

## The Talent Search model and acceleration: What the Research tells us?

By Javier Tourón & Marta Reyero

Departamento de Educación

Universidad de Navarra

### 1. Is there a need for talent identification?

The aim of this paper is to carry out a detailed analysis of one of the most polemic aspects in the education of gifted children: the educational acceleration of the most able as a means of providing them with adequate opportunities for their development. Before entering into this issue, we think it is necessary to first reflect on the need for the identification of this type of student. The question is straightforward, is it necessary to identify talented pupils? and if the answer is yes, why? What are the reasons to justify the effort in establishing a more or less systematic and global process of identification? Is it an area of current interest? Are we talking about a passing fashion in education such as many others? Is the existence of high capacity pupils really an educational problem?

If schools were truly adaptive and responded in an individualised fashion to the needs of each one of its pupils, gifted children would not be an educational problem and the pages that follow would be little justified. However, it is clear that schools and the programmes that are developed therein all but adapt to the needs of all the pupils. "The need for special attention is all the more obvious when it is confirmed that different children who receive the same educational treatment, do not always obtain different results" (Tourón, Peralta and Repáraz, 1998). It is precisely with talented pupils where the norms and the pace of educational development, that we shall call 'normal', are broken. A result of this disruption is what is referred to by certain authors as the 'syndrome of disynchrony', that leads to an imbalance between the mental age and the chronological age of some children which is at times notable.

It appears to be beyond all doubt that the organisational structure of the school as we know it today is based on pragmatic criteria. The worst aspect of these criteria is that they lead to an age-grade lock step, that immediately orientates the school system toward the 'average student' -who as an abstract concept, does not exist anywhere. This results in the development of the same programmes for all the pupils and at the same pace, a system that is far from capable of responding to the needs of a group with educational needs clearly different from those of the 'regular' groups.

As such, we can say that a child that is gifted or with special talent in one or various areas, transforms into an educational problem when the regular programmes of the school cannot respond in an adequate fashion to the psycho-educational demands of these pupils.

Thus, if the school cannot respond in an adequate manner to the educational needs of all the pupils through its established programmes, and accepting that groups exist that are dearly

differentiated and have specific needs, the identification of highly talented pupils makes sense, particularly when alternative programmes exist to attend to the demands they present.

However, in spite of this reasoning, a notable resistance exists within the establishment to differential educational programmes for this type of pupil. This resistance is generally founded on prejudices and erroneous concepts regarding gifted children and their educational needs, often based on unfavourable personal experiences. We could say that a series of myths exist regarding gifted children that influence educational administrators in many countries to adopt postures that are unreasonable and most certainly damaging for the development of the very same education system (Tourón and Reyero, 2000; Reyero and Tourón, 2000; Winner, 1996).

## 2. The Talent Search Model: its effectiveness over the last two decades

One of the reasons for concentrating on the Talent Search model resides in the fact that we are dealing with a model that is prudent, simple, economical and easy to implement. Moreover, this model can be better integrated than any other within the evolution that the paradigm of gifted children has suffered with respect to the identification and development of specific talents. Furthermore, it is the model that has been most extensively studied of all those that exist (over 300 articles have been published relating to the SMPY, (Study of Mathematically Precocious Youth))

We could add another more personal reason if it were necessary, to support those already stated, and this is that we are trying to implement this in a systematic manner in our country. In recent years, we have completed the preparative stages by validating the SCAT in our local education area (i.e. Tourón, 2000).

In 1971, Julian Stanley founded the centre for SMPY at the Johns Hopkins University in Baltimore. The principal objective of this centre was, and is, to obtain the "optimal development of intellectually talented children" (Benbow, 1997). The SMPY works fundamentally on two fronts. On one hand, and related to the area of identification and intervention, it has set up a series of programmes and services to attend to these gifted children, known as the SMPY model. This model has been evaluated and extended from the outset and contains within it the concept of Talent Search, directly related to the identification, which we will analyse in more detail later on. The other general aspect on which it is centred is related to the area of research. Since its conception, the SMPY has carried out a longitudinal study, similar to the classic study of Terman (1925-1959) to investigate the development of the intellectually talented students, and to evaluate the impact of educational intervention during their schooling and in their professional careers (Benbow, 1983; Benbow, 1993; Benbow and Lubinski, 1996b; Benbow and Lubinski, 1997; Stanley, 1977; Stanley, 1996; Stanley, 1999; Stanley and Benbow, 1983; Subotnik and Arnold, 1994).

There can be no doubting the interest of the longitudinal study initiated at the onset of the model, not only for the methodology employed, but also because it includes a concomitant analysis, with the ensuing feedback into the model that this may generate. However, in this section we propose to deal with the identification process, and as such we shall centre our interest directly on that which is known as the SMPY model. Stanley (1974) synthesised this model into the strategic formula: MT: D4P3. That is that mathematical talent: discovery,

description, development and dissemination of principles, practices and procedures. The SMPY, according to Benbow (1997), centres on the students in an individual manner and the first step is to understand that the student initially possesses mathematical abilities (discovery). This is achieved through their identification and subsequent description once a student is conscious of her or his capacity and distinct abilities and of their preferences (description). It is then that it becomes possible to adapt their educational programme with the aim of generating an adequate learning environment, in accordance with their abilities (development). At present the SMPY is in favour of maintaining the pupil within the education system, at a level that corresponds to the abilities that they show rather than in function of their age.

In this regard, it is considered that acceleration is one of the most adequate (although not the only) paths to follow. The students are encouraged and helped in their attempts to obtain an appropriate curriculum and educational experiences that can be obtained both inside and outside of the school. Benbow & Lubinski (1997) pointed out: "SMPY promotes primarily competence rather than age as the criterion to be used in determining who obtains access to what curricula and experiences, and at what time. The goal is to develop a combination of accelerating options, enrichment, and out-of-school opportunities (already available resources) that reflect the best possible alternative for educating a specific child and, thereby enhancing satisfaction. This approach has been labelled curricular flexibility" (p.159).

The idea of identification within the SMPY is, as such, to assess the need for intervention and that the educational services that are not only adequate, but are also necessary for the development of the gifted pupil. When the SMPY started up, it was not clear what type educational intervention was the most adequate for the young talented intellectual. It appeared however, that acceleration, in spite of not being commonly employed, was the method with the greatest level of empirical support. Thus, they began to work with various educational innovations based on the principles of acceleration to determine some of the best ways to provide academic challenges to the gifted pupils. From this point on, many alternatives of acceleration have been developed that can be offered to the students (Cf. CTY, 1995\*), many of which are characterised by their use with young students, the resources, the curricula or the programmes designed for older students. Additionally, all of these have a feature in common: "they are extremely flexible, and as such the teachers and administrators can select and adapt them to the form that best suits the individual circumstances and to the abilities, needs and interests of each of their pupils" (Benbow, 1986, p. 8). \*Centre for Talented Youth.

The process of identification within the Talent Search

We are dealing with a model of identification that maintains, as its principal objective, to select each year a great number of students that demonstrate verbal talent as well as mathematical talent, since these are considered as the pillars of all scholastic learning. The first Talent Search was carried out by Stanley in January 1972 (Stanley, Keating and Fox, 1974; Keating, 1976; Stanley, George and Solano, 1977; George, Cohn and Stanley, 1979; Benbow and Stanley 1983; Benbow and Lubinski, 1996). Through constant research and subsequent improvements this has given rise to that which actually exists today in the USA (similar procedures have been

followed out in other countries, see for instance Barnett & Gilheany, 1996), with an infrastructure that extends across the whole country and that offers help to the gifted children in each state. This help has extended to other areas such as the development of educational programmes or services for the parents of talented pupils. Indeed, in four universities in the USA (Northwestern University, Duke University, Denver University and Johns Hopkins University) specific centres exist from which annual talent searches are organised. Furthermore, other centres across the USA also conduct identical or analogous annual searches to those of the state. Goldstein, Stocking and Godfrey (1999) offered an interesting panoramic view of the diverse Talent Searches that have developed from Stanley's original model.

This model of identification has two stages (see figure 1). In the first of these, that happens to coincide with the screening process, those pupils whose performance is above the 95 or 97th percentile in standard tests such as the Iowa Test of Basic Skills, the California Achievement Test, or other similar tests are selected. These tests are typical tests of academic achievement in the diverse subject areas, measuring as such competence and knowledge within the curriculum, and they are designed for each grade; national norms are at hand for each grade. They also reflect what it is hoped that the children of the different ages and grades should know in each subject area.

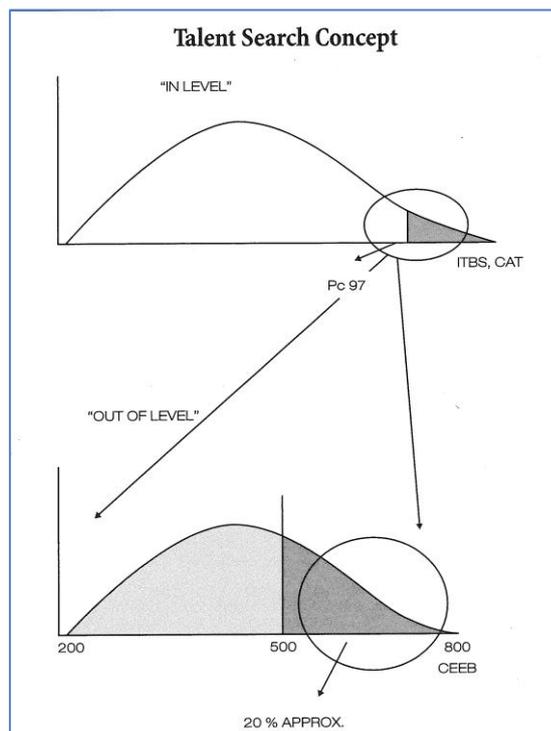


Figure 1. The talent search model developed by J. C. Stanley

Those pupils that perform in the top 5% or 3% in these tests show, as is logical, a particularly outstanding aptitude, higher than 95% or 97% of their colleagues of the same age or grade. But it is critical to be able to respond to the questions: are these children that have such a brilliant academic performance similar amongst themselves? Are their aptitudes similar? Are they children that simply do very well at school? Herein lies the key to the model. It is certain that the pupils that occupy these positions in the performance scale are brilliant, but are they

all equally brilliant? The response is categorical and reflects in the clearest possible manner the problems generated by having a ceiling in testing: no, they are not equal, there are vast differences between them that are not possible to detect with this type of 'tests of level'.

However, there are good reasons to avoid submitting pupils of the ages that enter within the Talent Search to a diagnostic process such as that which is described below. Simply it is a question of not subjecting pupils that are not in possession of a exceedingly high capacity, to a testing experience of an especially high level of difficulty for their age that would prove to be frustrating for them. When one is seeking out the top 3% or 5% and no other value, then the answer is empirical. The students outside of this range of aptitude do not reach the required level for the high level tests. These results derive from the analysis of the data series of the last decades from the Talent Search (see for example Goldstein, Stocking and Godfrey, 1999, see table 1).

Table 1. Percentage of students at each of the three Talent Search qualification levels who obtain the scores indicated in the SAT-M and SAT-V (taken from Goldstein et al. 1999)

	Maths		Verbal	
	480	550	430	500
97th %tile	13.4	1.9	8.1	0.8
98th %tile	16.8	2.7	11.9	1.4
99th %tile	32.8	9.8	26.6	5.2

In the second stage, the students selected are submitted to a diagnostic process to test their academic aptitude such as the Scholastic Assessment Test (SAT) or the American College Testing Program (ACT), but at a higher level than that to which they would correspond by age ("out of level"). To be more precise, the 7<sup>o</sup> grade pupils are evaluated alongside high school seniors in some of the mentioned tests. The most frequently used is the SAT, specifically the SAT I (reasoning test) that has a mathematics section (SAT-M) and a verbal section (SAT-V).

It is important to pay special attention to the data presented in the lower part of figure 1. It is clear that the pupils that fall in the highest percentiles when tested at their level might obtain completely different scores when measured 'out of level', as actually occurs. However, about 20% of these 3% of pupils, that is to say 0.6% (around an IQ of 135) of them reach scores that are equal to or greater than those pupils about to enter university (college-bound; this is precisely the cut off point used). When the functioning of the model is analysed over the years, a startling stability in this pattern of results can be seen. We cannot address this question in sufficient detail here, as such we recommend readers to analyse any of the Talent Search annual reports that are offered by the universities that have implanted this model (see also Barnett and Gilheany, 1996, for a similar experience in Ireland; Barnett and Corazza, 1993; Goldstein, Stocking and Godfrey, 1999; there are also more or less detailed descriptions in the quoted works of Stanley and Benbow).

These data are the sufficiently expressive and are reproduced year after year in the talent search followed by the CTY of the Johns Hopkins University. Analogous results are also achieved with the top 3% of 5<sup>o</sup> and 6<sup>o</sup> grade pupils submitted to the PLUS test (Cf 1995 Young Students Talent Search Report, CTY: Baltimore). Similar evidence can also be found in the

studies of Benwoll; 1993), who employed a similar method with different academic ability tests. In the University of Iowa, a similar analysis was carried out but using, amongst other, the EXPLORE test, developed by the American College Testing (see Colangelo and cols., 1993; 1994; Tourón and cols. 1998).

What undoubtedly is sustained by this model, is that "the pupils whose scores in the academic achievement tests fall into the highest percentiles, corresponding as such to their grade level, display very different capacities amongst themselves, to the extent that around 20% achieve results that correspond to people 4 or 5 years older than them". These differences cannot be detected in the 'In-level testing' process, even that being extraordinarily different and sufficient for them to demand differential and appropriate treatment with respect to their educational needs. Therefore, if we set out to detect exceptional potential it will be necessary to establish a model that permits us to do so, we cannot expect nor demand that the achievement tests do this.

As stated by (Olszewski-Kubilius, 1998), the reason that the standard performance tests are not capable of evaluating precisely some of the capacities of the pupils is that they do not contain a sufficient number of items of the adequate difficulty. Therefore, as emphasised by this author the test should possess an appropriate "ceiling" in order to be able to better measure the student and thereby provide the appropriate educational provisions.

If the scheme under which this model of identification works is straightforward, over time and since its onset in the 70's, a clearer structure has been generated with respect to the identification and the taking of decisions with regards the education of gifted pupils. The evolution of the model has in fact meant that it is understood as something more than just a simple process of identification. This was indeed the aim of its creator, Julian Stanley, when far from conceiving the Talent Search as a process that became paralysed once the subject had been identified, he defined it as "an assembly of special educational opportunities for young students that reason extremely well in mathematics and in languages" (Stanley, 1983). It has been stated that "through the Talent Search concept, SMPY has opened debate and dialogue in the field about viable alternatives to enrichment" (VanTassel-Baska, 1996). SMPY has restored a long tradition of emphasis on the highly gifted, begun by Terman and Hollingworth, by developing a systematic approach to finding and serving such students. SMPY also has shifted the concept of what giftedness is, from an emphasis on global ability to an emphasis on talent. SMPY, moreover, has affected school-based programs by providing a research and developmental base for content and other forms of acceleration" (p. 244).

But when we see how this model works over the years, we fully appreciate its extraordinary efficiency and the stability of the results. In table 2, we can see the percentage of pupils that equal or better the mean of their college-bound seniors in the SAT-M and in the SAT-V.

Table 2. Percentage of Talent Search participants (13 years old) with SAT scores equal or above the college-bound seniors score (500)					
SAT-M			SAT-V		
Year	Males	Females	Year	Males	Females
1980	20	21	1980	24	24
1981	20	23	1981	21	18
1982	15	20	1982	19	19
1983	16	16	1983	19	17
1984	17	17	1984	19	16
1985	19	17	1985	19	15
1986	19	19	1986	19	17
1987	19	17	1987	18	17
1988	19	16	1988	15	12
1989	14	13	1989	19	18
1990	23	22	1990	16	15
1991	14	16	1991	18	19
1992	22	24	1992	18	22
1993	18	21	1993	19	22
1994	21	25	1994	18	19
1995	19	24	1995	21	22
1996*	19	25	1996	20	22
1997*	24	27	1997	24	27
1998*	25	29	1998	25	26
1999*	23	29	1999	22	24

Source: Barnett, L. *The stability of Talent Search scores over 20 years*, Manuscript in preparation. Center for Talented Youth The Johns Hopkins University, Baltimore, USA.  
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In consequence, once these pupils are identified we must confront the problem of their formation. Given that this model is fairly restrictive in the form in which it selects pupils, one of the educational measures most commonly employed is precisely that of acceleration, a strategy to which we will dedicate the following sections.

### 3. Self-paced learning: the rationale for acceleration

The whole process of educational intervention begins with the identification of the educational needs of the subjects that will benefit from them. Or in other words, the whole process of identification - of pupils with a high academic capacity, in the case with which we are interested - has to be oriented toward the insertion of these pupils into adequate learning programmes. Therefore, identification and programming, are ideally, mutually related.

The identification of pupils with a high academic capacity, is performed on the basis of predetermined criteria. Amongst these we can highlight (Brody, 1995):

a) That the subjects possess individual differences in their abilities, that makes it necessary to adapt the educational programmes that they follow, in order to respond to these differences (Robinson, 1983; Brennam, 1988).

b) In agreement with the above, it can be stated that the school work must be appropriate as much in terms of its content as in the speed at which it is presented. This, whilst true for any student, is particularly important for those of high capacity. If this is not achieved, there is a risk of losing the students interest and motivation for school work.

c) Even amongst the most capable pupils there is a great deal of heterogeneity, as much in their abilities as in their interest, motivation, aspirations, etc. For this reason it is necessary to establish highly individualised plan.

d) The rate of academic learning amongst the highly talented pupils is such that it will be difficult for them to accommodate themselves to the developmental pace of the normal curriculum designed for pupils of the same age group. This is a crucial point that must be emphasised, given that here resides one of the principle reasons why the educational system must be flexible if it wants to adapt to the needs of the pupils.

This principle, common to all areas of teaching, is particularly important for gifted pupils. One has to build on the indisputable fact that these pupils need to be stimulated and need goals far higher than those established in their corresponding programmes at school. If this fact is not addressed, it will often lead to tedium and boredom. This in turn will induce them to lose interest in their schooling, to experience a lack of challenge, of motivation and stimulus for their work, the long-term effects of which will never be fully comprehended (Stanley & Benbow, 1986). Moreover, it is obvious that all the talented students that are not adequately stimulated or developed through an appropriate teaching system, in terms of pace and depth, may develop poorly or lose their talent.

Therefore, any instructive or administrative barrier that restricts an appropriate acceleration must be removed, including the early entry into elementary school or university. As such, all the programmes must contain procedures for evaluation that enable the teacher to determine what the pupil already knows, through which an enriched education and adequate learning experiences can be assured (Milis & Beaton, 1994).

Adapting teaching to the educational needs of the gifted pupils must take place at two levels: the level of learning and the speed or the speed at which this occurs.

This process of adapting the teaching to the needs, interests and knowledge of the pupils is known amongst Americans as the optimal match (Robinson, 1982; CTY, 1995). We will illustrate this concept briefly as a general and concise justification for the need to suppress the barriers associated exclusively to age pegging within the educational system.

Optimal match can be defined as, adjusting the curriculum to provide an adequate level of challenges, of stimuli, and to provide the appropriate conditions of pace and level of learning to the students. Naturally, in order to achieve this adjustment, it is necessary to establish an adequate diagnostic process within each programme. The DTPI model (Diagnostic Testing and

Prescribed Instruction) is critical for the adequate adjustment of the needs of the alumni to the development of their learning.

Optimal match assumes the following suppositions:

a) That learning is sequential, evolutionary and relatively predictable. It is possible to evaluate the level of understanding of the pupil in ordered groups of concepts and skills. This is particularly obvious in material that is especially sequential, such as mathematics.

b) Once a pupil has achieved control of a certain subject area, it is necessary to pass on to the next. Any unnecessary delay might induce boredom whilst advancing too rapidly may produce confusion and discouragement. Optimal match is achieved, by adequately challenging the pupil, providing sufficient intellectual stimulus, and by delving deeper into the learning process. This principle is in conflict with the idea of "horizontal" enrichment and in favour of "vertical" approaches that tend to involve a greater level of complexity, in accord with the proper maturation of the pupils, whether it be within the normal curriculum or in complementary areas.

c) This fact is common sense given that within the same age group substantial differences arise between pupils in terms of their skills and knowledge, which are reflected in the first instance by the different rates of learning. These individual differences are not only produced in terms of general intelligence, but also—and this may be more important from the educational point of view—in specific subjects (mathematics, languages, etc.). Some pupils might be more advanced in some areas than in others. Such differences must be taken into account when trying to adjust the individual teaching conditions to achieve an adequate optimal match.

The central question lies in what is the intellectual and academic capacity of the pupil, his/her capacity to learn at a faster speed and in greater depth than his/her classmates, and if he/she is adequately motivated to do so, he/she must have access to that possibility. To insist at all costs that the gifted pupils always remain with their classmates of the same age can be devastating for them. It can provoke boredom and distraction, bad habits in terms of studying, behavioural problems or even a rejection of schooling.

Acceleration implies no more than allowing students to move at a rate at which they are comfortable and can excel, rather than holding them back to conform to a 'speed limit' set by the average learner (Van Tassel Baska, 1981).

Thus, we can sum up by saying that far from the old controversy between acceleration and enrichment, we must see them as being complementary. As such, acceleration understood as a curricular model facilitates optimal match, along with the substantial enrichment that this necessarily implies since the breadth of coverage and depth of the curriculum that these pupils receive demands this. In this way, the strategy that we must look for has to combine: breadth, depth and speed or rate of learning. Figure 2 taken from Assouline and Lupkowski-Shoplik, (1997) reflects this concept clearly.

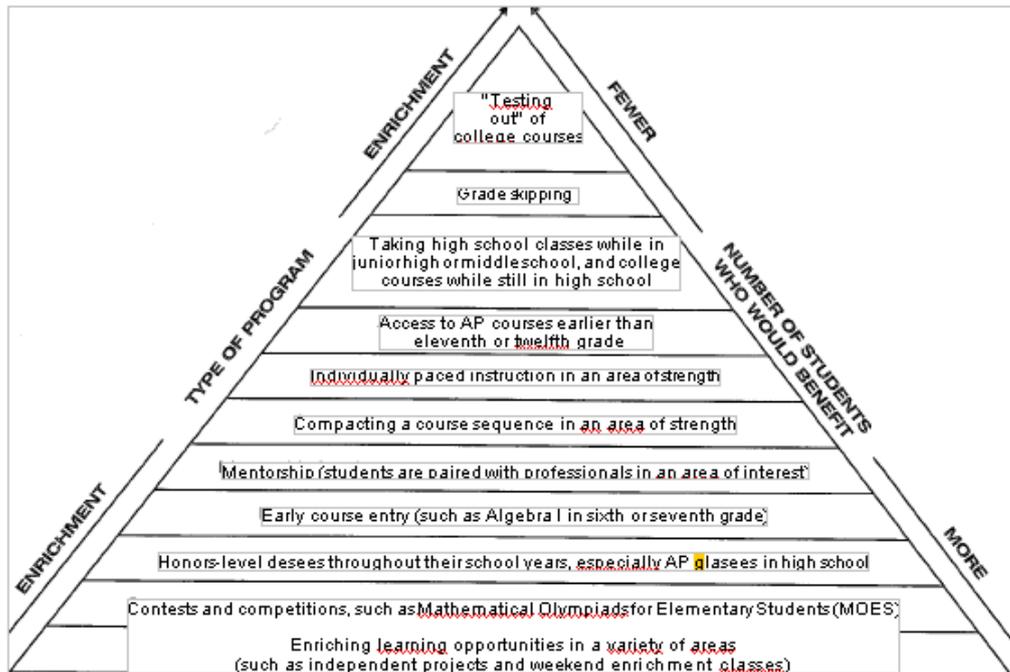


Figure 2. Pyramid of curricular options for talent search participants (From Assouline Lupkowski-Shopleik, 1997)

#### 4. Enrichment vs. Acceleration: a real antinomy?

It is clear that acceleration has been one of the most studied topics within the field of gifted education, and it is also clear that its investigation generally appears to be tied to another of the usual educational strategies used to deal with the gifted pupils: enrichment. Between the two, a great deal of debate has been generated, on occasion unjustified, that falls between two points of view: depth of learning, defended by those in favour of enrichment, and speed, defended by those in favour of acceleration.

There are many ideas, that as we shall see, have fuelled this debate, but the most general is that which states that children in general, and thus, gifted children as well, should remain alongside their chronological equals because there are many problems that might be created were this not the case. Without doubt, this concept is not always put into practice. If we make a brief historical review, in the initial stages of systematically implanted education, we can consider that the performance of the pupils was that which determined their situation in the school and the point at which their schooling should terminate.

Around the 20's is when certain factors arose that began to modify these beliefs (Southern and Jones, 1991). These included: a) the obligatory attendance of all children at school; b) the increase in educational expectancies; c) the increase in the theories of development and of child psychology; and d) the large increase in the number of students that began to receive an education. In the light of these factors together, it became necessary to think about the need to attend to educational demands in terms of age, given that this was information that could be easily and readily obtained for all pupils, and as such permitted rapid classification. To this

idea we can add the increasing popularity of the theories of cognitive development that served to legitimise these attitudes, and permitted the creation of a definitive curriculum in which the pupils were situated in function of solid indicators such as age and grade. As such, the bureaucracy behind education (Southern and Jones, 1991) developed a logic where in the student was defined and placed within the system along these lines. In the same manner, Daurio (1979), adds that the debate regarding acceleration was coloured by the suggestion that placing students ahead of their chronological equals could threaten their social and emotional development.

The controversy surrounding acceleration lay dormant for the 40 years prior to 1970 (Cohn, 1979). But from this moment on, it reappeared in a particular lively manner from the inception of the SMPY, an educational initiative aimed at serving the mathematically brilliant youngsters who are eager to proceed quickly and to excel in a high level mathematics curricula.

Daurio (1979) identifies four sources of problems regarding acceleration:

- The tradition of the age-grade lock step in the American educational system, and in almost every country. However, we must not forget that the commonly accepted age-grade grouping is a relatively recent phenomenon in our schools that were ungraded or graded by competence, not age, in the previous centuries. This is mostly an administrative convenience rather than a real educational need for all students.
- Resistance to standardised tests that are appropriate for identifying talented youths and that avoid the ceiling effect for the brighter students (Keating, 1976; Stanley, Keating and Fox, 1974)
- Practitioners' selective recall of social adjustment problems among those children who are accelerated through the formal schooling process. This is perhaps one of the most typical points of conflict among proponents of acceleration or enrichment. But as Daurio states (1979, p. 27): "all indicators point to the maintenance of professional attitudes of excessive concern over potential socio-emotional maladjustment among intellectually precocious young accelerates, and too little concern about the probability of maladjusting effects resulting from inadequate intellectual challenge". As Stanley points out (1976a; regarding the well known case of William Sidis, see Montour, 1977): "For every William Sidis who renounces intellectual pursuit because of extreme —and apparently quite unwise- parental pressure, there are many persons...who benefit greatly from the time saved, frustration avoided and stimulation gained" (p. 73, emphasis added).
- Confusion over the definition of terms often blinds educators to the communality of both interventions (acceleration and enrichment).

Vociferous claims of 'antidemocratic' or 'antiegalitarian' are raised by parents and educators who believe that equality of educational opportunity implies equal experiences during equal lengths of school time for all children and adolescents (Daurio, 1979).

We do not agree with this statement. Conversely we think that it is so unfair to treat equals differently as it is to treat different persons in an equal way.

We will briefly analyse some of the concepts about enrichment and acceleration.

To Schiever and Maker (1997) the term enrichment refers as much to the curriculum as to the programmes. The enriched curriculum refers to richer and more varied educational experiences, to a curriculum that has been modified or amplified in some way. These modifications or additions can be in terms of content or in the teaching strategies used, and are ideally based on the characteristics of the pupil for whom they are designed. The aim of an enrichment programme is to offer the students a curriculum that has greater depth and is more extensive than that which is generally provided. The key to an enriched programme must lie in systematically planning to amplify the learning of the students.

For Stanley, "enrichment" referred to any educational procedure that went further than the usual in terms of material, courses or age, and that did not accelerate or retard the pupils situation with respect to any material or course. He distinguished the following types of enrichment (Stanley, 1976a):

1. "Busy work": It consists of more of the same, greater in quantity than is required of the average student in the class but not different in level.(...).
2. "Irrelevant Academic Enrichment": It consists of setting up a special subject or activity that is meant to enrich the educational lives of some groups of intellectually talented students. It pays no attention to the specific nature of their talents. (...)
3. "Cultural Enrichment": It might also be considered irrelevant to the direct academic needs of intellectually gifted students, but it seems much more worthwhile. (...)
- 4."Relevant": If a student is given advanced material or higher-level treatment of in-grade areas related to his or her special aptitudes, the enrichment might be said to be relevant to those abilities (pp. 67-68).

Daurio (1979) classified enrichment according to two types:

a) lateral non-accelerative enrichment: that is the enrichment that Havighurst, Stivers and Haan (1955) denominate "lateral". There are three criteria that characterise lateral non-accelerative enrichment: 1) this intervention is considered appropriate for individuals that have a higher intellectual activity; 2) there is a high probability that this type of enrichment will also be suitable for pupils less intellectually capable; 3) this type of enrichment maintains the subjects within the course that corresponds to their age. Indeed, we are not dealing with here an acceleration of the educational pace of the students.

b) relevant academic enrichment: this term has been employed by Stanley (Stanley, 1976a). The word "relevant" is used to indicate that this type of enrichment is adequate for the special educational needs of the students that have a specific higher intellectual ability. In contrast to lateral enrichment, relevant academic enrichment is appropriate only for intellectually precocious youths and contrasts with acceleration in as much as they are maintained within their course at each age. One of the problems of this type of enrichment, lies in the question of completion of this type of programme. In agreement with Stanley (1976a), the most relevant and worthwhile facet of this type of enrichment is that in the majority of the cases, it precedes a later acceleration of material or courses. In other respects, it delays the boredom and guaranties that it will eventually be more severe.

There are numerous definitions regarding the term acceleration that can be found in the literature. Some of which appear in table 3.

Table 3 . Some definitions of acceleration			
Pressey (1949)	Acceleration may be defined as movement of students through an educational program in shorter times or at younger ages than has been conventional (p. 26).	Benbow (1993)	Many educators view acceleration only as a means of going through school of material at a faster than normal pace (...). Yet acceleration might more accurately be referred to as "curricular flexibility", "flexible pacing" or "developmental placement" (p. 24). Acceleration basically involves using already available resources, curricula, or programs designed for older students but with younger gifted students (p. 25)
DeHaan & Havinghurst (1957)	Acceleration offers opportunity for a gifted pupil to move at a pace appropriate to his ability and maturity and to complete an educational program in less than the ordinary amount of time (p. 122).		
Pasow (1958)	Any modification of a regular program can be considered acceleration if it enables the student to progress more rapidly and to complete a program in less time or at an earlier age than is normal (p.212).	Davis & Rinun (1994)	Any strategy that results in advanced placement or credit may be titled acceleration (p. 106).
Van Tassel-Baska (1981)	Acceleration implies no more than allowing students to move at rate with which they are comfortable and excel, rather than holding them back to conform to a "speed limit" set by the average learners.	Mackay (1995)	In education the term "acceleration" refers to the many strategies used to speed up the rate at which talented students move through academic curricula (p. 1)
Kitano & Kirby (1986)	Acceleration involves changing the rate of presentation of the regular curriculum to enable apt students to complete the program in less time than is usual (p. 120).	Montgomery (1996)	Acceleration means that the student moves through lower levels or sections of the standard curriculum at a much faster rate than age-matched peers (p.66).
Rogers (1990)	Acceleration is any program adaptation that 1) shortens the time a student remains in a grade-progressive educational setting; and/or 2) advances the level of curriculum attained in a given time or age.	Piirto (1999)	Acceleration classes are those that move rapidly through the subject matter (p. 64). Acceleration is permitting the child to move as swiftly as possible through the required material" (p.431).

In general, three common elements can be found amongst these:

- a) It assumes the existence of a group of materials, tasks and established strategies, and of acquired knowledge at each level of instruction. Advancing courses or increasing the pace of teaching that presupposes a specific content that in one form or other follows a logical sequence;
- b) It presupposes that there is a specific rate of progress that should be maintained throughout the curriculum and that is adjusted to the majority of the students with a high capacity;
- c) It also presupposes that a student with a higher level, when compared to a classmate of the same age, will be capable of -and will require to- undergoing a faster progression through a standard instructional programme.

Thus, there exist two criteria for advancement: the existing performance, and the ability to move on more rapidly than the norm.

One of the aspects that underlies the lack of acceptance of acceleration is the tendency to equilibrate only by using grade skipping, when in reality more than twenty different modalities of acceleration can be encountered in the literature. Grade skipping does not make sense as we shall see later, if it is not accompanied with a broadening and amplification of the curriculum of the pupil in the new situation. In order to perform a detailed classification of the distinct types of acceleration one can consult, among others: Benbow (1991); CTY (1995); Southern and Jones (1991); Tourón, Peralta and Repáraz (1998); Van Tassel-Baska (1986)

Passow (1996) points out, that when referring to the different types of acceleration procedures, "we have begun to sort the various means of acceleration into two overlapping categories- administrative and instructional- and have begun to look at the consequences of each differently. These category levels are not exact, they are helpful in separating the procedures. Some forms of acceleration, such as grade skipping and early admission, can be considered administrative in that they often involve no curricular changes — that is the students experiences the usual curriculum but an early age. In those settings, the gifted students may find himself or herself in a class with older children, following a lockstep curriculum at a pace geared to the older members of the class. The gifted child may engage in those experiences at an earlier age than is usual and finish them in a shorter time, but his or her needs are not necessarily being met optimally. Instructional acceleration, on the other hand, involves curricular changes- changes in the content, nature, and pace of instruction" (p. 96).

This classification is in our judgement, that which permits ties to be established that unify depth, breadth and rate, harvesting these elements is important to acceleration and enrichment, and permitting them both to be unified rather than separate.

In general those supporters of acceleration manifest a series of benefits that such a strategy can provide to the gifted pupils, whilst the detractors provide a series of disadvantages that we present in the following table.

With respect to the possible disadvantages, a great deal of research has been performed in order to provide empirical data regarding the relevance of the disadvantages mentioned. As a result of these studies we should like to emphasise the following points.

It could be said that the actual debate between acceleration and enrichment, has lost a lot of its drive since it has been understood that the integration of both postures benefits the education of gifted pupils. Indeed, in practice, attention to the needs of gifted pupils, determined by their learning characteristics, requires that they are taught complex and abstract concepts (enrichment) and that the students should advance at a faster pace than their equals (acceleration). This idea can be confirmed in the contributions of diverse authors.

For Fox (1979) acceleration signifies the adjustment of the learning time as a means of determining the capacity of the students, and this adjustment will lead to higher levels of abstraction, to a more creative thinking, as well as to the management of more difficult material.

Table 4. Some pros and cons of acceleration for highly able students (adapted from Southern, Jones & Stanley, 1993)

Pros
Less emphasis on needless repetition and drill
Closer match between student's level of instruction and level of achievement
Appropriate recognition of mastery (credits for course work) regardless ages or grade levels
Saving of time for further exploration of new courses or careers
More exposure to intellectual peers
Greater economy due to reduced time at school
Lower probability of monotony, boredom, etc.
Increased achievement motivation
Development of appropriate study habits
Avoidance of underachievement
Avoidance of conflicts with peers who do not share interest or abilities
Cons
Academic outcomes:
Accelerants will fail in the new setting due to the increased academic pressure
Will slowly lose their advantage and eventually fall behind their older classmates
Will have gaps in their academic preparation that will become more pronounced with time
Will be physically or emotionally too immature to compete with their classmates
Precocity is more apparent than real. They can demonstrate knowledge but have lack of experience
Increased academic demand will cause them to fail in development of creativity and divergent thinking
Social and emotional adjustment:
Accelerants will sacrifice time to develop and to learn through play and exploration
Will miss age-appropriate social activities
The development of friendship will be threatened because of lack of time to socialise with same-age peers
Acceleration will reduce opportunities to develop social skills

Frustration due to increased academic and social demands will cause stress and burnout

Diminishes opportunities to develop extracurricular interests and hobbies

In this regard he states "If we define enrichment as the provision for learning experiences that develop higher processes of thinking and creativity in a subject area and define acceleration as the adjustment of learning time to meet the individual capabilities of the students, they are complementary rather than conflicting goals. If we assume that the major goal of educational programs for the gifted is to meet their learning needs, both enrichment and acceleration are necessary. Thus, the gifted learner can proceed at a faster pace, to a higher level of content and more abstract and evaluative thinking than his or her age peers." (p. 215).

Stanley (1986) states that actually, enrichment versus acceleration is a false dichotomy that seriously obstructs our thinking with regards to the education of intellectually talented youngsters. In the long term, enrichment must involve acceleration otherwise it becomes invalid. Moreover, in order to be really effective, acceleration must involve enrichment. A sensible combination of the two would be more convenient than either of the two individually.

Anastasi (1979) said: "Acceleration and enrichment are neither unitary nor mutually exclusive approaches to the education of gifted children. There are many variants of each and many combination of the two... The optimal variant or combination depends not only on the intellectual, emotional, and physical variables of the individual child but also on the child's own interests, wishes, and initial response to the program... I would urge not moderation but rather individualisation.

Acceleration never ought to mean "pushing". Rather it should mean "to stop pulling back". In the same spirit, enrichment activities should fit the child's interests and take advantage of his or her strengths. From the standpoint of mental health, the individual should be given opportunities to pursue activities that interest him or her and in which s/he can succeed. But note that the closer the content of enrichment matches individual interests and talents, the closer it approaches acceleration. If a child is already mathematically talented, enriching his or her programme with more maths places that child even farther ahead of age and grade peers in this area" (p. 222).

Finally, we agree with Passow (1996) when he says that "At the simplest level, acceleration enables the student to deal with more advanced concepts at higher cognitive levels, and this represents an enriching experience. At another level acceleration in one area provides opportunities for more advanced study in that area or for more experiences in another area or areas.

Enrichment involves breadth and/or depth —learning experiences that enable the student to probe more broadly or more intensively. It uses advanced resources aimed at enabling gifted individuals to attain higher levels of insight, understanding, performance, or product development. Both enrichment and acceleration have qualitative as well as quantitative dimensions; both enable the individual to pursue differential experiences through a greater variety of opportunities and engagements.

Given this view of acceleration and enrichment as alternative and complementary approaches to learning opportunities for the gifted, the question becomes one of when it is more appropriate to alter the tempo or pace of instruction and when it is more appropriate to alter the breadth or depth of experience. Put another way, acceleration creates enrichment and enrichment is often best achieved through instructional acceleration" (p. 96-97).

As Dishart (1980, p.26, cited by Passow, 1996) pointed out: "There are curricula which are simplified enough and slow enough for handicapped learners. Why not develop curricula which are enriched enough and accelerated enough for gifted learners?"

## 5. Research about acceleration: a review of the evidences

In this section we will refer, with the brevity that is necessary, to some of the different modes of acceleration described in the specialised literature and that are habitually put into practice.

We will provide some results from studies that have helped to clarify what are the real effects that are produced, beyond the usual clichés regarding the effects that have been ascribed to these strategies, particularly in as much as the possible social and emotional imbalances.

It is important to highlight that the major part of these strategies are linked to the North American educational system, and as such, they may seem strange when considered out of context. However, their study may well shed some light on the best way to proceed in other countries.

### Early Entrance To Kindergarten Or First Grade

Early admission to infant education or the first grade of primary education consists, as is obvious, in bringing forward by one or more years the age of entry to these levels to those pupils that possess the adequate characteristics. This is a strategy that is adapted to the great enthusiasm, curiosity, imagination and energy that the most capable pupils present with respect to knowledge (Feldhusen, 1992).

Early admission is viewed with suspicion by teachers and headteachers of schools, who hold to the idea that the children will suffer diverse problems, such as those outlined earlier (see table 4).

Much of these possibly negative effects are commonly mentioned by those detractors of acceleration of any type but as we shall see shortly, in general they lack any firm basis. In other words, the information obtained from research into the field does not corroborate the possible dangers that are stressed by those opposed to acceleration.

In spite of these possible deficiencies, numerous studies exist that underline the positive effects of early admission to infant education or to the first grade of the primary teaching (i.e. Feldhusen, 1992; Feldhusen, Proctor and Black, 1986; Proctor, Feldhusen and Black, 1988).

Most of the studies carried out reveal that the immense majority of the children that precociously enter into the primary levels of the education system adapt at least as well as their non-accelerated classmates. In contrast, their performance is almost always higher than those non-accelerated pupils.

There are some aspects of this type of acceleration to which it is worth paying closer attention, at least in the sense of dealing with one of the most delicate levels. Of the characteristic or conditions that must be fulfilled by the possible candidates, according to Feldhusen (1992) and Davis and Rimm (1994) we should emphasise:

- a) intellectual precocity (an IQ of at least 130 is recommended in order to advise embarking upon this type of acceleration);
- b) adequate visual/motor co-ordination, given that it is necessary to possess sufficient ability in the normal tasks of these levels: cutting, picking up, sticking, writing, etc.;
- c) reading capacity, it is recommended that a child that is to be admitted prematurely to school should be capable of reading at the same level as that achieved by the other pupils in his/her grade by the second semester of the year;
- d) adequate social and emotional maturity, the child must adapt rapidly to the environment and to group activities, and ideally have a friend in the group to which he/she is going to be admitted.

Other important factors to be taken into account when deciding whether the correct decision has been made are related to: the health and the sex of the child; the conditions of the school to which he/she will be admitted; the interest and the willingness of the teacher that will receive the child (this factor is critical, the attitudes of teachers must change and at the same time they must be adequately prepared from a technical point of view); the values and support of the family.

In a "best evidence synthesis" of a total of 314 studies Rogers (1990) evaluated at least 12 different strategies of acceleration. As a result, it was confirmed that at this level the studies did not reveal any losses, neither intellectual, nor social or emotional in the accelerated pupils. Conversely, the accelerated pupils present a higher performance level than their non-accelerated colleagues.

The studies revised by Robinson and Weimer (1991) also concluded in the immense majority of the cases in favour of acceleration at these educational stages, given the appropriate selection of the pupils and taking into account the social, familial and environmental factors mentioned into which we cannot enter in detail here. In fact, as underlined by Rogers (1990, 1991), early entry into the school, along with the possibility of skipping some courses or classes and compacting the curriculum, appears to be the most effective strategies for pupils of these ages.

In summary, we could say that the precocious admission to primary education is highly recommendable for those pupils that have been adequately selected in accordance with the criteria emphasised above. In any case, it should not be overlooked that the decisions of this type are reversible. "All advanced admissions should follow a trial period" (Feldhusen, 1992).

## Grade skipping or full acceleration

This is the traditional method of acceleration of precocious students in primary school (Davis and Rimm, 1994). In order to carry this out, it is not necessary to dispose of special resources, it is the least cost intensive procedure of all those that can be established. It simply consists in permitting, from an administrative point of view, that a pupil can skip a complete year or more of the curriculum.

Reiss & Westberg (1994) in a study on the politics with respect to this type of acceleration, examined 105 school districts, of which only 15% had written norms to regulate this process.

Naturally, this process of acceleration is not only limited to the earliest school years, rather that is frequently implemented at any point in the school career. However, some authors have emphasised that the best moment to advance academic courses is normally those that correspond to natural transition points within the system (Cf Benbow, 1979; Brody & Stanley, 1991).

One of the principal criticisms that can be raised against this strategy of acceleration is that the pupils run the risk of suffering gaps in their knowledge and basic skills. Certainly this is a danger but less than it might appear. Indeed, many pupils with high academic capacity possess many skills and knowledge that are above the proper grade or level to which they correspond and enter. It should be taken into account that this type of pupil more frequently learns in a more independent manner, although they may dispose of other supplementary aids. In any case it will be necessary to dispose of the adequate diagnostic tests to be able to evaluate their knowledge and skills, both basic and advanced, in any aspects of the material that makes up the curriculum.

It must be taken into account that the possible gaps that might be encountered will be easy for pupils of high capacity to cover up. Given that the curriculum develops in a repetitive and spiral fashion, and that the gifted pupils need few repetitions and prefer to learn in a more linear manner, this is a minor problem, relatively easy to resolve (Lynch, 1995).

The results of the studies in this area are almost unanimous in contradicting the commonly held opinion that this type of acceleration produces problems of social and emotional adaptation. From the conclusions of the majority of the studies that have been carried out, we can deduce that in the majority of cases, gifted pupils feel comfortable amongst their intellectually senior classmates and do not suffer any appreciable imbalances (Davis and Rimm, 1994).

Richardson and Benbow (1990) point out that both the accelerated and non-accelerated pupils show a high degree of self-confidence and self-control. The acceleration does not affect their social interactions or their self-acceptance, neither is acceleration related to social or emotional difficulties.

The accelerated pupils are seen to be less conformist and conventional than non-accelerated pupils, but the mean differences were small and not indicative of problems in adaptation. This study did not offer any basis to support the common belief that acceleration produces psychological problems or difficulties in social adjustment (Robinson & Janos, 1986).

The conclusion that can be reached on the basis of the studies reviewed here is that the gifted children do not present any deficiencies in their social skills and that the immense majority of them are well adapted (Tomlinson-Keasey, 1990).

Terman and Oden (1947) in their classic work following several thousand gifted pupils in California concluded that the influence that academic acceleration might have on the pupils has been frequently highly exaggerated. There is no doubt that it can produce problems of imbalance in certain individual cases, but, the data indicate that these imbalances consist of fleeting feelings of inferiority that are rapidly overcome. What is important is to consider each child as an individual and a separate case.

In a study mentioned by Brody and Stanley (1991), that is based on the results of students at the universities of Harvard, Columbia, Minnesota, Northwestern, and others, Pressey (1949) concludes that the evidence was practically unanimous with respect to the young pupils. More of those that were admitted prematurely graduated, had the best academic results, obtained the largest number of distinctions and presented fewer disciplinary problems.

Daurio (1979) analysed 200 studies corresponding to a period of 50 years and found that none of them showed that acceleration was damaging or produced marked negative effects. Two-thirds of them indicated that acceleration had been beneficial.

A classical meta-analysis in this field is that of Kulik and Kulik (1984). In their review of the 26 studies included in this work, they analysed the diverse effects that could be caused by acceleration, both in terms of intellect and non-intellectual criteria. The studies involved applied a diverse range of acceleration procedures, including that with which we are dealing here. The average effect of the accelerated group of pupils with respect to the control group in terms of intellect reached 0.88. The results in non-intellectual terms were little studied and were not in any sense conclusive.

Pendarvis and Howley et al. (1990), reiterating the findings of other studies, highlighted that when accelerated pupils are compared with other non-accelerated pupils, only minor differences can be appreciated in terms of their social and emotional characteristics. Moreover, as the pupils progress more rapidly than if they were not accelerated, their levels of maturity are also accelerated in other ways. It is thus absurd to continue maintaining the attitude that acceleration produces social or emotional problems in pupils.

Brody and Benbow (1986 and 1987) studied the academic performance, the development in extra-curricular activities, the goals and aspirations, as well as the social and emotional development of diverse groups of pupils accelerated in different grades during their high school years, and compared them in each sphere with non-accelerated subjects. This study did not reveal any adverse effect resulting from the acceleration. Few differences were found in terms of general objectives and aspirations, but in contrast important differences did appear with respect to the educational objectives, in favour of the accelerated pupils. Finally, no differences were found between the groups to demonstrate any difficulties in social or emotional adjustment. There is no evidence that acceleration produces negative effects in this regard. Again, this is particularly important given that those who oppose acceleration principally base their arguments upon the imbalances created in this area.

Van Tassel-Baska (1986) when referring to all types of acceleration emphasises that the acceleration of gifted pupils: a) improves their motivation, confidence and knowledge; b) prevents them from becoming mentally lazy; c) they complete their professional training earlier; d) the cost of their higher education is lower.

Therefore, it is possible to conclude, with reasonable confidence, that acceleration cannot be the only cause of any eventual problems that might arise, particularly with extremely gifted pupils. There are several hundreds of studies that demonstrate, in as much as it is possible to demonstrate, that acceleration produces positive effects in both intellectual and non intellectual fields. It is clear that problems can and do arise. However, in the light of the evidence, one cannot attribute the cause of these problems to the process of acceleration itself, rather that they are more likely to be caused by the differences presented by being gifted in itself (above all in extreme cases).

#### Early admission to College

Many centres of higher education in the USA allow the entry of pupils younger than the regular students (early entrants). Generally, they are pupils at the senior high school level, but also possibly at the junior level.

Naturally, these early entrants must comply with the academic requirements of the level to which they will be admitted. One of these requirements, that is furthermore recommended by some authors, refers to them obtaining a performance equal to or greater than that which corresponds to the pupils in the first year of college in the SAT (Scholastic Assessment Test; around 625 in verbal section and 675 in mathematics). On the other hand, it has also been recommended that these younger pupils remain in the family home, given that it is believed that the rhythm of the lifestyle on campus might result in being inappropriate.

Stanley, according to Davis and Rimm (1994), states that those pupils might obtain academic stimulation and a greater widening of their knowledge than in their last two years of high school. To remain at high school could have, in the opinion of this author, undesirable consequences both at the social and emotional level. The pupils that enter early have the opportunity to interact with experts in their field of interest, at the same time they will dispose of more and better opportunities to plan and outline their professional future, undertake a greater number of courses, participate in many academic activities that will greatly enrich them, etc.

To treat the advanced pupils in accordance with their capacity is stimulating and motivating for them, even at this level, and helps them to reach levels of self-confidence in agreement with their actual capacity. This can be seen when they encounter other students with high levels of ability that helps them to put into perspective their own talents. Often, "now they are not the best". But, apart from the personal opinions or postures regarding this possibility, what does the research say? Does this type of acceleration produce the desired effects? Is the research evidence in agreement with that which has been provided from other areas?

In a study that over five years was directed at pupils that entered into college early, Brody, Assouline & Stanley (1990) began by saying that the perception and stereotypes regarding

success or failure of those pupils that enter into college several years prior to the established age is often based on anecdotes, or on the study of only a few individuals.

Later on, in referring to a study of theirs (Brody, Lupkowski & Stanley, 1988), they underlined that in a study of students that were admitted early into diverse colleges and universities across the United States, the majority of them achieved success both academically and socially during their first year in higher education. In order to achieve this success, it was to some extent necessary—according to these authors— to check that: a) the pupils possessed an adequate level of verbal reasoning as well as skills and a capacity for written expression, b) that they have participated in AP courses (Advanced Placement) or courses of university level before leaving high school and c) they were adequately motivated to enter into college at an early age.

In their longitudinal study Brody, Assuline & Stanley (1990) found that, precisely the number of credits obtained in the Advanced Placement Programme, constituted the best predictor of success in the first year of college. On the other hand they recommend that the pupils possess a level of knowledge and of academic aptitude, as measured with the SAT, equal to or similar to that of the college students that are about to enter. It is important to bear in mind the differences between the academic levels that are seen in distinct centres, even within the same assessment ranges.

Brody & Stanley (1991) presented a superficial study of the pupils that enter prematurely into higher education. In which they described the global results and they analysed particular cases of extremely gifted youngsters.

After having presented some classical studies on early entrants, they concluded: the research clearly shows that as a group, the pupils that have opted for entry into college at an earlier age, have a great deal of success both in the academic as in the social and professional spheres. They have not experienced emotional problems. There is no justification to assume that academic difficulties, or problems of social or emotional adjustment will result from the early entry unto college. However, it should be taken into account that what may be true for the group as a whole, is not necessarily applicable to all individuals. Indeed, it is clear that some pupils have experienced problems, for which acceleration, and above all a radical acceleration, should be planned with a great deal of care.

Although there are still many other studies that refer to the diverse variations of acceleration that we have reviewed and to others that have not been specifically analysed here, they generally offer similar encouraging results with respect to the benefits of acceleration, both academic as well as social and emotional. For those readers that might be interested, we highlight some additional references, that in one way or another complete the literature regarding the subject that we have dealt with: Ablard, Mills & Duvall (1994); Aldrich & Mills (1989); Brody & Benbow, (1986); Brody, Lupkowski & Stanley (1988); Cornell, (1994); Cornell, Callahan & Loyd, (1991 a, b); Cornell, Delcourt, Bland, Goldberg & Oram (1994); Cornell, Delcourt, Goldberg & Bland (1992); Eisenberg & George (1979); Feldhusen (1992); Feldhusen, (1998); Fuligni, Eccles & Barber (1995); Ingersoll & Cornell (1995); Kolitch & Brody (1992); Mac Iver, Balfanz & Plank, (1998); Marsh, (1995); Milis & Ablard, (1991a, b, 1993); Mills, Ablard & Gustin (1994); Olszewski-Kubilius, (1995); Oram, Cornell & Rutemiller (1995); Petersen,

Brounstein & Kimble (1988); Robinson, (1985); Rogers & Kimpston, (1992); Slavin, (1987); Slavin, (1990); Solano & George (1976); Solano (1987); Southern, Jones & Fiscus, (1989); Stanley & Benbow (1981); Stanley & McGill (1986); Stanley (1978a, b); Stanley (1980); Stanley (1985); Stanley (1996); Stanley & Benbow (1983); Swiatek & Benbow, (1991); Tomlinson, (1994); VanTasselBaska, (1992)

#### Concluding remarks

From the revision and analysis of the studies and research realised in terms of acceleration as a possible educational strategy for high academic capacity pupils, it is possible to extract some conclusions and recommendations which are outlined as follows:

a) the diversity of high capacity pupils both amongst themselves and with respect to the pupils considered as normal is such that the conventional educational system must make a considerable effort to adapt to their special educational needs.

b) To be more precise, the attention that the system must pay to these pupils should be appropriate for their needs. Although, it is not necessary to overemphasise something that is obvious, the pupils with a high capacity or that are academically gifted, must be treated in a different or specific manner to achieve an optimal match between their needs and the education with which they are provided.

c) The diversity of scores that pupils of outstanding academic performance obtain when submitted to aptitude tests, reflects in a clear manner, the hugely enormous diversity of talent that exists amongst them.

d) The speed, profundity and extension of the learning of academically gifted pupils is significantly distinct to that of their classmates of the same age. As a result a necessity is created for a method of instruction that is of a more rapid, less repetitive nature and that allows them to move at a faster pace. Research shows that slowing down or establishing a limit to the speed at which they can learn is damaging to these pupils and leads them to lose interest at school, to develop poor working habits, and promotes intellectual laziness in them.

e) The effects of acceleration are in general positive, as much from the academic point of view-better performance with respect to their non-accelerated colleagues- as from the point of view of social and emotional adjustment. It has been sufficiently well demonstrated by the studies realised in the last decades, that it is not possible to attribute supposed negative effects in these areas to acceleration.

g) Whether or not one should submit a child to acceleration is, without doubt a decision that must be taken with caution, and upon the basis of personal judgement in the light of the evidence available on the part of those implicated i.e.: the pupil, their teachers and parents. Acceleration should never be proposed "at all cost", in the first place the pupil should be prepared to accept this process and their family in agreement, in such a way that they are prepared to support him. Moreover, it is important that the teachers implicated are prepared to co-operate and help the other pupils, if this is not the case, it is very possible that problems will arise. We could say that acceleration does not exist rather that there are pupils whose

education is accelerated. Therefore, each decision is unique and specific, and donned with its own characteristics. However, what educational decision is not?

h) Since this is a delicate process that should be closely studied, bearing in mind the recommendations highlighted above and accepting that each decision that is adopted will be unique, what remains as a common and general principle is the possibility of considering acceleration. That is to say that the educational system should be as flexible as possible -whilst maintaining the appropriate precautions - to be able to accept all the possible options that best respond to the means available and the situations that may arise.

i) The difference between enrichment through acceleration and enriched acceleration, more than just a play on words, is used to highlight that both strategies must be adequately combined in order to look for the optimal adjustment between breadth, depth and speed in each case. To accelerate within a curriculum that has been poorly developed and at an inadequate pace is as damaging as an irrelevant process of enrichment that delays the pupil in their progress towards their goal, that being higher levels of learning.

i) The educational system cannot continue responding in a rigid fashion to the diversity of its pupils, and will have to contrive procedures that allow it to attend to the differences in capacity and rhythm of learning, particularly when associated with the presence of gifted children. It is certain that problems of rigidity in the educational system are as bad as those found in other social systems, but all the efforts that can be made to make these systems more flexible will be of benefit to the pupils. It is not possible to justify in terms of educational psychology restricting courses to age, nor that a pupil that does not need to be obliged to remain in a cycle or stage longer than is necessary. Perhaps there are political reasons for this but not educational ones. Most of the research carried out in the last 50 years in this area corroborates it.

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Winner, E. (1996). *Gifted Children. Myths and Realities*. New York: Harper Collins Publishers. Dr Javier Touron works at the University of Navarra with Dr. Marta Revero in the Department of Education, Dr Touron is president of the European Council for High Ability (ECHA).