

Accademia Nazionale dei Lincei, Italy

SCIESA: An experimental project of Health Science
Education (**SCIENZE** della **SALUTE**)
in Primary School

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HEALTH SCIENCES IN ITALIAN COMPULSORY EDUCATION

- Promotion of healthy behaviors is generally considered an essential component of **primary prevention**. Initiatives aimed at encouraging healthy behaviors are currently being carried out in the Italian compulsory school as recommendations and guidelines.
- Such approach has proved to be of limited effectiveness since at such school level **children lack the scientific knowledge** required to understand and share the educational message.
- Health education programmes need to be supported by a **systematic training in the field of health sciences**, aimed at making the child aware of the structural and functional organization of the body and the nature of preventable health risks.
- **Compulsory primary school** represents a unique setting for intervention because it allows entire age segments to benefit from such activities.

THE **SCIESA** PROJECT

- To this aim a pilot project on Health Science (***SCI**enze della **SA**lute*) education in primary school has been developed by a research team that brings together **expertises in different fields**: cell biology, anatomy, biochemistry, physiology, epidemiology, medicine, neuropsychiatry, science education.
- **The didactic activity** began, in four first-year primary school classes of a Rome school, during school year 2013-2014 and has continued the following years with the same group of children. It is now in its fifth, final year and it will continue until the end of this school year (2017-2018), when **these children will have finished their 5-year primary school cycle**.

THE **SCIESA** PROJECT

aims

Aims:

- **to evaluate** whether such an educational programme can be successfully implemented during the first cycle of compulsory school
- **to design educational modules and an experimental setting** that may support the expected teaching/learning processes
- **to explore strategies of interaction** between teachers and parents

Theoretical framework:

- **health as wellbeing**
- **disease prevention through health promotion**

Focus on:

- **children's awareness of their own body** and its "phenomena"
- **the unity of physical and psychological functions** of the body
- **recognition and interpretation of the dynamic relationships** between body and environment

THE **SCIESA** PROJECT

pedagogical approach

The **pedagogical approach** followed by the didactic units is mindful of the **pupils' daily experiences and conceptions.**

Creation of favorable conditions for:

- **evidence-based** learning and reasoning
- **exchange of ideas** among children and argumentative discourse
- **use of various** representational **languages**
- **supporting reflection** on how learning progresses

Our protocols include:

- **logbooks** filled up by the teachers
- **children's production**
- **booklets composed by the children** with the narrative of the work done in the previous year, observational notes gathered during the visits in the classes

THE **SCIESA** METHODOLOGY

design of the didactic modules and resources

- **Modules aims are** i) to explain the general and specific formative objectives and contents, ii) to exemplify activities (tool kit)
- **Production of didactic proposals are shared** and discussed with the teachers
- **Inexpensive materials and resources are provided** together with the modules
- **The researchers participate “on-demand”** to class activities (to know, to understand, to collect data, to support, ...)
- **On-going reflection are promoted on the learning environments** and on children’s production, involving all participants, feed-backs in the practice and in the design
- **Children’s achievements are being periodically shared with the families,** in view of associating them as informed and aware collaborators

THE **SCIESA** PROJECT

curriculum i

The Modules of the ***first phase***, '*Reading the book of one's own body*', were covered during the first two years (2013-2015).

First year Modules:

- Us and the environment
- The human body and the movement
- What gets in and what gets out (the journey of air, the journey of food)

Second year Modules:

- Heart and vessels, blood circulation and transportation of substances
- The brain and the journey of signals.

The Modules of ***second phase*** - *Learning through an experimental approach*, were covered during the following two years (2015-17).

Third year Modules:

- The senses
- Nervous system: the journey towards knowledge, the executive functions

THE **SCIESA** PROJECT

curriculum ii

Fourth year Modules:

- The brain and the networks: external (with the environment) and internal (with your own body)
- Travelling in the world that you do not see: from the body to the cell and the molecules
- Food as a source of energy for the body

The modules of *the **third phase**, Risk factors to health and how to deal with them*, are going to cover the fifth, final year of compulsory school (2017-18). They will be focused on making the pupils aware of risk factors and behaviours, information that is generally considered as a prerequisite for active health protection and for primary prevention.

Fifth year modules will be:

- Risk factors and defence mechanisms of the organism
- Looking for a good welfare practices (lifestyles)

THE **SCIESA** PROJECT ongoing evaluation

The instruments used for the evaluation of the first three years of the project were:

- **logbook** (with predefined entries) compiled by the teachers;
- **self-evaluation forms** for the teachers in the form of questionnaires focused on eliciting their assessment and to identify problematic or potentially positive factors regarding the project;
- **analysis and observation of the individual and group work in class** conducted by children in the pre-reading and writing phase;
- **evaluation of “factual knowledge”** (knowledge defined by the goals set in the teaching units);
- **evaluation of “procedural knowledge”** (methodological skills regarding the acquisition and generalisation of knowledge);
- **opinions of children's families** gathered through questionnaires.

THE SCIESA conclusions i

- **The SCIESA project** for the development of an academic programme focused on health sciences for primary school children, **took into consideration** various aspects such as the **course contents** and the **teaching methodology** to be used to help the students to achieve a set of pre-defined learning goals.
- This experimental project, which takes the form of a case study, was implemented in a real scholastic environment with many variables which were external to the control of the group. **This project can therefore be considered as a *research–action project*** characterised by systematic enquiry implemented through studied practice.

THE SCIESA conclusions ii

- SCIESA is an educational programme aimed at creating awareness in the pupils that inadequate lifestyles are at the origin of specific pathologies. However, although such pathologies may have precocious origin in early age, they usually manifest primarily in adult age or beyond. **The results of this pilot project are therefore difficult to be evaluated** at the present time. **Currently, it is only possible to assess the quality of the educational valence of the programme, while no inference can be made regarding the long-term impact on health.**
- From the data gathered for assessment until now, it can be seen that the principal objective - **to create an educational programme specifically focused on health sciences, to be delivered beginning with the first year of primary schooling - was not only implementable but also very significant.**

THE SCIESA websites

Activities carried out during the first three years are reported in publications in Italian and in English, that are available from the *Accademia Medica di Roma* website at the following link:

http://www.accademiamedicadiroma.it/index.php?option=com_content&view=article&id=573&Itemid=106

Since 2014, the SCIESA Project has become a the *IAP for Health project*, on whose website the same publications are therefore also available at the link:
<http://www.iamp-online.org/content/health-science-education-compulsory-primary-schools>

Activities carried out during the fourth year (2016-2017) will become available from the Accademia Medica di Roma and the InterAcademyPartnership (IAP) websites this coming November 2017.