



ACTAS IV SEMINARIO INTERNACIONAL DE INVESTIGACIÓN EN EDUCACIÓN MUSICAL

MARIA ELENA RIAÑO GALÁN
SUSANA ROJAS PERNIA

FACULTAD DE EDUCACIÓN
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**GENIRU
BOTÍN
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**NAVES
DE GAMAZO**

STEAM in 21st century elementary education: action-research for development of educational scenarios

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1. Introduction

STEAM education, which stands for science, technology, engineering, arts, and mathematics, is an approach to education that seeks to integrate these subjects in a holistic way, rather than teaching them in isolation. The incorporation of arts into STEAM education can provide a number of benefits for students, including improved problem-solving skills, creativity, and critical thinking.

2. Aims

Deepen and develop creative and investigative activities in a STEAM approach, to design and implement didactic and scientific resources in a STEAM Lab created for this purpose, to analyze, interpret and collect data on the pedagogical development of the activities carried out in the STEAM Lab, and to discuss their application in the context.

3. Hypothesis or questions

This research plan aims to answer the following questions: i) How can we integrate the Arts with the other STEM disciplines? What is the suitability of the STEAM approach to the context of Primary Education (1st and 2nd cycles)? What could be the characteristics of a STEAM laboratory aimed at children of these cycles?

4. Methodology

The investigative process will be carried out according to a qualitative and interpretative approach developed through consecutive processes of (de)construction between all the theoretical information and the pedagogical and artistic elements that emerge from the empirical research.

The time plan presented is organized in four phases: 1) approach to the research problem; 2) action preparation; 3) case study development; 4) reflection,

writing and dissemination. Each one of them exposes a set of tasks that range from the collection of existing information on the theme to the elaboration of the final report.

5. Results and discussion

- **Improving educational opportunities** by creating conditions for balance between knowledge, understanding, creativity, and critical sense, in the face of others, the diversity of the world, change and uncertainty.
- **(Re)configuring the arts** into an experimental scientific field in search of new learning, encompassing Science, Technology, Engineering, Art and Mathematics, with the STEAM approach being the "flagship" of innovative thinking for the educational system.
- **(Re)configure the role of the arts and creativity** in subject-specific education, especially STEM, and the potential for the languages and sensibilities of the arts to be fully incorporated.
- **Promote a culture of interdisciplinarity and plurality** in the educational context.
- **Integrated learning scenarios** (STEAM Labs) for developing pedagogical practices and teaching modalities, encouraging students to make, share, give, learn, instrument, touch, participate, support, and change.

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STEAM in 21st century elementary education: action-research for the development of educational scenarios

STEAM LABS

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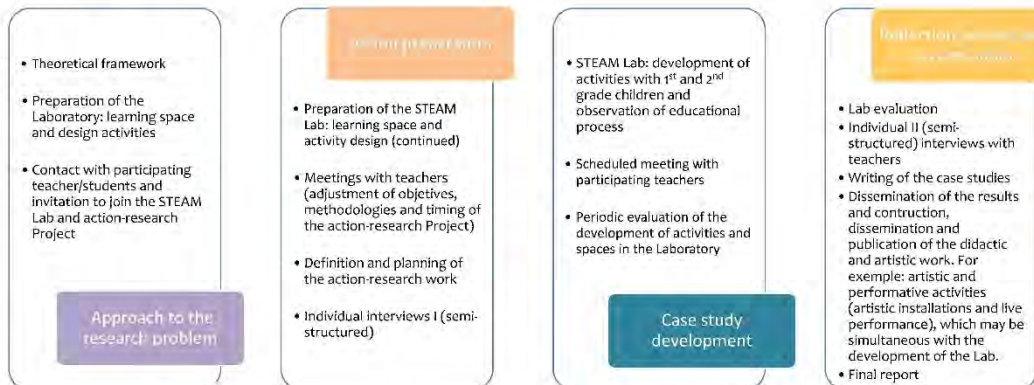
Abstract

This research plan aims to answer the following questions: i) How can we integrate the Arts with the other STEM disciplines? What is the suitability of the STEAM approach to the context of Primary Education (1st and 2nd cycles)? What could be the characteristics of a STEAM laboratory aimed at children of these cycles? To this end, the following objectives are presented: to deepen and develop creative and investigative activities in a STEAM approach, to design and implement didactic and scientific resources in a STEAM Lab created for this purpose, to analyze, interpret and collect data on the pedagogical development of the activities carried out in the STEAM Lab, and to discuss their application in the context. The time plan presented is organized in four phases: 1) approach to the research problem; 2) action preparation; 3) case study development; 4) reflection, writing and dissemination. Each one of them exposes a set of tasks that range from the collection of existing information on the theme to the elaboration of the final report.



- **Creativity and Innovation** – Being a difficult subjects to teach, STEAM education develops creativity and innovation by creating an enabling environment for students to discover how to express themselves and have the opportunity to explore their personalities, thinking differently about a diverse number of subjects.
- **Critical Thinking and Problem Solving** - In an age when information is just a click away, acquiring information is not difficult, but figuring out what to do with it is. Critical thinking and problem solving are a crucial skills that has been brought through the ages and has proven significant for the future.
- **Communication and Collaboration** - Encourages students to develop communication, collaboration skills and emotional intelligence by performing real-life tasks to improve personal interactions, communicating clearly and completely. Inspires to bring to the classroom an essence of collaboration rather than a competitive essence. Each member can bring his or her own distinctive contribution to the table and shine without devaluing the contributions of others, making room for discovery.

Research Path



Expected Results

- **Improving educational opportunities** by creating conditions for balance between knowledge, understanding, creativity, and critical sense, in the face of others, the diversity of the world, change and uncertainty.
- **(Re)configuring the arts** into an experimental scientific field in search of new learning, encompassing Science, Technology, Engineering, Art and Mathematics, with the STEAM approach being the "flagship" of innovative thinking for the educational system.
- **(Re)configure the role of the arts and creativity** in subject-specific education, especially STEM, and the potential for the languages and sensibilities of the arts to be fully incorporated.
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