

**Acronym** – EQUALITY

**Title** - Indoor Environmental QUALITY in classrooms: children's listening comfort for inclusive learning

**Scientific coordinator** – Francesca Cappelletti

**Department** – Department of Architecture and Arts

**ERC sector** – PE8

**Iuav role** – lead partner

**Other partners** – University of Padua

**Duration** – 24 months

**Start** – 28/09/2023

**Closure** – 27/09/2025

**Project budget** – € 253 124.00

**Iuav budget** – € 145 310.00

**Funding to Iuav** – € 113 375.00

**Source of funding** – MUR (Ministry of University and Research) - Call PRIN 2022

**Description** – The project aims at giving a contribution to the definition of the indoor environmental characteristics needed in school classrooms to guarantee pupils' listening comfort and learning performance.

Among the four main categories of Indoor Environmental Quality (IEQ), listening conditions are the factor most connected to children's well-being and learning in the classroom. Despite a large literature on the topic, the specific contribution of the acoustic component of IEQ has not been yet clearly correlated to the children's auditory and cognitive performance, because the majority of the studies focus on real classrooms, without controlling simultaneously the environmental parameters.

To overcome this issue, the project adopts a systematic experimental approach that consists in submitting the same tests to a sample of 80 school children, some of whom are known to be hearing-impaired, both in a controlled laboratory and in the real classroom.

**Objectives** – The project aims firstly at investigating the relation between the quality of the indoor environment and children's acoustic comfort and learning performance in primary schools, in order to define those acoustic conditions able to improve pupils' acoustic comfort, thus easing their school performance.

The second aim of the project is the development of new technical and furnishing solutions for the control of the indoor conditions in refurbished classrooms consistently with trajectories of the National Smart Specialization Strategy (SNSI) and the National Plan for the Research (PNR) regarding the sustainable development and the promotion of the goal of preserving, protecting and improving the quality of the environment. The knowledge about optimal environmental parameters will drive those solutions that include, not only the use of known techniques but also the use of eco-compatible materials (furnishing components) integrated with technical-plant solutions aimed at promoting acoustic well-being, indoor air exchange and efficient use of technologies.

**Website** – [www.iuav.it/prin-equality](http://www.iuav.it/prin-equality)