/C65-2020-01

46. Relationship between knowledge transfer and sustainable innovation in interorganizational environments of small and medium-sized enterprises. (2024). Journal of Entrepreneurship, Management and Innovation, 20(1), 47–64. https://www.ceeol.com/search/article-detail?id=1231408

47. Rodríguez-Abitia, G., Martínez-Pérez, S., Ramirez-Montoya, M. S., & Lopez-Caudana, E. (2020). Digital Gap in Universities and Challenges for Quality Education: A Diagnostic Study in Mexico and Spain. Sustainability, 12(21), Article 21. https://doi.org/10.3390/su12219069

48. Rodríguez-Jiménez, C., de la Cruz-Campos, J.-C., Campos-Soto, M.-N., & Ramos-Navas-Parejo, M. (2023). Teaching and Learning Mathematics in Primary Education: The Role of ICT-A Systematic Review of the Literature. Mathematics, 11(2), Article 2. https://doi.org/10.3390/math11020272

49. Romero-Rodríguez, J.-M., Ramírez-Montoya, M.-S., Aznar-Díaz, I., & Hinojo-Lucena, F.-J. (2020). Social Appropriation of Knowledge as a Key Factor for Local Development and Open Innovation: A Systematic Review. Journal of Open Innovation: Technology, Market, and Complexity, 6(2), Article 2. https://doi.org/10.3390/joitmc6020044

50. Sá, M. J., Santos, A. I., Serpa, S., & Miguel Ferreira, C. (2021). Digitainability—Digital Competences Post-COVID-19 for a Sustainable Society. Sustainability, 13(17), Article 17. https://doi.org/10.3390/su13179564

51. Santillan-Rosas, I. M., & Heredia-Escorza, Y. (2021). Empowering women's digital literacy with transformative learning: Reducing the gap in the T of STEM. Eighth International Conference on Technological Ecosystems for Enhancing Multiculturality, 182–186. https://doi.org/10.1145/3434780.3436684

52. Silva, L. H., Velasquez, C. E., Becerra, L. A., & Hernández, S. L. (2021). Social Innovation Route As A Methodology for the Construction of Socially Sustainable Innovations. Social Innovations Journal, 9. https://socialinnovationsjournal.com/index.php/sij/article/view/870

53. Silva, P. C., Oliveira, P. M., & Silva, P. S. (2021). ICTR 2021 4th International Conference on Tourism Research. Academic Conferences International.

54. Tejedor, S., Cervi, L., Pérez-Escoda, A., Tusa, F., & Parola, A. (2021). Higher Education Response in the Time of Coronavirus: Perceptions of Teachers and Students, and Open Innovation. Journal of Open Innovation: Technology, Market, and Complexity, 7(1), Article 1. https://doi.org/10.3390/joitmc7010043

55. Torres Jarrín, M., & Riordan, S. (2023). Science Diplomacy Between EU and CELAC. In M. Torres Jarrín & S. Riordan (Eds.), Science Diplomacy, Cyberdiplomacy and Techplomacy in EU-LAC Relations (pp. 133–154). Springer International Publishing. https://doi.org/10.1007/978-3-031-36868-4_8

56. Universidad Autónoma del Estado de México, Benito Moran, D. B. M., Soberanes Martín, A., Universidad Autónoma del Estado de México, & López Cortés, M. I. (2021). Proposal of an educational technology approach for a web system construction. Application case: Teaching about the Fungi kingdom. IE Revista de Investigación Educativa de La REDIECH, 12(0), e1126. https://doi.org/10.33010/ie_rie_rediech.v12i0.1126