

PREPARING LIBRARIANS TO LEAD. COMPETENCIES FOR COMPLEXITY

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The topic about which I would like to exchange some ideas with you is the way to best prepare library leaders to face quickly changing and challenging times, when even the very existence of libraries is questioned.

Libraries have been confronted earlier than other institutions with some of the determinants of the so-called post-industrial society: dynamic and pervasive information technologies, operating contexts wider than the geographical or administrative reference areas, exponential growth of information, globalisation.

Moreover, they have, by tradition, within themselves, features and skills, which could make them lead the transforming processes that are affecting our socio-cultural reality.

On the contrary, as it happened with the first explosion of ITC, they do not seem to be ready and able to develop, at least at a managerial level, their own vision and a change of paradigm, they often seem not self-confident enough to lead the process.

And they leave the floor to other professional communities which seem to have all the keys. In fact, when looking for keys to face the cut of funding and the fierce competition with other powerful actors we often undergo to the strong pressure of the managerialism ideology and of its typical approach.

The risk is to educate new library leaders with a reverential attitudes towards the business-like management approach, and even while they are being put under discussion in the very context, which originated them. Libraries should rather be aware of the frames, tools, know how they already own, be aware of the needs of applying them within a new paradigm and accompanying them with new ideas and new mental frames.

The keyword around which I am trying to build my reasoning about a possible or necessary alternative approach to education and training for a different way of leading libraries is complexity.

I will start with two long quotations that you can see on the screen and that I will not read, asking you to have a quick look at them.

”Complexity is increasingly understood as a characteristic of real world systems, not just a mathematical phenomenon... Most of our thinking, assessments, and analytic tools... are rooted in a simpler view of the world that was perhaps sufficient in the past, but is increasingly dissatisfying. Over the past decade or so, low cost computation and the tools and thinking about complexity in physical and biological systems have opened up new approaches to the analysis that can inform decisions. These allow us to take a new look at daunting problems and may lead to more robust solutions, fewer unintended consequences, and solutions acceptable to a wider variety of stakeholders” (Don Bruce).

As Manuel Manguerra pointed out, “The world has changed and continues to change in a very profound and disturbing way. The future is already here in the present, and for most people, leaders, and nations, it comes as a surprise or shock. While most people focus their attention on their daily concerns, the forces shaping our world continue to bring both chaos and opportunities, crisis and the

possibilities of new worlds. How each organization benefits from these changes depends on the kind of observer that their leaders are and the kinds of skills or competencies that those leaders have".

These two long quotations serve to explain why I have chosen the concept of complexity as a perspective on the new and diverse competencies needed for new library leaders.

The world is changing very rapidly, showing phenomena unavoidably affecting us: the globalization of the economic system; the ICT revolution; our established social practices disturbed by social changes, compelling us to adapt to the new reality; the dramatic changes impacting on the natural environment.

Nevertheless, our worldviews are still characterised by fragmentation, quest for control, and lack of sustainable thinking. Fritjof Capra in *The Web of Life* perfectly described this "crisis of perception", this persisting attitude of perceiving our world and organising our institutions from a mechanistic worldview, deriving its paradigms from the industrial revolution and the machine age. Chaos, uncertainty, the interdependency of the new reality ask urgently for a new approach and a new kind of leadership able to face new, unpredictable challenges.

A different approach to the complexity of the real world, both natural and human, has been brought at our disposal by the recent evolution of scientific thinking on complex systems made possible by the huge growth of the computational power of computers.

The theories of complex systems can be followed along their three main axes of development: the theory of nonlinear systems, the neural network approach and the theory of distributed or self-organised systems.

[H. Poincaré at the beginning of last century was the first who introduced the notion of "complex system" working on equations used to predict the trajectory of planets. A system containing three planets (not so complex, we could be induced to think), interacting in a non-linear fashion, faced him with the mathematical impossibility to find an exact solution to those equations. The behaviour of the system, even if it was a simple one, even if completely causal, had a complex and indeterminate behaviour.

An important role in nonlinear systems investigation was played, in the Fifties, by the development of neural networks, used to model how neurones work. The aim of the research was to understand the ability of classifying the real neurones have. Neural networks as nonlinear systems showed properties of classification and extrapolation apt to be used to represent cognitive processes.

The third, important step toward a satisfactory modelling not only cognitive but also social systems was represented by the theory of distributed and self-organised systems, based on the circumstance that a system composed by a population of independent and autonomous agents which interacts at a local level is "self-organising", producing an "intelligent" global behaviour.]

So, what do we mean when we say "complex systems"? A possible definition is the following:

A complex system is a system for which it is difficult, if not impossible to restrict its description of a limited number of parameters or characterising variables without losing its essential global functional properties.

But we have a large amount of definitions, stressing different features, all suggestive in regard of our reasoning:

A complex system is not the same as a complicated one. A plane or a computer is different from an ecological system or a social organisation: the behaviour of the former can be predicted; on the contrary, the latter consist of parts interacting among themselves showing self-organising properties and the entire systems interact with the environment in a nonlinear way, in other words their behaviour is non-predictable.

Since my proposal is to consider, libraries as real complex systems, not only, as we are more used to do, as simply interactive systems, let's see how a complex system can be described, with reference to its four main properties:

- It is impossible to predict the behaviour of a complex system even when the function of its components are completely known. A complex system is non-deterministic.
- It's impossible to study the properties of a complex system, examining its component parts (intended as functionally stable parts) separately. The capacity of the parts to self-organize and the interaction of the system with the environment make the system restructure itself from the functional point of view. A complex system has a limited functional decomposability.
- There are properties of a complex system that cannot be precisely located and the relations among its elements, which are non-linear, have positive and negative feedback mechanisms.
- Some properties that can "emerge" in a complex system cannot be predicted or identify studying and knowing the components of the systems.

In our way of viewing organizations (and libraries among them), non-determinism of socio-cognitive processes (or to say it in a more practical way, the unpleasant proclivity they sometimes have, of working differently from our prevision and programs) is often considered as being due, either to a lack of knowledge of the observer about the analysed system, or to a disturbance of the system as a result of unforeseen causes (e.g. exterior events or noise etc.). An analysis of the properties of complex systems suggests, on the contrary, that non-determinism can have an important functional role.

[The characteristic of complex systems of having properties non predictable from the understanding of their functionally stable parts is difficult to be understood intuitively, since it goes against the principles of the dominant functionalist and analytical culture, according to which, if a system can be functionally decomposed, it's also possible to completely deduce its global functioning from the knowledge of the functions of its sub-components. On the contrary, the dynamic character of relationships and interactions among the component parts of a complex system and the mobile character of its component functions make it impossible to consider complex system functionally stable and describable as the collection of them.]

An explanation of the fact that in such systems, which are sensitive to their initial conditions, a small change in these conditions can change dramatically (and in an unpredictable way) the behaviour of the system in a long-term perspective, is proposed by chaos theory.

Simple rules governing a complex system can lead to order, of a particularly stable kind, but some sets of simple rules can instead lead to variability, and even chaos, exactly because of this non-determinism.

A crucial concept in chaos theory, and an interesting one for the reasoning we are developing, is the “edge of chaos”, which says that the best performance of a system, the maximum of its potential, the most complex computations could be observed exactly at the edge of chaos. At the edge of chaos a change can easily and spontaneously occur in a system, and after having entered the chaotic state the system may re-organise itself, moving to a higher level of complexity, or lose its organization and disintegrate.

If we consider library organization as a complex system, the existence and the possible prolongation of the edge of chaos, the evolutionary space existing at a phase transition between order and disorder reveal their intuitive appeal. In its general sense, the theory of edge of chaos can induce us to be less scared by what is out of our complete control, deviating from the procedures; less scared by the anxiety that instability and randomness necessarily produce, and more aware of the growth of creativity and productivity these situations can generate. By the way, both instability and anxiety, together with a diversity of agents, information flow, connectivity, have been indicated as “key variables” with significant effects on the organizations readiness and ability to change.

Why libraries as Socio Cognitive Systems are Complex

We can now recall the features of complex systems we rapidly examined to collocate libraries in the light of complexity approach.

A librarian (a human agent) can rarely explain exactly what he does, how he does it and why he does it, if he is not in the actual situation (the problem context). This means that it is not possible to have a complete rule-based model of the decision-making process (and more generally of cognition) especially in a complex environment.

The example of a librarian interacting both with a user and with an information system and deciding how to drive his searching to best satisfy user’s needs is a simple case, but a very clear one of this impossibility either to exactly explain or to discipline by rules a decision-making process in a complex environment., Moreover, we should consider the relevance and, in the same time, the unpredictability, of the role and of the behaviour of the users, the impossibility of describing it and of establishing precise rules it should follow.

Complex systems are open: it is often very difficult to determine the boundaries of a complex system. The boundary is based on the observer’s needs, the actors and the context, rather than on any intrinsic property of the system itself.

In libraries, connections with the environment are different and much more intensive than the input-output processes of a business company or also of other services supplier organizations. Exchanges are built in the services, in the way they structure themselves.

If we want to have a suggestive picture of a portion of the network of distributed knowledge that characterize libraries as systems, we can consider the flow (and the permanence and the growth) of information through the knots of the network constituted by librarians, users, publishers and (information and knowledge) suppliers (in the widest sense) thanks to interactions and feedback mechanisms. And we should include also connections with people in other libraries and institutions. And going beyond interpersonal contacts, we could consider second level interactions through tools and materials accessible by the web which are, in the same time, repositories of

information/knowledge and “artefacts” supporting representation cognitive properties (such as memorizing and structuring of the problem etc.) of a widely distributed system.

We can deduce library boundaries are really very “weak” and if the weakness of boundaries is clue of openness of a system, the nature of the library system is evident.

Complexity and library organization

Viewing a library as a complex system has numerous implications for the way it should be managed

The role of a manager or leader is frequently viewed as being the “controller” of an organisation. To be able to control completely a system implies having a complete understanding of its elements, its interactions, etc. If we accept that, with a complex system, it is impossible to control what happens to the system, then this has implications for the role of the manager. Maybe a better approach would be to view the manager as a facilitator or “enabler of change” who can provide the right conditions for the organisation to develop.

New public management

On the contrary, during the same period when the idea that complexity permeates real world systems develops, we see a wide application of new certain managerial tools to public administrations in general and, among them, to libraries, which are mostly autonomous public institutions or parts / branches of public institutions.

I’m considering the complex of management techniques and practises conventionally called “new public management”, whose key elements include various forms of decentralizing management within public services (e.g., the creation of autonomous agencies and devolution of budgets and financial control), increasing use of markets and competition in the provision of public services and increasing emphasis on performance, outputs, planning, programming, controlling.

I’m talking, in general, about a “business-like management,” whose approach is, essentially, to adopt, with adaptation, some of the management tools developed in private for profit sector.

As I told before, libraries are facing an environmental, cultural situation we can compare to the first explosion of ICT (information and communication technology). A very strong stream driven by professionals self-confident and apparently doubts-free. Charming proposals, feeling of necessity, no-alternatives (we “must” adopt certain techniques), sometimes promises (and expectations) of miraculous results.

As with the ICT revolution and the Internet explosion, libraries should, of course, maintain themselves open to suggestions and proposals, to the possibilities (opportunities) of improvements coming from contamination with other professional sectors and (in this case) from the application of managerial tools. But they should also re-consider themselves from a new perspective, analysing if knowledge, skills, experiences they have inside, structural characteristics they exploited until now can give them methodologies and instruments better fitting to the challenge of complexity, on which start to work to face present and future.

I’m proposing to consider in general terms as a central ability what we could call “change-readiness”, since in an uncertain environment, we can be sure we will always need to follow the context evolution, being part of it, influencing and being influenced, to give the best answer to the emerging needs, adapting ourselves to emerging constraints.

To remain in the language (and ideology) of complexity we cannot hope to decide how to change, and we cannot believe in the possibility for the leaders of “making things happen”.

Therefore, we are talking about creating the conditions for “emergence” of new patterns; we are talking about the role of leadership of influencing the direction and the nature of the “attractors” the system “chooses”.

In response to changes in the environment, an organisation may undergo a process of self-organisation so that it may cope with its environment in a better way. New properties (such as new ways of working, new roles and responsibilities) may emerge. Complex systems are said to self-organise onto an attractor. We know that we cannot dictate the attractor, but is it possible, for the organisation, to influence the choice of attractor in some ways?

The main factors for change-readiness are connectivity, diversity of agents, rate of information flow. And also other influencing elements, typical for human organizations, such as anxiety containment, power differential (=lack of inhibitors), and others.

Connectivity is a structural feature of libraries.

We could be induced to believe that “connectivity is never enough”, but, in fact, connectivity can, in homogeneous contexts, become too high, excluding diversity and producing groupthink, which is an obstacle to change. On the other side, developing their own culture by groupings is normal and functional to the correct interpretation of their role. Therefore, libraries have to re-think a skill and an attitude they already own to best apply them to new challenges.

The greater the diversity in an organisation, the greater the “possibility space” which the organization can explore. What is needed is diversity of all kinds - cultural, intellectual and emotional, (either in the agents themselves or in the nature of the relationships between them). Diversity, on its own, will not give rise to emergent patterns; indeed, it can lead to anarchy and conflict. But in concert with the other conditions, it has a vital part to play.

Related to the previous point (connectivity and networks) diversity can find in library system a concrete dimension: networks can be the paths for diversity to easily access library system

In terms of the flow of information, a stable system can be sustained with a sluggish flow, but a much more vigorous and richer flow is necessary for a system operating far-from-equilibrium. It is at these far-from-equilibrium conditions that effective libraries operate, having both sufficient stability to survive and retain their identity and sufficient variety and unpredictability to be able to innovate and adapt as their environment changes.

Libraries are “made of” information flows more than any other organization and more than other professional communities, they know the importance of selective information.

What has been rapidly mentioned is enough as a suggestion for library educators and managers to look at their institutions (and their environment) with a different paradigm and to explore inside their institutions to find instruments to add (or sometimes oppose) to other instruments and approaches coming from other realities. Cultivate skills more adapt to the present challenges than other approaches coming from other contexts.

Ability in the strategic planning process should not be completely abandoned. We have to change the focus which should be on monitoring the organisational environment and not focusing on

“accuracy” in prediction. “Environmental scanning” and “scenario planning” are possible approaches to help the organisation raise awareness and increase its connectivity with its immediate environment. We should avoid an excess of prescriptive approach while uncertainty is more and more active and present in social systems. Henry Mintzberg is stressing this risk now more than ever.

More than a hierarchical principle of control, intrinsic in MBO, the fast and multidirectional dynamics of the context would ask for decisional autonomy used to follow common objectives.

To conclude with a couple of considerations about leadership: if the leader is no more who makes things happen, let alone the controller of an organization, which cannot be controlled because it is non-deterministic and unpredictable, he should rather be an enabler of change. And this is the ability we should build, not an easy one.

He should actively listen to the system and to its context, to be ready to “capture” weak signals identifying the adaptive challenges facing the organization’s future. He should apply a systematic scanning of the world to perceive the new, the unexpected, the major and the minor, to intercept the trends that are converging, diverging, speeding up, slowing down, or interacting. He should seek signs of change, looking for signs of potential events on the horizon, looking for indirect, hidden effects; he should not look for or have hard and fast rules to follow to be led to “correct” interpretations. We must be aware that there are few guidelines on how to do scanning, environmental scanning is more an art form.

The same warning must be made about listening to the inside of the system: no rules, no guidelines. Rather a personal path to a greater self-consciousness and knowledge of one’s limits, which help us to know our emotions, to reduce our uneasiness and let free the energies necessary to pay the attention the human component of the system requires.

Then, looking at individuals as at living systems able to expand themselves, knowing that ability to expand themselves can produce a potentially infinite organizational wealth.

Active listening to the system means to be able to grasp within the system orientation and decision networks, signals and ideas. And when a signal has been grasped the consequent intervention shouldn’t be never postpone. To be able to read the signals coming from the system means also, for instance, to apply the equifinality principle, which means not to oblige the system to follow the stated path to a certain goal, knowing that the same goal can be reached from many different starting points. Or not forcing the system to go to a fixed goal when it is deviating, before having considered why the deviation happened and if the new direction toward a new goal couldn’t be more desirable.

It’s the context which dictates the leader how to learn, how to transfer, how to lead, otherwise the context will not follow him.

These leaders are willing to observe their personal life, their organizational life, and the world, taking on the roles of teachers, coaches, facilitators of learning communities, and designers of learning infrastructures. Leaders will still think about strategic directions and other similar issues, but more and more they will facilitate the collective intelligence of the organization as a source for solving both the technical and adaptive challenges, they should be prepared to accept the challenge, to quote Ronald Heifetz, of a “Leadership without easy answers”.