

Statistical literacy as a tool to attract audience starting from school: different audiences and different messages

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Abstract and Paper

In this contribution we propose Istat's experience of statistical literacy with schools and with the public at large and we think that it could be inserted in the section Tailoring communication to the audiences since our experience consisted mostly in entering already existing projects, enriching them with the language and richness of data.

Currently we are working with a project launched in 2012 with schools, to which we are adding the contribution and richness of data. The original project is now being launched at European level.

Another project regards Financial literacy intended for the general public. It involves the cooperation with an interinstitutional committee composed by several ministries and official Italian institutions and Istat's contribution regards for the moment information sheets for milestones in people's life (the first money, the first job, a family, having children, retirement).

A third project is meant for school teachers to provide them the support of statistical data in an Economic education project.

Last but not least the section Statistics for all in Istat's website is being reengineered, and new contents will be added explaining for all basic concepts of statistics and the main indicators with simple language, convinced that even beginners could benefit from the knowledge of statistical concepts.

The common thread linking them all is the consciousness that statistics is a cross-section ability/skill which will accompany the life of individuals starting from school to future events of decision making.

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Abstract

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1. Introduction

In Italy the National Institute of statistics (Istat) deals with the topic of statistical literacy in a Directorate which has the task to develop statistical literacy for several target groups.

Currently, the Central Directorate for the Development of Statistical Information (DCSI) develops the statistical literacy from the demand side, that is intends to promote in citizens, enterprises and institutions the capacity to use statistical information both for making informed decisions and evaluations for work and for everyday life.

Therefore, the growth in the skills of Istat as a provider consists in understanding what lacks in the offer, adapting what is available and bridging the gaps. The relaunch of the promotion of statistical information and culture aimed at schools and students, and the general public with several actions and partnerships is a part of this plan.

2. Context

In 2017 the project for the development and relaunch of statistical literacy started, and the activity was strongly directed to initiatives on the territory with a common basis. A Working Group to develop statistical culture on the territory was established, intended to work with shared guidelines together with the Dissemination directorate according to a four axes strategy, and this is the way we are currently still working on. The guidelines are as follows:

1. Proposals for a pervasive and reasoned use of statistics in all curricular subjects at school: humanities, social sciences, STEM disciplines; statistical and quantitative literacy.
2. Statistical toolbox, a contribution to critical reasoning, recognition of regularity (patterns), capacity for statistical synthesis, interpretation of reality through models: numeracy.
3. Statistics not limited to the school channels, but also in funny ways: gamification.
4. Development of interest and quantitative literacy of adults: lifelong learning and adult competencies.

3. The initiatives

The common feature linking the initiatives and the activities is standardization. This is due to several reasons and constraints, among which lack of time and resources. Activities are therefore privileged when they are standardized/able as well as uniform at territorial level so as to make Istat appear in a unique manner, with a single voice. Consequently three ways to develop initiatives have been conceived for the purpose.

- Top-down initiatives: they start from the Dissemination directorate and reach the territorial network in a standardized and coordinated way, improving the image of Istat as a supplier of the knowledge service offered by statistics, and calling to action the regional network.

- Bottom-up initiatives from the territory: each regional project is filtered, evaluated, and, if necessary, adapted by the network coordinators, then becomes a “central” project and, as a standard is carried out on the territory.
- One-shot initiatives: they start at territorial level and are not valid for the entire national territory because of too close links to the territory, so cannot be repeated because of their peculiarity.

4. Current projects

As a matter of fact starting from the second half of 2018 the Dissemination directorate started, or joined, several projects of statistical literacy, targeted for different groups: students, teachers, the general public, while maintaining other activities in the pipeline such as the competitions (European Statistics Competitions) and continuing as well the school visits at the central office.

In the following paragraphs a brief overview is given of the main initiatives:

Target group: Students

The Asoc project

The OpenCoesione School (or ASOC, from Italian “A Scuola di OpenCoesione”) project is a sort of civic engagement project, as they define it in their website (<http://www.ascuoladiopencoessione.it/about-opencoessione-school/>), with high-level partner institutions involved in the educational and civic fields. Istat entered an agreement with them in October 2018.

“OpenCoesione School (or ASOC, from Italian “A Scuola di OpenCoesione”) is an educational challenge and a MOOC (Massive Online Open Course), designed for Italian high-school students. ASOC was launched in 2013 within the open government strategy on cohesion policy carried out by the National Government, in partnership with the Ministry of Education and the Representation Office of the European Commission in Italy. The project is also supported by the European Commission's network of Europe Direct Information Centres.”

Our activity, as in the case of the ASOC project, has the aim to make a given audience (pupils in a classroom) reach some basic understanding of how data work in a given context (that of the project that has been chosen) and not of how data work in a self-standing environment. Since it is a time-consuming activity the opportunity was taken to enter an existing project. It is an attempt to promote the data culture in groups having given age group (pupils in upper secondary schools) and that are both vulnerable and prone to external influence.

The ASOC program is composed of 6 main sessions. The first 4 build on the use of innovative and interdisciplinary skills to focus, respectively, on public policies, ICT and digital capacity and open data analysis, citizen monitoring and citizen participation, data journalism and storytelling. During the fifth session the students carry out on-site visits to public works and/or services financed by EU and national funds being developed in their territory and interviews with key players involved in the projects'

implementation, beneficiaries or others on the sites where they are being developed, while the sixth step is a final event where students meet local communities and policy-makers to discuss the findings of their investigations and evaluations.

Their objective, in which Istat deeply adheres is to promote the use and re-use of data, and for this reason, Istat's statisticians working in Italian regions are strongly involved in the lesson which deals with data analysis. "A Scuola di OpenCoesione builds on the OpenCoesione portal to actively promote the use and reuse of data by participating schools for the development of civic awareness and engagement of local communities in monitoring the effectiveness of public investment." In lesson two "To analyze", students will learn to deal actually with Indicators (Understanding indicators, what they are and what their function is); with Data observation: understand, refine, analyse data; with Data visualization with simple tools, helped by data experts.

Competitions and games

This branch of activity refers mainly to the Statistics Competition both for the national phase and for the participation to the European phase. As far as our experience is concerned the participation to the games is mostly based on the knowledge and skills in statistics as a discipline for the individual phase and on the knowledge of "official statistical data" for the team phase. In 2018 there was a strong increase in participation and we hope it will be confirmed in the next editions.

Other games are planned and available for the Festival of statistics and demography held in Treviso in September and for the European researchers' Night held in many Italian towns at the end of September.

Students visits at Istat central office

This activity is made upon request of schools. A standard module is generally prepared for students aimed to make them know what the role and the function of Istat are. Then students are presented with statistics they could be interested in, such as the choice of University, or are presented with data of their territory and reflecting their life and "play" with data warehouse. They also have the possibility to choose a topics to discuss.

Target group: the general public

The financial education project

As of April 2019 Istat signed an agreement as official partner to the Financial education project (<http://www.quellocheconta.gov.it/it/chi-siamo/strategia-nazionale/>), a high level programme sponsored by several institutions, and with a technical secretariat with the Ministry of economy and Finance (MEF). The project is participated by several institutions, among which the Bank of Italy, the Ministry of labour and infrastructure, the Consob (Commission on Banks and Stock Exchange-SEC), the Insurance supervisory authority (IVASS), and the Pension Fund regulator (COVIP).

On an experimental basis, Istat started to contribute to the project in October 2018 for the “Month of financial education” with simple fact-sheets, written in simple plain language and presenting original data elaborations. They are available in the section of the portal of Financial education project: “Momenti che contano” (“Moments which count”), whose title is “What do data tell us?”. They illustrate topical moments of life with tailor-made data elaborations, and are as follows: “I primi soldi: che fare?” (“What to do with the first money?”); “Finalmente un lavoro” (“An occupation at last”); “L’acquisto della casa: come finanziarlo, come proteggerlo” (“The purchase of one own house: financing and protecting it”); “Una nuova famiglia: le scelte da fare in due” (“A new family: the choices to be made”); “L’arrivo dei figli: come costruire il loro futuro” (“Building a future for the children”); “La pensione: come garantirsi il migliore tenore di vita” (“Pension: how to gain a better way of life”).



🏠 > Cosa conta per te? > Momenti che contano > I primi soldi

E' il momento di...

Devi considerare che...

Scegli sapendo che...

Ogni strumento ha le sue caratteris

Alcuni esempi, che non esauriscono

I dati dicono che...

Per conoscere i dati che contano per questo momento della v
[Analisi statistica sull'educazione finanziaria degli adolescenti](#)

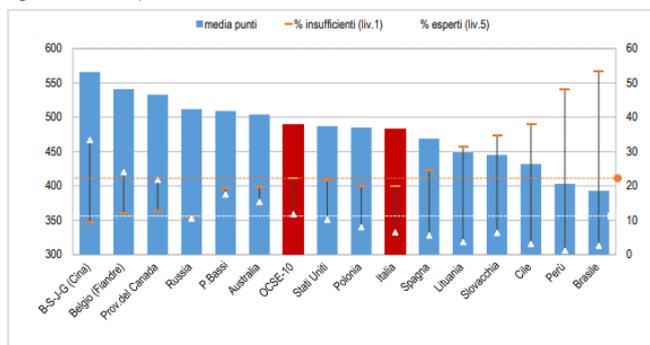


I primi soldi

Analisi statistica sull'educazione finanziaria degli adolescenti

Gli studenti di 15 anni in Italia hanno, in media, conoscenze finanziarie poco al di sotto di quelle dei dieci paesi Ocse compresi nell'indagine PISA nel 2015. Quasi il 20 per cento ha competenze minime (livello 1) e solo il 6 per cento di livello avanzato (ad esempio, è in grado di riconoscere un messaggio e-mail fraudolento in ambito finanziario – Figura 1).

Figura 1. Risultati delle prove PISA di alfabetizzazione finanziaria in Italia e in altri Paesi. Anno 2015



Fonte: Ocse, Results from PISA 2015 Financial Literacy. Cina: Pechino-Shanghai-Jangsu-Guandong

A confronto con gli altri paesi, in Italia l'alfabetizzazione finanziaria sembra dipendere relativamente poco dall'estrazione socio-economica e molto di più dall'aver un conto corrente. Quasi il 57 per cento degli studenti quindicenni italiani ha un conto bancario e/o una carta prepagata, un valore poco più basso del 60 per cento rilevato nei 10 paesi Ocse che hanno partecipato all'indagine PISA sull'educazione finanziaria nel 2015. La peculiarità del nostro Paese è di trovarsi ai vertici per la diffusione delle carte prepagate (le hanno quasi il 37 per cento degli studenti, contro un valore medio inferiore al 20) mentre i conti correnti hanno una diffusione modesta (il 35 per cento contro quasi il 56).

La larga maggioranza degli studenti quindicenni italiani e dell'insieme dei paesi Ocse compresi nell'indagine riceve regali in denaro (poco meno dell'85 per cento in entrambi i casi), mentre solo il 35 per cento di quelli italiani riceve una paghetta regolare in famiglia (contro quasi il 60 per cento nella media dei paesi analizzati). È meno diffuso pure lo svolgimento di qualche forma di lavoro retribuito fuori dall'orario scolastico (il 53 contro il 64 per cento – Figura 2)

This project is intended for the public at large, mainly adults, but we think that data support can help everybody in addressing a better understanding of relevant moments in life, and this is the reason why we deemed positive to adhere, even with small contributions. The Committee has developed a National Strategy for Italy with an ambitious objective that can be achieved in a long-term perspective, as they declare on the website: "The objective corresponds to the long-term vision chosen by the Committee: a condition in which knowledge and financial skills are available to all, so that everyone can build a peaceful and secure future. Those with more financial knowledge plan their future more, save more and invest their savings better, get into debt less and manage their debt better."

Target group: teachers

Economic education project

Another partnership agreement is in the pipeline and deals with teachers training. The partner is a non profit association, the Association for Economic education (AEEE), working in the educational sector. The partnership intends, for Istat part, to contribute to economic education with the tools of statistics. It will be managed with a national plan and events and seminars at territorial level with the participation of our statisticians as experts.

Target group: the non-expert general public

"Statistics for all" section

Istat has planned its website to be the main dissemination channel for its statistics and, after the release of the new website in 2018, continuously upgrades it. The website provides access to all categories of users and offers a large variety of information, from basic indicators to publications and detailed quality reports, as well as links to other websites such as the National Statistical System (Sistan) website. However, while experienced users know how to access the information they need, less specialised users experience sometimes difficulties in finding information, and this was a point in the Recommendations of the Peer Review of 2013-2015, which gave some clear indications regarding improvements in information dissemination.

The need to prepare a simple and easily accessible section of the website was actually a consequence of these recommendations, which stated "The Italian National Institute of Statistics should further enhance the accessibility of statistical information on its website, in particular for less experienced users, in order to ensure wider use of statistics in society (European statistics Code of Practice, Principle 15)".

During 2016, the new "Statistics for all" section was added to Istat website. It is an area created to raise awareness on the importance of quantitative information, to provide simplified means of interpreting the phenomena of everyday life and to allow even a less experienced public to get closer to the best known statistical concepts and make proper use of the data.

“Statistics for all” uses existing texts and visual contents, but it is structured with a new concept and is enriched with products and tools purposely designed. In addition to the section on the function of the Institute and on the production process of statistical information, statistical data are presented, organized into large thematic areas. There is also a selection of educational packages used by Istat to promote statistical literacy in schools, as well as a set of interactive and crossword puzzles to play with statistics. The home page contains some curious data as well as the most "requested" content.

Currently, the entire section is being revised and the URL is not made public yet, it is being integrated with an area explaining the most relevant statistical concepts - average, median, percentage value, etc. – drawing examples from daily life. An English version is also planned to be published together with the Italian one.

At the same time a simplified version of Istat general warehouse "mini.Stat" is being developed, using a data warehouse navigation system for less expert users. It is a sort of “summary” of the corporate data warehouse I.Stat, and it allows greater accessibility to information thanks to both the simplification of content and the new management of the tree of themes. The construction of mini.Stat has been done through a complete revision of the tree and a selection of I.Stat queries.

The image shows two screenshots of the Istat website. The top screenshot displays the main navigation menu with categories: POPOLAZIONE E FAMIGLIE, SOCIETÀ E ISTITUZIONI, ISTRUZIONE E LAVORO, ECONOMIA, AMBIENTE E TERRITORIO, and Statistiche A-Z. Below the menu is the 'LA STATISTICA PER TUTTI' section, which includes several interactive tiles: 'COME NASCE UN DATO', 'I NUMERI DEL PAESE', 'LO SAPEVI CHE...?', 'COSA SIGNIFICA', 'IMPARA CON L'ISTAT', 'GIOCA CON LA STATISTICA', and 'I PIÙ CLICCATI'. A central text block explains that the official statistics are presented in a simple and direct language, and that the website is designed for those who want to understand and use statistics better. The bottom screenshot shows the 'VERSIONE SEMPLIFICATA DELLA BANCA DATI I.STAT' section, which features a sidebar with various data categories and a main table displaying 'Indicatori di fecondità' (Fertility Indicators) for the year 2015. The table lists various regions and their corresponding fertility rates.

Regione	2015	2014	2013
Totale	1,35	1,37	1,39
Abruzzo	1,41	1,39	1,38
Basilicata	1,36	1,37	1,37
Brescia	1,35	1,36	1,36
Calabria	1,33	1,34	1,35
Campania	1,36	1,36	1,36
Emilia-Romagna	1,40	1,37	1,36
Friuli-Venezia Giulia	1,36	1,36	1,36
Liguria	1,39	1,37	1,36
Lombardia	1,36	1,36	1,36
Lazio	1,32	1,34	1,35
Marche	1,39	1,39	1,39
Molise	1,32	1,31	1,31
Monte Carlo (San Marino)	1,42	1,41	1,41
Valle d'Aosta - Valle d'Aoste	1,41	1,41	1,41
Piemonte	1,32	1,31	1,31
Puglia	1,34	1,37	1,38
Repubblica San Marino	1,42	1,41	1,41
San Marino	1,42	1,41	1,41
Emilia-Romagna	1,39	1,37	1,36
Campania	1,36	1,36	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,41	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
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Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40	1,37	1,36
Campania	1,40	1,37	1,36
Emilia-Romagna	1,40	1,37	1,36
Liguria	1,40	1,37	1,36
Lombardia	1,40	1,37	1,36
Marche	1,40		

5. Final remarks

The overview of initiatives given hereabove shows our idea of statistical literacy and gives some examples of development aimed at different user groups and with different partners.

Statistical literacy is understood primarily in terms of the development of demand, that is the growing capacity of citizens, businesses and institutions to use statistical information, especially (but not exclusively) in the context of decision-making and evaluation processes of work and daily life. The aim is also to establish a direct relationship with users, both to satisfy their requests for information in a "personalised" way (tailored) and to establish a lasting relationship with them (potentially a partnership).

Students. Interventions within school curricula take place in the school context and are primarily aimed at students. The actions must be tuned according to the indications provided in the curricula with the idea of spreading quantitative knowledge, using statistical data as a tool to govern uncertainty and encourage the use of "quantitative evidence" to make informed choices. In order to overcome the distrust of girls and boys from the proposals that come from the school, it is appropriate to make a clear distinction between the roles, and present for example the researchers of Istat as professional experts and not as additional teachers, as it was actually done in the ASOC project, Istat.

Teachers. The training "offers" dedicated to students must be accompanied by training proposals specifically dedicated to the teaching staff. An integration of the professional background of the teachers with tools suitable for deepening the "applicative" aspects of the use of statistics, from both a methodological and technological point of view, has the function to provide essential support not available from other training institutions, and a practical application could be the case of the agreement with the Association for Economic education to develop courses for teachers, where the statistical support is intended to enhance economic education.

The general public. The actions of statistical literacy involving adults can be declined in different forms, depending on the diversity and heterogeneity of potential beneficiaries. Currently the case is that of the cooperation with the Financial education project but it could be enlarged to different cases and population subgroups, and it surely will extend to general non-expert users with the "Statistics for all" website section.

Istat's work to develop statistical literacy in line with its statute aims to make the average and non-expert users of data understand how to select and use "correct" information. Therefore, statistical literacy and the knowledge of statistics is intended as a part of education since it contributes to give people a set of interpretation tools which enables to actively participate in social life, and which are useful both to make personal informed decisions based on evidences and to participate responsibly in social life. If the path starts from school the task will be easier and will gain better results.