# Education for innovative societies. Could independent schools make a difference?

**Luisa Ribolzi**

> It is obvious that in the knowledge society, the essential economic good is the knowledge itself. Education is not just learning to read and count, education is *the learning of humanity* (Kant). Education depends on the possibility of the full development of the person and ultimately, his personal identity: his beliefs and social and political commitments, his dignity (UNESCO (2015), *Rethinking Education. Towards a global common good?* UNESCO Publishing, Paris).

## 1. The characteristics of the educational market

Ten years ago, I was asked to speak in a conference about "Rethinking the role of the school in post modern society". When ECNAIS asked me to speak about the system response to young people's needs to approach the changing features of society, I decided to have a look at this old paper, and I discovered that my title was "Game over". Is there no more time for the school to perform its traditional tasks of socialization and preparation to adulthood? Is the change too rapid – technical, cultural, social change – to cope with? I was wondering if it was a problem of inadequacy of the school itself, or rather of a particular type of organisation of the school.

At the moment, in several Western societies there is a co-existence of public and private school, both religious and non religious, "neutral" or based on a specific religious vision or pedagogical theories of schooling, like Froebel's, Montessori's, Steiner's, non profit or profit, like the "educational enterprises" (EMO). In international achievement tests, students do far better in some countries than in other countries. This is not all due to differences in what students bring with them to school –socio-economic background, cultural factors, but also school systems make a difference. The available evidence suggests that differences in expenditures and class size play a limited role in explaining cross-country achievement differences. Also differences in teacher quality and instruction time do matter. This suggests that what matters is not so much the amount of inputs that school systems are endowed with, but rather how they use them. Correspondingly, international differences in the institutional structures of the school systems such as external exams, school autonomy, private competition and tracking have been found to be important sources of international differences in student achievement[1].

The institutional setting e.g. the tracking system with regard to the academic vs. the vocational focus of educational programs or the public vs. private character of the schools has great influence both on the efficacy and the efficiency of the educational outcomes.

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[1] L. Woessmann (2016), *The Importance of School Systems: Evidence from International Differences in Student Achievement* , CESIFO Working Paper no. 5951, June

Competition, selection, choice connected to competition could or could not improve quality. If players on the market are compelled to compete for the (best) students, they will likely provide higher educational quality, because parents are expected to choose those schools which can be assumed to provide better schooling and higher quality to their offspring[2].

This market process in education can't go on without regulation: it needs a balance between the effectiveness of education and the equality of educational opportunities. The ideal solution would be to raise both, but reality and most of the empirical evidence show that this is an illusion. To summarize a lot of research findings, we could say that there are not indisputable results (mainly for the influence of ideological biases), but the empirical evidence shows that, controlling school composition in terms of students' characteristics (e.g. social origin) and of school attributes (e.g. human resources and technical facilities), private religious schools perform better than public schools but public schools have better quality in comparison with other types of private schools[3]. High quality in religious schools is usually connected to the social environment and to the social capital around them. Also market competition could of course have a role.

Freedom of school choice is a crucial point: parents must be free to choose the school that they think would be the best for their offspring. This freedom makes it possible for disadvantaged families to enter schools with higher quality services: critics of free school choice, of course, argue that poor families with reduced cultural capital, financial standing, knowledge about schools, and so on, can't take advantage from the freedom of school choice. Free choice creates social closure, it helps to maintain social inequalities, it is "a factor in maintaining and reinforcing social class divisions and inequalities"[4]. Other researches, at the same time, did not find any increase in educational segregation caused by free school choice. The point is how much school segregation or integration, due to more or less freedom in school choice, leads to better or worse learning performance due to *peer effects* and different teachers' attitudes.[5]

Tracking is a structural feature of the school system that is very important in parents' choice of a specific school. The academic vs. vocational focus in training has a consequence for the odds of school progression to the tertiary level of education and to the labor market possibilities. Parents who wish to send their offspring to university tend to choose grammar schools with an academic curriculum, while less ambitious parents, normally with lower social status, prefer to choose labor market oriented vocational schools. Students' achievement in terms of test scores is usually higher in grammar schools or in the academic track than in vocational schools or in the vocational track: if selection occurs at younger age,

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[2] The first definition by Friedman in M. Friedman (1955), *The role of Government in education*, in Solow R.A.(ed.), *Economics and the public interests*, Brunswick, N.E., Rutgers University Press

[3] J.Dronkers, P.Robert (2008), *The effectiveness of public and private schools from a comparative perspective*, EUI Working Paper SPS n.2003/13, Firenze; J.S.Coleman, T.Hoffer, S.Kilgore (1982), *High school achievement. Public, Catholic and Private schools compared*, New York, Basic Books

[4] S.Gewirtz, S. Ball, R. Bowe (1995), *Markets, choice and equity,* Buckingham Open University Press: 55

[5] OECD researchers make a distinction between government-dependent private schools that receive the same level of funding as public schools (charging or not tuition fees), and private schools not government dependent, that are expected to supplement them with tuition fees (L.Boeskens (2016), "Regulating Publicly Funded Private schools. A Literature Review on Equity and Effectiveness", Paris *OECD Education Working Papers*)

it contributes strongly to the inequality of educational attainment, and it limits social mobility [6].

Tracking based on pupils' characteristics such as prior achievement or test- ability is expected to improve educational productivity, on the assumption that homogeneous groups can be trained more efficiently. At the same time, much research suggests that tracking or grouping increases inequality and widens the gap among students with respect to their final achievement. Another way how schools can differ from each other is admittance selectivity and the criteria they adopt for taking pupils (a tuition or endorsement from parents, sibling already attending the same school, prior academic records, some form of entrance examination or screening…). Ability tracking and some form of admittance selectivity can attract parents with different social standing in dissimilar ways, and influence their school choice. High status parents will prefer to choose schools where selectivity is higher, while low status parents will send their offspring to those schools where they are less screened.

2. **Educating for innovative societies**

The institutional setting has consequences on efficiency and equality of educational outcomes: a school system centrally financed, but with autonomous and freely chosen schools seems to be the more effective to face the needs both of individuals and societies. Which are the goals of education in innovation-driven societies ? how can curricula, teaching methods and assessment practices empower people for innovation? OECD brings together research evidence on pedagogies, curricula and assessments[7] that foster individual technical skills, cognitive as well as behavioral and social skills for innovation, speaking about *Multiple intelligences* and the relations between the concepts of *"intelligences", "skills", and "minds"*, opening up the possibility that performance in a certain area does not predict performance in other areas that involve different intelligences. *Computational capacities, or intelligences* must be connected to *creativity,* the source of which remains unknown. Creative people aren't characterized by one particular intelligence, but more by an unusual combination of strong intelligences. To use Jean Monnet's words, they "regard every defeat as an opportunity". Schools don't pay attention to creativity, that is not included in the formal curriculum. But much more influential than the school curriculum is the general attitude towards knowledge that is displayed at home, in the media, on the streets and in school. An attitude, that systematically argues for a point of view that nobody else defends, broadens the students' repertoire of possible points of view, opposed to trial and error (entrepreneur point of view: they act first, and if what they did proved wrong they try something else.

The key problems are the *challenges that education is confronted with in the 21st century* and the importance of education for respect and ethics, and the balance between formal and informal learning. Work competencies are characterized by a combination of excellence, engagement, and ethics, that cannot be quantified in numbers or in formal

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[6] E.A.Hanushek, L. Wössman (2005). Does educational tracking affect performance and inequality? Differences evidence across countries. *NBER Working Paper 11124.*

[7] "Innovation Strategy for Education and Training" project EDU/CERI/CD(2012) 6 4

measures. On the one hand, educators should not lose time making people master information, because the informational core of all disciplines is easily accessible to everyone. Focus will be on helping people understand the methods whereby knowledge is asserted and assimilated. On the other hand, the way people relate to each other productively and peacefully is number one on the agenda in a highly connected world .

Concerning *individual and collective creativity*, collaboration skills are becoming more and more important, especially in frontier research. Regarding the balance between *formal and informal learning*, learning occurs in many places and takes many forms, and this should not be constrained: at home, in schools, in after-school programs. It is not strictly the school that matters, rather mentors who model students' behaviors, and sometimes also anti-mentors, negative models who the students must avoid to imitate and from whom they learn what not to do. All young people need heroes and paragons, and today there are so few outside the family.

Great importance is given to the so called STEM  competencies (science, technology, economics and mathematic) that are expected to prepare people for working in innovation-related occupations. The challenge for schools is not just to train and select brilliant scientists and mathematicians, but to ensure that all pupils acquire the scientific and mathematical literacy and a range of competences, including reasoning, creativity, communication, curiosity, that enable them to contribute to innovation processes later in life. *Meta-cognitive mathematics education* ought to help students use their maths skills beyond the exam answer sheet, in all sorts of problems that they may encounter in life. Yet traditional mathematics education does not train students to solve complex, unfamiliar, non-routine problems that require quantitative and logical skills, very important in innovation-driven societies.  The need for meta-cognitive training  is accentuated by the introduction of technology-rich environments in the classroom.

As for *Science education for innovation-driven societies,* science education could contribute to development of individual skills for innovation, and certain science pedagogies are more effective in that respect.  Students graduating from science, or science-related majors, are over-represented among the workers involved in product technology, or knowledge innovation.   What distinguishes innovative graduates from non innovative graduates is the fact that innovative graduates *make use of a larger number of (non-disciplinary) skills in their work*: creativity, ability to present ideas in audience", alertness to opportunities, ability to coordinate activities, analytical thinking, and the ability to acquire new knowledge. To *enhance creativity* behavioral traits/habits of mind are required, such as being curious, seeking patterns, being persistent, and motivation. Creativity is a cognitive process that involves making new connections and associations between ideas or information: "useful" creativity requires that these connections are evaluated.

As for the impact of *arts education* on skills for innovation, the few experimental studies do not support  generic claims about the benefits of arts education on non-arts outcomes, but they do document some specific impacts: for instance, training in a musical instrument increases IQ by a few points as well as executive functioning (concentration, etc.); looking closely at visual arts strengthens observational skills and drama education strengthens empathy and understanding of others. Anyway, if the purpose of education is to teach children about the most important things that humans have invented, these would be the arts and the sciences, and that ought to be sufficient as a justification for arts education

in school curricula: "cultural awareness and expression" has been included in 2006 in the list of key competences at European level. Even from a economic perspective, cultural and creative industries account for 4.8% of GDP in Europe and employ 3.8% of the workforce.

A further role of good arts education programs in schools may be that of improving school attractiveness and thereby of reducing the alarming rates of early school leaving. Quality programs that involve artists and professionals act as a catalyser of students' interest and confidence in learning. Programs such as El Sistema in Venezuela and Creative Partnerships in the United Kingdom have already proved their success[8]. Arts education provides an effective platform for overcoming the divide between "manual", "artistic" and "intellectual" skills.

### 3. From cognitive to non cognitive skills: character skills in innovative societies

The theme of *character skills* is connected to one of the main streams of sociological research, i.e. social stratification, the ways school systems use to transform social inequalities into educational inequalities and the role of educational policy. This trend has been studied in recent years by French sociologists, analyzing PISA data to compare the social effects of school mechanisms on learning, by means of assessment tests[9]. Students are described all as equals, but in fact they arrive at school unequal, because in their background the economic, cultural and social capital is really unequal; educational policies try sometime to reduce the effects of this early differentiation. The social relevance of assessment tests is heavy, because they are used not only to evaluate individuals, but also schools and nations through orientation, peer effect…

Comparing young people that had a GED (*General Educational Development*) certification, a test assessment to check in dropouts the cognitive skills of high secondary school, Heckman and Kautz can see that, even if these abilities are quite the same, their job and life conditions are lower, and probably there is a kind of "dark matter" that is not considered by tests that explains the difference. The authors identify that factor with the *character skills,* that I don't need to speak about: anyway, I would like to highlight their importance not only for school assessment, but to find a (good) job, influencing the economic development and reducing the social costs of deviant behaviors, as violence, drug and alcohol addiction, early pregnancy and health disorders.

The more interesting characteristic of character skills from the education point of view is that they are not fixed personality traits, but it is possible to develop them, even if in bad conditions such as a disfunctional family or school programs that prefer cognitive abilities (by the way, easier to define and to measure) instead of basic values transmission and general education, that for a long time were central aims of the school. The cultural relativism more and more common in Western societies denies the existence of a common core of values, and – as a consequence – the validity of an education based on character

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[8] Recently the European Commission has sponsored the DICE project2 ("Drama Improves Lisbon Key Competences in Education"), a rigorous cross-national effort to evaluate the benefits of theater education which has given very positive results, especially on affective and motivational dimensions

[9] See Duru-Bellat M. (2002), *Les inégalités sociales à l'école. Genèse et mythes*, Paris, Puf ; Felouzis G.(2009), *Cooptation, concurrence ouverte et marchés: Analyse de trois modes de construction des inégalités scolaires,* Colloque International « Penser les marchés scolaires », Genève, 12 – 14 mars

qualities. Eventually, character skills are difficult both to define and to assess: it is necessary to start from the task execution, that is influenced also by motivation, incentives, cognitive skills. The school is not subject to external dynamics: an effective education could produce an *incremental development,* where each result can facilitate the next step.

Educationalists should rethink the so called "neutrality" concept, aiming only to improve learning outcomes or technicalities, because there is a "growing interest in the "whole child" in educational agenda…to include a full mobilization of personal properties and the intensive interaction between all human powers"[10]. This kind of competencies is increased by the co-operation between families, schools and society[11]: the "Big Five" arte parts of the personality, "diverse dimensions of *non cognitive skills* are interconnected: extraversion, agreableness, conscientiousness, neuroticism and openness to experience are dimensions that prove facing reality, in the life path both of youth and adults"[12] Only non deterministic schools, constantly evolving and innovating, could form (and attract) innovative people, able to shape the "new geography of Jobs"[13]. This kind of schooling, indeed, is a "basically unpredictable human activity"[14].

### 4. To start the group discussion

1. Analyzing the best practices of using non cognitive skills to contrast school failures and improve learning outcomes, a fundamental requisite is *a positive relationship with an adult,* both a teacher or a tutor. This relationship facilitates the succes and increases motivation and self-esteem. Do you think that a specific training should be planned in teachers qualification or in service training? Do you agree with the importance of enhancing character skills, non cognitive abilities and capabilities? Which is in your opinion their connection with cognitive skills and learning outcomes?
2. What about the role of families, and their participation in schools? Which kind of role could a learning community have to support teachers job? Do you think that free schools have more opportunities than state schools to build an effective schools for the growing of a "whole child", and then to give the students more possibilities to connect with the labour market and to find a (better) job? Heckmann[15] says that "prevention is better than cure", and school failure could be reduced starting very early, in preschool or primary: do you

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[10] Maccarini, A.M.(2016). On Character Education: Self-Formation and forms of Life in a Morphogenic Society. *Italian Journal of Sociology of Education,* 8(1), 31- 55

[11] Miyamoto K. (2016), *The powers of fostering social and emotional skills*, Paris, OECD

[12] Vittadini G. (2016), *Introduzione,* in Heckman J.J., Kautz T., *Formazione e valutazione del capitale umano. L'importanza dei character skills nell'apprendimento scolastico,* Bologna, Il Mulino, pag. 14

[13] Moretti E.(2013), *La nuova geografia del lavoro,* Milano, Mondadori

[14] Grassi O.(2016), *Un nuovo bivio per l'educazione,* in Vittadini G. (a cura di) *Far crescere la persona. La scuola di fronte al mondo che cambia,* Milano, Fondazione per la Sussidiarietà 17-36

[15] Heckman, J.J., Kautz, T. (2014), *Fostering and measuring skills; achievement tests and the role of character in American Life,* in Heckman J.J., Humphries J.E., Kautz T., *the mith of achievement test. The GED and the role of character in American life,* Chicago, University of Chicago Press

agree? What could an autonomous school do to support children and adolescents? How could a free school plan a strategy to integrate school and work, since this integration seems to be the best way to strengthen both cognitive and non cognitive skills?

3. to identify leading elements and criticalities of every program, monitoring and assessment are fundamental. What do you did or think about the evaluation in free schools? Is it possible to disseminate best practices, even if there is a competition between non state schools? Which actors are involved in evaluation? Which kind fo communication both external and internal do you find useful to support innovation? Which are the qualities and limits of assessment standardized (or large scale) tests?

4. Finally (but I don't know if this could be a theme for discussion in groups), which is the role of political decision makers? As for the first and third point of discussion, they could finance teachers and tutors specific qualification, and start a medium-term external evaluation program, to identify the central causes of best or failing practices. As for the state role, does it exist any difference between independent and state schools? What should state do in your opinion to support autonomous schools in promoting the development of character skills? If you think that the state has nothing to do with this aim of education, which are the actors, and how do they connect between them and with the state, mainly for the citizenship education?