



# Talent and education



**ENRIC ROCA**

Catalonia has an educational system that does not assess nor encourage talent and excellence. The structure of its schools keeps an organisation that is still following the traditional principles of age groups and a rigid subject-related timetable. The school curriculum is bare of interdisciplinary proposals and effort is not linked to the pupil's cognitive interest. Teachers often do not have the right professional competence to serve the immense diversity in their classroom and get the best out of most pupils' learning capacities. Given this scenario, a shift in the educational standard is necessary. Schools clearly need to go for not only being inclusive but also for excellence so current homogeneity is replaced by a large variety of didactic methods including an effective use of LKT\*. The new pedagogic model shall not place the deficit, difficulty or problem but the talent potential everybody has inside at its core.

\* Learning and Knowledge Technologies.

## **Can education make better brains? The answer is emphatically yes.**

***Blakemore & Frith, 2007***

### **Introduction**

Once the educational systems in Western countries have achieved the key goal of ensuring basic compulsory education for the whole of the population, one of the main demands currently posed by society to the educational system is quality – «quality for all», as the OECD education ministers called for in 1991.

**Our educational system is unable to recognise talent, it is not prepared for this. Being unable to even diagnose it, it cannot foster nor take advantage of it.**

There is no doubt that the concept of *quality* applied to education has countless connotations and refers to multiple variables with different effects. However, we all agree that educational quality is forcibly linked to a good level of learning and training results of its beneficiaries, i.e. pupils. Such a level ensures the acquisition of basic curricular competencies for the maximum possible of compulsory school pupils on the one hand, and allows the excellent to stand out on the other. Especially, it shall allow the vast majority of schoolchildren to make maximum progress in those contents for which they have or could have talent.

Generally speaking, the educational system has a maximum 10% of highly skilled or overgifted pupils, but it can help that a much higher rate of talented comes up. This is the big challenge, but also the great opportunity to improve our educational system has, at least in Catalonia, once stating the results of the latest reports on the situation of education in our country, with very poor excellence rates.

We are not doing well in excellence nor are we in medium-high performance.<sup>1</sup> Our educational system is unable to recognise talent, it is not prepared for this. Being unable to know and diagnose it, it cannot foster nor take advantage of it. The result is that we have pupils concentrating in the mid range of the spectrum. Although we do not have a very large proportion at the bottom either, officially admitted school drop-out rates approach 30% at the end of compulsory secondary school, which is also the end of basic education for the whole of the population. These figures are very worrying and require a determined, courageous reaction to invert this trend with everybody's aid.

The reaction needs to take place on many fronts simultaneously. We need to raise the excellence threshold in the system, increase both quantitatively and qualitatively the rate of pupils ranging top in educational performance and –most importantly– able to deploy all their talent potential at school without hindrance.

**Highly skilled pupils at our schools will need to be properly assessed and coached, but it is especially necessary to take advantage of the potential or explicit talent shown by the vast majority in a given school subject or any other activity in life.**

A distinction needs to be made between a talented and a highly skilled or overgifted pupil (CASTELLÓ & MARTÍNEZ, 1999, pp. 11-12; ROCA, 2007, p. 38). Differently from the latter, the former can be talented in a very specific area or in a subset of that area, but in the others –especially academic ones– they can even do poorly. This does not usually occur with pupils with high cognitive abilities. It is obvious that highly skilled pupils at our schools will need to be properly assessed and coached, but it is especially necessary to take advantage of the potential or explicit talent shown by the vast

majority in a given school subject or any other activity in life (social, cultural, sports, artistic, emotional, etc.).

In the following sections we will go through the different components of our educational system and look if current institutional and social organisation, management and culture are ready to recognise and foster talent or if they rather hide, do not foster or simply do not perceive it.

## Does the structure of the educational system and schools foster talent?

Despite different reforms undertaken in the last decades, the structure and organisation of the educational system is directly rooted in the Industrial Revolution and thus the 19th century. Schools with many pupils, especially in secondary school, criteria to distribute schoolchildren by age only, curricula based on age-old traditional subjects, a basically disciplinary teaching structure, final certification entitling to a degree only valid with the legitimacy of the system itself, etc. – in such a structure the main goal of which was originally to ensure basic literacy to the whole of the population so they could make their way through a society and labour market where reading, writing and counting skills were absolutely indispensable, entering the 21st century with still the same structure and requiring additionally interdisciplinary functional skills for demanding professional capacity-building as well as skills in personal and social maturity is like expecting to win a Formula 1 race with an old Mini.

We all agree that to provide accordingly trained people and professionals to enter a competitive, advanced society with a good deal of added value, we need an educational system encouraging entrepreneurship, innovation, talent, commitment and excellence. Can our schools meet this target without tackling with courage the deep change necessary to do it at structural,

organisational, curricular and institutional and professional culture level? What is the environment like in our current schools and classrooms to make us think that we are going the way of effort, innovation, self-discipline and wish to progress?

**To provide accordingly trained people and professionals to enter a competitive, advanced society with a good deal of added value, we need an educational system encouraging entrepreneurship, innovation, talent, commitment and excellence.**

However, a close look at the reality of our classrooms shows that most pupils are careless, with no enthusiasm for study and even less for effort, showing routine-like and lazy attitudes. It is a kind of pupils who, according to E. Miró, «have too many difficulties in listening, too many difficulties in reading, too many difficulties in finishing what they start» (MIRÓ, 2008, p. 41). The work pattern given priority at our schools very often conveys the idea to schoolchildren that working means to fill out sheets, do exercises, endless tasks, either individually or in teams, etc. and once these things are done, «they confound having done it with knowing how to do it» (PUJOLÀS, 2008, p. 7). The question is: is school to study, learn and understand different contents, or is the main activity producing for the sake of producing, i.e. that thing called «activities»? In this respect, it shall not come as a surprise that when looking at how productive results have evolved, with a typical assessment that has traditionally been used to «measure» the IQ (WISC test), it comes out that there has been an eighteen-point increase within 55 years on the overall result scale. However, the increase is just a mere three points in the more scholastic subjects (vocabulary, arithmetic and information), while it is 28 points in Raven's progressive matrices and 24 in similarities (FLYNN, 2008, pp. 32-33).

Social, spatial and adaptive intelligence has made spectacular progress. And yet the results most typically connected with school have stagnated. Why? Isn't it that the educational system has not managed to adapt to new cultural, social, economic and any other change our society has experienced?

**The question is: is school to study, learn and understand different contents, or is the main activity producing for the sake of producing, i.e. that thing called «activities»?**

Why have we made progress in some fields but not in others? Although it may seem paradoxical, perhaps it is because in some there was no other way than doing it under social pressure, under the need of putting in dedication and efforts, perseverance and heart, while in the more scholastic issues the very institution has prevented significant innovations.

Effort is necessary to achieve excellence and get the best out of our talent skills, and constant incentives and interest are necessary as a driver of effort. But is present-day school able to create an interest among our schoolchildren? Do traditional curricular subjects act as true incentives of personal and collective effort? We must not forget that «there is not a single relevant person in arts, culture, sports, etc. who has achieved the degree of excellence they have in their field without an enormous amount of tenacity and consistency at work» (MIRÓ, 2008, p. 41). Is this tenacity fostered and ensured by the educational system?

We humans make efforts out of our needs or priorities. Either we need what we believe we will achieve with effort, thus putting in tenacity, consistency, patience and work, or we give priority to targets the achievement of which we consider relevant for our life so we also turn them into vital needs. Hence, when someone says that we need to retake the concept of effort

in relation to education, we need to be careful. Effort for the sake of effort will not ensure any relevant result nor will it awake any hidden talent.

The situation in many present-day classrooms needs to be analysed with care. Why do we have such a high rate of youngsters with no interest for the curricular contents, which they do not perceive as necessary nor vital so the effort needed to acquire it is considered not worth it? How can we revert this situation?

The organisation of schools in formal education does not really encourage such interest and effort – mathematics from 9 to 10, social science from 10 to 11, Catalan from 11.30 to 12.30; a teacher for mathematics, another for social science, another for Catalan; teachers who can be the standard teacher or a substitute, or a substitute's substitute, or the teacher on duty because the standard teacher did not show up, etc.

Subjects are often taught with a target, contents, methodology and assessment criteria equal for everybody, abstracting the existing great individual differences, the different learning pace, the diverse potentialities and talents we have in the classroom. Under such circumstances, there is often no other way than leaving apart the pupils lagging behind and the highly skilled ones.

For all that, we need a new turn in the organisation of the educational system in general and in the organisation of schools in particular.

## Are teachers ready to recognise and foster talent?

There is very few specific preparation for start-up training in current curricula as to fostering the talent of schoolchildren, both in teacher training and in secondary school. Consideration of diversity has earned a place in the teacher training curriculum, especially in continuing





▲ For the vast majority of teachers, their training makes it very difficult to recognise talent in their pupils.

training, once it has been stated that school absorbs 100% of the population under 16.

Diversity in the classroom is so apparent and obvious that it has become necessary to set up compelling training to offer some type of pedagogic response to such heterogeneous and diverse classes. What concerns most a teacher first are pupils who do not follow at all, who even seem to have forgotten how to read and count, as well as those who, faced with difficulties to follow the subject or to keep a minimum attention and interest, show a disruptive behaviour so as to upset even experienced teachers. Under such circumstances, lack of specific teacher training becomes apparent and the demand of training to cater for such diversity has thus become a constant in the last years. Given this urge basically focused on pupils with more learning difficulties, there has been less room

left for the demand for specific training to recognise, assess, coach and guide talented schoolchildren and those with other skills as well as for acting on it.

For the vast majority of teachers, their training makes it very difficult to recognise talent in their pupils as they often have a very discrete attitude in class. The same occurs with highly skilled pupils, with the aggravating circumstance that lack of recognition can enhance the camouflage attitude such pupils already tend to. This makes often the teacher assess the pupil far below their true abilities. The teacher usually believes that the pupil does not well because of shortcomings in their learning.

This downward assessment may eventually lead to drop-out, which will do nothing else than feeding back the circle of bad results while

strengthening the teacher's wrong view that this pupil has a poor learning capacity. Therefore «teachers make a mistake when they equal overgift to high performance» (FISCHER, 2008, p. 50). One thing is having high abilities and also talent for one subject, and something completely different is reaching high academic achievement. School assessment usually looks at the pupil's performance in responding to a set of standard-based requirements. It seems that pupils with talent or other abilities do not meet such requirements and fail, but maybe they are resilient to contents they perceive to be off context, outside their vital, professional and academic reference system.

**One thing is having high abilities and also talent for one subject, and something completely different is reaching high academic achievement.**

If overall teacher training is poor to create competition to cater for diversity in general and talent and excellence in particular, specific training



- ▲ One same book cannot serve for all kinds of pupils at the same time.

in coaching skills is often even more precarious. A schoolchild who is not assessed according to their learning potential, own abilities, attitudes and motivations will not manage to set free their talent or get the best of their intellectual potential at school if they are not coached through a process of confidence and reassertion of their self-esteem.

There are pupils suffering a lot at class. They do so in silence because they believe their abilities are not «normal» as they do not fit into those standards considered suitable for that specific subject, age, curricular level, etc. They then try to hide their talent, their potential, and very often the lack of an observant teacher able to assess and redress this situation can cause an irreparable wrong, lead the pupil to drop out or have them fall into suffering, insecurity, isolation, etc.

Likewise, the absence of a teacher aware of all circumstances affecting that specific pupil can lead the school to take wrong decisions, such as premature promotion to respond to their high abilities in some curricular subjects, which could lead the pupil to suffer in silence in their new class as they feel inferior to their new mates in all other subjects they do not excel in (FISCHER, 2008, p. 51). Tutorials are essential to ensure an education that allows to have all cognitive, physical and affective possibilities of our school-children come out.

## Does the school curriculum foster talent?

The school curriculum is supposed to be the main tool of formal education to convey the main cultural assets of a society. If we now know that cultural and educational contents change the mind, that our brain is extraordinarily plastic –not just in childhood as it was formerly believed– and that every time we learn something the brain changes somehow (BLAKEMORE & FRITH, 2007, p. 271), we cannot go on founding the school curriculum on a structure that has been left almost unchanged

for the last 200 years. If a person died one century ago came back to life, a school would perhaps be the only place where they could find a shelter to remind their own time.

The current school curriculum does not foster talent because it does not take it into consideration. It does not stimulate but shuns it. The curriculum is supposed to get homogeneous responses to mostly closed, solved and shown ideas. It does not foster research, experimentation, innovation and discovery. In spite of exceptional praiseworthy experiences exploiting loopholes in a stiff, uniform curricular system, most curricular proposals – not to speak of textbooks translating them into homogeneity – set school curricula in relation with statistically based theoretical populations that ratify the economic plan making in turn the product profitable. It is impossible to make a book for every schoolchild, and more so for each of their different talents, but one same book cannot serve for a pupil with attention troubles, one having cumulative learning retardation, one talented in the subject and a highly skilled pupil at the same time. This is clearly not feasible. Textbooks are addressed at the standard given by statistical normality. Of course this problem can be solved in times of LKD (learning and knowledge technologies).

**One same book cannot serve for a pupil with attention troubles, one having cumulative learning retardation, one talented in the subject and a highly skilled pupil at the same time.**

However, the essential are not specific materials used to apply a curriculum but their background concept, the curricular theory sustaining them. It is here where curricular flexibility should allow for true individualisation of every schoolchild's learning pathway and pace based on their specifics and also their different talents. Divergence from their peer group should be avoided to prevent a breakdown of their social

and affective development, but the pace, depth, style, innovation and experimentation inherent to their character, abilities and motivations should be very open and independent in order to allow the pupil to build up their learning following their own pace and intensity.

However, they should be guided and coached by the tutor teacher and have space and opportunities to socialise their acquired knowledge with their peers. These peers would in turn contribute to increase the value of knowledge adding in their own distinct talents.

## **Some suggestions for an educational policy fostering talent and excellence**

### **Considerations regarding organisational measures at inclusive quality schools**

We need inclusive schools to make possible that all their pupils can be catered for according to their needs and peculiarities. But what organisational structure should such a school have? According to P. Pujolàs, «a school deciding to be inclusive needs to distribute schoolchildren according to criteria of heterogeneity and needs to develop a cooperative teaching and learning structure in all its classrooms [...] so all pupils become able to learn next to and from each other in common classes» (PUJOLÀS, 2008, p. 6). The increasingly frequent trend at Catalan schools –especially secondary schools– towards homogeneous organisational forms (very often breaching explicitly legislation) therefore takes us far from the inclusive educational model defined by being able to turn school into a place for everyone, no matter their characteristics and potential, bringing about «a social process the purpose of which is having school members learn to live with and in fact learn from difference» (AINSCOW, 2002, p. 73). An inclusive culture and the strive for equity



are fully compatible with quality and excellence from both a school (ROCA, 2007, p. 41) and an educational system perspective.<sup>2</sup>

Some could think that heterogeneous groups may encourage pupils with learning difficulties or with cumulative or acquired retardation or deficits, but not gifted pupils or such showing a special talent in one or several subjects as well as those with high learning skills. Some would say that homogeneous groups would be better indicated for such pupils as they could make progress without limitations imposed by the need of waiting for intellectually less gifted classmates to understand an explanation, finish an exercise they did in five minutes, having to stand ingenuous questions by many of those pupils with comprehension difficulties, etc.

### **An inclusive culture and the strive for equity are fully compatible with quality and excellence.**

However, most experts in dealing with individual difference among schoolchildren recommend for highly skilled pupils to attend school in ordinary classes mixed with other pupils and not to leave the natural reference group (GENTO, 2007, p. 593). Another thing is the idea that this inclusion into an ordinary class does not need to include the whole timetable under any circumstance.

### **Teacher training to allow coaching talented skills of pupils**

The teacher wishing to foster the development and expression of talents of their pupils cannot play a role of a mere knowledge transmitter, expecting that every schoolchild will assimilate the contents passively. On the contrary, «rather than being a mere transmitter of knowledge [...], the professor creates and lays out learning environments and situations. All in all, they create the need to learn in the pupil» (ESTEVE GIBERT, 2008, pp. 26-27). Without this main function, the teacher would not justify their profession.

Training a teacher with such features requires a new curricular standard. Teachers need to come to terms with how the brain works to understand the learning potentialities of their pupils at any age, to even understand that new neurones can grow in an adult brain thanks to learning, for instance in the hippocampus, which is one of the areas having a biggest share in learning and memory processes. The future teacher needs to deepen into a new «interdisciplinary learning science based on neurophysiology, psychology and education, and consider that learning lasts the whole life» (BLAKEMORE & FRITH, 2007, p. 270).

### **One of the most explicit demands of schools aiming at implementing inclusive education projects is to have specialists for each educational need they detect with pupils.**

One of the most explicit demands of schools aiming at implementing inclusive education projects is to have specialists for each educational need they detect with pupils (GENTO, 2007, p. 591). Such an explicit want of specific specialists for each need implies the acknowledgement of a lack of training as teachers to offer a response adjusted to their pupils' diversity. And this diversity also includes that of pupils having a special talent for school subjects or other abilities in general. They simply very often do not know what to do with such schoolchildren. Teachers claim that they have not been «prepared» to face these specific demands. Hence the easy way out is to ask for a specialist to take care of this.

They do not ask for specific training to tackle the problem but for that white-collar person who, being a specialist, is able to solve it. This is a clear symptom of an obsolete, non-functional training standard. A change of mindset is needed and initial and continuing preparation as good professionals is required to understand the distinctive features of pupils, their diverse ways

of learning and resulting difficulties, but also very importantly the implicit and explicit possibilities, potentialities and abilities of each schoolchild. The professional duty of any good teacher is to get the best out of them.

To do so there is no need of specialists for everything but training that, together with applicable expert advice, helps them take up personally the responsibility of coaching all schoolchildren in their charge through the learning process.

### Criteria to create and manage a curriculum fostering maximum learning and innovation competencies

We know that top performance of some pupils has a genetic base. However, it relates with its environment from its origin, creating what J.R. Flynn calls «feedback loops». Put in different words, high performance has an immediate effect on requiring a more stimulating environment, which causes the performance to further increase, and so on. In this respect, the fate of those pupils featuring a better school performance is directly associated to what Flynn and his collaborator W.T. Dickens have called «individual multipliers» (FLYNN, 2008, p. 34) as the talent of the individual is subject to successive «multiplications» due to the need of having an increasingly stimulating environment for talent and performance. According to Flynn, we also need to consider a *social multiplier* that has acted decisively in the last decades as a result of a higher social demand on performance at work, in leisure, in handling technologies, etc. As mentioned previously, both effects combined have led to «a spectacular surge of cognitive abilities within one generation» (FLYNN, 2008, p. 34-35).

School cannot influence directly the genetic base of its pupils but certainly the personal, social and learning environment facilitating both individual and social multiplying effects. If the environment able to generate the school organisation, curriculum and classroom management

fosters a high performance, all pupils will see their demand for increasingly better and demanding results multiplied, which in turn will require increased adaptation to requirements by the school and all its professionals, but also the whole school environment and in families. This demand needs to be an intrinsic attitude at schools, which have to be able to feed it back to their environment and the rest of the school community, especially parents.

### If the environment able to generate the school organisation, curriculum and classroom management fosters a high performance, all pupils will see their demand for increasingly better and demanding results multiplied.

The curriculum should foster from the first kindergarten years a true programme to *train* attention at all levels. Sequences of silence, listening, talking, back to silence, listening, maximum concentration, etc. would allow children to become used to the first condition of adequate performance – attention. Then the habit of continuing effort needs to be acquired, with scaled incentives and stimuli and a clear target, goal or challenge to reach, realistic but based on effort and work. Such activities should combine coached and autonomous individual tasks, tasks in group, teams and couples, cooperative,<sup>3</sup> coached peer, mixed age, etc. tasks. Moreover, every pupil should be given the possibility of acting as a teacher of a fellow pupil or group of pupils.

The teaching and learning methodology should combine different techniques:

- *Trial and error*, which gives the pupil room to make mistakes, and «these mistakes allow them to face frustration, make them aware of their limitations and think of strategies to improve. Without frustration, without a minimal failure there is no way to progress, to mature.» (MIRÓ, 2008, p. 41).

► Introducing progressive *de-learning to learn* programmes. As E. Punset (2005) states, *de-learning* should bring about an educational effort to «clean» certain cerebral structures based on wrong concepts or explanations but still maintained as a mental base to link or associate new concepts, theories, etc., which causes an enormous confusion and misuse of energy as they stand on false or simply obsolete grounds. De-learning wrong abilities or concepts requires a big effort for the individual. But without effective *de-learning to learn* programmes it will not be possible to optimise really significant and fully updated learning.

**Without effective *de-learning to learn* programmes it will not be possible to optimise really significant and fully updated learning.**

- Going for *enrichment programmes* within the ordinary group or in projects requiring an own space for some hours a week, avoiding *accelerated learning* with compelling level skipping as a rule.<sup>4</sup>
- Visual culture dominating our society needs to be used to foster problem-solving methods based on visual perception (such as Raven's test) already with young children. The ability of our environment to foster visual and spatial stimulation needs to be the gateway to items of increasingly deep symbolism and abstraction.
- No more time can be wasted without making use of LKT in class, in every classroom and with every schoolchild. We are not only referring to digital blackboards in every classroom but also the use of laptop computers or individual screens for every pupil from a certain age, with coached programmes on the different curricular subjects based on an interdisciplinary approach including the possibility of enlarging knowledge according to the specific aptitude and interests of each pupil. The programmes should allow to do systematic work in which the *discovery*, the

*problem-solving* methodology<sup>5</sup> should be applied, besides devoting some intensive time to reading in silence, comprehension and relation of concepts, etc. LKT – or ICT – enlarge the spectrum of learning possibilities with all pupils, though it needs to be «clear that ICT alone do not improve the learning process, but all good pupils use ICT systematically in their learning process» (ESTEVE GIBERT, 2008, p. 28). It becomes necessary to do the conversion from an analogue to digital school model<sup>6</sup> in which the important is not introducing LKT into school or the classroom but implementing teaching and learning processes compatible with such LKT in the classroom and the whole school, homes and other social institutions.

## Towards a new educational standard

An education wishing to take advantage of the talent of each of its pupils – leaving nobody behind (equity) – and the transfer potential of highly skilled pupils to increase the overall performance of the class needs to change its pedagogic focus, leave behind traditional care of learning difficulties and focus specifically on potentialities for maximum learning.

**What we propose is a change of paradigm. It is not about leaving aside the pupils with most needs; on the contrary, it is about assuming that everybody has learning difficulties if the learning target is to get the maximum performance out of everybody.**

What we propose is a change of paradigm. It is not about leaving aside the pupils with most needs; on the contrary, it is about assuming that everybody has learning difficulties if the learning target is to get the maximum performance out of everybody, based on the interaction of

particular circumstances with the stimulating relational medium of demanding, stringent and top excellence learning. School – though not solely – has the maximum responsibility of facilitating this stimulating medium.

## Catalonia urgently needs to raise its educational excellence threshold.

In a paradigm like this, pupils with high learning abilities are a key element of the group's cognitive skeleton and become a role model, and so are those showing a great talent for some ability or concept of curricular subjects. As indicated above, both overgift and high performance based on talent only occur according to F. Mönks (quoted by Fischer) «by means of an optimal interaction between environmental factors (family, school and friends) and personal traits (intelligence, creativity and motivation). Social competence thus plays a relevant role.» (FISCHER, 2008, p. 50) And school is a key element of both social and academic influence.

We have referred to an enormous increase of cognitive abilities measuring the IQ<sup>7</sup> in the last generation, according to James R. Flynn's studies. To this author, the driver of this increase is the social shift occurred in the last decades, by

which everybody has had to respond «to the new environment improving the development of their functions, which would increase the [performance] average» (FLYNN, 2008, pp. 34-35). As a consequence, we need a permeable school that is also a driver of new social change and demands, including fully LKT (formally almost invisible but deeply transforming the didactic process) and awareness that the classroom (its environment and management) needs to change radically (ROCA, 2008) in order to ensure the learning processes able to cater for current pupil diversity, intending in a decided manner to reach the top level of performance and quality (excellence).

Catalonia urgently needs to raise its educational excellence threshold. It is a requirement by our business community, also to dignify a pedagogic tradition that has always gone for equity and quality at the same time. And there is a two-fold ethic commitment to this: for people, because education has the duty of giving them help and stimuli needed so everybody can reach a top level of performance and learning; and for the country's society, out of a patriotic perspective, to have Catalonia excel as a community and contribute to overall progress of human knowledge with the best their citizens have to offer.

### ENRIC ROCA

PhD in Education Science at the Autonomous University of Barcelona (UAB).

Full professor of Theory and History of Education at the Department of Systematic and Social Pedagogy of the UAB and vice-dean of Academic Planning and Knowledge Transfer of the Faculty of Education Science of the UAB.

He leads the *Group on Educational Observation and Research in Attending Diversity* (GOREAD) at the UAB and is the general coordinator of Edu21.





## Bibliographic reference

- AINSCOW, M. (2002). «Rutas para el desarrollo de prácticas inclusivas en los sistemas educativos». *Revista de Educación*, 327, pp. 69-82.
- BLAKEMORE, S.-J.; FRITH, U. (2007). *Cómo aprende el cerebro. Las claves para la educación*. Barcelona: Ariel.
- CASTELLÓ, A.; MARTÍNEZ, M. (1999). *Alumnat excepcionalment dotat intel·lectualment*. Barcelona: Departament d'Ensenyament, Generalitat de Catalunya («Documents d'Educació Especial», 15).
- CSASE (2007). *Estudi PISA 2006. Avançament de resultats*. Barcelona: Consell Superior d'Avaluació del Sistema Educatiu, Departament d'Educació, Generalitat de Catalunya («Quaderns d'Avaluació», 9).
- ESTEVE GIBERT, J. M. (2008). «El repte de l'escola del segle XXI». *Escola Catalana*, 450, pp. 26-28.
- FERRER, F.; FERRER, G.; CASTEL, J. L. (2006). *Les desigualtats educatives a Catalunya: PISA 2003*. Barcelona: Fundació Jaume Bofill: Ed. Meditèrrània («Informes Breus», 3, Educació).
- FISCHER, C. (2008). «Superdotado y creativo, ¿fracasado?». *Mente y Cerebro*, 32, pp. 50-53.
- FLYNN, J. R. (2008). «El efecto Flynn». *Mente y Cerebro*, 31, pp. 28-35.
- GARCÍA-SÁNCHEZ, J. N. (2000). «Papel de la inteligencia en las dificultades de aprendizaje». *Revista de Educación*, 323, pp. 237-262.
- GENTO, S. (2007). «Requisitos para una inclusión de calidad en el tratamiento educativo de la diversidad». *Bordón*, 59 (4), pp. 581-595.
- MIRÓ, E. (2008). «La cultura de l'esforç versus la cultura de les facilitats». *Àmbits de Psicopedagogia*, 23, pp. 40-43.
- PRATS, M. A. (2007). «De l'escola analògica a l'escola digital: noves formes d'ensenyar i aprendre». A: RIERA, J.; ROCA, E. [coord.]. *Reflexions sobre l'educació en una societat coresponsable*. Valls: Cossetània Edicions, pp. 57-78.
- PUJOLÀS, P. (2008). «Agrupament heterogeni de l'alumnat i atenció a la diversitat: l'estructura cooperativa de l'activitat a l'aula». *Perspectiva Escolar*, 324, pp. 2-14.
- PUNSET, E. (2005). *El viaje a la felicidad. Las nuevas claves científicas*. Barcelona: Destino.
- ROCA, E. (2007). «L'escola de la identitat, la diversitat, la inclusió i l'excel·lència». A: RIERA, J.; ROCA, E. [coord.]. *Reflexions sobre l'educació en una societat coresponsable*. Valls: Cossetània Edicions, pp. 31-56.
- ROCA, E. (2008). «Com s'aprèn a gestionar l'aula?». *Butlletí Edu21*, 15, <http://www.edu21.cat/ca/continguts/191>.

## Notes

1. Based on the 2006 PISA report, the Higher Council of Educational System Assessment of Catalonia (CSASE) stated clearly in one of its publications that «there is a low rate of Catalan pupils with good and excellent results in scientific and mathematical competence» (CSASE, 2007, pp. 76-77) compared to the other countries in the report.
2. «Achieving high results in school performance and ensuring a high level of equity are goals that can be achieved simultaneously at school.» (FERRER, FERRER & CASTEL, 2006, p. 30)
3. According to professor Pere Pujolàs, «cooperative learning has great advantages: it fosters learning of all pupils, of those having more learning problems and also those with a bigger capacity to learn» (PUJOLÀS, 2008, p. 2).
4. Only in very special cases, for highly skilled pupils and after a previous psychopedagogic evaluation, it could be recommended to skip full-time courses. C. Fischer mentions a project at the University of Münster for highly skilled pupils, where «children are released from two hours of ordinary class once a week so they can choose a subject of their interest» (FISCHER, 2008, p. 52).
5. Beyond classic *problem-solving* methodology, we refer especially to a «problem-solving culture in which everybody involved learns how to use experience and resources of others to find better means to avoid barriers posing an obstacle to learning» (AINSCOW, 2002, p. 81). Such barriers make learning difficult or prevent from achieving a top performance of learning potentialities, both of the individual and the class that also learns collectively.
6. In this respect, professor M. A. Prats has brought forward a whole range of proposals (PRATS, 2007, pp. 76-77).
7. In any case, what seems obvious in connection with the IQ is that, according to García-Sánchez, if we currently «need to consider somehow any measure of ability or intelligence, we need to go beyond intelligence as conceived classically [...] to focus the problem that there is not one but several intelligences, that it is not something static but changeable and malleable, depending on continuous interaction between the person and the environment, which is not something merely cognitive but also emotional, social and cultural» (GARCÍA-SÁNCHEZ, 2000, p. 252).