

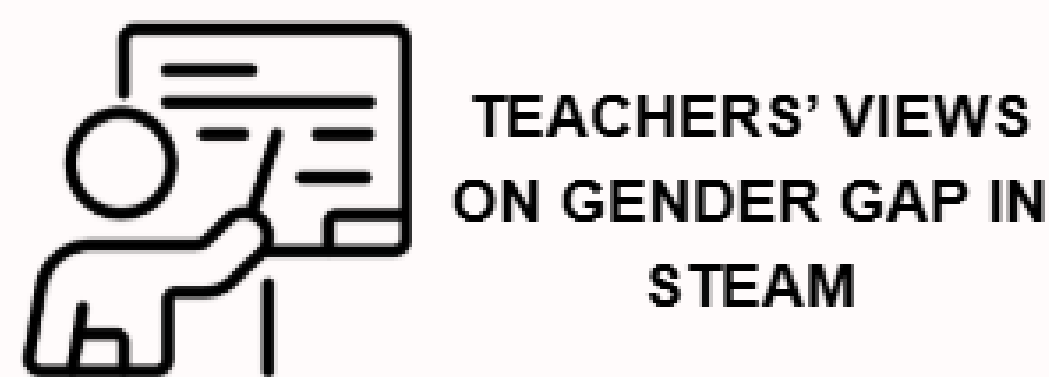
Understanding the gender gap in STEAM from a teaching perspective

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INTRODUCTION & AIM

This article analyzes how teachers in **Early Childhood, Primary, and Secondary Education** in Spain perceive the existence of a **gender gap in STEAM** disciplines (Science, Technology, Engineering, Arts, and Mathematics). Specifically, it focuses on the explanations teachers offer to interpret these differences: **cultural stereotypes, family expectations, inequalities in students' educational experiences, self-confidence, motivation**, and the choice of STEAM pathways, as well as their potential impact on **academic performance**.

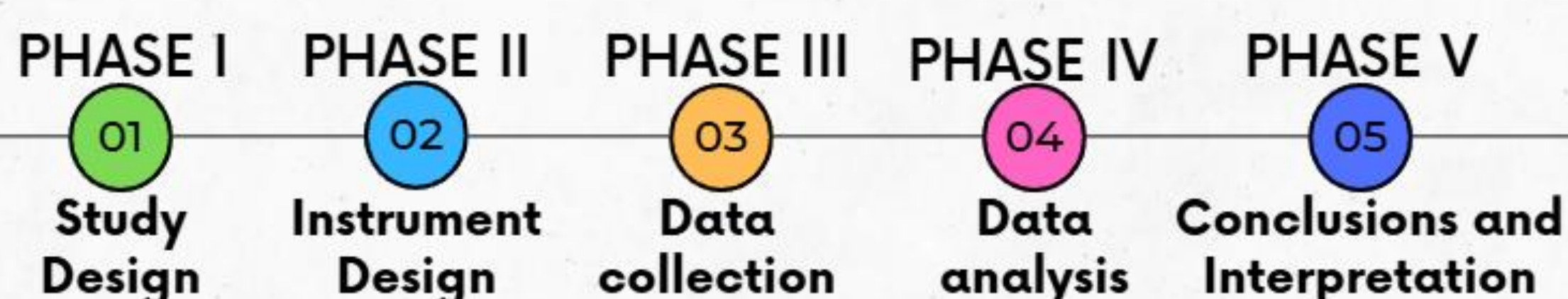


The study seeks, on the one hand, to identify the degree to which the gap is recognized at different educational stages and, on the other hand, to understand the interpretive framework from which teachers understand its origin and effects.

METHOD

This research was structured in five consecutive phases:

- **Phase I. Study Design:** determining, defining, and formulating the research objectives.
- **Phase II. Instrument Design:** designing the survey as the main data collection instrument.
- **Phase III. Data Collection and Responses** to the Questionnaire sent to the target population.
- **Phase IV. Data Analysis:** analyzing the information obtained.
- **Phase V. Conclusions and Interpretation:** obtaining, interpreting, and formulating the results of the analysis, relating them to the initial objectives.

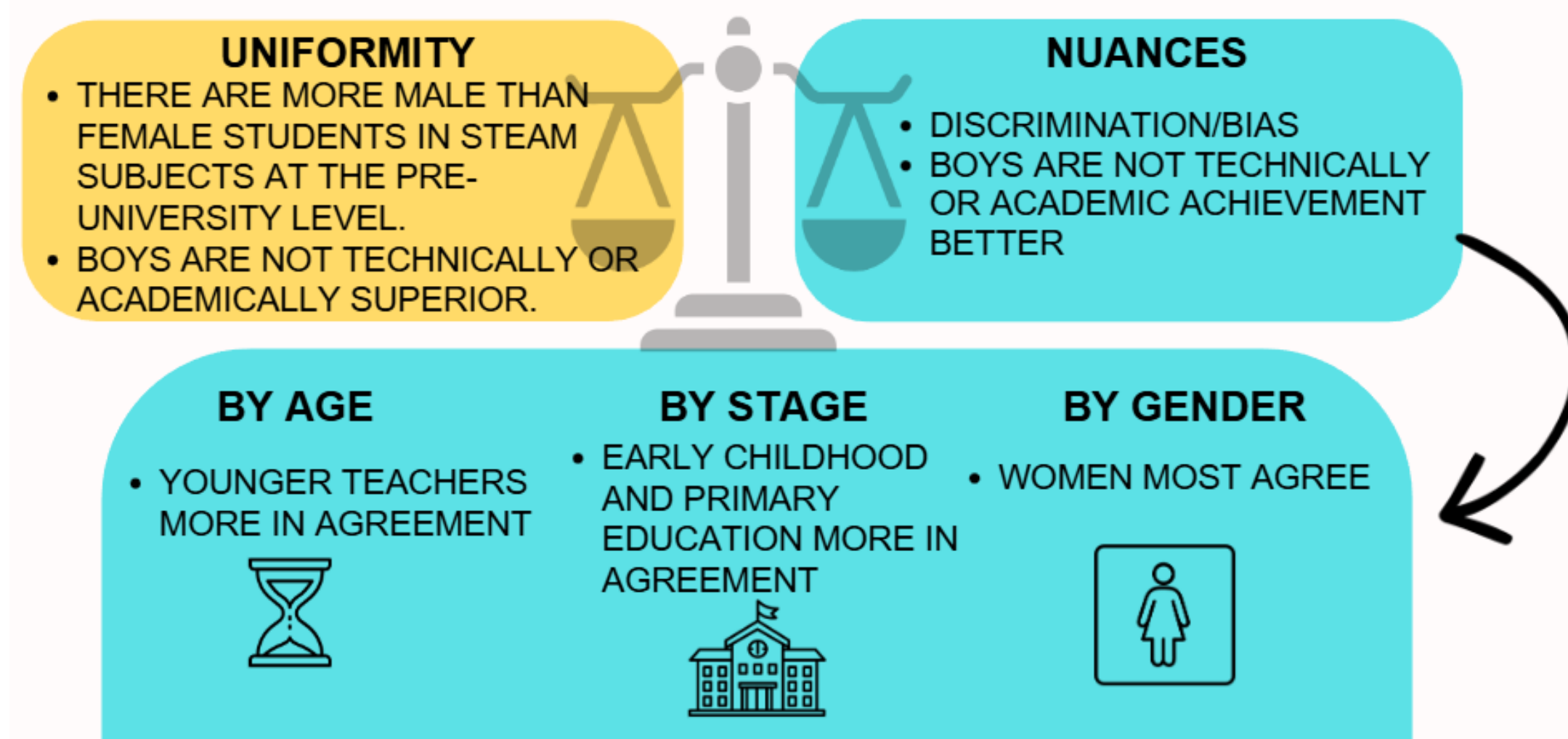


RESULTS & DISCUSSION

Teachers are **quite aware** that there are more boys than girls in STEAM subjects, even before university, but they firmly **reject stereotypes about ability and performance** (they don't believe that boys are better or get better grades). However, when asked whether this imbalance implies **discrimination or gender bias**, the responses become less homogeneous: younger teachers and those in Early Childhood and Primary Education tend to see more discrimination, while there is less agreement in Secondary Education.

Furthermore, differences emerge according to the **teachers' gender**, suggesting that some female teachers may be reflecting the persistence of the idea of the "masculinization" of these fields of study.

The results point to a twofold issue: the participation problem is acknowledged, but its discriminatory component is not always identified with the same clarity, which reinforces the need for early intervention with educational strategies and teacher training that reduce bias and support girls' participation in STEAM pathways.



CONCLUSION

- Teachers identify a **gender gap in STEAM** participation from the earliest stages, but do not support the idea of differences in ability or performance between boys and girls.
- Even so, **the perception of discrimination varies according to the educational stage and the teacher's profile**, highlighting the need for early intervention with educational and training measures that reduce biases and ensure girls' continued participation in STEAM.

FUTURE WORK

To make progress in reducing the obstacles that still prevent many girls from pursuing STEM careers, future studies should identify the specific barriers that arise at each educational stage and how these vary depending on the context. This knowledge would allow for the design of more tailored interventions and support from an early age, when interests and expectations begin to solidify.

The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of Universidad of a Coruña (Spain) (protocol code 2022-021, 2022-19-12).