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Filorete flock

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Creating Tomorrow

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FILORETE FLOCK

A NEW FORM OF NETWORK IN AN EMERGENT DEMOCRACY

ISABEL DE MAURISSENS

institute of network cultures

Colophon

This essay is based on research promoted by INDIRE, Italian National Institute for Documentation, Innovation and Educational Research in Education, and is developed under the research on 'Professional networks, Educational models and School principal's profile in Italy'. On the basis of observation and analysis of research data, a new theory is assumed and new characteristics are defined, belonging to both professional networks and educational models applied to all types of professional networks. The characteristics so far identified are: plastic nature of networks, network punctuated equilibrium, network connectivity, emergent behavior and eusociality of network members. It is also shown how the knowledge shared in a network materializes in Events that produce Event Capital. The theory will be complemented by an experimentation phase.

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Biography

Isabel de Maurissens is a researcher at INDIRE (www.indire.it), Italian National Institute for Documentation, Innovation and Educational Research in Education and designated person for the research on 'Professional networks, Educational models and School principal's profile in Italy'. Her greatest interest is devoted to visual analysis methodology and, in general, to visual forms of knowledge, currently under experiment in the educational field. She's also responsible for reviewing online documentation, both in terms of interactivity and as a form of 'reflexivity' on research outcomes. Further activity and interests include working on the CLIL methodology (Content and Language Integrated Learning) to valorize and strengthen the quality of language education of Italian teachers. i.demaurissens@indire.it

> 'Are birds free from the chains of the skyway?' Ballad in Plain D - Bob Dylan

It is said that, on the first day of the new year, the ancient emperors of China would solemnly give a musical note on which the people of the Empire had to agree, harmonize and remain united, throughout the following year. The emperors thought that the music alone, along with the rites, could hold off unrest. In the grip of a fear of collective unrest, mandarins insisted on the role of music, which was used to contain and moderate the Empire[1] as a whole.

Who moderates today? Once there was the emperor, a centralized power, but now this role has been taken over by software and networks. For the French philosopher Catherine Malabou, the

> [...] central organ has definitively been surpassed, even if it continues to impose itself as an epistemological and ideological obstacle. This crisis of centrality rests on a delocalization and a reticular suppleness in the structures of command. In the same way that neuronal connections are supple and do not obey a centralized or even truly hierarchized system, political and economic power displays an organizational suppleness in which the center also appears to have disappeared.[2]

If central power is a thing of the past, the major protagonists that model society are now networks. Signals that central power is falling apart are apparent in many political areas, with decentralized powers using networks to find contacts within the *res publica* and in professional associations – which are no longer able to give a distinct scope to professions – and also in schools, which are feeling restricted within their four walls. 'The social is no longer a reference to society, [...] nowadays, the social manifests itself in a network form'.[3] If we return to the metaphor of the emperors' tone, are we not risking a cacophony? Wouldn't the emperor's single tone have been better?

The research presented here is supported by INDIRE, National Institute for Documentation, Innovation and Educational Research in Italy.[4] The theoretical reflections are part of a larger empirical research, conducted in 2016 involving more than 20% of Italian school principals, at all levels. They were asked whether the school is likely to continue to stand within its four walls in our networked society, representing, after all, centralized power in accordance with a single model. Or can space, territory, and networks be places of learning? The school walls are crumbling; the inauguration of the school year, for example, does not correspond to a single tone. Often indeed, it is a day of protest and opposition, perhaps to a too centralized and self-referential school, as one of the principals in the focus group expresses:

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1 Henri Michaux, *Passages,* Gallimard, 1963, p. 190.
2 Catherine Malabou, *What Should We Do With Our Brain?*, New York: Fordham University Press, 2008, p. 33.
3 Geert Lovink, *Social Media Abyss: Critical Internet Cultures and the Force of Negation,* Cambridge: Polity Press, 2016, p. 16.
4 National Institute for Documentation, Innovation and Educational Research, http://www.indire.it/home/chi-siamo/.

> One of the limits of our schools, as we well know, is self-reference; schools have learned to describe processes and to indicate pathways and targets achieved, but they still tend to do so with an eye toward the inside, whereas there is a need for opening to the outside (the "social community"). It is fundamental that schools take a communication channel constantly open to the outside, so as to create a climate of trust and appreciation even by parties external to a professional community (primarily parents, but also political decision makers, local economic operators, cultural and sports organizations, etc.): transparency versus opacity.[5]

Can the professional network, as a 'messy hinterland'[6], really be capable of bringing knowledge, wisdom, and innovation to society and especially to schools? Is it still sufficient to define networks as formal/informal, offline/online, horizontal/vertical or as communities of practice? Could the definition of community of practice given by Etienne Wenger be enough today to understand how to exploit the knowledge produced in that hinterland? Let us remind ourselves that the comunity of practice is defined as: 'groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly'.[7]

How can informal learning be recognized within such new knowledge garrisons? Are the criteria identified by the *European Guidelines for validating non-formal and informal learning* suitable, viable and easily applicable for intercepting informal learning and especially professional networks? [8] The European guidelines mention for this purpose the following tools: tests and examinations, dialogue and conversational methods (mainly interviews and debates), declarative methods, osservations, simulations and evidence extracted from work or other practice.[9]

From a review of professional training experiences of school head teachers on an international level,[10] it appears that only very few studies (7.69%) devote some attention to informal

learning and equally few to experiential methodologies (5.77%). In fact, informal learning is stated but never applied and even less studied, despite that 'many systematic review studies agree that an informal approach is a key factor in determining the effectiveness of the entire

5 From visual focus groups of school principals in professional networks, as in the experimentation of a visual portfolio, in Isabel de Maurissens and Giuseppe Losacco, *The visual portfolio: a tool for reflection and self-assessment mediated by School Principals' professional network according to visual methodology*, OpenEditions, forthcoming.

6 Stephen Ball, 'New Philanthropy, New Networks and New Governance in Education', *Political Studies*, vol. 56, (2008): 747-765.

7 Etienne Wenger, Beverly Wenger-Tryner, 'Introduction to Communities of Practice, A brief Overview of The Concept and Its Uses' (April, 2015).

8 Cedefop, *European Guidelines for Validating Nonformal and Informal Learning*, Luxembourg: Publications Office, Cedefop reference series; n. 104 (2015), http://www.cedefop.europa.eu/en/publications-and-resources/publications/4054. p. 49.

9 Cedefop, European Guideslines for Validating Nonformal and Informal Learning, p. 49

10 Chiara Giunti, 'La formazione professionale dei Dirigenti scolastici nel contesto internazionale: sintesi quantitativa di una revisione sistematica della letteratura'. Proceedings of the conference EMEMITALIA 2016 - Design the Future! Modena, 7-9 September 2016, https://www.conftool.net/ememitalia2016/sessions.php.

educational process'.[11] Among the most significant experiences of informal learning are peer learning and informal mentoring, and also coaching practices that target less experienced members of a community of professional practice.[12]

Networks and Institutions in Emergent Democracy

The ideas of Jōichi Itō, current president of *MIT Media Lab* and president of *Creative Commons*, reflect the role of networks today.[13] He suggests that social networks are vital for what he calls 'Emergent Democracy'. Emergent democracy refers to the rise of political structures and behaviors without central planning, coming from the actions of many individual participants, especially when mediated by the internet. More recently, Clay Shirky has referred to this as 'the power of organizing without organizations'.[14] The term Emergent Democracy[15] was coined as to stand in contrast to more traditional forms of democracy, such as representational democracy. The phrase draws upon emergence theory for the idea that simple actions of individuals can collectively create complex and unpredictable results, as when the behavior of termites results in large, efficient nests beyond the comprehension of any individual participant.[16] Itō stresses the existence of a close connection between a new form of society, i.e following the form of networks, and new technologies, which are seen as tools for democracy: 'We temporarily have access to a tool that could bring conviviality and understanding into our lives and might help revitalize the public sphere'.[17] These networks have moved on from the gallery to be on central stage in society, and centralized organizations have become outdated decorations. Networked practices 'emerge outside of the walls of the twentieth-century institutions'.[18] The institutions are always implicitly present but their light actually burned out long ago:

"Our institutions are beaming light that makes me think of the twinkling stars of which astronomers tell us they have died a long time ago", says Michel Serres, who observes that philosophers have failed to anticipate future forms of knowledge.[19]

11 Scott Shelleyann, 'Pragmatic Leadership Development in Canada: Investigating a Mentoring Approach', *Professional Development in Education*, 36(4), (2010): 563–579.
12 Chiara Giunti, La formazione professionale dei Dirigenti scolastici nel contesto internazionale: sintesi quantitativa di una revisione sistematica della letteratura.
13 The research, conducted within different disciplinary approaches, has shown that social networks operate on multiple levels (from families to national communities) and play a crucial part in solving problem procedures and management systems of organizations, as well as the chances for individuals to achieve their goals. Barry Wellman and S. D. Berkowitz, *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, 1988.
14 Clay Shirky, *Here Comes Everybody: The Power of Organizing Without Organization*, The Penguin Press, 2008.
15 Wikipedia Contributors. 'Emergent Democracy', 7 December 2016. https://en.wikipedia.org/wiki/Emergent_democracy.
16 Blog, https://www.revolvy.com/topic/Emergent%20democracy&uid=1575.
17 Jōichi Itō, 'Weblogs and emergent democracy', https://joi.ito.com/static/emergentdemocracy.html.
18 Geert Lovink, *Social Media Abyss,* p. 16.
19 Geert Lovink, *Social Media Abyss,* p. 185.

This study is a contribution to the concept of 'Emergent Democracy', keeping such a concept as the theoretical framework of this research. Networks can have a role to play in this context, in that they work and produce knowledge without 'permission' from a central power. As Jōichi Itō states:

> The world needs emergent democracy more than ever. Traditional forms of representative democracy are barely able to manage the scale, complexity and speed of the issues in the world today. Representatives of sovereign nations negotiating with each other in global dialog are very limited in their ability to solve global issues. The monolithic media and its increasingly simplistic representation of the world cannot provide the competition of ideas necessary to reach consensus. Emergent democracy has the potential to solve many of the problems we face in the exceedingly complex world at both the national and global scale. The community of toolmakers should be encouraged to consider their possible positive effect on the democratic process as well as the risk of enabling emergent terrorism, mob rule and a surveillance society.[20]

I have developed a hypothesis concerning professional networks, delineating these as new collective entities. I was inspired partly by the media theory of Geert Lovink and the concept of *connectivity* of José van Dijck. I've then devoted particular attention to the concept of *plasticity*, as described by Catherine Malabou, and the concept of *event* as developed by Hegel, Slavoj Žižek, and Alain Badiou. From these I have derived a new concept, summed up in the term *event-capital*. I've dwelt on the *sociological geographic events* described by David Harvey, the concept of *emergent behavior* in physics and biology, communication in plant biology *as* developed by Stefano Mancuso, and the concept of *punctuated equilibrium* as applied to the evolution of networks and developed in sociobiology.[21] Lastly, I've turned to the concept of *eusociality* by the sociobiologist Edward Wilson.

I call my network hypothesis 'filocorete flock', a contemporary vision of networks in line with emergent democracy. The word *filocoreti* is the combination of *filo* (friendship) and *coreti,* a term antagonistic to *anchorite* or *anchoret*, meaning hermit, one who has retired from the world. The *flock* formation of network members designates the ideal behavior of the network: the timing or synchronization of their actions like a flock of birds that shows emergent behavior. This is the first characteristic of professional networks identified here.

20 Jōichi Itō, 'Emergent Democracy Paper', https://joi.ito.com/joiwiki/EmergentDemocracyPaper#head-d10b9c0854726469574a29a4e2431986a36ccce3, 7 December 2016.

21 Wikipedia contributors, 'Sociobiology', E.O. Wilson: 'the systematic study of the biological basis of all social behavior', https://en.wikipedia.org/wiki/Sociobiology, 7 December 2016.

The theory is based on data[22] consisting of numbers, images,[23] texts, and audio recordings, derived from a wider research project in professional networks, educational models, and school principals' profiles in Italy. In particular, we relied on the results of the National Survey '*DsinRete*' and on two focus groups involving school principals. The first focus group provided experiences of the participants as individuals, the second considered them as an informal professional network. The theory developed here, although based on professional networks of Italian school principals, can be applied to any professional network, in that the emerged characteristics will fit any professional network and therefore also those made up of other types of members. The validity and the extension of such features are, in any case, yet to be examined and need further studies.

The Emergent Behavior of Professional Networks

When envisioning a professional network, we probably think of a group of people sitting around a table. It gets complicated if we try to imagine those people interacting via Skype, each one with their cup of coffee, standing behind a screen. What unites these individuals? What are the characteristics that distinguish them from an institution, a formal or informal network, or from a group of friends? Does Etienne Wenger's distinction between formal/informal networks and communities of practice still hold?[24] No one really thinks that a musical note can merge an empire, as no one thinks that simply looking up at the sky can provide a clear idea of what a network is. But there you can see a flock of birds, and by simply describing what is seen up there, a crystal clear idea of what a network is takes form.

The flock of birds follows from what biology calls emergent behavior. Emergent behavior is behavior in which a system appears to have properties that remain inexplicable when related solely to the laws governing its individual components. It arises from non-linear interactions among the components themselves.[25] Recent studies on flocks of birds have shown that cooperation and collaboration are essential to form a flock; unsurprisingly, we hypothesize that this

22 The research started with a national online survey called *DSinrete* (Network of School Principals), which was attended by 1,571 school principals, making up 21.5% of the 7,325 principals in Italy, continued with various qualitative methodologies, including visual analysis applied to the portfolio. The empirical analysis of data was preceded by an extensive study of national literature, which we have already published as research preliminary data in Isabel de Maurissens, Manuela Repetto, Alessia Rosa, Maria Chiara Pettenati, 'Head teacher professional networks in Italy: preliminary results of a national survey', *REM - Research on Education and Media* Vol. 8, N. 1, (2016), Https://www.degruyter.com/downloadpdf/j/rem.2016.8.issue-1/rem-2016-0008/rem-2016-0008.xml.

23 A specific experimentation with the principals' portfolio was conducted based on a visual methodology, as referred in Isabel de Maurissens, Giuseppe Losacco, *'The visual portfolio: a tool for reflection and self-assessment mediated by School Principals' professional network according to visual methodology*'.

24 Communities of practice are groups of people who share a concern or a passion for something they do, and learn how to do it better as they interact regularly, in Etienne Wenger, *A Brief Introduction of Community of Practices*, https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/11736/a%20brief%20introduction%20to%20cop.pdf?sequence=1.

25 Wikipedia contributors, 'Emergence', https://en.wikipedia.org/wiki/Emergence, 7 December 2016.

is also true for the professional network, where the two aspects of cooperation and collaboration are evenly determining, as emerged from the national quantitative survey '*DSinRete*'.[26] This could be seen as a strength of networks. Indeed, 78% of the school principals involved in the survey considered the collaborative aspect as a major strength. The questionnaire was built around a series of related dimensions[27] (territorial, diachronic, organizational, technological, participatory, communicative, identitarian, dialogical, professional, and operational) aimed at highlighting the elements that contribute to the optimal functioning of school principal networks, in terms of continuous professional development and of support for school autonomy. The dimensions are analyzed at three levels, following a systemic approach that relates the single principal and his or her participation with the activities carried out by all participants in the network as a whole, and with network relations to the outside.

Resuming the example of the flock of birds (also a metaphor used to present search results in an online interactive environment), I believe it is a particularly well-suited metaphor for explaining the idea of collaboration, whereas, as confirmed by studies conducted on thousands of flocks[28], the group needs cohesion and dialogue to change their direction. If it is true that any specimen may decide to change direction, usually the specimens are located at the edge of the flock, and the better the flock is ordered, the easier it is to take a new direction. Networks work in a similar way to achieve a goal, in which cohesion among its members is required. After all, in a peer group each member may change the direction, if it is more functional to the attainment of a purpose, or if they need to solve a problem and the position they occupy within the network is of little importance. It is perhaps the biggest difference compared to the organizations where the position occupied by the individual is very important. In networks, in this regard, Charles Peirce conceived the notion of 'community of inquiry', broadly defined as any group of individuals involved in a process of empirical or conceptual inquiry into problematic situations. This concept was novel in its emphasis on the social quality and contingency of knowledge formation in the sciences, in contrast to the Cartesian model of science, which assumes a fixed, unchanging reality that is objectively knowable by rational observers. The notion of a community of inquiry emphasizes that knowledge is necessarily embedded within a social context and thus for legitimacy requires intersubjective agreement among those involved in the process of inquiry. Following this, collaboration and cohesion are not only desirable but often necessary.

According to the sociobiologist Edward O. Wilson, 'flocking behavior undoubtedly serves the dual function of predator evasion and improvement',[29] but the strategies, in this case to feed on, can be

26 Isabel de Maurissens, Manuela Repetto, Alessia Rosa, Maria Chiara Pettenati, 'Head Teacher Professional Networks in Italy: Preliminary Results of a National Survey'in *REM - Research on Education and Media* Vol. 8, n. 1, Year 2016.

27 All questionnaire dimensions were developed by my colleagues Alessia Rosa and Manuela Repetto, Indire, Turin.

28 A. Attanasi, A. Cavagna, L. Del Castello, et al, 'Information Transfer and Behavioral Inertia in Starling Flocks', *Nature Physics*, v. 10, 2014.

29 Edward O. Wilson, *Sociobiology: The New Synthesis*, 25th Anniversary Edition, Harvard University Press; 2000 p. 22.

essentially of two types and never self-referential. There are two major categories of social behavior – imitative foraging and cooperative foraging – that he describes as follows:

> In cooperative foraging there is some measure of at least temporarily altruistic restraint, the behaviors of the group members are often diversified, and the modes of communication are typically complex. Some of the most advanced of all societies, possibly including those of primitive man, are based upon a strategy of cooperative hunting. One can reflect upon the fact that the qualities we intuitively associate with higher social behavior – altruism, differentiation of group members, and integration of group members by communication – are the same ones that evolve in a straightforward way to implement cooperative foraging.[30]

Wilson argues that human behavior is clearly intentional: 'The roles of both individual and group selection are clear in the details of the human social behavior'.[31] He refers to this as a 'multilevel selection' whose formulation recognizes 'two levels at which natural selection operates: individual selection based on competition and cooperation among members of the same group, and group selection, which arises from competition and cooperation between groups. Group selection can occur through violent conflict'.[32] Wilson also explains that in terms of hereditary social behavior 'multilevel selection improves the competitive ability not just of individuals within groups but among groups as a whole'.[33] He states: 'A group of uncooperative, poorly communicating individuals will lose to its better organized competitors'.[34] Finally, conflict plays a central role since 'The conflict might be the only way in the entire Universe that human-level intelligence and social organization can evolve'.[35]

Without a doubt, as stated, for example, by the Collective Behaviour in Biological Systems from the Institute of Complex Systems of the Italian National Council of Research (CNR),[36] the basic mechanisms of collective behavior in biological systems are complex.

Such complexity is expressed in an apparently simple way: the emergent behavior is precisely what synchronizes organisms' actions and is in a perfect balance that allows them to achieve their goal. This emergent behavior is in fact expressed in many forms of life such as in physics and in biology:

> 'plants developed a form of distributed intelligence, typical of swarms and many other living beings: when the individuals constituting a swarm are together, they display so-called emergent behaviours which don't exist in individual organisms'.[37]

30 Edward O. Wilson, *Sociobiology: The New Synthesis*, p. 51.
31 Edward O. Wilson, *The Meaning of Human Existence*, First edition Liveright Publishing corporation, 2014, p. 24.
32 Edward O. Wilson, *The Meaning of Human Existence*, p. 24.
33 Edward O. Wilson, *The Meaning of Human Existence*, p. 28
34 Edward O. Wilson, *The Meaning of Human Existence*, p. 29.
35 Edward O. Wilson, *The Meaning of Human Existence*, p. 34.
36 Italian National Council of Research.
37 Stefano Mancuso and Alessandra Viola, *Brilliant Green: The Surprising History and Science of*

This type of behavior may occur when a number of simple entities (agents) operate in an environment, giving rise to more complex behaviors as a community. The number of interactions between the components of a combinatorial system increases with the number of components, allowing the potential emergence of new and imperceptible types of behavior.[38]

Emergent behaviors are not only found in biology but also in physics, meteorology, and in both the social and economic spheres. As the biologist Stefano Mancuso points out, emergent behaviors have been used to describe many human activities, from walking in the crowd without trampling over other individuals, to clapping synchronously after a while at the end of a concert, up to stock exchange performance. Despite having an effect on our individual lives, all this is done without any central control. There is no entity in charge of overseeing its global operation, for example 'the behavior of the stock exchange [...] derives solely from the interactions of individual investors'. [39] This is also true in a market, where stalls and people find their place without prior assignment.

The first postulated characteristic is that networks follow emergent behaviors. Networks (here I refer to informal networks and the formal part of informal networks) synchronize their actions in an extremely precise manner. As one of the principals in the focus groups states: '[...] then I was tempted to think of the word humble, since without humility, but with protagonisms and individualisms, the networks do not work'.[40]

People in a network move in a synchronized manner. This is not an obvious process, nor are the interactions of a group sufficient for them to produce this phenomenon, as the following principal adds: 'If I gather the local schools together, because I am asked to share all educational interventions, and say: how do I coordinate foreign students when they enroll in school in mid-year, or beyond? Then we all draft an In-Year Fair Access Protocol, which will become mandatory for the communities of practice. Of course, results and actions may be different, but I would not feel like being so free within the community of practice.'[41]

Emergent behaviors may arise from the most decentralized networks because it seems like they create and increase order, despite the lack of central control. Emergent behaviors result from the interaction of its members; there is no pre-established rule that orders, for example, a flock of birds to form a pattern, an ant column to head in a certain direction in a perfect order, or a shoal of fish to combine into a defense strategy. The same could be said for networks. Indeed individuals that make up the network congregate. One might say that individuals are synchronized in *aduno.*[42] Synchronization is thus something more than

Plant Intelligence, English Edition by Island Press, 2015, p. 145.

38 Wikipedia contributors, 'Emergence', https://en.wikipedia.org/wiki/Emergence, 7 December 2016.

39 Stefano Mancuso and Alessandra Viola, *Brilliant Green: The Surprising History and Science of Plant Intelligence*, p. 140.

40 Quote from the principal focus group.

41 Quote from the principal focus group.

42 The Latin etymology of the word *aduno* means to unite, congregate in a way to make one gathering.

mere collaboration and cooperation; it is in some ways an independent, involuntary movement of one's will. This movement, being very intuitive, should happen in absolute freedom. This does not imply the absence of leadership,[43] nor a clear distribution of roles. Interactions are much more complex than what is conveyed by any course or manual on interpersonal relationships (such as leadership and other roles within organizations).

As long as true distributed collaboration among members is assured, with no central/leading control, it can be assumed that in some way networks follow an emergent behavior, which could be seen as their strength. The school principals emphasize this themselves, i.e. the capability of collaboration and cooperation, precisely the synchronization of emergent behavior as described above. As Jōichi Itō's states:

> In complex systems, the role of the leader is not about determining the direction and controlling the followers, but about maintaining integrity, representing the will of the followers and influencing and communicating with peers and leaders above. The leader becomes more of facilitator and a custodian of the process than a power figure, and is often the catalyst or manager of a critical debate or the representative of a group engaged in one. The leader is often the messenger delivering the consensus of a community to another layer or group. Indeed, some leaders in a representative democracy act in this manner. And as leadership becomes necessary to manage the development of an opinion or idea about a complex issue, information technology could enable quick and ad hoc leader selection and representation of that opinion or idea in a larger debate.[44]

For the sake of our hypothesis, another aspect is also helpful to consider: flying together needs trust. Social capital is also based on trust, a crucial element in networked relationships. In agreement with Francis Putnam and Francis Fukuyama's theory, 'social capital is people's ability to work together based on common trust'.[45] Can professional networks be places able to prevent the erosion of social capital as mentioned by Putnam in his famous article *Bowling Alone*? [46] Can community ethics exist as suggested by Fukuyama? Definitely, giving and receiving trust is about opening up, but not only this, according to Andrian Johston and Caterine Malabou: 'Being affected means to be modified, altered, changed by the impact of an encounter, be it with another subject or an object' They add that the first impact of an encounter triggers 'an emotional and not immediately cognitive phenomenon'.[47]

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43 Etienne Wenger, Beverly Wenger-Trayner, *Introduction to Community of Practices, A Brief Overview of the Concept and Its Uses*, 2015, http://wenger-trayner.com/introduction-to-communities-of-practice/.

44 Ito Joichi, 'Weblogs and Emergency Democracy', Version 3.2 Edited by Jon Lebkowsky.

45 Wikipedia contributors: 'Social Capital' https://en.wikipedia.org/wiki/Social_capital, 7 December 2016.

46 Robert D. Putnam, 'Bowling Alone: America's Declining Social Capital' in *Journal of Democracy*, vol. 6, n. 2, 1995.

47 Adrian Johnston, Catherine Malabou, *Self and Emotional Life*, New York: Colombia University Press, 2016 p.5.

However, it is to Robert Putnam's credit that he centered the concept of social capital on communities and not on individuals composing it. He defines social capital as: 'the features in our community life that make us more productive, a high level of engagement, trust, and reciprocity'.[48]

Plasticity and Network

The continuous exchanges both in flocks and in professional networks have something in common with the concept of plasticity (applied to the human brain and our society) developed by the French philosopher Catherine Malabou. Malabou claims it is 'the ability to change one's destiny, to inflect one's trajectory, to navigate differently, to reform one's form'. [49] It is an instance that gives and receives a form, as one of the principals in the focus group affirms: 'The network is not only a place in which we are likely to receive. We should also contribute'.[50] DsinRete shows that 59% of principals believe that collaboration on joint projects is an activity that is effective for the network. 'The plasticity of the brain means – to see in it: not only the creator and receiver of form'[51], Malabou states. This ability to give and take belongs to both offline and online networks, as also argued by Manuel Castells: 'Interactive computer networks are growing exponentially, creating new forms and channels of communication, shaping life and being shaped by life at the same time.'[52] Network plasticity proposes a collective entity open to endless combinations, unlike the more formal and typical structures, which are closed and hierarchized, as for instance within the family or the school itself. Such networks are open to new members and through them are permeable to new ideas.[53] Openness to new members will depend, in turn, more on specific problems that the network needs to resolve and the interests of individual members, than on the development of a theme, and seems unconnected to the territory of the origin. Networks are therefore emerging collective entities, whose characteristics are plasticity and which contribute to the emergent democracy where rigid centralized organizations can no longer contribute. As stated by Catherine Malabou with regard to our brain: 'Meanwhile, plasticity directly contradicts rigidity. It is its exact antonym'. [54]

Networks are unrelated to institutional constraints in that, as Malabou writes about the brain's neurons, they have 'an agency of disobedience to every constituted form, a refusal to submit to a model'.[55] The network does not follow the same rules as formal organizations; it is organized

48 Robert D. Putnam *The Decline of Civil Society: How come? So What?* The 1996 John L. Manion Lecture. Ottawa: Canadian Centre for Management Development; 1996, p. 4.
49 Catherine Malabou, *What Should We Do With Our Brain?,* p. 17.
50 Quote from the Principals focus group.
51 Catherine Malabou, *What Should We Do With Our Brain?,* p. 6.
52 Manuel Castells, *The Rise of the Network Society*, Blackwell, Oxford, 1996, p. 2.
53 54% seeks innovative teaching practices through networks (DsinRete). The Dsinrete survey reveals that, 70% of networks are open to other members (30% of these are made exclusively of principals): 54% are open to teachers, 30% to DSGA (Schools Admin Manager), 1% to school staff (ATA), 8.5% to researchers, and 4.9% to families.
54 Catherine Malabou, *What Should We Do With Our Brain?,* p. 5.
55 Catherine Malabou, *What Should We Do With Our Brain?,* p. 6.

differently because it 'has no set objective in terms of learning outcomes and is never intentional [...]. Often, it is referred to as learning by experience or just as experience'.[56] Concerning our brain, Malabou highlights that 'the capacity of each to receive and to create his or her own form does not depend on any pre-established form; the original model or standard is, in a way, progressively erased'[57]. With regards to a network, we can assume that, even though the impulse of creating it may come from the top, when it comes to take shape there will be a group of people shaping its identity in a plastic fashion. Like the brain's neurons, the members of a network will shape their reality plastically without external constraints, but with constant feedback and exchange with their environment.

After emergent behavior, plasticity thus is the second element in a network. It is very clear that if this process does not occur and there is no renewal, nor a continuous vital transformation, the network gets immobilized very quickly, empties, loses its soul, produces nothing but itself, repeats itself mechanically, and remains agonized:

> A key role within the network is to ascertain its operational core, who makes the network effective? How many members actually participate in the network? Besides, a network is not necessarily a community of practice, only partly, as if it were a subset; thus, a community of practice is a subset of a network.[58]

Back in the 90s, Etienne Wenger, working on communities of practice, had already identified the concept of *legitimate peripheral participation* and how innovation is born and is conveyed from the outside.

Counting on social relationships, these networks generate trust[59] through the strength of weak ties.[60] A mutual confidence of community members is one of the core elements for networks to produce social capital, according to Fukuyama, who also considers that 'trust is the expectation that arises within a community of regular, honest, and cooperative behavior, based on commonly shared norms, on the part of other members of the community'.[61]

Errico Malatesta points out that the organization, after all, is nothing but the practice of cooperation and solidarity, a natural and necessary condition of social life.[62] Precisely because of their plastic nature,

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56 Wikipedia contributors 'Informal learning', https://en.wikipedia.org/wiki/Informal_learning, 29 Jannuary 2017.
57 Catherine Malabou, *What Should We Do With Our Brain?,* p. 6.
58 Quote from the Principals focus group.
59 According to Putnam, social capital can be of two types: bonding, which basically helps to strengthen social ties within the network, and bridging, that helps open up new relationships. We can consider Granovetter's weak ties as falling into the second type. Therefore reference can be made to the concept of embeddedness by Granovetter, especially to Strength of Weak Ties (1983), in Gabriela Giudici, Il capitale sociale, http://gabriellagiudici.it/il-capitale-sociale/, 21 Jannuary 2017.
60 Mark Granatovetter, 'The Strength of Weak Ties: A Network Theory Revisited', *Sociological Theory*, 1983, 1: p. 201–233.
61 Francis Fukuyama*, Trust: Social Virtues and the Creation of Prosperity*. NY: The Free Press, 1995, p. 27.
62 Errico Maltesta in Lovink, *Social Media Abyss*, p. 192

networks are recognized in literature as the centerpiece of a new organization of society.

Types of Plasticity

Returning to Malabou's concept of the plasticity of networks − not to be confused with either flexibility or adaptability[63] − Malabou, distinguishes three types of plasticity: I) developmental plasticity, II) modular plasticity and III) reparative plasticity. These will be explored further in what follows.

I) Developmental plasticity
Each network develops at its own pace, as in the words of a school principal involved in the focus group: 'at the beginning the network is created, it is the zero moment, the starting point, but what happens after?'[64] Malabou affirms that people in social networks behave much like neurons within the brain. The brain, she writes,

> far from being, as was previously believed, an organ fully constituted at birth, simultaneously receives and gives itself form. [...] From this stage of development on, however, once the definitive form of the system has been sculpted, genetic determination begins to slacken. [...] A great deal of the development of the human brain is accomplished in the open air, in contact with the stimuli of the world, which directly influence both the development and the volume of connections. [...] But the more time passes, the more this "first plasticity" loses its determinist rigor. The sculptor gradually begins to improvise. Bit by bit, the modeling becomes that which our own activity imprints on the connections. [...] The restrained or "closed" meaning of plasticity very quickly runs into its "open" signification: the "freedom" in which determinacy and nondeterminism cross paths in an astonishing way. [65]

In professional networks, for example, plasticity is expressed through real participation; it requires attendance, sharing and participation in events, as pointed out by a school principal:

> But in terms of real participation, I am somewhat along with my colleague, I see it in retrospect, that is, once the network is established, it must demonstrate itself to be capable of leading.[66]

63 Catherine Malabou, *What Should We Do With Our Brain?,* pp. 5-6: 'In ordinary speech, [plasticity] designates suppleness, a faculty for adaptation, the ability to evolve. According to its etymology - from the Greek *plassein*, to mold - the word plasticity has two basic senses: it means at once the capacity to receive form (clay is called "plastic," for example) and the capacity to give form (as in the plastic arts or in plastic surgery). Talking about the plasticity of the brain thus amounts to thinking of the brain as something modifiable, "formable," and formative at the same time. [...] The word plasticity thus unfolds its meaning between sculptural molding and deflagration, which is to say explosion'.
64 From the Principals focus groups.
65 Catherine Malabou, *What Should We Do With Our Brain?,* pp. 19-21.
66 From the Principals focus groups.

Developmental plasticity of network also has to do with usefulness. School principals choose to stay in a professional network if they find it useful, otherwise it is the very meaning of the network that is lost, as one affirms: 'I choose the network which I can gain or benefit from. If it is useful for me, I stay in that network, if it is not, I do not see it as a network anymore.'[67]

This can happen when the network does not work in synergy and loses all plasticity, is not creative, and does not innovate; it creates a one-off benefit or interest for the members who little later choose to quit, not recognizing it as a professional network. These are called 'contingent' or 'temporary' networks, constituted for example for the purpose of gaining access to funding and, in that case, moving away without a trace except in financial reports, as confirmed by the focus group: '[...] and then there are fictitious networks, which are exclusively established to receive funds, to make it perfectly clear'.[68]

II) Modular Plasticity

The second area that we can distinguish is one that Malabou describes as the 'brain plasticity's second field of action: the modification of neuronal connections by means of the modulation of synaptic efficacy. Without a doubt, it is at this level that plasticity imposes itself with the greatest clarity and force in "opening" its meaning.'[69] The networks develop by modulating their own meaning, that is their own activity in a similar way, and express their personality as a network. They store experience, are creative and innovative, and generate relations inside and outside. Networks, by analogy with the brain's neurons, 'because of their own plasticity, are always capable of changing difference, receiving or losing an imprint, or transforming their program'.[70] They can swing between determinism (e.g., a regional network already established from the top) and non-determinism (e.g., a group of school principals and teachers who develop a keen interest in an emerging issue). Malabou says that, hence, determinism and non-determinism can meet in two ways. The abilities of the network members modify the strength of their connections under the effects of experience, like synapses. The modular capacity of the plasticity of networks has to do with communication and with the culture the network generates, as one of the principals states: 'it should foster the creation of culture, knowledge, and even a ratio', and 'probably, in some way, each school tries to identify its own idea of network, right? But above all, it identifies the network according to the way it makes use of it or is able to work through it, whereas we all work with the same reality. I would like to get back to the fact that choosing a network is more about a choice of cultural nature by the Board, isn't it?'[71] Presumably, the principal wished to express the idea that choosing a given network may give their school a specific cultural connotation. For instance, one thing is being a member of networks concerned with school dispersion; another is participating in professional networks dealing with coding.

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67 From the Principals focus groups.
68 From the Principals focus groups.
69 Catherine Malabou, *What Should We Do With Our Brain?,* p. 21.
70 Catherine Malabou, *What Should We Do With Our Brain?,* p. 24.
71 From the Principals focus groups.

III) Reparative Plasticity

Malabou maintains that the brain goes through reparative plasticity, meant as a secondary regeneration or renewal, to counteract any lesion to the brain. Her particular interpretation assumes that even with major lesions, the function of some neurons within fundamental areas of learning processes is continually renewed, and that these neurons not only replace dead cells, but are involved in modular plasticity. As underlined by one of the principals: 'The network that collapses is one that is not effective and not efficient'.[72] But before collapsing, the network also can benefit from reparative plasticity that carefully heals, compensates, and regenerates, if necessary. Especially in formal networks, when a moment of organizational and institutional suffocation occurs, a smaller group, perhaps in the periphery, takes measures to 'save' the network. It seems that informal networks or the informal part of networks can do this too. This is just as in a flock, where some specimens on the outer edge of the formation take command. They depart from the established model, perhaps collapsing, to quickly create a new one, adapted to new members or new requirements. We can read about this reparative capacity through comments expressed by the principals in the focus groups: 'The first thing that comes to my mind is that the network is a tool for overcoming self-reference. Of course this is a problem we usually face: on the one hand we feel alone as school principals, and on the other hand, as a school community, we are cut off, disconnected from the surrounding world, unable to get integrated with the local territory.' Someone else says: 'if I have a problem, we can sit around a table to solve it, that is to say, the problem does not generate the network, which instead addresses the problem'.[73] From a different standpoint, the reparative capacity can be found in the Buddhist doctrine of the oneness of life and its environment, *esho-funi*, where the importance of plasticity is well expressed. Giving and taking form are for this doctrine mutually interrelated; there is no duality, they operate together.[74]

Networks, therefore, can strive for 'reparative interventions' carried out by some members, but there may certainly be examples of network failures where no reparative plasticity has intervened. As an example, one may count the story of a school principal, who complained that transfers at work were deleterious: 'The network was working fine until my colleague F. was transferred and the network collapsed'.[75]

Digital Technology as a Cultural Choice for Professional Networks

The plastic character of both our brain and society makes us return to some beliefs that continue to this day, which do not take into account the latest advances in neurology, biology, physics, and, in general, recent breakthroughs in other disciplines. Again, Malabou claims that:

72 From the principals' focus groups.
73 From the principals' focus groups.
74 Daisaku Ikeda, Life and the Environment: A Buddhist Perspective, *Sgi Quarterly*, July, 2010, http://www.sgiquarterly.org/feature2010Jly-5.html.
75 From the principals' focus groups.

> This metaphor of the computer brain or the central telephone exchange is today outdated, [...] because it completely fails to capture plasticity and does not take into account synaptic and neuronal vitality. [76]

The human brain is not a program, i.e.:

> the analytical and explicative value of the mechanical paradigm in itself – a paradigm that is, to a certain extent, indispensable for thinking about brain function – but cannot be associated with the rigidity, the fixity, the anonymity of the control center, it proposes instead a model of a suppleness that implies a certain margin of improvisation, of creation, of the aleatory.[77]

According to Manuel Castells, 'prophets of technology preach the new age, extrapolating to social trends and organization the b arely understood logic of computers and DNA'.[78] As Malabou writes:

> The interaction of the brain with its surroundings instead acts as a commanding authority, whose unknown form and location disrupt the traditional geography of government. The functional plasticity of the brain deconstructs its function as the central organ and generates the image of a fluid process, somehow present everywhere and nowhere. [...] It implies the idea of a multiple, fragmented organization, an ensemble of micro-powers more than the form of a central committee.[79]

Theories of '*computational thinking*' do not take into account the concept of plasticity either, as for instance *Social Network Analysis* in the 70s. The analysis of social relationships developing within groups, which were done with the first visual representations of networks, and for which the rise of the discipline of Sociometrics certainly was useful, was still pre-technical and arose prior to scientific discoveries such as brain plasticity. This also holds true for mathematical models - mainly graph theory in the 90s – which made wide use of mathematical and statistical models. However, social network theory had the merit of producing plenty of data, in particular on interactions in networks[80], and on the roles of the members of the networks, including technological devices, which were seen as real subjects. Bruno Latour's Actor Network Theory and Manuel Castells' theories on networks open up to new visions. For Castells, the internet and all new technologies are key factors; he acknowledges that they represent a revolution as powerful as the industrial revolution. Many authors have since debated this thesis, e.g. Lev Manovich, who sees software as the invisible glue that ties it all together, but also Geert Lovink, who argues that in some way we should have a plastic behavior with respect to the internet, an attitude that shapes the internet and not only allows us to be shaped by it.

76 Catherine Malabou, *What Should We Do With Our Brain?,* p. 34.
77 Catherine Malabou, *What Should We Do With Our Brain?,* p. 35.
78 Castells Manuel, The Rise of the Network Society, Blackwell, Oxford, 1996, p. 4.
79 Catherine Malabou, *What Should We Do With Our Brain?,* pp. 35-36.
80 Mark Newman, Albert- Làszlò Barabàsi, Duncan J. Watts, *The Structure and Dynamics of Networks*, Princeton University Press, 2006.

This is another aspect of the network that schools need to face. All networks are compared with respect to tecnological choices, but are choices exclusively technological or also cultural? Interaction with proprietary models (Google, Yahoo, Apple) can shape us, but to what extent are we able to shape them? New technologies are essential as tools for a democratic society in general, and in professional networks and schools in particular. Still too few school heads, teachers and researchers in general give serious thought to this issue in offering alternatives and 'getting their hands dirty', as for example Andreas Robert Formiconi [81] with his laboratory, which could provide networks with alternatives to proprietary models or to connections such as *pirate box*.[82] Approaching new technologies is therefore important for networks that are enabled to experience possible alternatives. Can these small efforts be seen as a reflection of an emergent democracy? The way in which new technologies are used and regarded by networks can be a way to support the new form of emergent democracy, for which new technologies are central. This echos the concept of emergent democracy as described by Jōichi Itō:

> We must influence the development and use of these tools and technologies to support democracy, or they will be turned against us by corporations, totalitarian regimes and terrorists. To do so, we must begin to understand the process and implications necessary for an Emergent Democracy. This new political model must support the basic characteristics of democracy and reverse the erosion of democratic principles that has occurred with the concentration of power within corporations and governments. New technologies can enable the emergence of a functional, more direct democratic system which can effectively manage complex issues. Viable technologies for direct democracy will support, change or replace existing representative democracies. By direct democracy, we don't mean simple majority rule, but a system that evolves away from the broadcast style of managed consensus to a democratic style of collective consensus derived from "many-to-many" conversations.[83]

Going back to our flock of birds, it may happen sometimes that we wait for hours and don't see anything in the sky; the evolution of flocks is not constant, nor is the moment when the birds will take their flight predictable. Mostly we see scattered groups of birds, not flocks, just like we see individuals caring for their daily businesses or routines but don't see networks. Then, at some point, all is transformed and a new entity is created, to which we belong as individuals, that makes us transcend the everyday, the obvious, the transcendental-historical dimension, the unspoken, the neglected, the omitted, and the invisible. We transcend routine defined as a repetitive, recognizable, and interconnected action involving multiple agents. Organizational routines are sometimes inhibitory to change and tend to maintain the status quo.[84] Professional

81 Andreas Robert Formiconi, 'Chi sono'. Blog: https://iamarf.org/chi-sono-2/.
82 Andreas Robert Formiconi, #Loptis, laboratorio su pirat box. https://iamarf.org/portfolio/piratebox/.
83 Jōichi Itō, 'Weblogs and Emergent Democracy', https://joi.ito.com/static/emergentdemocracy.html.
84 James P. Spillane, 'Data in Practice: Conceptualizing in the Data Based Decision Making

networks offer an opportunity to get out of routines through an informal learning experience. However, in comparing flocks with professional networks, one can easily observe how mysterious the process is and how elusive is the moment when birds or individuals become synchronized within their group.

Punctuated Equilibrium of Professionals Networks

The network proceeds in a punctuated equilibrium, i.e. it does not proceed at a single uniform speed rate but persists in moments of stasis and acceleration of activity. Its evolution is not constant and gradual but can be unpredictable. The concept of punctuated equilibrium has been developed especially in paleontology, by Stephen Jay Gould. The theory postulates that all species remain stable for a long time and only start varying in short periods.[85]

The interesting thing about Gould's theory is that, besides the abrupt evolutionary changes, he also considers non-activity moments as data. '*Stasis is data*,' he states. Currently, all DNA research is focused on the 5% that contains the relevant information. The remaining 95% is considered negligible.[86] Stasis of professional networks is the third characteristic of networks, and still a subject to be explored. This characteristic of development calls for close examination, for example by analyzing interactions among members (e.g.chat logs between networks and the external world in relation to time). More than 40% of networks are at a stage of growth and development, and the same percentage is found for the maturity stage, which is characterized by stability and settling, while the remaining percentage refers to a decline phase, even if a microanalysis of data (especially at the development stage) would be appropriate. The study of network evolution over time, with moments of stasis, quitting behaviors from the network, no production of experience, meetings and so on, could perhaps help us to understand the moment of no return, of decline, and possibly to predict it when in the presence of given behaviors by single participants.

Connectivity and Network

Emergent behavior is strongly related to the concept of connectivity: being together, in an emergent way, produces social capital, which is an advantage. Connectivity today moves from describing the technical transmission of data to being presented, in the context of social media, as the accumulation by users of social capital.[87]

Phenomena'. *American Journal of Education*, v.108, n. 2, 2012.

85 Wikipedia contributors 'Punctuated Equilibrium', https://en.wikipedia.org/wiki/Punctuated_equilibrium, 7 December 2016.

86 Contribution by Miguel Benasayag, Conference: '*Ripensare l'uomo e la società non come somma di specializzazione ma come insieme organico, Convegno Idee per un nuovo umanesimo, Idee per abitare il mondo*', Firenze, February 5-6, 2016.

87 José van Dijck, *Culture of Connectivity*, Oxford University Press, 2013, p. 16.

Regarding the comparison between neural functioning and our society, Malabou states that:

> The cybernetic metaphor has also had its day. [...] the hierarchical principle is demolished [...] the crisis of centrality [...]. Like neuronal cohesion, contemporary corporate economic and social organization is nor of a central or centralizing type but rests on a plurality of mobile and atomistic centers, deployed according to a connectionist model.[88]

Still in the area of 'plasticity', the modelling of networks can be provided by connections that, little by little, the network manages to maintain. Besides the authors mentioned already, networks sociologist Berry Wellman was especially devoted to restoring individual networks to a central position. He defines the network precisely as a community of people, and deserves credit for placing the individual at the center of social networks. The etymology of 'individual' can be traced back via the Latin to the Greek word *atomos*, meaning that which cannot be split. Networks are made up of individuals that are united in spite of all separating factors, while in societies they are separated in spite of all uniting factors.[89]

It is important to stress that the concept of connectivity applies to both offline and online networks. Wellman indeed asserts that 'virtual communities' do not have to be opposed to 'physical communities'; they are different forms of community, with specific rules and dynamics'.[90] Connectivity therefore leads to the birth of a new culture, the connective culture which Castells calls 'the culture of real virtuality'[91]. The communication patterns and interactions in virtual communities follow different paths from those in physical networks. They are not unreal, they only belong to a different level of reality, and overcome distance at a low cost. [92]

Wenger's concept of 'legitimate peripheral participation' expresses the idea of how innovation is born outside or at the edge of an organization, and then is conveyed to the inside. The same, as we have seen, happens in bird flocks: the birds flying at the outer edge are the ones able to lead the flock.[93] In the 90s, our society was not as connected as it is today, and so if the legitimate peripheral participation concept is true, it must be integrated with the concept of connectivity. Wenger writes:

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88 Catherine Malabou, *What Should We Do With Our Brain?,* p. 34, pp. 40-41.
89 Olivier Rey, 'Quand le Monde s'est Fait Nombre', *Stock*, 2016, p. 61.
90 B.Wellman in Castells, *The Rise of the Network Society,* p. 387.
91 M. Castells, 'The Information Age: Economy, Society and Culture', Volume 1: The Rise of the Network Society. 2nd ed., Oxford: Wiley Blackwell. , 2010. p. 406.
92 Already Roland Barthes and Jean Baudrillard taught us that all forms of communications are based on the production and consumption of signs. Thus, there is no separation between 'reality' and symbolic representation. In all societies, people are living in a symbolic environment and acting through that. Reality, which we experience, has always been virtual because it is always perceived through symbols that frame practice with some meaning that escapes their strict semantic definition.
93 Attanasi, A. Cavagna A. Del Castello L. et all. 'Information Transfer and Behavioral Inertia in Starling Flocks'.

> The new technologies such as the internet have extended the reach of our interactions beyond the geographical limitations of traditional communities, but the increase in flow of information does not obviate the need for community. In fact, it expands the possibilities for communities and calls for new types of communities based on shared practice.[94]

Connectivity does not deal with expansion as envisioned by Wenger, but rather with a new paradigm, provided that, as Castells underlines, space is the material support of time-sharing practices. Places do not disappear but their logic and their meaning is absorbed into the network. The technological infrastructure constructed by the internet defines space in a way that is similar to how railroads used to define economic regions in the past.

We should shy away from an 'offline romanticism' attitude and overcome the real-virtual dichotomy of the 90s, 'but working on the ground, in the localities, facilities, with groups' [95] we should be trying to reconnect with all human beings, whether they are online or not. However, we should also avoid falling into an excess of 'bavardage'; or maybe we should choose silence as a solution, as suggested by Marchese:

> Today, in a distorted context, it is improper to trust a *value system different from the one that the word can give us*; choosing to remain silent is not an act of self-legitimation by critical new entrants, nor a way of differentiating themselves, but one of the few choices they own completely: no one but ourselves, can impose silence in the open field, as the cultural industry aims to silence us by virtue of an opposing excess of speech.[96]

The theme of silence is interesting when applied to networks, in particular online ones. Is a 'mute' professional network communicating? How can this online silence be visible? Can it be truly silent? Is silence read as inactivity? Or can we apply Gould's words 'stasis is data' to networks and consider moments of non-activity as data?

Today's social movements and networks must face two aspects (and this was also highlighted in the Survey that lies at the basis of this research):

> there is a lack of time to allow events to evolve into their real potential.[97]

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94 Etienne Wenger, 'Communities of Practice, A Brief Introduction', 2015, p.6.
95 Geert Lovink, *Social Media Abyss: Critical Internet Cultures and the Force of Negation*, p. 190.
96 Lorenzo Marchese, 'Cosa Significa Tacere?' in "*Il Ponte*" November-December, n. 11-12, 2016.
97 This is exactly what school principals also confirmed in both Italy and throughout the European Union (Talis Report – The Teaching and Learning International Survey, 2013). It appears that school principals devote only 7% of their time to maintaining relationships with local authorities, networks, and enterprises versus 41% spent on administrative tasks. This finding is further confirmed by the *Dsinrete* survey concerning participation, but only if we match two answers: while 68% of school principals meet at least once a month, and 25% of cases at least once a year, this participation accounts for 68.4% when they meet in person and for 22.75% online. Furthermore, annually, 25.2% have met in person whilst 8.4% have met online. But the most surprising data is that 68.8% of school principals declare that they had never met another network member in person, and 6.2% had never met anyone online. The answers above actually show a basic contradiction.

there is a lack of self-organization skills to execute one's own decisions.[98]

We should deal with the concept of time, as it is pivotal to figure out how to give value to networks and training. Miguel Bensagayag calls it 'giving oneself time of time'. Networks are not the opposite of organisations in the same way as the real is not opposed to the virtual.[99]

Networks rise and develop in a territory but, at the same time, they are nowhere, or are where their members are. Networks develop events in space and these events are on a punctuated equilibrium. The emergence of a new social structure, manifested in various forms and spatial processes is underway and 'we need to take a radical, and for some, rather unpleasant step: the realization that the social of today is technical'.[100] It turns out that 65.6% of the places where members usually meet are mostly informal (meetings occur in places such as public premises, homes or other non-institutional places).[101] Also, taking into account new places or possibly non-places, social media platforms have introduced a space where boundaries between private and public space have become blurred. Thus, it does not make sense to geolocate a network; it is a matter of fact that they escape geolocalisation. We can geolocate a single individual but only as an event, in terms of space-time.

Event and Network

The fourth element indispensable for a network is the idea that the time of the network takes the form of an Event. The definition I refer to is based on the definition of events in physics: it is a point in space-time, but immersed in the reality of network manifestations. Space and time are intimately connected with each other and form a continuum in Einstein's General Theory of Relativity. In Relativity Theory, therefore, we can never talk about space without talking about time and vice versa.[102] This concept is extremely important to properly define what the Event is. An Event encompasses a space-time relationship. As Fritjof Capra clearly explains:

> The mechanistic world view of classical physics (Newton Theory) was based on the notion of solid bodies moving in empty space. This notion is still valid in the region that has been called the 'zone of middle dimensions', that is, in the realm of our daily experience where classical physics continues to be a useful theory. Both concepts-that of empty space and that of solid material bodies-are

98 Geert Lovink, *Social Media Abyss: Critical Internet Cultures and the Force of Negation*, p. 191.
99 Geert Lovink and Ned Rossiter, *Dawn of the Organised Networks,* article in 'The FiberCulture Journal', issue 05, FCJ-029, 2005, http://five.fibreculturejournal.org/fcj-029-dawn-of-the-organised-networks/.
100 Geert Lovink, *Social Media Abyss: Critical Internet Cultures and the Force of Negation*, p. 202.
101 26, 9% refers to mixed places and only 7% are institutional places. This is also borne out by the place from which school principals connect via their network, namely, 78% from school, but 68% from home and 33.8% during travel (by train, by car, on foot).
102 Fritjof Capra, *The Tao of Physics*. Shambhala Publications Inc., USA: Colorado, 1975 .p. 22.

> deeply ingrained in our habits of thought, so it is extremely difficult for us to imagine a physical reality where they do not apply.[103]

In an Event, there being more individuals related to each other in a space-time, it is very important to understand how this space-time continuum is not the same for all individuals of the network, as also expressed in Quantum Theory: 'matter can be, at the same time, a particle - i.e. an entity confined to a very small volume -and a wave, which is spread out over a large region of space'.[104]

It has been demonstrated that atomic events do not occur with certainty at definite places and in definite ways, but rather show 'tendencies to occur'. According to Quantum Theory:

> A careful analysis of the process of observation in atomic physics has shown that the subatomic particles have no meaning as isolated entities, but can only be understood as interconnections between the preparation of an experiment and the subsequent measurement. Quantum theory thus reveals a basic oneness of the universe. It shows that we cannot decompose the world into independently existing smallest units. [105]

Capra suggests that, on the one hand, there does not exist any isolated basic building block, and, on the other hand, that these relations or interconnections always include the observer-participant in an essential way.

I believe these concepts cannot but have a profound influence even on the knowledge being generated in an event in networks. There cannot be a 'learning unit', or better-said, networked learning cannot be broken down into the smallest indivisible units. As Additionally, Quantum theory could give a diverse perspective on learning that includes the observer –participant influencing his/her space-time reality. Malabou also takes the view that it is not enough to describe the three types of plasticity neutrally, but 'we must also propose a model of their interaction and the joint dynamics of their genesis. [...] the individual ought to occupy the midpoint between the taking on of form and the annihilation of form, between the possibility of occupying a territory and accepting the rules of deterritorialization, between the configuration of a network and its ephemeral, effaceable character'. [106]

Since 'subatomic particles do not exist with certainty at definite places, but rather show 'tendencies to exist', so atomic events do not occur with certainty at definite times and in definite ways, but rather show 'tendencies to occur.'[107] In the end, this principle is exactly true for the flock; that is, there is no absolute certainty that the flock will be formed.

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103 Fritjof Capra, *The Tao of Physics*, p. 23.
104 Fritjof Capra, *The Tao of Physics*, p. 24.
105 Fritjof Capra, *The Tao of Physics*, p. 25.
106 Catherine Malabou, *What Should We Do With Our Brain?,* p. 70.
107 Fritjof Capra, *The Tao of Physics*, p. 46.

Could knowledge produced in the network be part of the same phenomenon? Maybe we could compare subatomic particles to individuals who could (in probability) attract each other, create new energy, create ties, collide, decay, disintegrate, be so unstable in their becoming through other individuals, and result in an Event. An Event realizes this probability of connecting in a 'here and now' mode. Quantum physics compels us to regard both the universe and networked learning not as 'The combining of the constituent elements of separate material', but rather as 'a complicated web of relations between the various parts of the whole'.[108]

I believe that knowledge in network space-time has the same value as in physics, where the laws of atomic physics are expressed in terms of probability. Learning occurring within the network is a 'space in progress', in a probabilistic meaning. The knowledge thus manifests itself in Events in a probabilistic meaning, according to its observer-participant, that is the person who learns. Hence, the individual's networked learning, materializes in a space-time continuum (by virtue of Quantum tTheory) and in the concept of 'here and now' meant in a probabilistic way. This conception of knowledge, understood as a 'here and now' had earlier been well described by Hegel.

The conception of knowledge that for Hegel is summed up in the immediacy of 'here' is what I call 'Event' in the specific reality of a given network. Hegel assumes that in the Event an individual knows immediately; he calls it *sense-certainty,* 'which is immediate knowledge, [...] knowledge of what is, [...] and appears to be the richest kind of knowledge, to be even a knowledge of endless wealth [...] the truest, the most authentic knowledge'.[109] It is the 'now' and 'here', because it is not represented but pointed out. 'It is the immediate fact of my seeing, hearing and so on',[110] a knowledge that moves from 'this now' into 'the now that has been' since the moment it ceases to exist. 'Now' is at present only to the extent that it is for a subject who points it, 'a now which in the very pointing, turns out to have been.[111] Thus, this movement creates knowledge.

Hegel takes the example of the electrical polarity (electricity which flows from the positive pole to the negative pole) to explain that this same movement from one pole to the other creates knowledge. This is exactly the power of knowledge in which the movement is seen as the electricity between these two poles in the immediate here and now. Hegel also defines it as a 'concrete universal' i.e. a universality that is not merely the encompassing container of the particular content but rather the essence of the strained extremes; this essence reaches definite being in the product. The event is also the unveiling of being, or the horizon of meaning that determines the way we perceive and relate to reality. Neurology seems to confirm Hegel's theory: the individual needs movement to learn.[112]

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108 Fritjof Capra, *The Tao of Physics*, p. 48.
109 G. Hegel, *The Phenomenology of Mind*, volume I. First published in 1910, New York: Routledge – Taylor & Francis Group, reprinted 2013, p. 90.
110 G. W. F. Hegel, *The Phenomenology of Mind*, p. 95.
111 Quentin Lauer, A Reading of Hegel's Phenomenology of Spirit, New York: Fordham Univrsity Press, reprinted 2011, p. 52.
112 In this regard, it is interesting to observe the results of an experiment conducted by

Each Event is unique and unrepeatable; even if repeated over time, it has never the same characteristics. Oneness of the Event may have more manifestations, as stated by Quantum Theory in physics, depending on who observes and on interconnections with other individuals. The Event at some point emerges strongly, and changes the parameters of our reality as a consequence of that Event. As for networks, the Event acts in punctuated equilibrium, plastically, and in a connected way. The Event creates knowledge for any individual in his/her space-time – something that was previously unknown – and transforms us. The Event takes us beyond what Rumsfeld calls *known knowns*, those things we know that we know, and *known unknowns*, things that we know we don't know. The Event rather lies in another category, the 'unknown unknowns', and those are things we don't know we don't know. According to the philosopher Slavoj Žižek, a further category of knowledge is missing, the 'unknown knows', that are things we do not know we know.[113]

The Event encompasses an in space-time dimension which can manifest (probability and in punctuated equilibrium), a relational aspect (at least three[114] individuals of the network), a plastic manner (to give and take shape) and in a connective way (offline or online). Alain Badiou argues that 'we must think the event. We must think the exception. We must know what we have to say about what is not ordinary. We must think the transformation of life'.[115]

And this must be done through our relationships. However, , the way I mean the relational aspect here implies a reference to the concept of relationships as *Admiratio*, conceived by Descartes and Spinoza, and then resumed by Damasio.[116] The neurologist has developed the idea of 'emotional markers'[117], according to which the most basic mechanisms of thinking and reasoning are heavily dependent on emotional processes. For example, according to Damasio, the decision-making process itself is emotional. In Malabou's view, the decision-making is both for good and for bad.

It can also be added that observation implies a different process from what Descartes drew up in his lapidary proposition, 'I think, therefore I am', instead replaced by Damasio's claim[118] 'I feel, therefore I am'. The latter argues that, on the basis of recent neurological findings, reason and emotions cannot be separated. According to Damasio, *Descartes' Error* has influenced the research itself.

Benasayag, including a person who stayed in Paris to study for a month online about the Tunisian socio-cultural context, and a 'tourist' who instead spent a month in a club Méditerannée in Tunisia. Benasayag, therefore, reflects on which of them has learned the most. Benasayag considers that each of them collected data in different ways as to build their inner models, in Mighel Banasagyag, *Il Cervello Aumentato, L'uomo Diminuto*, trans. Riccardo Mazzeo, Erickson, 2016, p. 70.

113 Which would correspond to the "unconscious" as described by Freud.

114 Wikipedia Contributors Dunbar's concept; 'Dunbar number: https://en.wikipedia.org/wiki/Dunbar's_number, December 2016.

115 Alain Badiou, Slavoj Žižek, *Philosophy in the Present*, Cambridge: Polity Press, 2009, p. 12.

116 Antonio Damasio, Media Troppo Veloci per "Cervello Morale", *Le scienze,* Italian Edition of Scientific American, 14 April 2009. http://www.lescienze.it/news/2009/04/14/news/media_troppo_veloci_per_il_cervello_morale.

117 Wikipedia Contributors, 'Emotional Markers', https://en.wikipedia.org/wiki/Somatic_marker_hypothesis, 6 December 2016.

118 Antonio R. Damasio, *Descartes' Error: Emotion, Reason, And the Human Brain*, New York: Avon Books, 1994, p. 249.

It is clear that the relational aspect must be further considered, in connection with the fact that a new concept is emerging and asking for its place between science (biology, neurology) and humanities (philosophy and psychoanalysis). This merely represents the scientific basis to support the idea that social and emotional skills are certainly core elements for school principals and professional networks, at least as much as for students, as reported by international studies such as OCDE.[119]

Thus, the Event is an act involving steps of framing, reframing, enframing.[120] But, as we have seen, the Event must be part of emergent behavior, and to do that, needs to find its time (same as a flock of birds who, before flying away freely[121] must be shaped). According to Žižek's theory:

> If one acts too fast, the act turns into a "*passage à l'acte*", a violent forward escape to avoid a deadlock. If one misses the moment, or acts too late, the act loses its quality as an event, or a radical intervention as a consequence of which "nothing remains the way it was" and becomes just a local change within the order of being, part of the normal flow of things.[122]

Timing of the Event might be divided into three separate moments, in the same way as in a haiku poem, so that 'the first line renders the pre-evental situation; the second line marks a cut into this inactivity, the intervention which disturbs peace and will generate the event, and the last one names the fleeting event itself'.[123]

The Event also counters the sense of isolation of the school principals; 53.5% of them state that the network helps to counter this feeling. But the 'legitimate peripheral participation' towards the center, can also happen the other way around. The Event, even if organized by the center through pervasiveness, proper to the online environment, will have a different effect in the periphery, another meaning, other results than the expected ones, and may be reprocessed in a creative and innovative way before subsequently returning to the center. The Event experience needs further study, for example by resorting to Erving Goffman's theories[124] of frame analysis, in respect of which we organize our experience and attribute to it a meaning through frames. There are two types of framing:

119 Skills for Social Progress: The Power of Social and Emotional Skills, OECD Skills Studies, 2015.
120 Žižek's concept: framing, a pre-evental moment; reframe: a moment which marks a cut into the inactivity, is the intervention which disturbs peace and generates the event; enframing: the fleeting event itself.
121 A flock of birds cannot be shaped in a cage; public institutions represent the cage for networks.
122 Slavoy Žižek, *Event: Philosophy in Transit*, New York: Melville House, 2014 p. 101
123 Slavoy Žižek, *Event: Philosophy in Transit*, p.139.
124 From there, the interesting theories of interpretive keys, where 'keys' are defined as a set of conventions by which a given activity, one already meaningful in terms of some primary framework, is transformed into something patterned on this activity but seen by participants to be something else. These keys reflect the distance of primary frameworks from reality". The keys are grouped into five basic types: fiction (make-believe), contests, ceremonials, technical re-doings, and re-groundings. Miskeying (errors in keys) can take place into two forms: downkeying, i.e., not to attribute a key to an event that does have one; and upkeying, i.e. to attribute a key to an event that does not have it. In Erving Gooffman, *Frame Analysis: An Essay on the Organization of Experience,* Northeastern University Press, 1986. p. 48.

natural and social, the latter helping us anchor our trust in reality. The online Event is distinguished from those offline only insofar as the platform 'stage' allows greater theatricality of the individual, where performativity is increased through online means of self-presentation and, in the end, turns out to be more attractive.[125] Nevertheless, we have to be aware of the dangers of online environments. In major social platforms – with a great number of real professional networks – our time is colonized, [126] particularly for the school principal who is not contractually bound to work a specific number of hours.

The Event involves transformation of ourselves and, therefore, of life (as described by Badiou) and changes our space-time (as in quantum physics) in a probabilistic way, through a feeling of relational *Admiratio* (as evoked by Damasio). For the Event to be meaningful it must be plastic, connected in punctuated equilibrium and emergent behavior and must result in an individual space-time dimension, related to the above mentioned *Admiratio*.

Hence, Events produce knowledge[127] here in the immediacy of the network; they are precious formative moments for networks that I call Event Capital.

'Event Capital' as a new Model of Training Unit specific for Networks

Let us define Event Capital as the knowledge produced by the Event, which in turn, is composed of relationships (*Admiratio*) and a space-time dimension, and that is likely to produce a movement (as described by Hegel and confirmed in neurology) in a probabilistic way (quantum physics). Accordingly, Event Capital is knowledge; then one might think of measuring the intensity that is produced in the network. The network behaves in an emergent and plastic way, in a punctuated equilibrium and connective mode, and invokes the concept of social capital based on trust: 'Often our perception (of the network) depends on activities.'[128] The survey shows that the second professional development activity promoted by networks is the organization of training courses and seminars for members of the network (59.6%). We can then name those courses or seminars as 'Events' that produce Event Capital. If not produced in a network, they might be seen as an accumulation of Event Capital, convertible into training/learning units (as a new form of accumulative credit) similar to university credits. In accordance with quantum physics, on the one hand, there is no independently existing smallest unit. We should bear in mind that knowledge, especially when generated in the network, cannot be expressed as a single unit, given that both for quantum physics and Hegel, (but also in its confirmation by neurology) it is a movement. Let me recall that Hegel makes clear that

125 Zizi Papacharissi, 'A Networked Self-identity, Community and Culture', in *Social Network*, Routledge, 2010.
126 Geert Lovink, *Social Media Abyss: Critical Internet Cultures and the Force of Negation*.
127 Which, in turn, produces experience.
128 From the Principals focus group.

'pointing out is itself the movement which expresses what the now in truth is, namely, a result or "a multiplicity of interconnected nows", and the pointing is the experiencing that now is a *universal*'.[129] On the other hand, as we have seen, there is the fact that an observer-participant in his/her space-time cannot be the same as other members of the group even if essential to produce the Event:

> The human observer constitutes the final link in the chain of observational processes, and the properties of any atomic object can only be understood in terms of the object's interaction with the observer-participant. This means that the classical ideal of an objective description of nature is no longer valid. The Cartesian partition between the I and the world, between the observer and the observed, cannot be made when dealing with atomic matter. In atomic physics, we can never speak about nature without, at the same time, speaking about ourselves.[130]

Does this same phenomenon apply to networked learning, which materializes in an Event? Can we assert that the Event Capital is actually a dynamic movement rather than a fixed reality? How can we consider a movement to be a unit, or, as Hegel describes: 'a multiplicity of interconnected nows'?[131]

Events, meetings and workshops are for 55, 6% of the principals the most important aspects, and consist of informal learning for 70.5% of them. The Event coincides with the informal learning, which is carried out by its participants in a plastic and connective way, in a punctuated equilibrium and in an emergent behavior. The Invalsi Report (School report) also announces this correspondence in terms of relevant themes, such as in-service training. The training, which I call an 'Event' then passes through networks or at least is perceived like that by school principals. 'The Community of Practice is supporting the project as something practical to share'.[132]

Can we cancel the Event? Can the Event be considered non-existent and be retroactively cancelled? The philosopher Žižek questions himself on this point. In this regard, he recalls the '*Philosophy in the Present*' that he sees in the '*eventa*l *statement*' – which defines the presence of the thought-subject in which the universal is woven – but – in order for the universal to unfold – all that is required is for the Event to take place. Affirming, as Badiou and Žižek say in their maxim, 'nothing took place but the place', is probably the only way of undermining a universal singularity. The Event, to produce Event Capital must be actually accomplished in acordance with the Hegelian concept of 'here, in the immediacy'.[133]

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129 Quentin Lauer, A Reading of Hegel's Phenomenology of Spirit, p. 52.
130 Fritjof Capra, *The Tao of Physics*, pp.68-69.
131 Quentin Lauer, A Reading of Hegel's Phenomenology of Spirit, p. 52.
132 From the Principals focus group.
133 G. W. F. Hegel , *The Phenomenology of Mind*, volume I, p. 91.

Eusociality: Relationships Inside and Outside the Network

We have seen that the Event can only be made in the presence of other individuals in a personal/individual space-time. Returning to relational aspects, we have also seen that the individual as an observer-partecipant of his/her space-time 'dances' with other individuals, like atoms. The 'Others' are therefore essential in the same way as more atoms are essential for producing energy. With regard to another front, psychoanalyst Recalcati claims: 'Without the Other, education cannot take place under the illusion of self-training, but thanks to the existence of at least one other: a professor, a teacher, a school master.'[134] Hegel also recalls 'the thing' (referring to the movement illustrated above) is a 'one', reflected into self; it is for itself; but it is also for another.

However, as for networks, Robin Dunbar's theory affirms that they should have at least three members, highlighting that understanding the network reality is not a matter of online/offline, formal/informal learning but more of creation of an Event through a plastic and connective relationship, an emergent behavior, in a punctuated equilibrium. But to what extent can we identify the Other in a network? A number of important theories come to our aid, concerned with the types of ties, the minimum and maximum number of people who make up a network, and finally, Roth's theory, especially related to the actual resolution of life's problems. For example: 'Strength of weak ties theory' by Mark Granovetter,[135] Robin Dunbar's theory and 'Matching theory' by Sharpley-Roth. But maybe Wilson's latest theories can help us better understand the relationships among members of a professional network and with other networks. Granovetter, starting with a question about the way people are more likely to find a job, noted that 83% of individuals had found their job through an acquaintance, an old classmate, people they had met occasionally (weak ties), or outside the circle of their strong ties (relatives, close friends). Why? Because close relatives all share the same sources of information, whereas acquaintances, or people who do not have close ties (weak ties), do not share the same sphere of knowledge. Instead of dispersing, these weak ties are collected in social networks and other networks. The Other in a network is therefore often a weak tie, and the weaker the tie, more knowledge is provided. The second theory we refer to is Dunbar's number. According to Robin Dunbar, a neuroscientist at the University of Oxford, in a network one's social circle or group of friendscannot be less than three (up to five individuals) and must be scaled in multiples of three. 150 is the maximum number of friends, because the individual can comfortably maintain only 150 stable relationships (in a social network environment). Eventually, the authors of the Economic Theory of Matching describe, through problematic examples (e.g. organ donations or university admission), and using a mathematical algorithm, what the most mutually beneficial formation of relationships is over time.

As said before, the most interesting theories about the relationships

134 Massimo Recalcati, 'L'ora Della Lezione, Per un Erotica Dell'insegnamento', *Einaudi*, 2014, p.63.
135 Mark Granovetter, 'The Strength of Weak Ties: A Network Theory Revisited', *Sociological Theory*, Vol. 1, 1983, p. 201-233.

of members inside and outside a professional network are suggested by Edward Wilson. The new concept is eusociality.[136] The sociobiologist defines this term as a 'true social condition'[137] and identifies three characteristics: I) Reproductive division of labor (with or without sterile castes) II) overlapping generations and III) cooperative care of young. Can we think of applying this controversial principle also to professional networks? Can networks be eusocial?

The relationship expressed in the Event, along with space-time, is thus based on the sense of trust between a defined number of individuals who exploit their weak ties for the most, looking for stability in their relationships, which they consider beneficial.

Exactly like the plastic brain that constantly interacts with the environment and with the Other, the individual goes towards that Otherness that, as Malabou affirms, interacts dynamically because 'identity, in order to endure, ought paradoxically to alter itself or accidentalize itself'.[138] The Event, built in a relationship, produces Event Capital and consists in the knowledge that could be produced in the network. Such knowledge is intended as a movement of 'a multiplicity of interconnected nows' and depends on the appearance of an owner and observer-participant for the mental movie within his/her production, or according to his/her words on 'how the owner of the movie-in-me-brain emerges within the movie'. [139] In this case it is in the production of Event Capital, convertible into knowledge thanks to the interaction with Otherness found in the professional network.

Identifying, Validating, Assessing and Predicting Event Capital in the Network

In consideration of the theories mentioned above, it appears that a new hypthotesis of a training 'model'[140] can be outlined, which is typical of networks, and is the plastic, connective Event that behaves in an emergent way, in a punctuated equilibrium and produces Event Capital[141], as a movement, namely knowledge: 'perception often depends on activities'.[142]

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136 'Eusociality' (Greek eu: 'good/real' + 'social'), the highest level of organization of animal sociality, is defined by the following characteristics: cooperative brood care (including brood care of offspring from other individuals), overlapping generations within a colony of adults, and a division of labor into reproductive and non-reproductive groups. The division of labor creates specialized behavioral groups within an animal society, which are sometimes called castes. Eusociality is distinguished from all other social systems because individuals of at least one caste usually lose the ability to perform at least one behavior characteristic of individuals in another caste.' Eusociociality, Wikipedia Contributors, https://en.wikipedia.org/wiki/Eusociality, 21 December 2016.

137 Edward O Wilson, *The Meaning of Human Existence*, p. 19.

138 Catherine Malabou, *What Should We Do With Our Brain?,* p. 71.

139 Antonio Damasio, in Catherine Malabou, *What Should We Do With Our Brain?,* p. 57.

140 Model is a hardly appropriate word for collective entities.

141 This theme needs to be deepened in the direction of figuring out how it could be linked to the TUs (Training Units) within the new Teacher Training Plan 2016-2019, and of measuring it through experience done with University Formative Credits, corresponding to 25 hours of student's workload and with a tolerance of 20 %, as per DPR 8 July 2005, n. 212.

142 From the Principals focus group.

Identifying Event-Capital

In order to identify Event Capital, we would need to delve into some concepts. Starting from the premise that Event Capital cannot be understood as a 'unit', and while it is true that the universe follows the same rules assumed by Einstein, who believed in an inseparable harmonious whole, [143] our question is: why should social organizations like networks follow rules different from those of quantum physics or from the latest findings in neurology and, even before, from Hegel's concept of knowledge as movement? How is it that events producing Event Capital be capitalized if quantum physics reveals the nonexistence of isolated fundamental/elementary building blocks? 'The adjective "elementary" is no longer very attractive in such a situation. As more and more particles were discovered over the years (Menson Table and Baryon Table), it became clear that not all of them could be called "elementary"'.[144] This is an open question, the same as it is in quantum physics, but to simplify reasoning, let us say for the moment that the Event might produce capital, which is similar to a Training Unit in individual learning, and be seen as a movement.

The Event and Event Capital should be further investigated as to their nature; in fact we have so far assumed only a few characteristics of theirs (e.g. plasticity). Likewise with sub-atoms, at first only a few, today a group of international researchers are working to create an Atlas probing for fundamental particles, which is one of the four major experiments at the Large Hadron Collider (LHC) at CERN.[145] It is interesting to note that the above physicists are no longer considering the classification as definitive because new 'elementary' particles are being gradually discovered. It would be useful to adopt the same principle also for the Event producing Event Capital, since the existing classifications possibly eligible for networked learning are still few, and, among them, the ones created for other types of Events, need to be validated for the professional networks.

As regards possible classification we may make reference to the categories defined by David Harvey, i.e.: Mega Events, Hallmark Events, Major or Minor Events.[146] Undoubtedly, in line with this distinction, the network with a greater activity, could generate Mega Events. However, that network could also produce a Major Event, *one quantum,* and be very effective, or several small minor Events that have maybe a major impact on schools. Other types of classifications of Events would also be possible, as in the present research, in which we have created that of Visual Event Capital.[147] Nevertheless, more categorizations[148] are possible, such as the imaginary, real and symbolic Event.[149]

143 Fritjof Capra, *The Tao of physics*, p. 304.
144 Fritjof Capra, *The Tao of physics*, p. 75.
145 CERN, Atlas Experiment, http://atlas.cern/discover/about, 30 December 2016.
146 David Harvey, *The Urban Experience*, Blackwell, 1989.
147 That is, one of the focus groups being investigated according to the visual analysis methodology, applied as a network shared tool for reflection on issues included in the Guidelines for the evaluation of school principals (Guidelines for the implementation of Directive no. 36 of August 18, 2016 on the evaluation of school principals) created a visual portfolio.
148 Lacan but also Popper's Three Worlds.
149 This classification does not claim to be exhaustive, and requires further study, but as a

Validating an Event

While for the Event's nature, much still needs to be investigated, its validation also still requires the same effort, as a result of its nature. For example, the validation of informal learning[150] was at the center of the *Bologna Process*, which prompted the creation of methods and ways of validating formal and informal knowledge also in relation to a new organization of online knowledge, namely MOOCs.

Also for the recent Cedefop guidelines on validation of formal and non-formal learning,[151] regulation is needed to increase visibility and value of these types of learning.

All participating countries were asked to finalize the implementation of national qualifications frameworks on the matter. Italy introduced the 'Citizen's Training Portfolio' (Libretto Formativo del Cittadino)[152] which should also encompass informal learning, but so far, as indicated by the same report,[153] has not gone beyond the testing stage in many Italian regions.[154] At the school level instead, a teachers' portfolio was implemented, which already experimented in the training of newly hired teachers, and was provided for by the Teacher Training Plan 2017-2019.[155] This teacher's portfolio, in the first year of mandatory training for newly hired teachers, gained appreciation by 80% of them.[156] The composition of the portfolio also envisaged informal learning, as included in the previous teacher's history. All strong formative experiences could be mentioned by the teachers, also not associated with school context. In addition, from this year forward, a professional Principal's Portfolio,[157] will

little story by Kierkegaard (in Žižek 2016) reminds us: 'A wit has said that one might divide mankind into officers, serving maids, and chimney sweeps. To my mind this remark is not only witty but also profound, and it would require a great speculative talent to devise a better classification. When a classification does not ideally exhaust its object, a haphazard classification is altogether preferable, because it sets the imagination in motion'.

150 Informal learning is any learning that is not necessarily intentional from the learner's standpoint and takes place in the execution of activities in daily life, related to family, work or leisure. It is also part of the so-called lifelong learning (all learning activity undertaken throughout life, which results in improving knowledge, know-how, skills, competences and/or qualifications for personal, social and/or professional reasons); in Legislative Decree n.13, of January 2013, 'Definition of general norms and essential levels of performance for the recognition and validation of informal and non- formal learning and minimum standards for a national certification system', http://www.gazzettaufficiale.it/eli/id/2013/02/15/13G00043/sg;jsessionid=QtVQDnVhW+1EjOvvz7l8GA__.ntc-as1-guri2b.

151 Cedefop, European Guidelines for Validating Non-formal and Informal Learning, Luxembourg: Publications Office. Cedefop Reference Series; n. 104, (2015), p.14, http://www.cedefop.europa.eu/en/publications-and-resources/publications/4054.

152 European Commission; Cedefop; ICF International (2014). European Inventory on Validation of Non-formal and Informal Learning 2014: Country Report Italy, http://libserver.cedefop.europa.eu/vetelib/2014/87064_IT.pdf.

153 'So far, the Libretto is not concretely operational in most of the Regions, but it is the subject of several initiatives, both experimental applications and constructions of specific regional regulations in European Commission; Cedefop; ICF International, p. 6 (2014). European inventory on validation of non-formal and informal learning 2014: country report Italy, http://libserver.cedefop.europa.eu/vetelib/2014/87064_IT.pdf.

154 Cedefop, European Guidelines for Validating Non-formal and Informal Learning, p.36.

155 MIUR, Piano di Formazione Dei Docenti 2017-2019, p.19.http://www.istruzione.it/allegati/2016/Piano_Formazione_3ott.pdf.

156 Giuseppina Mangione, Maria Chiara Pettenati, Alessia Rosa, Patrizia Magnoler, Pier Luigi Rossi, 'Sviluppo Della Professionalità Docente. L'uso Del Portfolio Formativo Nell'esperienza Neoassunti 2015'. *EM&MITALIA 2015 Multiconferenza italiana su E-learning, Media Education & MoodleMoot* Genova 9-11 Sett.2015 https://www.youtube.com/watch?v=sP2xEPkIveM&index=7&list=PLpIPox8euXBD2LEkkXC7nDQfsGAgCBZ5L.

157 MIUR, Linee Guida per l'attuazione della Direttiva n. 36 del 18 agosto 2016 sula valutazione

be adopted, conceived by the general guidelines as a tool for principals' assessment, thus, not purposed for their training. It should be noted that those different 'contexts' where the substantially same tool is applied, might change its nature. Also, as part of my research, I have tried to highlight how the portfolio (private area) is not only a personal tool, but can also be interpreted as a tool for collective thinking that, thanks to one's professional network, becomes Event Capital in an emergent democracy.[158]

Thus, in the hypothesis supported here, it is not the individual learning that should be recognized and further validated and assessed, like the Cedofop document suggests[159], but rather the Event (which in turn is composed of individuals and the space-time continuum). We are therefore proposing a different approach to informal learning in the case of professional networks, where centrality does not coincide with the individual but with the Event, as described above.

Learning in terms of acquiring knowledge, of training, could be based on the Event that produces Event Capital, being validated by virtue of the existence of certain characteristics such as plasticity, connectivity, showing an emerging behavior, punctuated equilibrium, and, finally, if it produces an Event, consisting of relationships and space-time.

Assessing an Event

Assessing, in its best perspective, may consist in targeted questions, as for instance: what is the purpose of assessing the knowledge? Is that for competing or cooperating? After investigating the lack of time to allow Events to evolve to their real potential, we turn to the second point: the self-organizational skills (Event) that are able to follow up decisions.

Thus, the next question is: can professional networks, having overcome the difficulty of self-organizing, be capitalized on the Event as training units (TUs), as envisaged in the recent Teacher Training Plan 2016-2019? Is the Event to be seen as a capitalized training in the network? But as already stated, what is this smallest indivisible unit, if, as claimed by quantum physics, there is no fundamental building block? I believe this is a crucial point to be made to valorize (capitalize) this network Event Capital, to assess and transform it into Training Units (TUs) specific to networks. But how could we value Event Capital? Or rather, how could we measure and evaluate it?[160] Can the characteristics identified to date serve the purpose of being an evaluation criteria to estimate the effectiveness of a network?

dei dirigenti scolastici http://www.istruzione.it/allegati/2016/linee-guida.pdf.

158 Isabel de Maurissens, Giuseppe Losacco. 'The Visual Portfolio: A Tool for Reflection and Self-assessment Mediated by School Principals Professional Network According to the Visual Methodology'.

159 Cedefop, European Guidelines for Validating Non-formal and Informal Learning, pp.36-44.

160 Without going to the other extreme, data dictates the world even so far as to evaluate our personal life (Rey, 2016 see chapter 3). Yet a primary issue is whether the individual, through their networks in emergent behavior, can be put back at the center, to overcome the impasse in 'the world quantification' (Rey, 2016) and avoid a data Tsunami (Benasayag, 2014). Networks can be the new measurement criteria to see whether a network can bring knowledge, experience and ideas to schools.

Predictive Event

And perhaps the most interesting subject: can the Event have a predictive value? Angelo Paletta states that 'school performance, from the economic and managerial standpoint, does not lie in the past nor in the present but belongs to the future'.[161] May the characteristics identified so far be helpful for making predictions about the success of an Event?

Regarding emergent behavior: the Event itself will encompass it. If the network does not work synchronously, harmoniously, it will not produce anything. Similar to a scattered group of birds in the sky who will not form a flock, or a group of people in a town square that will not create a market, or even a shoal of fish who, with uncoordinated hunting, is simply occupying an area, so in the network, if a group of people is gathered together asynchronously, it will not work.

With regard to plasticity: when does the network take and when does it give? Does is take more than it gives? Where does it take from and whom does it give to? Does it give to the school of origin? Can we assume the 'stumbling-block'[162] of the network to be a crucial moment? Is there anything wrong? Why does the 'network flock' not happen?

Through network connectivity (both online and offline) what are the docking points? Are you aware of what they are? Can these be reinforced? Through *punctuated equilibrium*: the timing of each network. Is this the right way? Could it accelerate or slow down? What is the timing of each network? Does the network produce many minor Events? Does it produce major Events occasionally?[163]

Basically, it deals with capitalizing on the Events in terms of TUs on the teacher's side, but also with a measurement of the activity carried out by the principals, able to enrich their portfolio (the public side). Therefore, can we assume that the portfolio (from 2017, principals will also be assessed), conceived as an individual assessment tool, is instead configurable as a social tool partly mediated by its network?[164] Through Event Capital? Another reason to evaluate the Events, is that this falls within the objectives of the recent criteria upon which the school principals will be assessed. Among the objectives of this evaluation, the following are included: 'unitary management of schools, promotion of participation and collaboration between the various school communities, and of relationships both with the social context and within the network of schools'.[165]

161 Angelo Paletta, 'Dirigenti Scolastici Leader per l'apprendimento', *IPRASE*, 2015.
162 The *stumbling block* is regarded as a fundamental attitude in many disciplines from psychoanalysis to physics.
163 This theme is certainly worth exploring, since it also appears to be the greatest weakness of the network, which, as the school principals reported, shows: consolidation needs for 44.1%, coordination problems for 24%, and difficulty of contacts between members for 13, 9%, namely, all elements of an organizational type.
164 What I tried to experiment in this research, basing on focus groups, a methodology, which I shared with my colleague Giuseppe Losacco, and on the visual analysis, is to make the principal's thoughts more social, especially in the portfolio private area, thus building a visual portfolio.
165 In paragraph e) Objectives of Guidelines for the implementation of Directive n. 36, of 18 August 2016 on the evaluation of school principals.

But whereas one of the Event components, namely the relationship, does not seem to be a problem - in fact the relational capabilities are precisely described by principals as a network strength - the organization appears to be more problematic: collaboration / co-operation (78.1%), training and orientation (44%), strengthening of relationships with the territory (37%). 'Networks of people is one thing, school networks is another [...] the local network has the huge advantage, I think, of enabling a connection between schools, as the most representative subject, and local authorities, it teams up with different forces and this does not happen in other networks'.[166] In essence, therefore, while social capital accumulates in the network, it seems that Event Capital does not, or is not capitalized.

Filocoreti Flocks a Hypothesis of New Emerging Professional Communities

New collective entities are emerging that make us overcome the formal/informal, offline/online dichotomies, not because they are no longer valid in themselves, but because social reality has changed dramatically. Our concept of reality has been transformed on several fronts; e.g. science and especially physics have come a long way, of which learning theories should take greater account. The so-called 'scenario' has changed totally; being online can no longer be separated from being offiline for learning. The concept of emergent democracy, together with Jōichi Itō's theories and Manuel Castells's vision (i.e., with the techno-economic system, we have moved from industrial capitalism to an informational capitalism), leads us to consider that the meaning attributed to networks is today much broader than the above traditional distinctions. This new, pervasive and vital collective entity could have different and the most appropriate features with regard to the contemporary society and school.

The characteristics I have hitherto identified for these new collective entities are: plasticity, punctuated equilibrium, emergent behavior, connectivity, Event, (+ Event Capital).

To describe this new form of community I have coined the following term: *filocorete*.

The word *filocoreti* is the combination of *fílo* (friendship) and *coreti*. This word is antagonistic to *anchorites* or *anchoret*, (Italian *anacoreti),* which conversely means hermits; the flock formation of network members (filocorete flock) is the ideal behavior of the network: namely the synchronization of single individuals as it happens in a flock of birds that have emergent behavior, the first characteristic identified in the professional networks.

The word *flock* in English actually only started referring to a flock of birds from the 19th century; in fact its meaning was originally related to *folc* 'people', but the metathesis would have been unusual for Old English.

166 From the Principals focus group.

The filocoreti flocks are new plastic and connective communities, displaying an emergent behavior, in punctuated equilibrium, and organizing Events that produce Event Capital in an emergent democracy. The filocoreti play an important role in education, being unrelated to institutional constraints, and while refusing to submit to a pre-established pattern, they are nevertheless central to the training. The Events as described could produce Event Capital, which in turn may obtain recognition as Training Units or, in any case, other forms that could also be useful for the school principal. For this last statement we need to take into account the progress of physics, and the supposed nonexistence of a 'fundamental building block', while, even if it is an abstraction or a metaphor, the very concept of training unit, at least in networks, must be seen from a new perspective and more like a movement of knolwledge. In any case, assuming the existence of 'fundamental building blocks', I am inclined to believe that also informal learning in the professional networks should be assessed.

With regard to the Italian school principals, who for the first time will be assessed through their portfolio, as well as of teachers, – as already seen – this Event Capital should be capitalized in the principal's portfolio to be assessed as part of his/her unitary management, which – given the central role of networks – cannot but take into account the activities within filocoreti (i.e. all Event Capital). In addition, the whole educational system is inexhaustibly moving towards mechanisms of improvement-evaluation, exploiting the 'Tsunami of data' and making the school more and more competitive: 'Competitive School Education'.[167] The 'improvement' cannot fail to take into account the social importance of networks, and only with regard to 'the social expressed through social networking' can we restore the balance towards a common and aggregating sense of the school (Common School Education). I would also add that if there must be innovation, it is always born in the periphery, in the dark, at the edge, in an improvised way, and then in the same spaces the filocoreti move, holding 'experience' in one hand (even from the past) and an evolving Event that has still to reveal itself, in the other.

Through the filocoreti, school is more plastic and open to innovation. Regardless of whether or not to live in harmony with the filocoreti, giving and taking shape, this brings knowledge and experience through sharing, and allows the school principal to preserve that same freedom as in Hegel's conception '[...] in science, not to deliver itself over to the thoughts of others on their mere authority, but rather to examine everything for itself, and only follow its own conviction or, still better, to produce everything itself and hold its own act for true'.[168] For this to happen, the filocoreti can help support that thought or process 'which cuts through the totality of the established knowledge, or, as Lacan puts it, the subject insofar as it makes a hole in knowledge'.[169]

167 Gert Biesta has firstly approached the relation between 'Competitive School Education' and 'Common School Education'.
168 G. W. F. Hegel, *The Phenomenology of Mind*, volume I, p. 91.
169 Alain Badiou, Slavoj Žižek, *Philosophy in the Present*, p. 26.

I have tried to highlight the role, structure and lifecycle of networks or communities where school principals are involved by starting with an analysis of quantitative and qualitative data and integrating that data with literature from media theory, plant neurobiology, biosociology, cognitive neurology, philosophy, sociology, paleontology and physics, to identify new characteristics of networks, such as emerging entities and vital forms of cultural and social community within the context of emergent democracy. The characteristics so far identified are: plasticity, emergent behavior, punctuated equilibrium, Event (for which I have also assumed the concept of Unit Event Capital (ECU) as probability), and connectivity.

I also support the thesis that Event Capital so described must fall within the portfolio of the school principal or even in all systems of assessment as one of the elements to be evaluated in unitary management.

Finally, I coined a term that describes these emerging communities: *Filocorete*. The hypothesis shown by this research, therefore, starts from the assumption that on the one hand, the criteria by which the networks are thus far described as formal, informal, online, offline, but also as the community of practice, are characteristics that do not allow us nowadays to see professional networks as real collective training spaces, to all intents and purposes, and do not correspond to the current scenario of emergent democracy. Such collective spaces that, if they encompass some features described in this paper (plasticity, punctuated equilibrium, connectivity) also produce knowledge (Event), assessable and measurable in terms of training an Event Capital Unit (ECU). Bearing in mind that this concept of an elementary building block is no longer accepted in quantum physics, and that all research in quantum physics is based on the concept of probability, I therefore hypothesize that the knowledge produced in the network (Event Capital) should be understood as probabilistic and in terms of movement. In support of my hypothesis, besides research data, there is the literature that sees in the networks a new form of society. If it is true that 'The network then becomes the actual shape of the social',[170] it is urgent to investigate the issue in light of other disciplines, especially sciences but also humanities that have since gone forward with findings and discoveries that, basically, the educational world has not yet caught in its full breadth.

Let's confirm, validate and integrate the characteristics of the hitherto identified *filocorete flock*, to determine a way to include such Event Capital in the school principal's portfolio, but also to understand whether these characteristics can be applied to other types of networks, being features that could be reviewed, and which might meet several types of professional networks.

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I dedicate this hypothesis to Maria Chiara Pettenati and Geert Lovink who taught me to be plastic; namely, to receive, but also to give, form.

170 Geert Lovink, *Social Media Abyss: Critical Internet Cultures and the Force of Negation*, Polity Press, Cambridge, UK, 2016, p. 17.

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