

A person wearing large black headphones is looking intently at a laptop screen. The person's hands are resting on their chin, suggesting deep thought or concentration. The background is blurred, showing what appears to be a computer monitor and other office equipment. The overall tone is professional and focused.

# ELABORACIÓN DE ARTÍCULOS CIENTÍFICOS DE PRIMER NIVEL

Alejandro López-González, PhD  
Profesor Invitado de LA UNIVERSIDAD DEL ZULIA

# Introducción General



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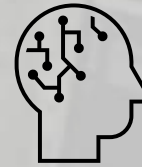
\*Figures as of 2014

# Planificación del Artículo

¿Como se logra un sólido manuscrito?

## Primero

Un mensaje claro y útil  
para el avance de una línea  
de investigación



## Segundo

Una estructura lógica fácil  
de seguir por el lector

## Tercero

Captar la atención del  
lector especializado



# Planificación del Artículo

¿Qué tipo de artículo quiero hacer?

## Full Article

Sustancial, completo y exhaustivo



## Review Article

Sumario del estado del arte o compendio de investigaciones

## Letter or Short Communications

Avances tempranos que se desean comunicar rápidamente



# Planificación del Artículo

Apunte a llegar a la audiencia correcta para su trabajo

Elija solo una revista, ya que las revisiones simultáneas están prohibidas

El supervisor y los colegas pueden proporcionar buenas sugerencias

Preseleccione un puñado de revistas candidatas e investiguelas:

1. Objetivos
2. Alcance
3. Tipos de artículos aceptados
4. Número de lectores
5. Temas de actualidad

# Selección de la revista adecuada

Utilice la herramienta

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# Selección de la revista adecuada

Valoración objetiva del **factor de impacto**



Puede estar influido por una política editorial mejor posicionada en redes sociales y/o por el tratamiento de temas de mayor interés del público en general.

Ocasionalmente, el alto FI puede deberse a unos pocos artículos muy citados.

# Estructura General de un Artículo Científico

Se compone de tres partes principales, con sus secciones. Las 3 partes son:

- Presentación
- Texto Principal
- Final





# Estructura General de un Artículo Científico (en orden de lectura)



## **Presentación**

TÍTULO

ABSTRACT (resumen)

KEYWORDS (palabras clave)

## **Texto Principal (IMRAD)**

INTRODUCCIÓN (I)

MÉTODOS (M)

RESULTADOS Y  
DISCUSIÓN (RAD)

## **Final**

CONCLUSIÓN

RECONOCIMIENTOS

REFERENCIAS

MATERIAL SOPORTE



# Estructura General de un Artículo Científico



Los artículos no se escriben en el orden en que serán leídos

Los artículos  
no se  
escriben en  
el orden en  
que serán  
leídos

Referencias & Material  
Soporte

Figuras & Tablas (Datos procesados)

Métodos

Resultados

Discusión

Conclusión

Introducción

Resumen  
Palabras Clave

Titulo



DIVULGACIÓN

3

ANÁLISIS

2

BASE

1



# DESCRIPCIÓN DE LAS SECCIONES

## **BASE**

Métodos  
Resultados  
Discusión  
Figuras y Tablas

## **ANALISIS**

Conclusión  
Introducción

## **DIVULGACION**

Resumen  
Palabras Clave  
Titulo



# BASE DEL ARTICULO

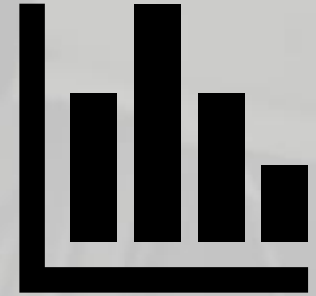
- Métodos
- Resultados
- Discusión
- Figuras & Tablas

# Métodos (Metodología)



- 1) Describe como ha sido abordado y estudiado el problema**
- 2) Incluye información detallada de los procedimientos implementados**
- 3) No debe describir procedimientos publicados anteriormente, solo mencionarlos y citarlos.**
- 4) Identifica al lector, con claridad, que equipos se utilizaron y que materiales insumos se necesitaron**

# Resultados



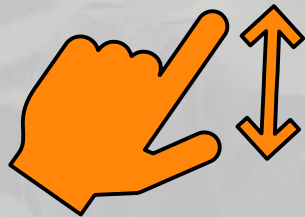
- 1. Incluya sólo datos de primera importancia**
- 2. Utilice subapartados para agrupar resultados similares**
- 3. Sea claro y facilite la comprensión del lector (aparentar complejidad no aporta valor, si los resultados no se comprenden)**
- 4. Destaque los resultados principales**
- 5. Evidencia los resultados inesperados**
- 6. Justifique con algún análisis estadístico (en caso de que aplique)**
- 7. Incluya ilustraciones y figuras didácticas y lógicas.**



# Discusión



- 1) Presentan la interpretación de los resultados
- 2) Es la sección más importante del artículo
- 3) Compare sus resultados con los de artículos previos de otros autores
- 4) Haga una discusión comparativa de sus resultados y complemente con referencias



## SE DEBE EVITAR →

- 1) Afirmaciones más allá de los resultados.
- 2) Valoraciones subjetivas o no específicas (bueno, alto, frío, inconveniente, etc)
- 3) Términos nuevos no definidos en el artículo
- 4) Especulaciones basadas en interpretaciones subjetivas de los resultados

# ANÁLISIS DEL ARTÍCULO



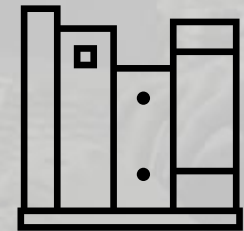
◦ **CONCLUSIÓN**

◦ **INTRODUCCIÓN**

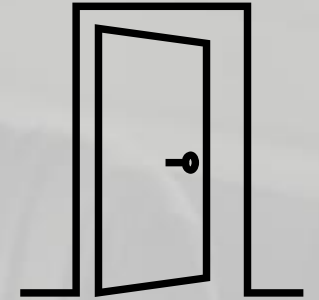
# Conclusión



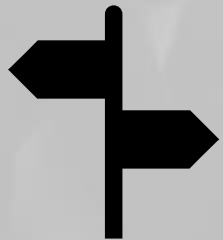
1. Sea claro
2. Justique el artículo
3. Explique como el artículo hace avanzar la línea de investigación
4. Sugiera futuras investigaciones y/o evaluaciones de seguimiento



# Introducción



1. **Provea una breve descripción del contexto**
2. **Describa el problema**
3. **Identifique soluciones y limitaciones**
4. **Identifique los objetivos del artículo y/o investigación**
5. **Provea una perspectiva del artículo en el marco de la revista a la cual aspira**



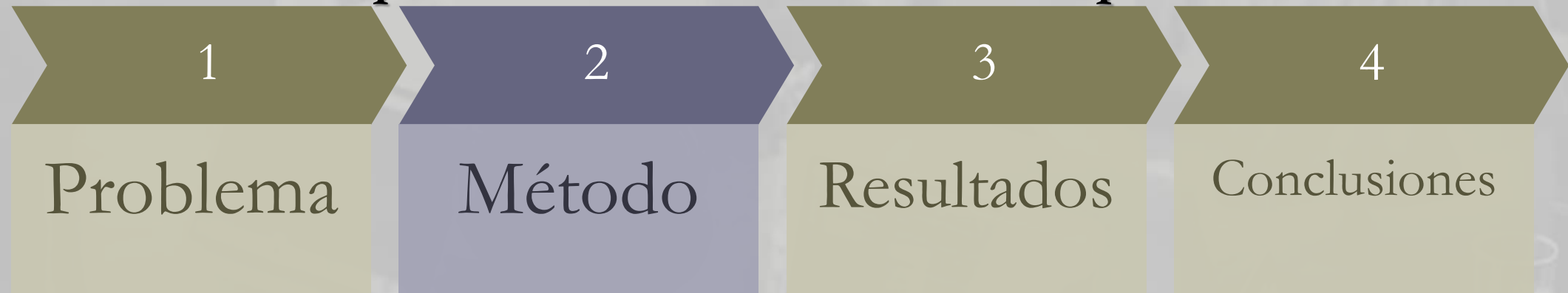


# **DIVULGACIÓN**

- **RESUMEN  
(Abstract)**
- **PALABRAS  
CLAVE  
(Keywords)**
- **TITULO**

# Resumen

**Un párrafo con un máximo de 250 palabras**



Debe ser interesante y comprensible

Preciso y específico

Breve

# Palabras Clave

- 1. Son las etiquetas del artículo**
- 2. Se utilizan para indexar**
- 3. Deben ser específicas**
- 4. No se deben usar abreviaciones poco conocidas**

# Titulo

1. **Debe atraer la atención del especialista**
2. **Contener la menor cantidad de palabras posible**
3. **Debe describir el contenido**
4. **Debe informar pero sin redundar**
5. **Debe indentificar el problema principal**
6. **No debe contener jerga técnica y/o abreviaciones poco conocidas**



# EJEMPLOS Y ASPECTOS PRACTICOS

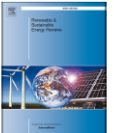
Renewable and Sustainable Energy Reviews 95 (2018) 95–109



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## Formative evaluation of sustainability in rural electrification programs from a management perspective: A case study from Venezuela



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### ARTICLE INFO

#### Keywords:

Rural electrification program  
Renewable energy  
Sustainability dimensions  
Formative evaluation  
Venezuela

### ABSTRACT

Nowadays, around 1.2 billion people remain without access to electricity in rural areas of Africa, Asia and Latin America. In order to achieve universal access, a wide range of institutions must be involved in long-term rural electrification programs within a regional and national scope. In this context, the main objective of this research is to propose an evaluation methodology which aims to promote continual improvement of the programs underway, by undertaking the appropriate modifications in terms of their design and implementation. In this regard, a formative approach is sought, as the programs underway require from elements for continual improvement. In addition, a management perspective is also sought, as the results focus on program leaders for the implementation of suitable modifications, as and when needed. The proposed evaluation methodology considers 4 sustainability dimensions: environmental, technical, socioeconomic and institutional, in turn composed of 15 criteria that allow the design and implementation of the program to be analyzed in detail. The criteria are assessed by means of indicators dealing with the specific conditions of each program. As a case study, the Venezuelan program "Sowing Light" is taken as an empirical application of the proposed methodology. Launched in 2005, this program has been developed in three phases, reaching 900 rural communities to date, and is expected to benefit 2020 more in the near future. Hence, the proposed evaluation methodology aims to provide useful results to compare RET-based electrification programs with conventional grid extension. Similarly, the methodology promotes continual improvement in favor of universal electricity access in rural communities in this country, as well as lessons learned that can be useful for the development of similar initiatives in other developing countries.

# Formative evaluation of sustainability in rural electrification programs from a management perspective: A case study from Venezuela



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## PALABRAS CLAVE

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## RESUMEN

## 1. Introduction

Currently, around 1.2 billion people remain without access to electricity in the less developed countries of the world [1]. Lack of electricity is one of the most significant barriers to overcoming poverty. In Latin America, 22 million people are without this service, mainly in countries such as Bolivia, Colombia, Guatemala, Haiti, Nicaragua and Peru [1]. This population tends to be scattered over large and barely accessible territories, so the possibilities for national grid extension are very limited [2]. In this regard, renewable energy technologies (RET) are suitable for such applications since the resources are widely distributed worldwide [3]. Indeed, between 2007 and 2016 the installed

## 5. Discussion about the program design and implementation

Regarding the program design, the final results show consistency with the objectives conceived by the AARE (Section 2.1) according to the RE indications, which is especially demonstrated by the improvements in education (SE-5) and health (SE-6) conditions. In this regard, the institutional alignment (I-1) is positive. Concerning the tools used for the evaluation of the environmental dimension, it can be observed how the installation of RET-based facilities in communities located in fragile ecosystems (E-1) has been prioritized. Prioritization has been effective, since the electrification systems deployed have promoted a technological change (E-2). In order to accomplish this change, the adequate design of RET-based facilities (T-1) has been fundamental, both for exceeding the globally estimated minimum thresholds and for its adequacy to the energy requirements of the local population, as

## 3. Proposed evaluation methodology

The construction of the proposed evaluation methodology is theoretically based on some assumptions of programs and public policies evaluation described in the literature. For example, the terms "formative" or "summative" were adopted by Scriven in 1967 [53] in his discussion on the evaluation of educational programs. Since then, these terms have been used to refer to evaluations with different purposes [27]. Additionally, experiences like the evaluation of the recovery of public works in Blantyre City, Malawi, were taken into account for the conceptual framework of our proposed dimensions [31]. Formative evaluations provide a comprehensive conceptual framework to assist in

## 6. Conclusion

In this work, a methodology for the evaluation of rural electrification programs with a management perspective and a formative purpose has been proposed. The evaluation is carried out from 4 sustainability dimensions, assessed by means of 15 criteria sufficiently robust to be replicated according to the institutional context and their foreseeable particular barriers in social, economic and political aspects. In this regard, this methodological approach is clearly distinguishable from previous evaluations that are subject to a single dimension of sustainability and/or to a local, regional or national level for a specific program stage (design or implementation). The application of the proposed

## 4. Evaluation results for Venezuela


Given the climate diversity in Venezuela, a selection matrix was developed to decide the "Sowing Light" program communities to be visited, having a wide overview of different climatic and ethnic conditions. In particular, 4 states were visited (Bolívar, Falcón, Mérida and Zulia), which group 35% of the implemented projects. Falcón and Zulia are located on the north-western coast of the country, having desert and semiarid climate conditions with average yearly temperatures exceeding 28 °C. Mérida is an Andean region where benefited communities are located at around 3500 m.a.s.l., with an average yearly temperature of 12 °C and a highland climate. Finally, Bolívar is the largest state of the country (240,528 km<sup>2</sup>) and has a varied tropical monsoon climate.

## Acknowledgments

This research was funded by the Spanish Ministry of Science and Innovation (project ENE 2015-67253-R) and the Centre for Cooperation Development (CCD) of the Universitat Politècnica de Catalunya Barcelona TECH (UPC). It has been possible thanks to the collaboration of engineers and technicians of the "Sowing Light" program (Fundelec), the Ministry of Electrical Power of Venezuela and communal councils of electrified communities in Bolívar, Falcón, Mérida and Zulia states in the Bolivarian Republic of Venezuela.

## References

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- [5] IRENA. 2016 a Record Year for Renewables, Latest IRENA Data Reveals. *Renew Energy Capact Stat* 2017; 2017. <[http://www.irena.org/News/Description.aspx?NType=A&mnu=cat&PriMenuID=16&CatID=84&News\\_ID=1486](http://www.irena.org/News/Description.aspx?NType=A&mnu=cat&PriMenuID=16&CatID=84&News_ID=1486)> [accessed 26 April 2017].



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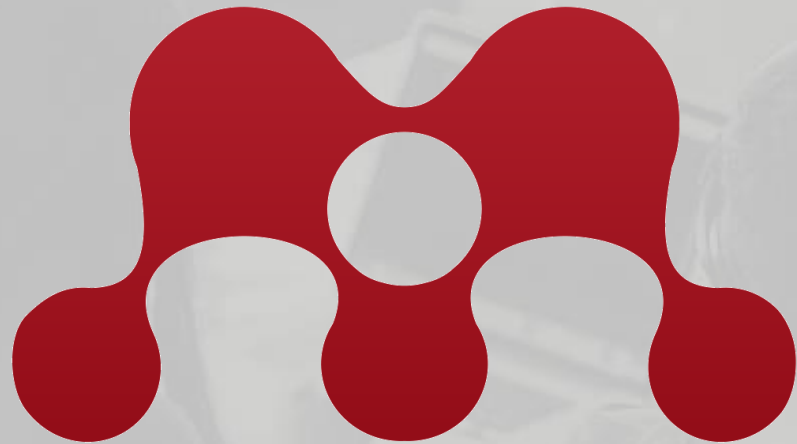
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# Referencias



MENDELEY

The screenshot shows the Mendeley software interface with the 'Referencias' menu open. The menu items are:

- Insert Citation
- Undo
- Refresh
- Export as
- Insert Bibliography
- Open Mendeley
- Style: Energy Policy
- Buscar Investigador
- Insertar cita
- Administración
- Estilo: AF
- Bibliografía
- Citas y bibliografía

The 'Style: Energy Policy' dropdown menu is open, showing the following list of citation styles:

- American Medical Association
- American Political Science Association
- American Sociological Association
- Annual Reviews (author-date)
- Applied Energy
- Chicago Manual of Style 17th edition (author-date)
- Cite Them Right 10th edition - Harvard
- Energy Policy
- Energy Research & Social Science
- Renewable and Sustainable Energy Reviews
- More Styles...

The 'Energy Research & Social Science' style is highlighted in the list. A tooltip for this style is visible at the bottom right of the list, showing the text 'Energy Research & Social Science CIU'.

At the bottom of the interface, there is a button labeled 'ORDEN' with a plus sign icon.



¡GRACIAS!

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