



Learn how to learn!

Knowledge society, education
and training

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Sociology of work
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J'aime mieux forger mon âme que la meubler.
Michel de Montaigne

*I personally believe that there is at least one problem... that all the people who think
are interested in: the problem of understanding the world, ourselves and
our knowledge as it is a part of the world.*
Karl Popper

*La maggior parte delle persone brillanti al mondo non lavora per te,
a meno che tu non sia in rete con loro*

Learn how to learn! A short introduction

by Barbara Bertagni, Michele La Rosa and Fernando Salvetti

To be successful, people need to be able to master skills quickly in a new field. In brief: to learn how to learn. This is the main purpose of obtaining an education. In other words, the learning process is much more important than the content learned. The buzzwords of the times are complex problems' setting and solving, creativity and innovation, social skills and interpersonal communication, cross-cultural intelligence, flexibility – in terms of place, time and type of work.

The present book faces a strategic topic: 21st-Century education, or training in the knowledge society. Seen from the European point of view, globalization, great migrations and international markets opening are some of the elements characterizing the societies where we are living and which our training systems must deal with. In the present scenario, the primary economic resources are no more (or not only) the financial assets or work itself, nor the natural resources, but the relationships, knowledge and the human and intellectual assets as well.

The need to train people with high qualifications, shaped on a basis of a local culture, has to be compared with the need to supply the fundamental competencies in order to face a society without borders as well as the world. All this is true considering the main work market transformations that emphasize the importance of knowledge circulation into a logic that aims at training individuals with not only concern to both the work related/productive sphere, but also with respect to his personal and social growth (*empowerment* and *self-empowerment*). The individual is an active subject responsible and able to call himself into question more than once as well as into employment markets that are mobile, fluid, flexible and precarious.

Knowledge, abilities and imagination - as well as the networking used to share experiences, competences and knowledge (therefore the ability of learning) - are more important than physical, technological and financial assets, traditionally at the center of economic and organizational scenarios. The role of individuals becomes central as a resource, in which the professional identity recalls not only technical abilities, but also a human asset that must be built and rebuilt all through life.

Knowledge in present society stands a continuous transformation in every field and new information is added continuously and quickly in the complex scenario of knowledge. It is not possible to continue to offer knowledge in traditional ways anymore, and if the training institutions (schools and universities first of all) do not adjust their methods of knowledge transmission, they will run the risk of being emarginated by the new infrastructures of knowledge production.

Traditional competences must be added today to general and cross competences (or meta-competences), as this allows the worker to move in diminishing ruled contexts. *E-competence* has become a utilized term and a request which is tendered more and more presently in both our working scenarios and private lives.

The use of the word competence in the reflection on *knowledge* and on *know-how* has long since been a debate topic as it is a concept with faded borders. This term is not casually used to express the ambivalence of cultural transformation concerning the passage from the centrality of the *teaching* concept to the *learning* one and - as we refer to the social-productive system - the passage from Fordism to post-Fordism and therefore to the consequent crisis concerning the traditional classes used to define work and professions. If we switch on this perspective, reflecting on training and educating means not only to focus on contents (the specific knowledge, the subjects), but to focus on the *way* we predispose the subject to the learning process.

The learning concept, as well as network knowledge and *networking*, becomes the center around which - at every level - the training set-out rotates, in a perspective that remarks its constructive nature: every subject applies himself in the building of his abilities, gains awareness of his point of view, in a continuous organizational and re-organizational activity of his own knowledge and competences, in a process during which the person has (or should have) an active role, focusing in detail on his way to learn and on how learning is built.

When it comes to companies and organizations, only in the last several years have the majority of executives started to consider knowledge and competences as strategic resources which should be managed in the same way as they manage economic income and outcome fluxes, personnel or natural resources. This is relevant especially for *learning organizations*, as they are "cognitive systems" that are able to structure knowledge and behaviors among those who are part of it, the *knowledge governance*. Therefore the management of human and intellectual resources, as well as the other "*intangibles*" - constitutes a strategic (and critical) target.

In the proximate future, managerial work will be characterized, more than today, by human and intellectual resources development: organizational knowledge creation, knowledge, competences, abilities management and development in order to spread them inside/outside organizations and transform them into products, services and operative systems. While being always aware that knowledge is a complex and multifaceted object: next to verbal (anyway verbalized and accounted) or numeric knowledge, we find subjective *insights*, intuitions, mental models, beliefs, perceptions and various forms of what is usually defined as "silent knowledge." Thus reminding ourselves that we are able to achieve knowledge and know-how more than we can express and, moreover, that the most precious knowledge can hardly be taught and transmitted through a direct modality. It belongs to the family of what we used to refer to as "Cartesian's rationalism," keeping in mind that technologies by themselves cannot grant the optimal use of the human and intellectual assets and the most relevant key element for a full utilization (or, if we prefer, for an effective productive "exploitation") of knowledge and abilities is built on strengthening the organizational culture oriented to encourage and support the sharing of knowledge and competences.

First part – Paradigms and models

Education for the new century

by Howard Gardner

As an educational thinker, I've had the privilege of meeting with ministers of education from many countries. They speak knowledgeably about current trends. But when I notice what excites them, it almost always turns out to be the same thing: "How do we improve, or how do we maintain, our standing on international comparisons, such as those carried out with scores on the TIMSS (Trends in International Mathematics and Science Study) or the PISA (Program for International Student Assessment) tests?"

Now I have nothing against doing well on these measures. But for the same reasons that generals typically refight the last war, educators must recognize that they often draw on outmoded thinking and technology. Indeed, as I peer around the world, I am struck by the extent to which even our best educationalists are preparing youngsters for the schools and society of centuries past.

The world of 2008 is dramatically different from the worlds of 1908 or even of 1958. Our world today is aggressively globalized – the disparate regions are connected through technology, the movement of capital, the rapid circulation of information, media, fashion, mores and the migration of millions of persons each year. No individual, no society, can cordon itself off from the rest of humankind. Powerful technologies flawlessly carry out activities and services that used to require large numbers of human beings. Problems such as poverty, crime, disease and climate change do not stop at national or regional boundaries; they cannot be addressed unless individuals from different societies and different disciplines work together smoothly. Indeed, the notion of the solitary creator or problem solver increasingly gives way to large teams, who must be able to work together well, often "just in time." Massive weapon

systems, whether in the hands of nation-states or within the grasps of terrorists, can cause havoc.

Does knowing how to solve quadratic equations, place items in the periodic table, or name prime ministers from the past, constitute adequate preparation for this dramatically new world? In my book, “Five Minds for the Future,” I delineate the capacities that I think are the most crucial for the 21st century. My task is both descriptive and prescriptive: these are the five minds that we need to survive; these are the five minds that we should nurture in order to thrive.

1. The five minds of the future

The Disciplined Mind has attained genuine expertise in at least one area. Individuals with such a mind are current in their chosen field – be it accounting, physics, modern dance, the law or genetic therapy – and manifests the discipline to keep up, so long as they are active. Disciplined individuals exhibit characteristic ways of thinking and these are formed in school, when one (hopefully) learns to think scientifically, mathematically, historically and artistically. Note, however, that this way of thinking is not primarily a mastery of facts (as typically tested); rather, it is knowing how to think about a new problem, in a way that other experts would. Those who lack discipline are likely to be unemployed or to work for others who are disciplined.

The Synthesizing Mind provides the most interesting challenges. All of us are deluged with information, much of it of questionable value. The synthesizing mind invokes a set of criteria in deciding what to pay attention to and what to ignore. It then puts together the information in ways that are powerful and memorable; and the synthesizing mind must also be able to pass the synthesis on efficiently and effectively to others. I agree with Nobel Laureate Murray Gell-Mann, who declared: “In the 21st century, the most important mind will be the synthesizing mind.”

As captured by the familiar cliché, the Creating Mind is able to think outside the box – to come up with new problems, new methods, new solutions and new paradigms. The crucial point here is that one cannot

think outside the box, unless one has a box! That box comes as a result of mastering one or more disciplines and carrying out necessary syntheses – tasks that take a solid decade. Creativity favors the young mind. The challenge to aspiring creators is to become sufficiently disciplined and synthetic that one has time and energy to venture into the unknown. Contrary to conventional wisdom, creativity has at least as much to do with personality, temperament and motivations as with sheer intellect. Creative people want to be innovative and, when they fail, they pick themselves up and try again. Silicon Valley and Hollywood are bastions of creativity not because of the quality of their schools, but because of the “take a risk” atmosphere that suffuses the Californian air.

The Respectful Mind and the Ethical Mind concern our relation to other people, not our computing powers. The Respectful Mind recognizes that the world is composed of people of multifarious backgrounds, belief systems and appearances. Rather than deploring, or simply tolerating this situation, the respectful mind makes a committed effort to get to know other people, to understand their perspective and to work effectively with them. Respect is easy to detect; it begins shortly after birth and is based on how adults treat young people and how they treat one another. Alas, we are surrounded by copious examples of disrespect, or of respect with too many preconditions. In the absence of an atmosphere of mutual respect, individuals cannot live and work together and thrive.

The Ethical Mind asks: “To whom or what am I responsible, and for what things?” The question is asked both with respect to one’s role as a worker (“I am a scientist – or lawyer or manager – to whom or what should I feel responsible?”) and one’s role as a citizen (“I live in Boston, in the US and on planet earth – to whom or what should I feel responsible?”). It is relatively easy to act responsibly, ethically, when it is in one’s own self-interest. The acid test comes when one acts as one should act, even when it goes against one’s own self-interest. Yet I do not see how we can survive as a set of societies, nor as a planet, unless ethical behavior is prioritized and valorized across the globe.

2. Embodying the kinds of minds

Achieving these five minds in our young people and in ourselves is hardly an easy matter. And synthesizing them into a single functioning person poses even greater challenges: there can be tension across minds, for example, respect versus creativity and discipline versus creativity. Probably the most important thing that we can do, as educators, whether at school or in the workplace, is to have leaders who themselves embody the five kinds of minds. We need to create an atmosphere that rewards those who exhibit these minds, nurtures those who can be helped and removes those who continue to behave in unethical or disrespectful ways.

And what about assessments of these five minds? Clearly we know best how to assess the disciplined mind, though there is too much emphasis on knowing information and not enough on how to think in a disciplined manner. As we come to understand better the process of synthesizing, we should be able to assess this capacity as well. There are no formulas for ensuring creativity, but we can readily identify those environments that preclude or discourage it. Finally, when it comes to atmospheres that are respectful or disrespectful, ethical or unethical, these judgments are best made by individuals who themselves embody the virtues and are given the opportunity to immerse themselves in the community – in short, by a contemporary version of the “school inspectorate.”

Not everything can be measured by a paper and pencil test. Repeated attempts to assess mastery of information that can be carried in a handheld personal assistant may well marginalize those values and virtues that are far more important to transmit to the generations of the future.

Europe 2025: investments in education and training

by Odile Quintin

The prospective visions become obsolete quicker than expected. Whatever the future, it will not be as we imagine it. The precise line of our future we cannot draw.

Though we know it already, some fundamental trends will have a higher impact on the Europe of 2025. The sustainable development will be a determining variable in the lay-out of the world of tomorrow. The same goes for demographic aging, for globalization – in spite of the financial crisis shaking it today. Finally, the importance and the rhythm of the change which went on accelerating these last few years *via* technological progress will not change the tempo. On the contrary, an amplification of the process itself, of the social, economical and political changes, will certainly come out. Through the analysis of these said trends, we can envisage the most probable *scenarii*. A matter of fact appears for each of them: the near and far future of the Europeans will be prosperous if it relies on an active political training.

1. "The future, the object of today"¹

We shall never be able to describe, in detail, the society or the labor market of tomorrow. The real world is too complicated to envisage; perhaps one day, an equation in order to unveil its hidden determinism will be discovered.

One should then "take nothing for granted," as the political will could reverse the influence of chance and need. For, what will happen tomorrow depends as much on the heavy trends we are subject to, as on policies adopted to face such trends. This is why the Commission undertook to act in favor of the modernization of the European systems of education and training. We can prepare the younger generations for what we are unable to know today, simply teaching them to adapt themselves to changes.

Transmission of knowledge is fundamental. But "learn to learn" is a must, referring to Montaigne's: "*I prefer to forge my soul than to fill it.*"² The spirit is not only a bowl to be filled with fine knowledge. It is also a living matrix that implies exercise and training. Today, the Commission is elaborating on a new approach in investing more in the combination of flexible and interactive competences.³ To increase the adaptation capacity of the younger generations – their skill to solve problems, their sense of analysis and their ability to communicate – means to allow them to develop their creativity and spirit of innovation. Today, there are many firms looking for these types of competences. From now on, our systems of education and training will offer at the same time, sound basic competences together with real technical and professional skills.

A second aspect of transversal competences is of great importance: the social and intercultural competences. Our future is a continuously varying Europe. Teaching plays an increasing role in creating and transmitting a

¹ Gaston Berger, *Etapes de la prospective*, 1964.

² Michel de Montaigne, *Essais*, 1572.

³ *Improving Competences for the 21st Century: An Agenda for European Cooperation on Schools*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, July 2008.

culture of opening. The schools are, in fact, places where the required knowledge, competences and aptitudes for an active citizenship and an intercultural dialogue are ensured (social and civic competences, competences of communication and foreign languages). The time of school is also the moment when the social integration of each single child – whatever his community of origin – is possible, wishful and necessary. Besides, we have published in July 2008, a *Green book* on migration and mobility⁴ with the purpose to open a discussion on the integration of migrants thanks to teaching, by means of national policies based on actions at the Union level.

2. The "invisible hand" of the Europe of education and training

Thus, with such a capacity for adaptation, our younger generations must be able to face the unexpected future. We must also see to it that they have the *ad hoc* competences to meet the requirements of the labor market.

With our Communication "*New skills for new jobs*,"⁵ we are proposing to set up an instrument net in order to identify the future needs as well as potential deficits concerning qualification. In the most realistic way, we are aiming at featuring the image of the requirement for the labor to come and the trainings relating thereto, to date. The European Commission together with other European *Eurofound* et *Cedefop* agencies, will analyze the requirements of institutions of the Union and with the cooperation of social partners and the sixteen sectors covering the three quarters of jobs of the private sector in the Union.⁶ Getting this "full-size" picture will help us to ensure a real labor market on a European scale.

What will be the future labor requirements in 2025 in Europe? We cannot predict it: the main lines are already clearly drawn up. More jobs will require high level competences. Some twenty million of new highly qualified jobs will be created by 2020 as well as thirteen million intermediary level jobs.

⁴ *Migration et mobilité: enjeux et opportunités pour les systèmes éducatifs européens*, juillet 2008.

⁵ December 2008.

⁶ The results of this analysis will be available in the course of the year 2009.

In parallel, a net loss of about 12.5 million unqualified or weakly qualified jobs is foreseeable.⁷

So, while investing in basic competences, we must ensure an increased number of people with skills meeting the requirements of the labor market, especially in science, mathematics and technology. Faced with emerging economies – the famous *BRIC* (Brazil, Russia, India and China), Europe has no other option than to keep and strengthen its competitive advantage. Our insatiable need for scientists, engineers and researchers will certainly not make us forget that training for basic competences must be offered to all. This has always been the priority of the Union. Nobody should be left at the door of knowledge.

3. “Conceiving a wishful future as well as the real means to get it”⁸

How could our systems of education and training reach all these targets? We have seen it, part of the reply lies in a tight link between the “offer” and the “demand.”

First of all, it is in the frame of our systems of education and training that the younger generations will be able to acquire the competences required for their success. This is why it is essential that all the places for training be open to the world. The dialogue between a firm and training will allow ensuring skills that satisfy the expectations of the labor market. Moreover, it is a matter of passing into a real partnership between the firm and the school. The firm can bring in a new and creative spirit.⁹ This approach is one of the key points of our new Communication on schools.¹⁰

⁷ CEDEFOP, *Future Skill Needs in Europe. Focus on 2020*, Synthesis report, 2008.

⁸ Russel Ackoff, *Méthodes de planification dans l'entreprise*, 1973.

⁹ *Fostering entrepreneurial mindsets through education and learning, Implementing the Community Lisbon Programme*, European Commission Communication, February 2006.

¹⁰ *Improving Competences for the 21st Century: An Agenda for European Cooperation on Schools*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, July 2008.