



E-Value: a Multimedia Platform to Evaluate Learning Difficulties, Plan Didactic Intervention, and Improve Learning Abilities in Class.

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Contribution

E-Value: a Multimedia Platform to Evaluate Learning Difficulties, Plan Didactic Intervention, and Improve Learning Abilities in Class.

The Erickson Research Center owned by the Erickson Publishing House (Italy) developed an ongoing three years research project (E-VALUE), based on several years of action-research projects and test-retest actions held in primary schools around Italy, evaluating difficulties in learning and teaching literacy and numeracy.

E-VALUE is funded by the Autonomous Province of Trento under the scientific supervision of Prof. Giacomo Stella (University of Modena Reggio Emilia) and Prof. Cesare Cornoldi (University of Padua).

The main objective of the E-VALUE project is to design, develop and test a multimedia platform, which integrates the evaluation of various learning cognitive abilities (metaphonology, writing, reading, calculate, etc.) with the didactic intervention in class using Learning Objects (LO) and e-books derived from the Erickson books and multimedia software catalogue.

The E-VALUE model of intervention involves directly class teachers in several phases of action:

1. **teachers' training** on developmental neuropsychological aspects of learning and didactic action (blended learning)
2. **evaluation**: didactic tests submitted directly by teachers in class twice a year online or offline (test/retest). Tests are

developed on the basis of a shared psycho-pedagogical model following national guidelines about LD and development of learning abilities(AID, 2009);

3. **scoring:** data processing in a quantitative and qualitative way by a community of experts (trainers), comparing pupils' scores with a normative dynamic database (constantly updated, integrated and compared by new ongoing data)
4. **return results:** meetings at school between teachers and trainer after first and second test phase: scoring explanation and structuring of the didactic path of recovery/enhancement of skills/competencies of the individual or group class.
5. **didactic intervention:** basing on previous phases, trainer and the teachers design the didactic intervention (contents and strategies) individualized for individual and class.

The research questions investigated by the project do regard:

- the workflow's and management system's effectiveness shared among school community, Erickson and trainers;
- teachers' improvement in planning and managing didactic interventions of recovery/enhancement of skills/competencies using tests and didactic tools supported by learning experts;
- pupils' improvement in different learning abilities, using personalized didactic paths on the basis of the different levels of abilities reached by the class group and verified by the tests;
- knowledge's acquisition by the Erickson company, in order to produce didactic materials based on the E-VALUE psycho-pedagogical reference model.

The system have been tested involving several school in two project's phases. A first test has been conducted in year 2011 among 13 classes and 220 pupils. A second phase of testing will be conduct during Spring 2012 among 22 classes in four different regions of Italy with 400 pupils.

Method

The methodology based on training-evaluation-intervention derives from many action-research labs and test-retest projects managed by Erickson during the last years in many Italian regions, tested by thousands of students in primary school. Brainstorming meetings with several professionals were led in order to develop shared classification tools, controlled vocabulary and metadata set (based on Dublin Core) to analyze and recombine the current Erickson catalogue of didactic books and multimedia software in LO and e-books.

Questionnaire in closed and open form have been filled up by teachers of school sample, evaluating tools and workflow's management. Teachers' opinions about the platform were collected during meetings with the experts and used to improve the system.

Quantitative data collected during the experimentation with pupils were analyzed using Microsoft Excel and compared with national normative databases, developed for each test. Results were reported to school teachers during restitution meetings.

Expected Outcomes

Implication of this research is to provide a prototype of the E-VALUE multimedia platform, in order to manage all the different phases of the workflow: teachers' training, test/retest phase and didactic intervention.

Second outcome is a deeper understandings of E-VALUE action research projects' effectiveness in identifying learning difficulties and in planning didactic labs, in order to recover or enhance different levels of skills and competencies within the class group.

Third outcome expected is the implementation of LO (2000) derived from multimedia software and e-books (2000) derived from didactic books. All those didactic materials will be metadated with standard classification and will be retrieved through a DSS (Decision Support System) designed and implemented during the project in cooperation with the Bruno Kessler Foundation research team.

Final outcomes is an in depth classification of cognitive abilities involved in writing, reading, calculate, problem solving and others general abilities. Classification based on cognitive processes and cognitive subprocesses, useful to understand better the functioning and development of learning among pupils for teachers and professionals, in accordance with scientific research about SLD, literacy and numeracy.

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