Comité Interamericano de Educación Matemática
Comitê Interamericano de Educação Matemática
Inter-American Committe of Mathematics Education

www.ciaem-iacme.org   International Commission on Mathematical Instruction

Suggestions for Keywords in *IACME Style*

This document contains examples of keywords organized by various categories. In each category there are some subdivisions, but care has been taken to have only one level (and not n sublevels that could unnecessarily complicate this instrument). In each category there are lines (rows) with one or more words.
Observations:

1. *The focus is Mathematics Education.*
2. *In each article, keywords must be included for each indicated category.*
3. *You must choose the keywords that most represent the article.*
4. *There are intersections between the meanings of some of the terms.*
5. *In some cases, it may be possible to select more than one keyword from a category.*
6. *There are categories that do not apply to some works, so in those cases you should not include keywords from the category.*
7. *In some cases it may be convenient to add even more precise keywords (for example, Pythagorean Theorem, Rotations in the plane could be included in Mathematical content and its teaching; or Moodle or GeoGebra could be included in the Technologies category).*
8. *We have indicated with * the categories for which keywords are required.*
9. *And required keywords for papers on experiences are indicated with + for the articles of experiences.*
10. *IACME Style asks for between 5 and 10 keywords; authors have flexibility to select words appropriately, but within these limits.*

This document is a non-exhaustive instrumental guide. As a general rule: the terms used must be sufficiently general cognitively and geographically, since it would not be appropriate to include terms that are too local.

An example of a collection of keywords for a work:
Mathematics education; Pre-university education; Virtual teaching; Curriculum implementation; Problem solving; Stochastics; Ministry of Public Education; Costa Rica.

The categories are:
1. Main general cognitive discipline*
2. Other general cognitive disciplines
3. Educational level of the work*
4. Educational modality*
5. Educational dimension*
6. General theories or specific perspectives related to Mathematics Education that you use or to which you refer significantly
7. Classroom teaching methodology
8. Relevant information and communication technologies (ICT) that play an important role for the work
9. Specific theories or perspectives in Mathematics Education that you use or refer to significantly
10. Type of research (if your work refers to a research process) *
11. On mathematical content and its teaching*
12. Province, state, region or institution in which the work was realized+
13. Country in which the work was realized+

The categories that have * are mandatory for all types of papers.
The categories marked with + are mandatory in the papers in which experiences are described.

General cognitive discipline
- Educational mathematics
- Mathematics education
- Mathematics instruction

In general, these three collections of terms are equivalent, choose only one.

Other general cognitive disciplines
- Education
- Epistemology of mathematics
- Epistemology of mathematics education
- History of mathematics
- History of mathematics education
- Mathematics
- Philosophy of mathematics
- Philosophy of mathematics education
- Sociology of mathematics
- Sociology of mathematics education

Educational level of the work
- Preschool education
- Pre-university education
- Primary education
- Secondary education
- Higher education

When the document refers to all levels in general, the word to use is "Education", which was included in the category "Other general cognitive disciplines".

Educational modality
- Asynchronous virtual teaching
- Bimodal teaching
- Face-to-face teaching
- Free Math Resources
- Hybrid teaching
- Mini-MOOCs
- MOOCs
- Online learning
- Open education
- Remote teaching
- Synchronous virtual teaching
- Teachings at a distance
- Virtual teaching

If you want to refer to teaching in general, you can use the word "Teaching".
If you want to refer to learning in general, you can use the word "Learning".

Educational dimension

Administrative-academic elements
- Educational administration
- Educational assistance
- Educational supervision

Pedagogical mediation
- Education Management
- Educational planning
- Pedagogical mediation

Evaluation/Assessment
- Co-evaluation
- Diagnostic evaluation
- Formative evaluation
- International comparative tests
- Macro evaluation
- National tests
- Self-evaluation
- Summative evaluation
- Unidirectional evaluation

If you want to refer to evaluation in general, you can use the word "Evaluation" or "Assessment.

Teacher preparation and academic development systems
- Continuous teacher preparation
- Initial teacher preparation
- Professional development

Curriculum
- Curricular design
- Curriculum implementation
- Curricular reform

Education for specific populations
- Adult education
- Education for indigenous communities
- Education for populations with special needs
- Youth education

General theories related to Mathematics Education that are used or referred to significantly
- Behaviorism
- Cognitivism
- Constructivism
- Empiricism

Specific theories or perspectives related to Mathematics Education that are used or referred to significantly
- Anthropological theory of instruction
- Conceptual field theory
- Ecological systems theory
- Educational modeling
- Enactivist perspective
- Ethnomathematics
- Lesson Study
- Modeling
- Models and modeling
- Ontosemiotic approach
- Praxis perspective
- Problem solving
- Realistic mathematics education
- Realistic modeling
- Socioculturalism
- Theory of didactic situations
- Variation theory

Classroom teaching methodology
- Directed questions
- Flipped teaching methodology
- Lecturing
- Participatory teaching

Relevant technologies (ICT) that play an important role for the work
- Artificial intelligence
- CMS (Content Management System, like WordPress, …)
- Collaborative technological tools (for example, blogs, forums, wikis, …)
- Databases
- Expert systems
- LMS (Learning Management System, for example Moodle)
- OCS (Open Conference Systems)
- OJS (Open Journal Systems)
- Operating systems (such as MS Windows, Mac OSX, Linux, iOS, Android, …)
- Plugins
- Social networks (for example, WhatsApp, Skype, YouTube, Instagram, …)
- Software (e.g. GeoGebra, …)
- Technological platforms
- Technological tools (in general)
- Virtual classroom (for example, Teams, Zoom, TedEd…)
- Widgets

When you want to indicate information and communication technologies in general, you can use the acronym "ICT"

Type of research (if your work refers to a research process)
- Qualitative research
- Quantitative research
- Case studies
- Descriptive research
- Documentary research
- Experimental research
- Explanatory research
- Exploratory research
- Theoretical research

When you want to indicate that it is about research in general, you can use the terms "Educational Research".

On mathematical content and its teaching

Algebra
- Abstract Algebra
- Algebra
- Algebra teaching

- Algebraic thinking
- Linear algebra

Geometry and topology
- Geometric thinking
- Geometry
- Teaching of geometry
- Teaching of trigonometry
- Topology
- Topology teaching
- Trigonometry

Calculus and analysis
- Differential calculus
- Differential equations
- Functional analysis
- Functional thinking
- Integral calculus
- Mathematical analysis
- Numerical analysis
- Teaching of differential calculus
- Teaching of differential equations
- Teaching of integral calculus
- Teaching of mathematical analysis

Arithmetic and number theory
- Arithmetic
- Mental calculation
- Number theory
- Numerical thinking
- Teaching of arithmetic
- Teaching of number theory

Statistics and Probability
- Probability
- Statistics
- Stochastics
- Teaching of statistics
- Teaching of stochastics
- Teaching probability

Measurement systems
- Measurement systems
- Teaching measurement systems

Computing
- Computer education
- Computing

When you want to indicate that you are referring to Mathematics in general, you can use the word "Mathematics", which has been included in the category of "Other general cognitive disciplines".

Province, state, region and/or institution in which the work was realized
- The keywords of this category would include the name of the province, state, region and institution where the work was developed or to which the work was focused.

It is not necessary to write all the references of a region, for example, it would not be necessary to indicate: Barrio San Gerardo; Guadalupe; Goicoechea; Saint Joseph; Costa Rica. It would suffice with: "Guadalupe; Costa Rica" or "Goicoechea; Costa Rica", or "San Jose; Costa Rica". The authors must assess what would be most appropriate.

Country in which the work was realized
- The keyword is the name of the country