Actions to boost Energy Efficiency and Indoor Air Quality
Case studies in Italian schools

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An integral part of ENEA is the **Agency for Energy Efficiency**, established by the Italian legislative decree no. 115 of 30th May 2008, as transposition of directive 2006/32/EC on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC

- ENEA carries out a series of actions in order to promote both energy savings and to achieve ever higher levels of air quality in indoor environments
A multidisciplinary approach

Interdisciplinary research team aiming at developing research on human behaviour in relation to technological tools

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The experiments in schools

WHY SCHOOLS?

Since 2013 ENEA has been developing methodologies for evaluating thermo-hygrometric comfort and indoor air quality, through experimental campaigns in schools

- Good example to study satisfactory levels of comfort and air quality in a confined environment
- Indoor air pollution in schools is a combined effect of physical, chemical and biological factors
- Sick building syndrome
Methodology and instruments

- **Training** and **awareness raising** on indoor pollution and Energy Efficiency
- Students’ active involvement:
  - compilation of **daily diaries** reporting their behaviours in classrooms and information synchronized with the data recorded by the sensors
  - reports of trend of internal temperatures and air quality values within the classrooms during class hours, in relation to natural ventilation, type of window opening.
Methodology and instruments

RELEVANCE OF BEHAVIOUR – validation of strategies effectiveness

• Through matching students’ diaries with final measurements Correct and regular air changes can make a difference.

• Aware management of ventilation keeps CO₂ levels below the acceptable values, and to keep adequate and constant temperature

• NOW – more proofs of correlation between strategic drivers and project outcomes – intervention and control groups compared
Behaviour change

CONCEPTUAL FRAMEWORKS

HUMAN MIMESIS (Girard R., 1978)
SOCIAL LEARNING THEORY (Bandura A., 1971)
THEORY OF PRACTICE (Bourdieu P., 1972)

VIRALITY

STUDENTS AS VECTORS AND MULTIPLIERS
Community able to learn and “embody” new ways of acting, (e.g. in households)
**FOLLOW UP:**

- in order to boost the successful actions tested during the design phase, periods of monitoring and strategic reinforcements, following the end of the projects can be very useful

**FEEDBACKS:**

- Their role as strategic drivers implemented in the projects
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