INDUZIONI
Demografia, probabilità, statistica a scuola

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- INDUZIONI è una rivista rivolta agli studenti ed ai docenti di matematica, storia, geografia, osservazioni scientifiche, economia, statistica... delle scuole preuniversitarie, ma anche ai docenti universitari. Il suo scopo è quello di diffondere idee statistiche nella scuola e di illustrare attraverso esempi come la statistica possa essere di ausilio in diverse occasioni della vita pratica.

   Il taglio degli articoli dovrebbe essere operativo ed effettualmente utilizzabile nel lavoro scolastico.

- INDUZIONI is a review for students and teachers of mathematics, history, geography, scientific observations, economics and statistics at preuniversity schools, but also for university teachers. It aims to spread out statistical ideas in school and to illustrate, through examples, as statistics can assist us in several occasions of pratical activities.

   Articles should be operative and actual in classroom work.

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ABSTRACTS

AN EXPLORATORY SURVEY OF ATTITUDES TO STATISTICS AND STATISTICS TEACHING AMONG PRIMARY SCHOOL TEACHERS

RENATA CLERICI · EMANUELA CISCO

This paper presents a survey of the experience and attitudes of teachers regarding statistics and its teaching in Italian primary schools, and their perceptions of the importance of statistical culture in children's education, not only limited to the mathematical sphere, but extended to other disciplines and learning contexts. A snowball sampling procedure was used. The sample involved 300 teachers, covering the NE Italian region of the Veneto. An exploratory analysis was made of the main emerging evidence, particularly teachers' low level of preparation in the subject and the influence of lack of preparation on teaching practice.

TEACHING STATISTICS AT SCHOOL: A COMPARISON OF THEMATIC AREAS IN TEACHING UNITS THROUGH THE STRUCTURED DIARIES OF THE M@T.ABEL 2009/10 PROGRAM

ANDREA CAPUTO · ALINE PENNISI

The M@t.abel in-service training program is an example of an innovative mathematics teaching approach that leads lower secondary school students to deal with elements of statistics and probability. The program aims at integrating statistics in the mathematics curriculum by using specific teaching units.

In order to understand how teachers actually perceive and handle the task of transmitting statistical ideas as compared to other mathematical themes, we analysed over 200 structured diaries on classroom experience during the 2009/2010 school year in four regions of Southern Italy where student performance is extremely low, in particular in mathematics.

Text analysis techniques were used to explore the teachers' choices, strategies and meanings about the usefulness of statistics and probability, compared to other mathematical concepts. Results show that teachers are not very familiar with these specific subjects in their usual teaching practice. In spite of this, statistics and probability seem to trigger a more active learning approach among students and allow teachers to critically re-think their educational goals.

STATE AND PRIVATE SCHOOL RESULTS ACCORDING TO ITALIAN NATIONAL EVALUATION SERVICE SURVEY OF SCHOOL YEAR 2009-10

PATRIZIA FALZETTI · ROBERTO RICCI

The data availability on Education based on standardised tests facilitates the debate about differences in private and state schools achievement results. It is very difficult to give exact comparisons across different test scores, especially when the implications of sample data structure are ignored. It is impossible to realize robust analyses if data are improperly considered. In this paper we use data of Italian National Evaluation System (SNV) in order to analyse differences in scholastic achievement in private and state schools, at primary and lower secondary level. Hierarchical linear models have been estimated and they show that state schools obtain similar or even better results than private schools, if the effect of context covariates is opportunely taken into account. Furthermore, the illustrated analyses give back for private schools a very differentiate picture, especially if achievement results are disaggregated on geographical basis. That is, the estimated models show, without any doubts, significantly lower results in the South regions than in the North.

PERFORMANCE IN MATHEMATICS:
ANALYSIS OF DIFFERENCES BETWEEN ITALIAN STUDENTS

TULLIO MENINI · IDA CAMMINATIELLO · MICHELE GALLO

Programme for International Assessment (PISA) collected information on 15-year-old students in participating countries in 2000, 2003 and 2006. Performances differed widely between countries, and also between local areas and between schools in Italy. This study compares results for Campania and Italy using the Partial Credit Model. The PISA test shows good test-retest property, items show good fit to PCM and there are some significant differences between results for Campania and Italy

NON COGNITIVE FACTORS
IN PSYCHOLOGY STUDENTS' LEARNING OF STATISTICS REASONING

CATERINA PRIMI · SILVIA GALLI · FRANCESCA CHIESI

This study used a structural equation model to assess the association of exogenous cognitive (general and mathematical background) and non-cognitive (mathematical self efficacy and attitudes toward statistics) factors with measures of probabilistic and statistical reasoning. The evidence was that factors of both these types are associated with these two outcomes, suggesting that interventions aimed at improving statistical and probabilistic reasoning should focus on attitudes and self-efficacy as well as on competence.

EVALUATING TEACHING IN ITALIAN UNIVERSITIES

DONATA MARASINI · PIERO QUATTO

This paper reviews proposals from Italian universities on the evaluation of teaching.
The study highlights the importance of certain conditions which, although natural, are not fulfilled by some of the indices used for the assessment of teaching. Particular attention is paid to a family of indexes that is fully satisfactory.

WHAT HAPPENS WHEN STUDENTS ARE MOTIVATED BY DATA

ANNA CANONICO

This paper presents dialogue between a mathematics teacher and her 12-year-old students about the marks they receive for their class work. The students come to better appreciate the meaning of the data by using graphs to compare results of different tests.

SLEEPING BEAUTY

MARIO DI BACCO

In an experiment a person is put to sleep and reawakened if a coin toss shows tails. If it shows heads he/she is put to sleep, awakened, put to sleep again and reawakened. In this case the person's memory of the first awakening is erased. What probability will he/she assign to the 'heads' outcome? What if the awakening is spontaneous? Solutions found in the literature are discussed in the light of a strictly Bayesian paradigm.

LEARNING WITH TWITTER

DANIELE FRONGIA

Twitter is a microblogging system that enables its users to create a network of relationships based on tweets. Twitter has gained worldwide popularity, with over 300 million users, generating over 300 million tweets. In Italy, Twitter has more than a million users and it is increasingly used in marketing, communications, training, recruitment and event management.

In this article, we analyze its use in the training programs carried out by universities, schools, public administration and companies, with a focus on the statistical topics.