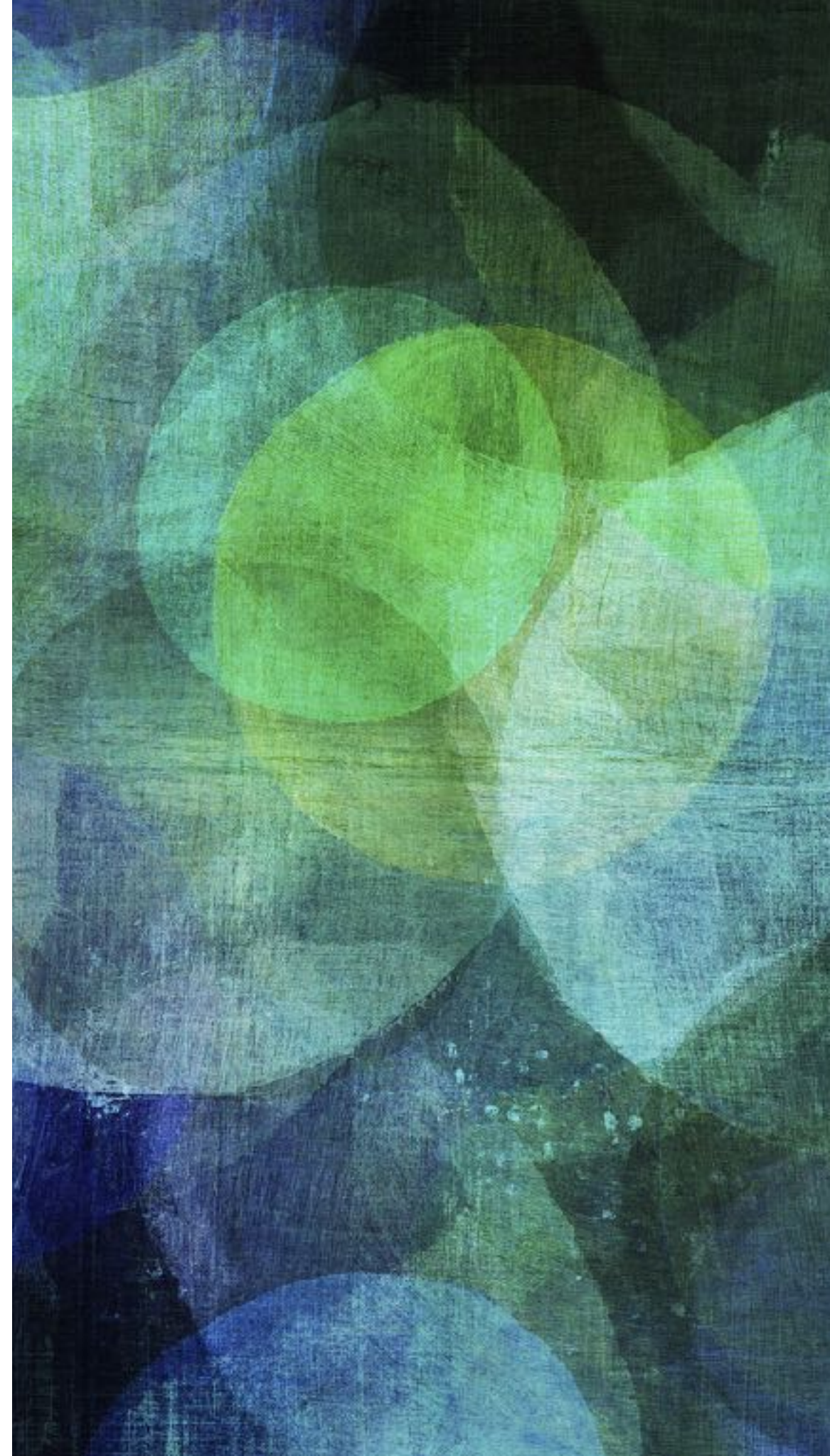


CARTOGRAPHIES OF THE DIGITAL GOVERNANCE OF EDUCATION

Paolo Landri, CNR-IRPPS



PROLOGUE: COMPARING SCHOOL MORPHOLOGIES



Jan Steen, A School for Boys and Girls (1640, National Galleries of Scotland)

PROLOGUE: COMPARING SCHOOL MORPHOLOGIES

FEATURE / EDUCATION

Intelligent facial recognition system installed in Hangzhou high school



Shi Jia

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From www.shine.cn



Hangzhou City

A high school in Hangzhou has introduced a facial recognition system in its classroom to increase engagement and facilitate teaching administration.

The “smart classroom behavioral analysis system” has been on trial in two Year 10 classes at Hangzhou No. 11 High School since March this year. It belongs to the smart campus system that the school launched in 2017.

The smart campus system is being applied in several locations including the use of facial recognition in the campus canteen, classrooms, vending machines and library. A speech recognition system has also been introduced so it can translate a teacher’s speech into text for those who are not able to take notes in class.

In an open day event held at the school on May 15, vice president of the school, Zhang Guanchao, gave a demonstration on how the system worked to education professionals and several tech companies.

PROLOGUE: COMPARING SCHOOL MORPHOLOGIES

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The system can measure students' emotions based on their expressions. These expressions include anger, sadness, surprise, and annoyance.



DIGITAL GOVERNANCE OF EDUCATION

- The policy instrumentations of the governance of education are becoming increasingly digital. Education policy and practice are more and more imbricated in digital technologies and platforms.
- *‘...educational governance today increasingly needs to be understood as digital educational governance. The monitoring and management of educational systems, institutions and individuals is taking place through digital systems that are normally considered part of the backdrop to conventional policy instruments and techniques of government; technical systems that are brought into being and made operational by certain kinds of actors and organizations, and that are imbued with aims to shape the actions of human actors distributed across education systems and institutions’ (Williamson 2016)*

DIGITAL GOVERNANCE OF EDUCATION

- Examples of the digital turn are:
 - OECD Education GPS (<http://gpseducation.oecd.org/Home>)
 - Pearson Learning Curve plc (<http://thelearningcurve.pearson.com>)
 - EU Education & Training Monitor (http://ec.europa.eu/education/policy/strategic-framework/index_en.htm)
 - Knewton's Global Learning Analytics (<https://www.knewton.com>).
 - RAISEonline in UK (<https://www.raiseonline.org/login.aspx?ReturnUrl=%2f>), My School in Australia (<https://www.myschool.edu.au>), 'Scuola in Chiaro' in Italia (<http://cercalatuascuola.istruzione.it/cercalatuascuola/>) etc.

DIGITAL GOVERNANCE OF EDUCATION

- Williamson (2016) suggests that the digital governance is made operational by: *codes* (machine readable instructions), *algorithms* (a set of steps to process input to produce desired outputs); *big data* (huge datasets continuously generated); *data infrastructures* (assemblage of material, semiotics, social practices).
- For Souto-Otero & Montagut (2016), the digital governance of education is made by *artifacts* aimed at: 1) *collecting, packaging, analyzing data*; 2) *displaying data*; 3) *sorting and retrieving data*.

HOW TO STUDY THE DIGITAL GOVERNANCE OF EDUCATION?

- A constant preoccupation of the research, here, consists in opening the ‘black box’ of the platforms. While they enhance the possibilities of ‘seeing’ inside the school and in the educational performances, data infrastructure, digital systems are opaque.
- The elusive nature of the algorithms, the embeddedness in nested configurations of heterarchic sociotechnical systems between public and private companies, the property rights that protect them are challenging conditions for the critical research.
- Tactics, indirect strategies are to be found to circumvent the barriers preventing the access to the research field, and disentangling the sociomateriality of the digital systems (Kitchin 2014)

HOW TO STUDY THE DIGITAL GOVERNANCE OF EDUCATION?

- The studies on the digital governance of education are being developed, by following a mix of old and new methodological protocols, and also with a diversity of theoretical orientations:
- A subgroup of these studies follows Actor-Network Theory (ANT), while other studies can be sorted as an instance of political sociology (Ozga 2016), or as a critical sociology of digital technologies of schooling (Selwyn 2016). The research protocols have included documentary analysis, interviews, ethnographies (Williamson 2016; Selwyn 2016; Ozga 2016; O’Keeffe 2016).

HOW TO STUDY THE DIGITAL GOVERNANCE OF EDUCATION?

- Some of these research projects present some methodological innovations, since they collect data, by engaging directly with the digital systems they are studying. In that respect, the digital governance of education is a field to be researched with the methodologies for exploring the internet-mediated social worlds, like digital ethnography, virtual ethnography, nethnography, etc. (Postill & Pink 2012; Hine 2011; Landri 2013):
 - In his comparative research on the enactment of the visualizations of the Europeanization Decuyper (2016) focused on the Education & Training Monitor, and Open Education Europa, by a diagrammatic analysis aimed at understanding how the digital devices are contributing to shaping the European education governance. Here, the research highlighted the capacity of these digital renderings to act
 - In his research O’Keeffe (2016) focused on how the Programme for the International Assessment of Adult Competencies (PIAAC) was performed. In particular, it brought to the forefront the many digital actors (software, application, computers) participating in the assessment event. To describe the agency of these actors the research design aligned with trace ethnography and software studies (Geiger & Ribes 2011). In pushing forward the frame of the ethnography, the observational apparatus included the data-logs of the same digital applications, which is a set of data collected during the e-assessment but not analysed in the official PIAAC reports.

MAKING CARTOGRAPHIES OF THE DIGITAL GOVERNANCE OF EDUCATION

- By following my research interests on the standardization of education, and continuing my studies on the changes in the governance of schooling in EU, I have been involved for two years in a research project on the changing sociomaterialities of the policy instrumentations of the governance of education in the Italy.
- One of the points of entry of the research field was ‘Scuola in Chiaro’ (SiC from now on), a digital platform drawing on school database infrastructures, and designed as a search engine for the school choice. The platform was highly advertised and considered as an instrument to break the closure of the schools, or by using a topos of the public discourse on education in Italy, to circumvent their ‘self-referentiality’, i.e. their alleged natural disposition of putting barriers to impede the ‘external’ to see into the ‘internal’ of everyday routines of education practice. SiC acted therefore as a ‘window’ making connections among social worlds; it was a case of non-human that was delegated a relevant role of mediation in education policy.

MAKING CARTOGRAPHIES OF THE DIGITAL GOVERNANCE OF EDUCATION

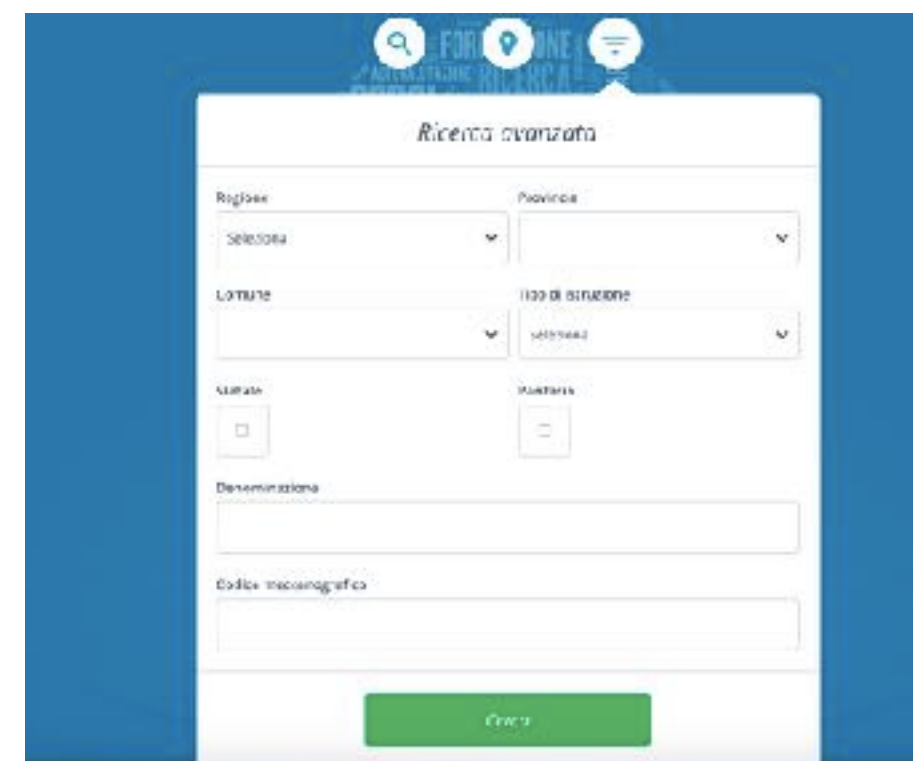
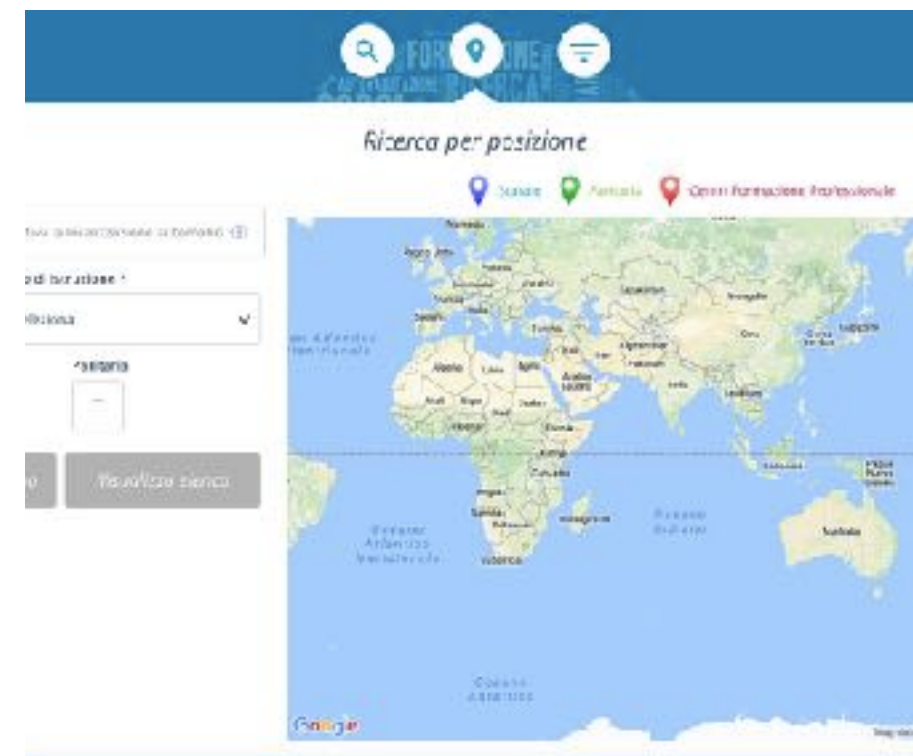
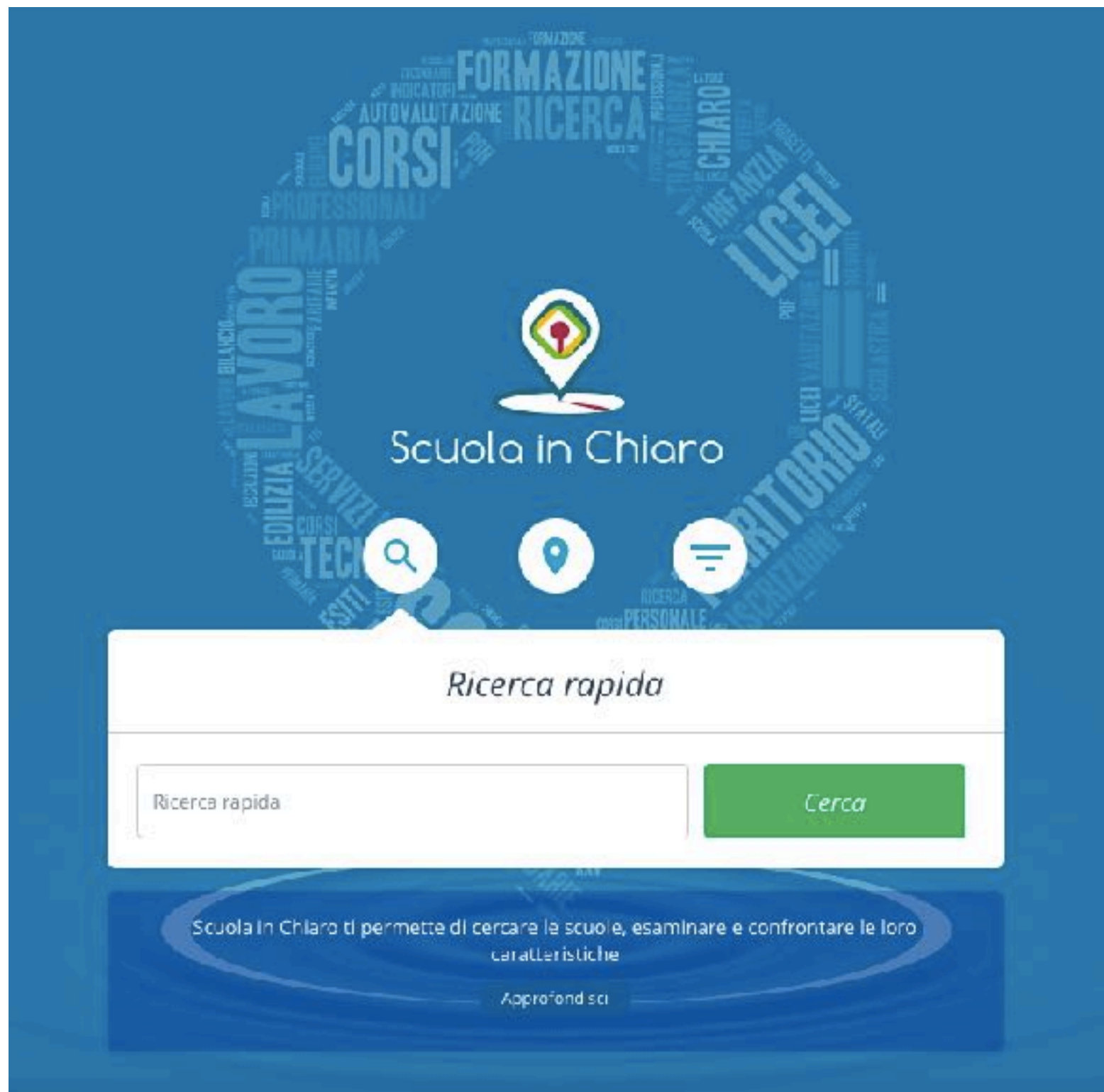
- How then disentangle the logic of the digital governance of education in Italy, by designing a methodology that can be aware of ANT that suggests with the principle of symmetry to give 'voice' to non-humans, to recognize their capacity to act?
- To provide some answers to these questions, I followed the general strategy of the ethnography of 'making the familiar strange'. In so doing I combined three methods: a) *historical reconstruction* b) *semiotic analysis* and c) *multi-site ethnography* of the use of the digital platform.
- The resulting combination leads to drawing cartographies of the sociomaterialities of the digital governance. The emerging maps summarize the findings of the data analysis carried out with the help of the abovementioned methods. The combination of three methods was not done linearly, as many overlaps occurred between them and generated productive interferences

HISTORICAL RECONSTRUCTION

- Policy historiography relies on primary and secondary sources of information. The former usually consisted of government texts, reports, commissioned research, minute meetings, media sources; the latter instead included relevant academic literature and newspaper articles. In my research, I could count on both, on the peculiarity of the object of investigation, and on my prolonged research on the topic and in particular, on the changing governance of education system in Italy.
- Further, I drew also on interviews with officers, and educational policy-making experts that provided me with the history of the platform, and with wider accounts of the transformations undertaken in educational policy-making in the country.
- The collection of the primary and the secondary sources of information was facilitated by the same presence of the digital platform and by the availability of most of them on the Internet. My research work here led me to perform the role of the digital ethnographer, that is to assume an ongoing presence on the Internet. To catch up on the topic, I was researching I followed several Facebook pages and Twitter accounts. An automated Google regular alert message informed me on the most popular web pages on several keywords ('algoritmo'; 'Scuola in Chiaro'; 'scuola' – 212 messages from the end of December 2016 today). I archived the collected materials, by using Evernote, a popular application that permits to select, capture, tag, and organize the digital contents in notebooks that can be shared on the Internet as well as in a research group. I created for that purpose three notebooks named 'Digital Governance'; 'Scuola Digitale' and 'Standard_Valutazione' (181 notes).

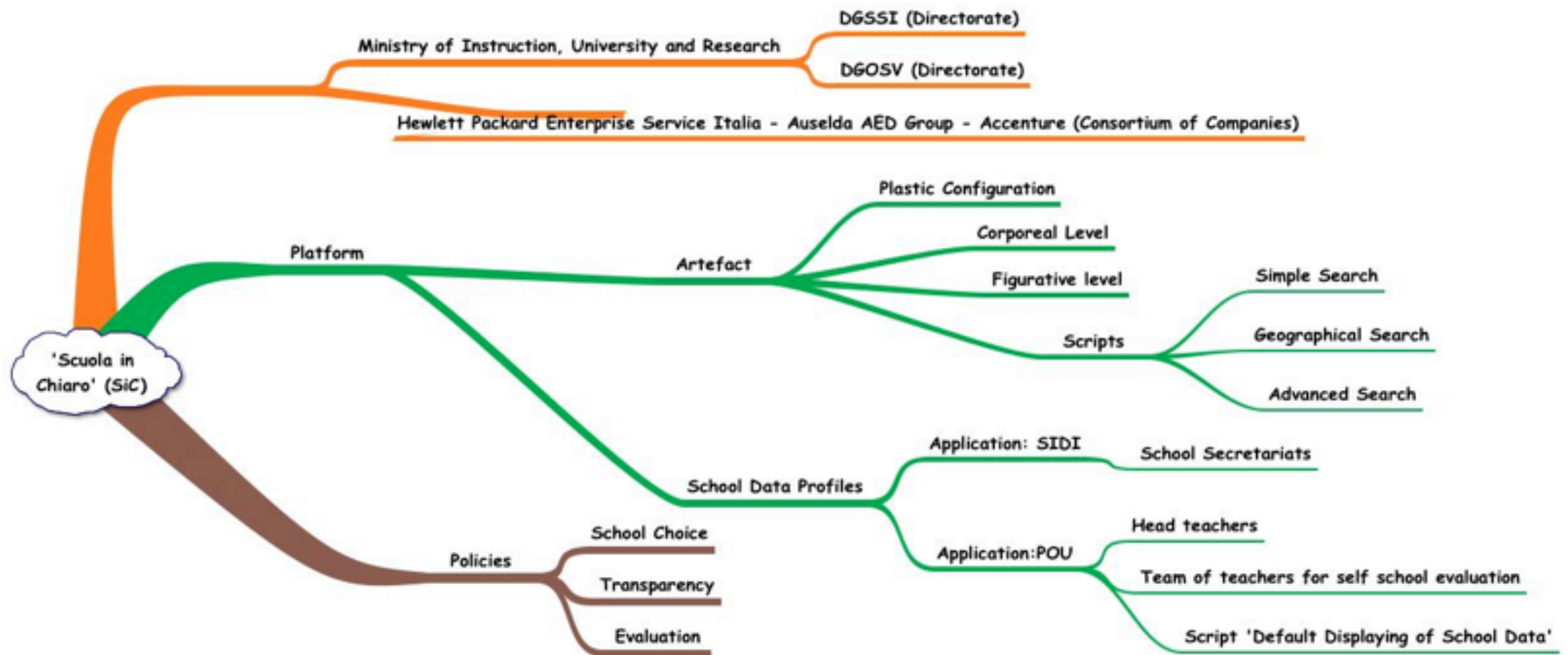
SEMIOTIC ANALYSIS

- The semiotics of configurations is a generalization of a model for the semiotics of objects that make it usable in the field of digital systems. Digital systems are seen as configurations, that is as modes of ordering things. This semiotic distinguishes, in particular, between the internal relations of a given configuration, i.e. the relations that fabricate its stability and closure, and the outwards relations that ‘go out’ the configuration in itself, by defining scripts, or programs of action. Therefore, it invites to describe: a) the digital platforms as a closed and stable individual to describe its inherent relations, that is its plastic qualities (shapes, colours, contrasts, analogies), its corporeal relations (enframes, relations of inclusion and exclusion), its figurative sphere (its nameable and recognizable aspects) and b) the digital artifact as a set of scripts, that is a network of several programmes of action.
- This analysis implies to keep on assuming the role of the digital ethnographer and be focused on SiC as a platform for repeated sessions of work (approximately fifteen days) of analysing and archiving some screenshots of the search engine. The sessions of work included as well the activations of the scripts, i.e. ongoing trials to understand the ways the algorithms of the platform deliver the results of their research. In particular, it was not mainly clear the way in which the algorithm provides the order of the list of school as there is not a regime of high-stakes testing in Italy.



Scuola in Chiaro

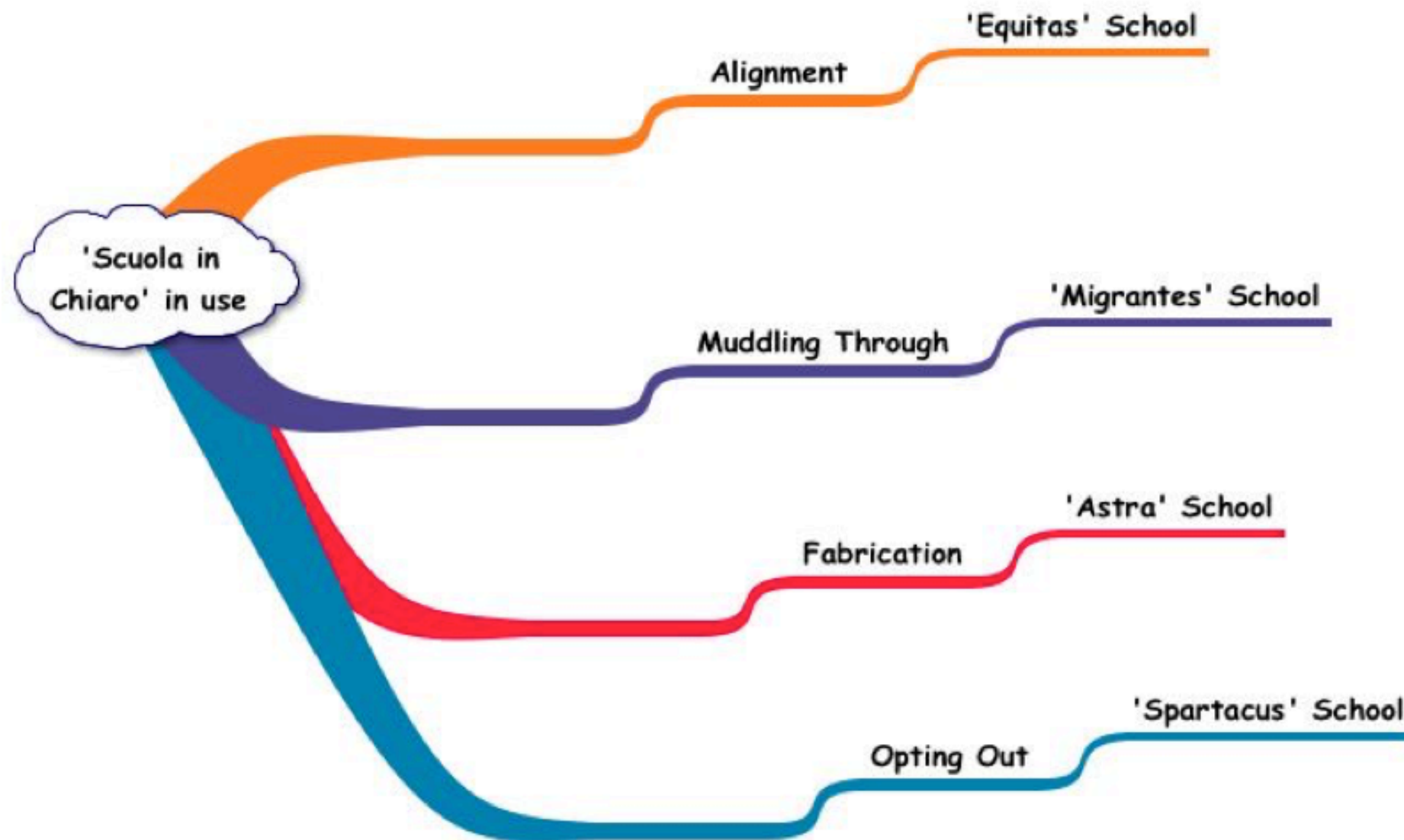
Scuola in Chiaro as an assemblage of people, technologies and policies



MULTI-SITE ETHNOGRAPHY OF THE USE OF 'SCUOLA IN CHIARO'

- To describe to what extent SiC affects the school governance, we carried out a collective project of multi-site ethnography (Marcus 1995). In particular, we applied the research strategy of following the 'thing', i.e. the digital platform across school sites. A sample of four elementary schools was chosen according to the ESC index of the school location, their geographical position (urban, suburban, peripheral and rural), and to their degree of compliance to the new regime of accountability augmented by the digital systems.
- The ethnographies were made with the collaboration of other two ethnographers. I followed two schools ('Equitas' and 'Spartacus'); while the other two followed 'Migrantes' and 'Astra' respectively. The three ethnographers assumed the role of the digital ethnographer, and took ethnographic notes of their browsing the websites of the schools in 'Scuola in Chiaro'. Furthermore, they were able to retrace the history of the use of 'Scuola in Chiaro' through the interviews to the teachers included in the group for the self-evaluation, and to the head teachers. Eventually, the ethnographers attended several meetings in schools to document the effects of the regime of accountability and the use of the digital technologies in the self-evaluation.

A Cartography of 'Scuola in Chiaro' in use



CONCLUSIONS

- The project of making cartographies was then extended to understand how the digital governance is unfolding in the fabrication of the European space of education and how it is contributing to the enactment of the Europeanization as a process of construction of a space of commensurability
- The maps reveal how the digital governance is developing as a trans-national and intra-national assemblage of people, technologies and policies. The concatenation of items displays the contemporary configuration of new governance of education crossing national borders, jurisdictions, and plurality of stakeholders (Bevir 2011). The digital governance emerges, here, through the collaborations between public offices, private companies, and schools.

CONCLUSIONS

- The collaborations are constituted and stabilized through a digital platform, made of interfaces, scripts, and school data profiles. As a result, 'Scuola in Chiaro' is a search engine that contains a massive amount of data about schools, and that sustains the policies of the school choice, the transparency, and the school self-evaluation.
- The platform is not neutral, as it shapes the informational basis of the education policy, and frames it into a model of variables that privileges what is measurable of the school performances, by reinforcing the epistemology and political positioning of school effectiveness and school improvement visions. Like similar digital platforms (My School in Australia), it celebrates the value of the transparency, putting in the background the opacity and the ambiguities of the educational processes. It states, therefore, the priority of the transparency of the organizational processes: to be publicly relevant they have to be visible, measurable and accountable.

CONCLUSIONS

- Schools are invited to participate to the making of the platform. They are invited to collect and provide data; however, they are not asked to analyze them, or to contribute to the design of the collection, and the digital platform. It is a case of ‘logistical participation’ to the platform, as they are not allowed to be the author of the knowledge-making delegated to other agencies (here, INVALSI, the Ministry, or others). School participation to the platform is not be taken as granted. They can assume many ways: alignment, fabrication, muddling through, resistance.