



# MLS - EDUCATIONAL RESEARCH

Vol. 3 • Núm. 1 • Junio - June - Junho 2019

ISSN: 2603-5820

<http://www.mlsjournals.com/Educational-Research-Journal>

## EQUIPO EDITORIAL / EDITORIAL TEAM / EQUIPA EDITORIAL

### **Editor Jefe / Editor in chief / Editor Chefe**

*Antonio Pantoja Vallejo* - Universidad de Jaén, España.

### **Editores Asociados / Associate Editors / Editores associados**

*David Molero López-Barajas*, Universidad de Jaén, España.

*Cristobal Villanueva Roa*, IES Jabalcuz, España

*M. Mar Encinas-Puente*, Queen Mary University of London, Reino Unido.

*Martha Kaschny Borges*, Universidade do Estado de Santa Catarina, Brasil

### **Gestora de la revista / Journal Manager / Editor da revista**

*Beatriz Berrios Aguayo*, Universidad de Jaén, España.

### **Consejo Científico Internacional / International scientific committee / Conselho científico internacional**

*Juan Bosco Bernal*, Universidad Especializada de las Américas, Panamá

*María Jesús Colmenero Ruiz*, Universidad de Jaén, España

*Pilar Figuera Gazo*, Universidad de Barcelona, España

*Ramón Garrote Jurado*, Universidad de Borås, Suecia

*Javier Gil Flores*, Universidad de Sevilla, España

*Susana Gonçalves*, Escola Superior de Educação de Coimbra, Portugal

*Juan José Leiva Olivera*, Univrsidad de Málaga, España

*Miguel Pérez Ferra*, Universidad de Jaén, España

*Cristiane Porto*, Universidade Tiradentes - Brasil

*Honorio Salmerón Pérez*, Universidad de Granada, España

*Lidia Santana Vega*, Universidad de la Laguna, España

*Paul Spence*, King's College London, Reino Unido.

*Juan Carlos Tójar Hurtado*, Universidad de Málaga, España

*Marlene Zwierewicz*, Marlene Zwierewicz, UNIBAVE, Brasil

### **Patrocinadores:**

Funiber - Fundación Universitaria Iberoamericana

Universidad internacional Iberoamericana. Campeche (México)

Universidad Europea del Atlántico. Santander (España)

Universidad Internacional Iberoamericana. Puerto Rico (EE.UU)

Universidade Internacional do Cuanza. Cuito (Angola)

### **Colaboran:**

Centro de Investigación en Tecnología Industrial de Cantabria (CITICAN)

Grupo de Investigación IDEO (HUM 660) - Universidad de Jaén

Centro de Innovación y Transferencia Tecnológica de Campeche (CITTECAM) – México.

**Portada:** Adornos florales en Semana Santa (Tarma - Perú).

MLSER es una publicación científica que se edita dos veces al año, meses de junio y diciembre.

## SUMARIO • SUMMARY • RESUMO

---

- Editorial ..... 4
- La indagación guiada como estrategia metodológica para el desarrollo de competencias científicas en estudiantes de Educación Media ..... 7  
Guided indagation as a methodological strategy for the development of scientific competences in middle education  
*Clara Inés Ortiz Viviescas, Magdalena Suárez, Universidad Internacional Iberoamericana/Universidad de Sevilla (España)*
- Formação docente: a formação do professor e a influência sobre a aprendizagem do aluno ..... 25  
Formación docente: la formación del profesor y la influencia sobre el aprendizaje de los alumnos  
Teacher training: teacher training and the influence on student learning  
*Rosely Yavorski, Maria Aparecida Santos e Campos, Fundación Universitaria Iberoamericana (Brasil)/ Universidad de Jaén (España)*
- Preparación del profesorado en TIC y su valoración en la formación de los grumetes de la Tecnología Electromecánica de la Escuela Naval de Suboficiales de Barranquilla ..... 43  
Teacher's preparation in ICT and its valuation in the formation of cabin boys in Electromechanical Technology from the Non-commissioned Officer Naval School of Barranquilla  
*Marlon Jesús Angulo Cétarez, Escuela Naval de Suboficiales ARC Barranquilla, Tecnología Electrónica, Departamento Académico (Colombia).*
- Empoderamiento digital y desarrollo de competencias Matemáticas en la formación del docente de Matemáticas ..... 59  
Digital empowerment and development of mathematical competences in the training of the teacher of mathematics  
*Jesús Vilchez Guizado, Universidad Nacional Hermilio Valdizán (Perú)*
- Organización del sistema educativo senegalés ..... 79  
Organization of the senegalese educational system  
*Seynabou Seye Djité, Meissa Diakhate, Inspection d'académie de Thies (Senegal)/Université Cheikh Anta DIO (Senegal)*
- Aptitud musical y rendimiento escolar: estudio del caso de los integrantes del programa de bandas sinfónicas de Caldas (Colombia) ..... 93  
Musical aptitude and school performance: study of the case of the members of the program of symphonic bands of Caldas (Colombia)  
*Robinson Alvarado Giraldo, Secretaría de Educación de Manizales (Colombia)*



## Editorial

Professorship training and Information and Communication Technologies (ICT) are recurring research topics within the current educational outlook. MLSER is nurtured by the collaboration of authors from different countries, with this characteristic clearly evident in each one. This is to say that we are currently in a trend running through the world's educational systems, revealing how education depends ever more on innovation and change.

This is seen in the first of these articles which implements a methodological strategy based on a guided inquiry on the suitability of practices within a physics laboratory, highlighting how technological advancements require the development of a scientific thinking with which students will be able to access and transform their environment. Its main conclusion is that the developed strategy is innovative for students by proposing guideline and didactic elements for the teaching of science which will bring them closer to current technological and scientific developments.

There is no doubt that the professorships' training should favor inclusive and quality education since it will enable the use of innovative techniques and methodologies applied to difficulties in learning. This topic is addressed in the following article under a Brazilian context and does so within a cross-sectional study and interviews as a way of collecting data. The results show the existing preoccupation by the professorship about the quality of education and how they search for information from other professors and training through continuous education and post degrees.

The third article addresses the professorships' training in ICT, applied in this case to the training of cabin boys in Electromechanical Technology from the Non-Commissioned Officer Naval School in Barranquilla, Colombia. The research is carried out from the perspective of the teachers, the technology program chief, the cabin boys, the Statistics Department and the Telematic Department. The result highlights proper ICT training and the existence of permanent training for the professorship, meaning an unequivocal sensibility toward the same.

The following work is based on the ICT and Digital line but within the field of Mathematics, aimed at specifying the level of digital empowerment and the development of mathematical skills in the professor's induction training within this subject. It follows a qualitative methodology, likewise evaluating the implications of the professor's use of digital resources. Most of the professors during their induction training already display considerable digital empowerment, which is fundamental when learning mathematics and for developing skills in reasoning, problem solving, modeling and mathematical communication during the math professor's induction training.

The following article shows a notable change in topic, a characteristic feature of an open journal like the MLSER, which accepts any educational research topic that may be of interest. In this case, it highlights the organizational education system of Senegal, and how, due to the second World War, school policies were dominated by assimilation

ideologies which they have currently inherited to a great extent. To change this panorama, it is important to analyze and research the educational orientation laws and the messages in their textbooks within educational programs and official instructions.

The MLSER concludes with a case study on the symphony bands from Caldas (Colombia) which confirms the relationship between musical aptitude and school performance. A quantitative approach was used for this which revealed the positive correlations between all of the variables evaluating musical aptitude.

Antonio Pantoja Vallejo  
*Editor Jefe / Editor in chief / Editor Chefe*

