

Research and Innovation in Physics education: two sides of the same coin



Physics teaching and ICT – studying sound waves and scientific knowledge

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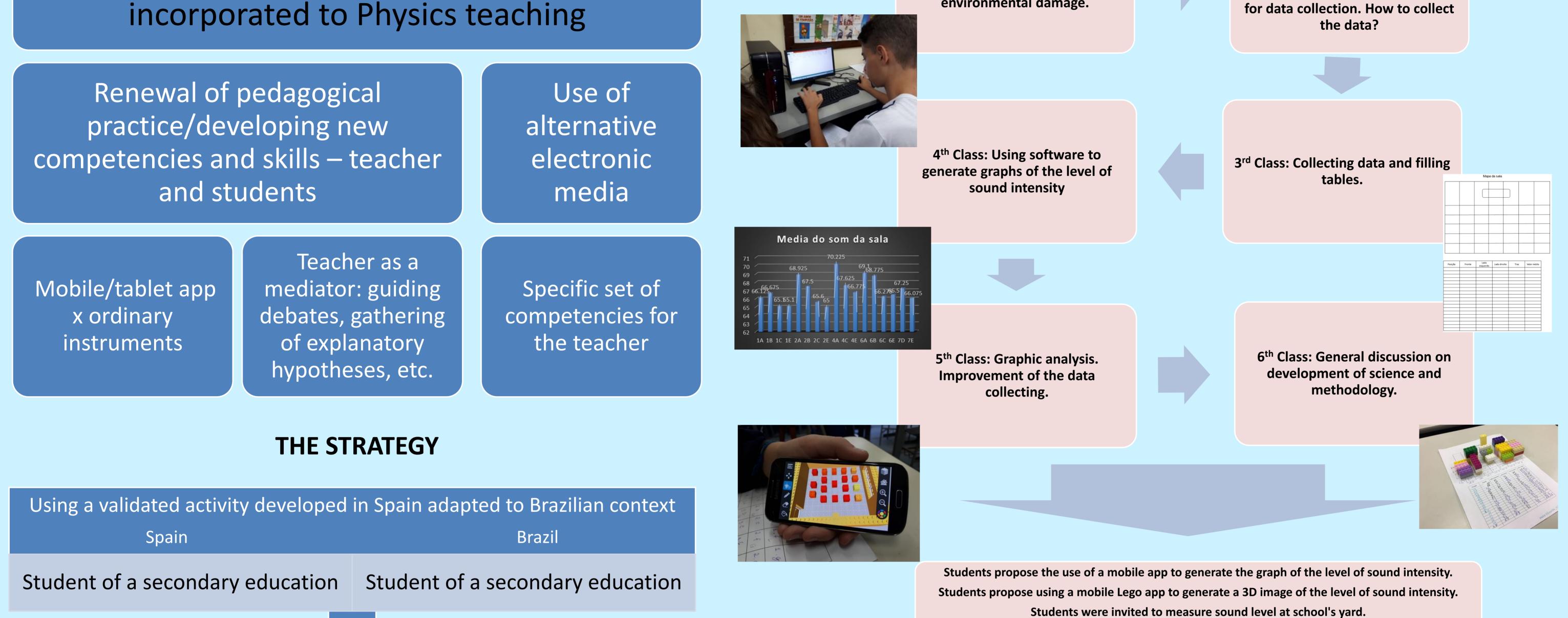
We adapted an activity developed and validated in Spain, Design and implementation of modeling tasks with iPad's: a dual approach [1], for the Brazilian school context. For measures of sound intensity we have used a mobile application and introduced the use of the decibel meter. With the analysis of the data produced by the students of Basic Education, we broadened the discussion of functions of two variables to the discussion about scientific knowledge. We also discuss the skills and competences mobilized by the teacher to conduct an activity using ICT and support the students' learning process.

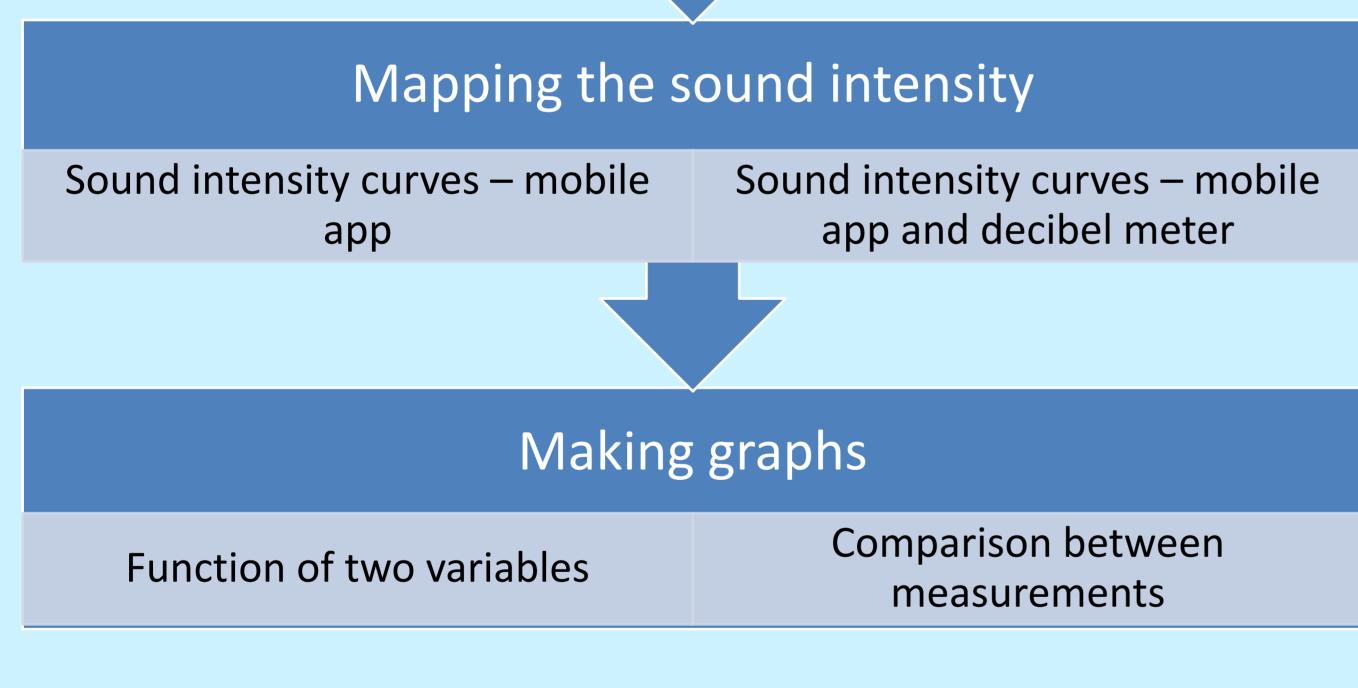
BRAZILIAN CONTEXT

Use of technological resources must be

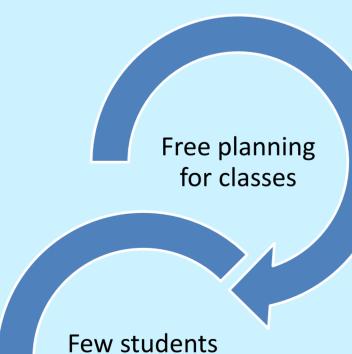
1st Class: Introducing the activity – research questions. Sound propagation and use of a decibel meter. Noise pollution and environmental damage.

2nd Class: How the instruments to measure sound level intensity work: mobile app x decibel meter. **Discussion about the best strategy**



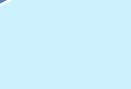






per group









Facilitate and inspire learning and the creativity of students

Designing and developing experiences and assessments of learning of the digital age;

Use working methods and learning from the digital age

Promote and incorporate citizenship digital and responsibility

Skills and competences mobilized by the teacher

> Investment in planning

Using digital instruments for collect and analyzing data

Using mobile apps to solve problems





Students highly motivated







Engage in processes of professional growth and

REFERENCES

Collaboration with another teachers for leadership systematic discussion about the activity

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- [3] I. S. Araújo, E. A. Veit, M. A. Moreira, Atividades de modelagem computacional no auxilio à interpretação de gráficos de cinemática. Revista Brasileira de Ensino de Física. Vol. 26 No. 02, 2004, p. 179-184.
- [4] UNESCO, ICT competency standards for teachers: competency standards modules, Paris, 2009.