

Educational Innovation: How STEAM prepares average students for an engineering career

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Introduction

El Salvador's educational system is transitioning towards digitization and ICT integration, prompted by the COVID-19 pandemic. This shift has emphasized online education and the need to enhance teachers' digital skills. However, challenges persist, including unequal access to devices and reliable internet connectivity, which excludes certain student groups. Inadequate teacher training in ICT also affects digital teaching quality and student engagement. Additionally, a mismatch between the educational curriculum and technological requirements raises concerns about adequately preparing students for a digitalized world..

Method

The research adopts a qualitative approach to deeply explore factors, perceptions, and experiences concerning the implementation of STEAM methodology in public secondary education in San Salvador. It utilizes non-quantitative methods like interviews and observations to gather comprehensive insights and propose context-specific recommendations. This exploratory research tackles a relatively new issue in El Salvador's education landscape and aims to lay groundwork for future educational research and policy formulation.

Results

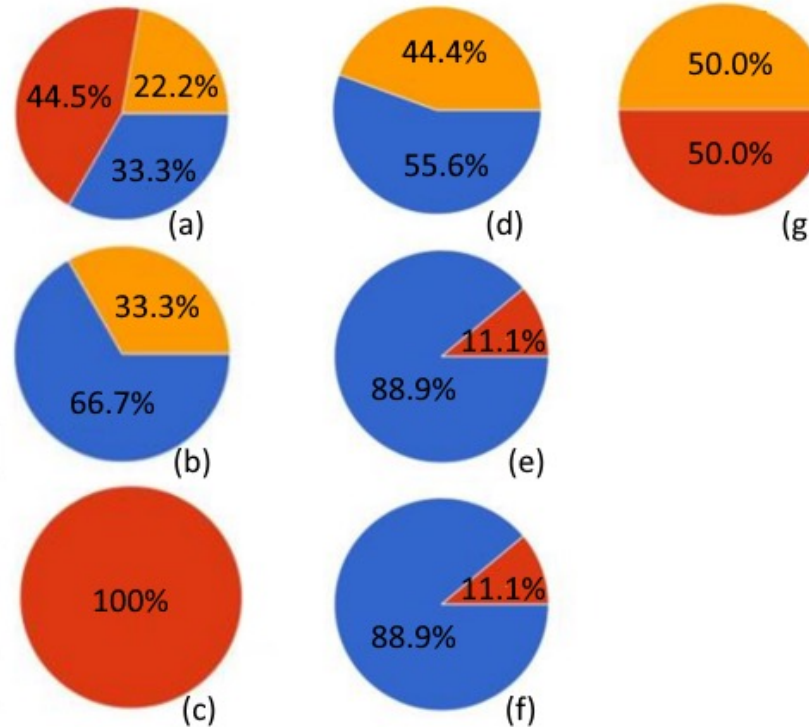


Fig. 1: (a) STEAM teaching paradigm (b) Current level of STEAM teaching (c) Reformulate the educational curriculum to STEAM methodology (d) Enhances skills and abilities (e) Integration of teaching strategies in secondary education subjects (f) Level of knowledge and experience (g) Access to learning resources and materials.

Conclusion

After an exhaustive analysis of STEAM implementation in public secondary education in San Salvador, several significant findings emerged:

- Students show a clear interest and enthusiasm for STEAM disciplines, highlighting the need to leverage this interest to enhance their educational experience.
- While teachers are willing to implement STEAM, there is a critical need for more extensive and specific training in these methodologies to ensure effective implementation.
- The gap in access to technological resources, such as computers and 3D design software, is a fundamental challenge that must be addressed to ensure educational equity.
- Adapting STEAM to existing curricula presents significant challenges, including time management and the need to effectively align educational goals.

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Conflict of interest: none