OUT-OF-SCHOOL EDUCATIONAL PROVISION FOR THE GIFTED AND TALENTED AROUND THE WORLD

A report for the Department of Education and Skills

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PART ONE: THE RESEARCH

PART TWO: THE CONCLUSIONS

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PREFACE

The first part of this international survey on out-of-school provision for gifted and talented children reviews the style,organisation and effectiveness of the work of major centres, i.e. those which are most frequently seen as models to follow because of their size and reputations for excellence. The second part (due September 2002) is concerned with the finer details of administration and assessment

However, this first part also includes information on less well-known centres which are trying out interesting schemes, not undertaken by the larger ones. They may, for example, be innovative in their efforts to find 'hidden' gifted children who have not yet exercised their high-level potential, whereas the prominent centres almost always aim to enhance already-demonstrated gifts and talents.

Both parts of this survey are in line with its defined research goals - to increase knowledge and understanding of the subject by taking account of ideas and experiences from around the world. My intention is not only to present information of practical value, but to encourage international collaboration towards achieving the best possible provision for gifted children. This is not a one-way process. As traditional barriers between natural and social sciences diminish, so the opportunities for inter-disciplinary cooperation are multiplying (UNESCO, 1999). As well as learning from elsewhere, I hope that the outcome of this survey will include exchanging British ideas with other countries. One worthwhile goal could be the establishment of a network of centres of excellence around the world.

Presentation

To ease the process of reading and avoid interminable inverted commas and references in brackets - yet to give credit where that is due - there are places in the text where I have simply told the reader where my information came from. Although it was tempting to simplify the question of English-English or American-English to one usage, words such as program/programme, pupil/student, school principal/head teacher, etc. have not been presented uniformly, but chosen to fit their context.

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OVERVIEW

No educational provision for the gifted and talented works in a cultural vacuum. This survey provides a unique view of the ways in which out-of-school education can be affected by both cultural assumptions and standards of basic education.

The overall picture is complex. There is evidence that excellence can come from widely differing special provision, or even from no extra provision at all. Although there are no programmes for the gifted and talented across Scandinavia and in Japan, for example, bright children's achievements there are often superior to those of the countries which do have such programmes. China, a relatively poor country, provides widespread non-selective enrichment via its Children's Palaces, and the results appear to be excellent. In both New Zealand and Israel, the governments provide generously, often using self-selection. Germany has inspiring competitions with desirable prizes, funded partly Federally and partly privately. Brazilian help goes to finding seriously deprived potentially talented children. The vast American Talent Searches usually select youngsters for summer-schools, not only by their already demonstrated high-level achievements, but also by their parents' ability to pay the sometimes very high fees.

Some of the largest and most influential American institutions were founded on the psychological understanding of human abilities that was current in the 1920s. These early influences still affect practice, in the sense that abilities are seen as sufficiently measurable to use precise cut-off points for selection. To show the context in which these facilities carry out their work today, their development within national legislation is described.

Yet whatever the size and influence of centres anywhere, there is always overlap between in-school and out-of-school activities. For all styles of provision, cooperation with school is a vital aspect of success. This is as true for what is based in the classroom and spreads to out-of-school, as what is started outside and finds its way into the school. Familes too are part of a successful partnership.

The major cultural dichotomy affecting educational provision for the gifted and talented is between the largely Eastern perception - 'all children have gifted potential' - and the largely Western one - 'only some children have gifted potential'. This brings about extreme differences of approach and practice. In the East, for example, widespread Chinese self-selection for extra enrichment assumes that children's interests, allied with opportunities, will give them the possibility to excel. In Japan, all young children are seen as similar in potential, with hard work making the essential difference to their achievement. In the West, however, Talent Searches assume that only a tiny proportion of children are innately more able than others and so can be diagnosed and treated separately.

In spite of considerable searching of the literature, I have not yet found a single scientific comparison, either cross-culturally or within one country, between any one aspect of an out-of-school programme for the gifted and talented and another. As a result, it is hard to say what type of provision would be the most appropriate and effective in any given situation. Although the varied approaches can be compared in terms of international competitions and comparisons, or of national scientific advances and economic success, it is not possible to conduct a controlled experiment as to the relative value of each type of provision within the setting of each culture. Because of this gap in knowledge, it does not seem wise to copy action directly from one culture to another without recognising inevitable differences in background and outlook, and adapting it to local conditions. Outcomes are also dependent on the enthusiasm, organisation and money put into the schemes.

It is not surprising that carefully selected, bright, keen children learn more from special enrichment than those who have not experienced it. In fact, it would be strange if they did not benefit. Hence, direct comparison between the achievements of the youngsters who have and those who have not attended a particular scheme does not necessarily tell us that it provided the best possible method for enhancing gifts and talents. Additionally, because there are unavoidable errors and biases in all selection, the way in which youngsters are chosen for activities must have built-in flexibility.

The growing trend around the world is to offer as many youngsters as possible access to very high-level opportunities, so that no keen learner is turned away without even a chance of sampling the provision. Some of the most exciting extra-school programmes, such as the American Renaissance Quest Camps are designed for the whole family, rather than specifically for the gifted and talented, but still provide the educational means and support to take interests to any height.

Chapter 1

WHO ARE THE GIFTED AND TALENTED?

Gifts and talents include both exceptionally high-level performance, whether across a range of endeavours or in a limited field, as well as unrecognised potential for excellence. The inclusion of potential within the definition of gifts and talents, rather than only recognisable achievement, can cut through the often unacceptable barrier of the 'élitist' nature of many definitions (Freeman, 1998). Gifts are taken here to mean the more easily measurable intellectual aspects of development, such as high-level school achievement and IQ, whereas talents are the less easily measurable aspects such as the arts and sport, normally discovered by experts in those fields.

Of the dozens of definitions of giftedness around, almost all of refer to children's precocity in terms of high marks in school, but also in terms of psychological constructs such as intelligence and creativity. But precocity is time-related. Advanced children can lose that advantage as others catch up, so they appear to have faded or 'burned out'. This is a feature of 'hot-housing', when considerable pressure is put on bright children to produce gifted performance, perhaps at the expense of their all-round development.

Context is all. Because the term 'gifted' is always a comparison, children can be called gifted at very different levels of achievement. Whereas in a highly selective school, for example, some pupils might be seen as 'stupid' by their school-mates, they might be 'gifted' in another school. The very label of gifted produces different reactions in both the bearer and the observer and should be handed out with care. To quote from testimony in Freeman's 27-year in-depth study of gifted and non-gifted children, by the age of 37, Alison said that being labelled gifted had been the bane of her life, and she wished she'd never been given that tag (Freeman, 2001). Growing up, Alison felt she could never live up to the expectations it brought, so she had always felt a failure. Now, she said, her greatest successes were her children: they did not know about the label and loved her for herself.

There is a distinction between the recognised gifts of children and those of adolescents and adults. The children's are usually seen in the form of precociousness in comparison with others of the same age, whilst adults' are seen in performance based on many years of

dedication in a chosen area. Unlike gifted adults, however advanced they are, children cannot change the nature of their area of expertise because they lack the time needed to gain sufficient experience. In the world outside education and tests, age is irrelevant. Very few gifted children will make it to adult giftedness, and eminent adults may never have been gifted children.

There are two major reasons for being concerned about helping children to realise their high-level potential -

- Individually - so that each human being may reach personal fulfilment.
- To serve the wider needs of the community. Although gifts are personal, they are also a national resource, and the future course of every society depends on developing the potential of its young. No country can afford to lose it.

There are, however, strong social obstacles, which not only put real barriers in the way of development, but which can have a negative effect on children's developing self-concepts and ambitions (Freeman, 2001). Five major social barriers exist everywhere in the world to a greater or lesser extent - political and social attitudes, poverty, gender, social disapproval and handicap.

Not all gifted children possess a wide range of outstanding abilities, and sometimes a single characteristic can indicate a special gift or talent in an otherwise unexceptional child. In formal school education, social or business talents are rarely considered, and physical and artistic prowess is usually regarded as inborn, without which no coach or practice can develop it to excellence. Though the more ephemeral abilities such as creativity, social awareness, or leadership may be included in definitions of giftedness, there are still many unanswered questions. Is creativity a part of general high intelligence or independent of it? Is there such a thing as the currently fashionable idea of emotional giftedness, and if so, how might it be related to social intelligence, if that exists? What about spiritual giftedness, about to hit the market-place?

The way a very able child is defined depends largely on what is being looked for, whether it is academic excellence for formal education, innovation for business, solving paper-and-pencil puzzles for an IQ club – or gaining entry to an out-of-school programme for the gifted and talented.

Finding the gifted and talented

Which children are chosen as gifted is affected by the reasons for searching as well as the methods used for selection. In more scientific terms, outcomes can be predicted from intake measures, and the processes produce and determine the data. Children selected by high school-grades, for instance, will be different in outlook from others who have developed their gymnastics to a level of excellence. If children are chosen subjectively by teachers and parents, even if these choices are further refined by tests, the sample will be different from those chosen only by tests. It is not only the sheer ability which can influence the choice of children as gifted. It could be, for example, the interaction between the personalities of everyone concerned, what the children look like, percentages of ethnic representation required or the agreed definition of giftedness. Subjective choosing is likely to result in the selection of two boys to every girl, a strangely stable proportion found all over the world (Freeman. 1989).

An exceptionally high intelligence is by far the most popular criterion among teachers, parents, pupils and researchers for defining children as gifted. In its broadest sense, everyday intelligence is an individual's power to cope with his or her personal world. It is used to assess the choices available and then work out the most likely effective action in the circumstances. Active everyday intelligence can be improved with practice, because the more frequently you do something the better you will be at it. To a limited extent, measurable intelligence can also be increased by training in the kind of learning that is tapped by intelligence tests, that is by the very act of study of almost any subject. This idea that learning can of itself improve intelligence, is sometimes given as the reason why the intelligence of Japanese children is steadily going up. They stay at school longer than any other nation and work harder while they are there. Yet to the Japanese, gifted children are imaginary, all children have similar potential. So, to define giftedness by either an IQ score or academic excellence, one would have to vary the cut-off point with each culture because

the children selected for gifted programmes in one culture may not reach the standard of acceptance in another.

The efficient use of intelligence depends on good self-esteem. Intellectual growth therefore thrives best in a setting of steady, balanced, positively responsive relationships, rather than a series of disconnected encounters.

All school education plays a highly significant role in the intellectual development of young people. Schools aim to provide for each child to achieve the highest level of individual development according to ability and willingness. Yet no school can be entirely suitable for every individual, nor can every pupil expect school to provide adequately for every type of talent, gift or specialised interest. Children who are highly able, perceptive, with good concentration, who are inquisitive and have broad interests can face too few challenges resulting in boredom and lack of motivation. This results in a decline in achievement, apathy and maybe behavioural problems. The less the school is willing and able to meet the special requirements of their highly able students, the more important outside-of-school provision becomes.

The gifted and talented must always be seen in terms of general child development. They are not inherently different from other children - the similarities far outweigh the differences.

Chapter 2

INTERNATIONAL PROVISION

Out-of-school educational provision for the gifted and talented around the world has been moulded and developed by different cultural contexts. Although this report surveys world provision, it is inevitably dominated by American practice which has by far the longest standing and most numerous designated programs anywhere. Indeed, because of its century-old head-start in gifted education, American practice has almost become an accepted bench-mark, at least in the Western World. Yet across the USA itself there is great disagreement as to which form of provision is best for the promotion of excellence. This varies from the diagnose-and-treat model of the Talent Searches to the promotion of self-selection for enrichment by the National Research Centre at Connecticut.

Overlap between in-school and out-of-school activities

Variation in attitudes to the education of the gifted divide loosely on whether specific provision is to be wholly inclusive - within the classroom, or wholly or partly exclusive - outside the classroom. There is inevitably overlap between what is classroom-based and spreads out-of-school, and what is started out-of-school and finds its way into the classroom - if not in actual teaching, then in the minds and bodies of the pupils.

A pull-out programme, for instance, is one in which selected pupils leave their classroom for a specified time to take part in higher-level learning, which means missing time from the normal class. A meta-analysis and review of nine experimental studies on the effects of American pull-out programs for the gifted found significant positive benefits (Feldhusen *et al*, 1991). Most of those pulled-out say they enjoyed the challenge, and presumably did not find it too difficult to catch up with what they had missed. When there is good coordination between the pull-out programs and the class-teacher, the effects continue during normal lessons, adding even more to the overlap.

An example of a successful scheme which was designed to overlap both inclusive and exclusive education, happens in Pune, India. In 1962 poor gifted boys were given extra academic help in Jnana Prabodhini Prashala secondary school, which was combined with

field studies in e.g. rural development, electronic and mechanical laboratories (Watve, 2001). In a few years, a dedicated school for the gifted developed, with entry based on IQ. But the out-of-school activities were also retained as part of the regular curriculum – the school laboratories, library and workshops being available to the boys 16 hours a day. Thus out-of-school activities took place in school.

The basic assumption behind out-of-school educational provision is that it is not possible to meet the educational needs of gifted and talented pupils in regular classrooms with in-school tasks.

The development of programs in the USA

Official programs for the gifted and talented have been in action for over a century in the USA. The first, at primary level, was in St. Louis, Missouri, where tracking in schools was instituted in 1870 and pupils could telescope grades 1-8. A few other cities in Massachusetts and New Jersey followed suit.

The gifted child movement in the USA surged ahead at the beginning of the 1900s, in accord with the testing progress by the pioneers such as Goddard, Binet, Simon and Terman, which stimulated scholarship and interest. Special schools and classes for gifted students sprang up all over the country. The first school for the gifted was opened in Worcester, Massachusetts in 1901, an idea which spread, until by the 1920s, most large city school systems offered some programs for gifted students, and ability grouping became popular. However, in the 1920s and 1930s, when the Great Depression forced many to think about basic survival and the maintenance of normality, the striving for excellence faded and many gifted programs were cancelled until after World War II.

But the seeds had been sown. Gradually, by the early 1950s, researchers such as J.P. Guilford began to create new approaches to the theory of intelligence, and Paul Witty founded the journal, *The Gifted Child*, proposing new ways of identifying gifted children. The Soviet launch of Sputnik in 1957 shocked America into the launch of more gifted programs. Big administrations were involved in ensuring the success of the stated aim to

place America's brightest youngsters at the top of international competitors in maths and science. The United States Office of Education sponsored comprehensive experimentation of academically talented students, the National Defense Education Act in 1958 funded gifted guidance counselling, grants from the Carnegie and Ford Foundations went towards the nurturance of gifted minds, and research and professional interest proliferated. The British remained calm.

There has been further American increase in attention for the gifted in the final quarter of the 20th century. In Texas, for example, in 1979 the Legislature decided to channel funding into exemplary programs in public schools. Every school district could submit an application to the Texas Education Agency (1981) to receive money, on fulfilling guidelines established by the Commissioner of Education. During 1978-1980, in Texas alone, two million dollars were allotted for the gifted, and in 1982-1983, funding was increased to eight million dollars (Texas Education Agency, 1981). Nationally, in 1995, the Jacob K. Javits Gifted and Talented Education Act generously funded a National Research Center on the Talented and Gifted. This was strengthened in 1998 by the Gifted and Talented Students Education Act which provides states with resources to strengthen programs and services for gifted students.

A Nation at Risk

Help for the gifted was not only boosted by Sputnik, but also by the effective *Nation at Risk* report (National Commission on Excellence in Education, 1983) which identified a steady decline in science and mathematics scores, the functional illiteracy of 13% of 17 year-olds, as well as their lack of higher-order thinking skills. The report presented a scathing (and percipient) attack on the standards of pupils' achievements due to the poor teaching, curriculum content and organisation found in American schools:

> "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. We have even squandered the gains in student achievement made in the wake of the Sputnik challenge. Moreover, we have dismantled essential support systems which helped make those gains possible. We have, in effect, been committing an act of unthinking, unilateral educational disarmament." (p.1)

In other words, the foundations of American society were seen as being eroded by a rising tide of mediocrity that threatened the future of the nation as a democratic society. As for the gifted, the achievements of about half, the report found, fell significantly short of their tested potential. The effects of that powerful report were detailed in a study by Passow and Rudnitski (1993) who analysed state policies on the identification and education of the gifted as reflected in legislation, regulations, rules, recommendations and guidelines provided by 49 of the 50 states. They concluded:

Policies and programs in the USA by 1983:

1. All 50 states have formulated policies in the form of legislation, regulations, rules, or guidelines that support education of the gifted and talented.
2. The absence or presence of strict controls and jurisdictions determine the nature of programs for the gifted.
3. About a fifth of the states include the gifted and talented under a special federal education legislation.
4. Basic frameworks are provided for identifying and educating gifted children. Policies regarding identification procedures range from broad guidelines to specific standards to very detailed lists of instruments.
5. States vary widely with respect to programs elements (definition, identification procedures, instruction, organisation, evaluation, and funding) that are required or recommended.
6. A few states suggest that gifted and talented students have distinctive counselling and psychological needs.

Things do not seem to have changed a great deal since 1983. More recently, further opprobrium was heaped on American education by the international investigation into the teaching of mathematics, the Third International Mathematics and Science Study (TIMSS, 1999). American students' achievements in a 38-country investigation of 8th grade mathematics were rated 19th out of the 21 countries studied.

TIMSS covered five different grade levels, and more than a million students were tested. Mathematics and science literacy achievement results were reported for 21 countries; advanced mathematics results and physics results, respectively, were reported for 16 countries, completing the first round of descriptive reports. Together with the results for

primary schools and middle schools, it provided valuable and reliable information about the relative effectiveness of each participating country's education system.

The Netherlands and Sweden were the top performing countries in mathematics; France was the top performer in advanced mathematics; Norway and Sweden had physics achievement levels significantly higher than other participating countries. Interestingly, there is virtually no specific educational provision for gifted children in those countries.

A US government White Paper identified an educational crisis for gifted and talented students, not only their poor performance on international tests but also the small number of students performing at the highest levels on National Assessment of Educational Progress tests (US Government, 1993). They report that although gifted and talented elementary school children have mastered 35- 40% of the curriculum in five basic subjects before they begin the school year, most classroom teachers make little, if any, special provision for the talented; the highest achieving students study less than an hour a day; and only 2 cents out of every $100 spent on school education supports special opportunities for talented students.

The poor American results in the TIMSS study revealed that the middle-school mathematics curriculum may be the weak link. By 1997 a further White Paper (US Department of Education, 1997), showed that warnings on mastering mathematics had begun to bite, not least because students with a strong grasp of mathematics were seen to have an advantage in further education and the job market. The eighth grade, it seems, is a critical point in mathematics education, and although algebra is the gateway to advanced mathematics and science in high school, it is not normally studied at secondary level.

In fact, the extremely detailed survey by Rogers (1993) was specific: “US teachers tend to aim content towards the 19th percentile which is 7 or 8 times lower than gifted students need.”

The low standard of education in America, compared with other developed countries, and not only in mathematics, is vital to understanding the US industry in out-of-school extra education for the gifted and talented. Where the basic level of education is low, there is a need to provide independently for those with most promise.

A Warning

It is of concern for any country considering following in North America's footsteps that there has been some recent falling-off of enthusiasm for out-of-school programmes for the gifted. The Duke University Talent Identification Program (TIP) which has a branch in Toronto, Canada, reports on the internet of its courses:

> "TIP/Canada is no longer running programs for gifted students. The Winter 2001 courses were cancelled due to low enrolment, and there will be no classes in Summer 2001. While we remain committed to supporting the development of exceptionally capable adolescent learners, we have been finding it increasingly difficult to provide the kind of high-level programs that we want to run. Faced with a combination of financial constraints, problems with classroom space, and declining enrolment, we have decided to suspend all operations for the time being. At some time in the future, the University of Toronto may once again provide extracurricular programs like this. If so, they will be widely advertised through the Association for Bright Children and the schools, and the families who have been involved over the past years will be notified."

Even in the USA itself, enthusiasm has dropped. In 2002, the ERIC Clearinghouse on Disabilities and Gifted Education states that over the past five years, the number of states mandating gifted education programming has dropped from 50 in 1993, first to 31 and then to 23 states. It is no longer possible to contact the person responsible for programming at the State Department of Education because many of these positions are vacant. Simultaneously, program opportunities such as enrichment have decreased significantly in number and scope, and many are no longer part of the regular education curriculum.

As perhaps an indication of the inadequate level of American education for its brightest students, recent research indicates that gifted elementary students know much of the curriculum before the beginning of the school year (Reis *et al*, 1993), and that high achieving students study less than one hour per day (National Assessment of Educational Progress). Where gifted programs do exist, they may be limited in scope and substance. In addition, some school districts have eliminated gifted programs while state universities have seriously reduced education and professional development in this field of education. Indeed, gifted education has become somewhat fragmented, making it more difficult to find out where all

the gifted programs are.

To address this problem, the ERIC Clearinghouse on Disabilities and Gifted Education is currently collecting data for an online searchable database of selected gifted and talented programs in the United States (http://ericec.org). Their careful criteria are worth consideration:

Criteria for gifted programs

1. Create an environment in which the special needs of each gifted student are recognised and met through the provision of appropriate challenges
2. Use a variety of appraisals so that there is not undue reliance on a single criterion
3. Provide an array of services that are integrated with identified areas of giftedness or talent and meet the specific needs of gifted students
4. Develop and use identification procedures which recognise diverse gifts and talents of students and identify these gifts and talents through the use of multiple criteria
5. Develop a program of staff development and community education that includes all the stakeholders, such as administrators, teachers, paraprofessionals, parents, and community leaders
6. Provide information to enable parents and other members of the community to understand and contribute to the goals of the program and the educational process
7. Provide evidence of serving the learner needs that the program is designed to address.

The current picture in the USA

The definition of gifted most frequently used in the USA today is the 1988 Javits definition below:

> "The term gifted and talented student means children and youths who give evidence of higher performance capability in such areas as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who require services or activities not ordinarily provided by the schools in order to develop such capabilities

fully." (Jacob K. Javits Gifted and Talented Students Education Act, (1998) Title IV, Part B of P.L. 100-297)

Today, gifted education is mandated in only about half the states. In some cases, only identification is mandated, in others it is programming, and in others, both identification and service are mandated. If a state provides only guidelines for identifying gifted students, it is unlikely that school districts will have formal identification procedures, though they may provide options and services.

Yet the belt is being tightened further. In 1995, the US Office of Education Report, *National Excellence; a Case for Developing America's Talent* (Ross, 1994), reported "the $9 million in federal money represented by that statement has been pared down, so that now only 1 cent of every hundred dollars is expended." (Rogers, 2001, p. 323).

Programmes for the gifted and talented that employ the Javits definition are characterised by the following attributes (U.S. Department of Education, 1993):

1. Seeks variety - looks throughout a range of disciplines for students with diverse talents;
2. Uses many assessment measures - uses a variety of appraisals so that schools can find students in different talent areas and at different ages;
3. Is free of bias - provides students of all backgrounds with equal access to appropriate opportunities;
4. Is fluid - uses assessment procedures that can accommodate students who develop at different rates and whose interests may change as they mature;
5. Identifies potential - discovers talents that are not readily apparent in students, as well as those that are obvious;
6. Assesses motivation - takes into account the drive and passion that play a key role in accomplishment
7. Is integrated - provides assessment to identify the specific talent areas that the program is designed to address.

Comparison Between The USA And UK

The scene in the UK has been quite different. The development of positive attitudes towards special educational provision for all gifted and talented school-children came very much

later, although idiosyncratic and stop-start. As late as 1992, HMI was able to conclude that; "Very able pupils in maintained primary and secondary schools are often insufficiently challenged by the work they are set." (p.viii). In the same year, Freeman was clear, "there is no specific overall educational policy for the gifted in Britain." (Freeman, 1992, p.67)

The report, *Excellence in Schools* (House of Commons, 1997) somewhat mirrored the 1983 American one. Both expressed the same concerns, aims and objectives, essentially to eliminate under-achievement in the potentially gifted, raise standards of attainment and aim for excellence; individuals should aim for their best and schools set high expectations. Both suggested that specific provision for the gifted should provide a enriched and accelerated curriculum. *Excellence in Schools* added that a modern education service must be capable of stretching the most able, and that in too many cases mixed-ability teaching had failed to do this.

Selection issues

The different educational cultures of the USA and Britain could be seen in the emphasis each report placed on the two main ways of educating the gifted in school – acceleration in the USA and enrichment in the UK. This difference was probably influenced by the basic styles and levels of education in each country. Selective education is uncommon in the USA whereas it has been the norm in Britain (and most of Europe) for centuries. Hence because American educational standards and expectations are relatively low, acceleration for a few advanced children is more attractive, whereas in the UK, where general standards are higher, enrichment within or outside school hours appears to fit better.

In the UK, even by the late 1950s, research directed at selective education, notably the 11+ examination, began to show that examination-based selection was unfair because of the wide error variance in results (about 10% of mistaken placement either way), which could and did damage children (Vernon, 1957). Educational attitudes, though, did not harden against it until the 1970s, when greater emphasis was placed on socio-emotional concerns in teaching, sometimes at the expense of academic rigour. Not only were decisions on selective education found to be strongly influenced by social-class, but they even accentuated class-based opportunities because children so often conformed to what was expected of them. In some schools and local authorities the legitimate drive to create equal opportunities for all pupils has resulted in an obsessive fear of anything which might be deemed 'élitist'.

The avoidance of that emotive exclusive term “gifted”, with its implication of fixed abilities and unearned privilege, in Britain, a country which had possibly been more in its grip than many others, produced a thesaurus of more inclusive (circumlocutory) terms, such as ‘more able’ or ‘very able’, or quite simply ‘able’, as though other children were not. This confusion remained until 1998 when the DfEE announced that ‘gifted and talented’ were the terms to be used.

UK and USA legislation

Gifted and talented pupils were not on official minds during the formation of the 1981 Education Act on children with special educational needs, derived from the *Warnock Report* (DES, 1978). They were noticeable by their absence. The act specifically omitted consideration of gifted pupils, saying: "we did not regard the problems of highly gifted children as falling within our remit". (p.4) As a consequence, there was no legal requirement in the 1981 Act for LEAs to meet the needs of gifted pupils, as there was for the least able.

Not so in America. There was a slew of legislature for the gifted in the 70s and 80s. The influential *Marland Report* (Marland, 1972) drew specific attention to inadequate educational provision for the gifted. It set a national strategy in action to develop awareness of the educational needs of such pupils and provide teacher education for them at state and local levels. It provided a purposeful and inclusive definitions of giftedness in its various forms that became the guide for many states and school districts (and other countries, too). It tidied up the wide diversity of practices in states and districts, such as in the extent to which programmes were mandatory or permissive, and details of selection procedures and provision.

At the national level, the *Marland Report*, challenged the states to make a commitment to gifted education a major priority. It was soon followed by the *Education for All: Handicapped Children Act* (1975), which specifically included gifted education, so that many states were encouraged to provide for their exceptionality. For example, Pennsylvania's Standards for Special Education Services include the 'mentally gifted' as well as the 'mentally handicapped'.

By 1990 all American states had enacted legislation and had policies in place, and in most cases these were mandatory. Most states have now established offices or bureaux for gifted education with full-time directors and funding provided by the states at various levels and with the production and dissemination of curriculum and other instructional materials for the gifted. All school districts have policies with guidelines for identification and provision. By 1992, the year that HMI and Freeman expressed concern about the underachievement of gifted pupils and absence of educational policy for them, American "gifted education had been finally legitimised and institutionalised." (Passow, 1993, p.36)

The nearest British report on gifted education came nearly a quarter of a century after Marland, in 1998, Freeman's *Educating the Very Able: Current International Research* (Freeman, 1998). Yet, although the British have been slower than the Americans to address themselves to this matter, gifted and talented pupils had not been entirely neglected. Selective schools and specialist schools, both private and state, have for centuries worked with some pupils at greater speed, breadth and depth. Additionally, there have been several local and national initiatives such as the Assisted Places Scheme.

The Assisted Places Scheme

The problems of selecting gifted and talented children in Britain were highlighted by the Assisted Places Scheme (1981- 1997) (details in Freeman, 1998). Pupils who were achieving exceptionally well in maintained schools were transferred to private schools, their fees being paid from public funds. Over 75,000 pupils changed schools at a cost of over £150 million a year, about 1% of the school population, and they will continue to be funded until they leave school. Some private schools were infused in this way by about 50% of their pupils, not only financially, but in improved results.

This selection by manifest achievement was found to be discriminatory in these ways:

- It worked in favour of better-off children, like the 11+ exam. Research on pupil uptake found that less than 10 per cent had fathers who were manual workers, compared with 50 per cent in service-class occupations such as teaching (Edwards *et al*, 1989). Although children from single-parent families, such as divorced mothers, made up the largest single category, other disadvantaged groups had poor representation, notably the unemployed, black and Asian families.
- Two-thirds of those taking up places for the first time at 16 were already fee-paying pupils in the same school.
- It discriminated in favour of boys, possibly because of teacher recommendation. West & West (1997) found 34% girls and 66% boys – the same gender proportions found around the world when children are selected by teachers or parents (Freeman, 1998). This is true even in the USA. Winner (1996) writes that at the start of school, girls and boys are identified in equal proportions for gifted programs, but as they get older there is a striking loss in the proportion of girls selected. So, although girls make up 50% of the selected gifted in kindergarten, this shrinks to less than 30% at junior high school, and even lower at high school.

In Britain, selecting children as gifted and talented for special educational provision has been unreliable, hampered both by socio-political attitudes and uniformed teacher choice. Additionally, the provision has been inconsistent, geographically biased and associated with both the reality and the fear of élitism.

Chapter 3

THE AMERICAN TALENT SEARCH MODEL

The Talent Search model was pioneered in the USA during the 1930s by psychologist Leta Stetter Hollingworth and put into practice by Julian Stanley of Johns Hopkins University, Baltimore. Stanley founded the centre for the Study of Mathematically Precocious Youth (SMPY) in 1971, and conducted the first Talent Search through competitions in January 1972. Hollingworth's original thinking - diagnosis of talent followed by prescribed intervention - has been retained to this day. Cross-State Talent Searches, both regional and national, determine the major intake of enrolment for out-of-school programmes in the USA. The prime targets are intellectual high-achievers, but the programs are still expanding to include most other subject areas. The Center for Talented Youth (CTY), based on SMPY, was formally founded in 1979, since which time about 900,000 students have taken part in the Searches.

The early SMPY competitions trawled almost all boys. When girls were questioned, they replied that Math Camp was unfeminine; some denied to their friends that they had even entered and others said they were going to a different sort of camp (Fox & Zimmerman, 1985). Research based on the Talent Searches has also been responsible for the insistence on great innate gender differences in mathematics – quite unlike research results in many other developed countries – in which girls are now scoring more highly than boys (Freeman, due 2002). Whereas other countries have changed in this respect, American gender differences have remained static. Because cultural gender effects are different in the USA from other developed nations, studies conducted there will not necessarily be representative of the international situation.

One must always be alert to the way cultural influences affect children's beliefs in their own abilities, because these affect perseverance and lifelong achievement. For example, in Moscow, Los Angeles, East Berlin and Tokyo, where girls achieved more highly than boys in school, they "specifically discount their own talent as a cause of their success at school." (Stetsenko *et al*, 2000, p. 524).

Optimal match

Talent Search programs are based on the concept of optimal match - the process of adapting teaching to the needs, interests and knowledge of the pupils (Brody, 1995). The route to optimal match is diagnosis of the child's learning capabilities, almost always with testing. This is followed by the treatment, which is adjustment of the curriculum to provide an adequate level of challenges and stimuli, along with appropriate conditions of pace and level of learning. It sounds straightforward.

Optimal match assumes the following:

1. Learning is sequential, evolutionary and relatively predictable. Thus, 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.
2. Once a pupil has achieved control of a certain subject area, it is necessary to pass on to the next. 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 sequential principle is in conflict with the idea of horizontal enrichment, vertical approaches that involve a greater level of complexity in accord with the maturation of the pupils, whether it be within the normal curriculum or in complementary areas.
3. Because within the same age group there are substantial differences between pupils in terms of their skills and knowledge, these are reflected in their different rates of learning. These individual differences are not only seen in general intelligence, but also in specific subjects (mathematics, languages, etc.), where some might be more advanced in some than in others. Such differences must be taken into account when trying to adjust the individual teaching conditions to achieve an adequate optimal match.
4. There are innate differences in children's potential to achieve, so there is no point in providing an education beyond a child's native ability, an idea in total contradiction to Vigotsky's of the Zone of Proximal Development in which a child aims just beyond present performance (e.g. Adey, 1999).

Talent Search selection

Talent Searches are conducted annually throughout the USA. Initial recruitment is normally though recommendations by teachers, typically of 7th grade students who have scored in the upper 3% on a nationally normed test, which most American school-children take as part of their educational experience (Barnett & Juhasz, 2001). Over 90% of the schools already hold standardised test scores on their students. More than 5,200 middle-schools and 5000 elementary schools distribute Talent Search applications to these eligible students every year. Some Searches also look for younger students, such as C-Mites at Carnegie Mellon in Pennsylvania, which offers a regional talent search as well as weekend and summer enrichment programs for younger children in 3rd through 6th grade. Some Talent Search programs are interrelated, so that qualified participants from one region may apply for the programs in others.

On- and above-level testing

On-level assessments, (from normal school testing allied to age), do not allow differentiation among high-scoring children between those who may have simply mastered the material that is being tested, and those who have the ability to go far in advance of it. On-level tests for the gifted produce the ceiling effect - clustering of scores at the upper limit of the test, and so not only offer little diagnostic information but obscure what the child could have achieved (Elder, 2002). Above-level testing uses tests designed for older students but given to younger ones who have already reached the ceiling on tests designed for their age or grade level (Hansen, 1992). Above-level testing thus allows distinctions to be seen between high ability students whose educational needs may be very different.

The above-level tests which CTY uses, assesses mathematical and verbal reasoning abilities, available on the internet. “The participants in grades two through four are compared to students two grades ahead: fifth and sixth graders to those three grades ahead, or eighth and ninth grades respectively; and seventh or eighth grades to college-bound seniors or students five or four grades ahead, respectively” (Barnett & Juhasz, 2001, p. 97).

Benbow & Lubinski (1996) have reported the beginnings of a 50-year longitudinal study to find out what has happened to the SMPY students since its inception. The early findings, they say, indicate good academic success and student satisfaction. Over 300 articles have

been published relating to the original SMPY, the most studied model of all such (Callahan, 2000). However, in spite of considerable searching, the writer can not find any comparison between this program and any other programs. Hence it is impossible to know which would the best for its stated aims and in different contexts.

Residential programs

The major Talent Search centers offer summer enrichments and other programs for those who qualify. Along with Johns Hopkins University, Duke University in North Carolina, the University of Denver in Colorado, Northwestern University near Chicago and the University of Iowa offer coordinating programs. The emphasis is on residential campus-based courses which aim to offer students a sample of advanced education and potential opportunities. At the same time, the courses also offer universities an early opportunity to attract and select promising (and primed) students. In 2001, roughly 10 per cent of the Johns Hopkins entrants had attended CTY.

High scores on the entrance tests are usually followed by the offer to participate in the intensive, fast-paced courses in the humanities, social sciences, natural sciences, mathematics, and computer science and to participate in numerous enrichment activities. Most run lively internet sites for those who have attended the courses, such as Johns Hopkins which has formed an International Association. At some, students can complete a school year-long course in a few weeks, or college-level courses for school and college credit. They also offer college- and career-planning assistance. Some courses are for commuters, but the biggest ones are residential, typically lasting from one to several weeks, which allows total involvement in a certain subject with intensive tutoring and a multitude of social contacts (Olszewski-Kubilius, 1997). Residential programs typically last from one to several weeks, which allows total involvement in certain subjects with intensive tutoring and a multitude of social contacts.

In spite of the very many thousands of youngsters who experience the Talent Search Model, its aim is to focus on the individual: “to develop a combination of accelerating options, enrichment, and out-of-school opportunities (already available) that reflect the best possible alternative for educating a specific child and, thereby enhancing satisfaction … curricular flexibility" (Benbow & Lubinski, 1997, p.159). CTY’s provision continues after the summer-schools with academic conferences and distance education courses. A mentoring

program is being developed with volunteers.

Somewhat contentiously, the Model promotes acceleration after diagnosis as the absolute prime method with the greatest level of empirical (albeit American) support, although it is recognised that this is not the only path to follow. Strong words often support this promotion. The often stated concern is that without the increased speed of learning, the student will experience tedium, distraction, bad study habits, behavioural problems, all possibly leading to a rejection of schooling. The gifted left among their age-peers, it is said, may even lose their talent, never to regain it (Van Tassel-Baska, 2001; Stanley & Benbow, 1986; Tuerón & Reyero, 2001). Accordingly, it is urged, any barriers associated with 'age-pegging' within the educational system must be suppressed. This distress and poor performance among the non-accelerated gifted, however, has not however been found in other countries, such as Scandinavia and Japan, where acceleration is prohibited.

Prof Julian Stanley, the father of the Talent Search Model, in a discussion on acceleration, said that "even one three week session in the summer seems to buoy them up. They return to school more confident, better able to cope with the slow-paced system." (Bock & Ackrill, 1993, p. 103). Freeman (Bock & Ackrill, 1993, p.136) responded that maybe the reason some youngsters can speed through a year's work in three weeks is because the standard of most American school-work is so low. Would it be equally possible, she asked, to zip through a year's mathematics in three weeks where standards are high, say at Manchester Grammar School or a German Hochshule? Stanley agreed that it was most probably true that acceleration for the gifted was needed only where educational standards were low.

Aims of the Talent Searches

Although this list below is from the Duke University (TIP) program, it applies to the other Talent Searches, work being premised on the following beliefs:

- Productive achievement in children and adults is a result of cognitive factors, personality attributes, and environmental influences.
- Identification is the crucial first step in the development of talent.
- Talent identification efforts should seek individuals who have potential and are 'at promise' to achieve, as well as individuals with realised or developed talent.

- Multiple social contexts such as home, school, workplace, and neighbourhoods influence talent development.
- Talent development is a process of understanding, providing, supplementing, and managing social support systems that enhance the development of talents and the development of the individual.
- Academically talented individuals exist in every racial and ethnic group.
- Gifted education is vital education-education that stimulates, excites, gives life, challenges, provokes, and inspires.
- Education programs for academically talented students should encourage students to set high goals and meet them, stimulate students' passion for learning, their quest for a vocation, and the development of a philosophy of life.

Paula Olszewski-Kubilius, Director of Northwestern University's Talent Search describes the Talent Search Model as having these five benefits (in Elder, 2002):

1. *It is cost effective and efficient* - a large number of students can be tested relatively cheaply, giving parents a comprehensive assessment of their child's need for acceleration, curriculum compacting, early entrance into tertiary study, and so on.
2. *It is based on sound educational principles and practices* - above-level testing serves to differentiate between those students who are at the ceiling of on-level tests.
3. *It is consistent with students' development* - students' abilities become more specialised as they enter high school, therefore tests that concentrate on specific domains of ability, rather than overall general ability, are better indicators of specific academic aptitude.
4. *It guides educational planning* - by differentiating between the moderately and highly gifted, Talent Searches can provide invaluable knowledge for educators about the types of educational programmes, needed to develop students' potential to its fullest.
5. *It promotes programs* - Olszewski-Kubilius directly attributes the growth of educational programmes and opportunities for gifted students to the Talent Search model.

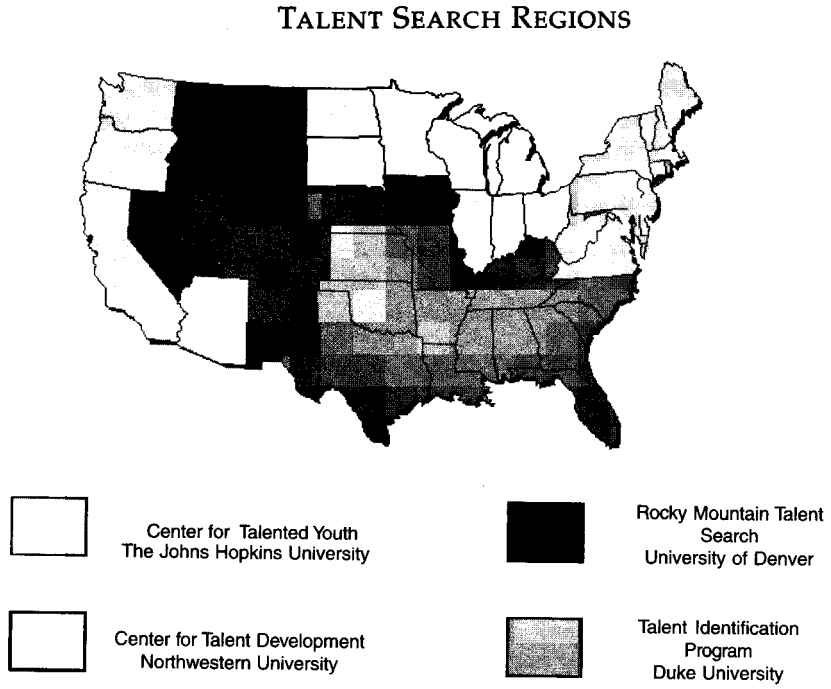

Figure 1 Talent searches in action (Duke University Talent Identification Program, 2001)

Johns Hopkins University - the CTY Model

Johns Hopkins University

Institute for the Academic Advancement of Youth (IAAY)

3400 N. Charles Street

Baltimore, Maryland 21218

Phone at: 410-516-0337 or 818-500-904

Johns Hopkins offers a Study of Exceptional Talent in a nationwide Talent Search.

Tel: (410)-516-0309 Email setcty@jhu.edu

Johns Hopkins University Institute for the Academic Advancement of Youth (IAAY)

This was formerly called John Hopkins Center for Talented Youth – CTY, and before that SMPY) operates both regional and national programs. The CTY Model was established and is funded in Ireland by an anonymous American benefactor (Barnett & Gilheany, 1996; Gilheany, 2001) Irish Centre For Talented Youth (CTYI) Dublin City University, Dublin. A version is starting in 2002 (neither formally associated nor state-funded) in Spain, where the American tests have been adapted to the children of Navarre (Tuerón & Reyero, 2001). Within its terms it is extremely successful at finding and developing academic talent as judged by the large numbers of students - over 200,000 a year - served by this talent

development system.

The program has expanded to serve students from kindergarten through 12th grade in a variety of programs starting with three Talent Searches: Elementary (grades 2-4), Young (grades 5-6), and Older (grades 7-8). It offers a range of summer programs for students in all three searches. CTY programs for 7th to 10th grade students are offered at 10 locations around the USA. Each one has different test-score requirements for its three-week residential programs for K-10; Rising 6-10, the cost for which is $1,300-$2,200.

In addition, CTY has Distance Education courses in math, science, and writing for students from kindergarten through 12th grade; weekend day and overnight conferences for students and parents held at colleges, universities, museums, zoos, and science centres around the country; and a Diagnostic and Counselling Center for assisting families and schools with assessment, planning, and counselling.

The Talent Search Model has been emulated by several institutions in the USA including the major four - Duke University (Talent Identification Program, TIP), Northwestern University, the University of Denver, Arizona State University and California State University at Sacramento (Benbow & Lubinski, 1997). Other university centres working with TIP offer intensive academic programs, i.e. Western Kentucky University, the University of Southern Mississippi, Northwestern State University and Southern Methodist University (Duke University Talent Identification Program, 2001). Others across the USA have similar searches (Goldstein *et al*, 1999). In order to avoid duplication of effort, each program incorporates a particular group of states as its Talent Search region. Each Talent Search Center also administers out-of-school programs for academically talented students. These are independent of one another. Talent Search participants from one region may apply for the academic programs of another.

Selection procedures

The CTY Model has two testing stages for selection to courses:

1. Standard tests, such as the Iowa Test of Basic Skills, the California Achievement Test and similar tests, are used to select pupils whose performance is above the 95^{th} or 97^{th} percentile. These tests are 'in level', within each school grade, and measure competence and knowledge within the national norms within the curriculum in the different subject

areas. Yet even these highly achieving pupils have very different capacities, around 20% achieve results corresponding to students 4 or 5 years older, and these finer differences cannot be detected in the 'in-level' testing process, which Olszewski-Kubilius (1998), suggests is because they are not difficult enough.

2. The Scholastic Assessment Test (SAT) or the American College Testing Program (ACT) are given to the selected students, but 'out of level', that is regardless of their ages children are evaluated alongside high school seniors. The most frequently used test is the SAT, specifically the SAT I (reasoning test) which has a mathematics (SAT-M) and a verbal section (SAT-V).

About 20% of this top 3% of pupils (with an IQ of about 135), reach scores that are equal to or greater than students about to enter university, the final selection cut-off point. Analysed year after year, this identification procedure certainly shows great efficiency and stability in the pattern of results. Similar results are also achieved with the top 3% of school children given the PLUS test (CTY, 1995).

The identification of highly academic pupils is performed on the following bases (Brody, 1995):

- That the subjects possess individual differences in their abilities which make it necessary to adapt their educational programmes appropriately.
- School-work must be appropriate, as much in terms of content as the speed at which it is presented.
- Educational plans must be individualised because of differences in abilities, interests, motivation, aspirations, etc.

By means of regional, national and international Talent Searches, every year thousands of students are selected from across all states who score highly on tests of verbal as well as mathematical talent, considered the pillars of scholastic learning. They are eligible for three-week residential summer programs which in 1999 served about 4,000 participants at the CTY sites alone.

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Duke University Talent Identification Program (TIP)

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TIP is also at University of Toronto (OISE), Toronto, Ontario, grades 7 to 11.

TIP is a non-profit educational organisation founded in 1980. Its summer programs are open to all qualified students regardless of state of residence. For those demonstrating need, financial aid is available in all programs except international ones. In 2000 the total enrolment for all of TIP's summer programs was approximately 3,350. The Director, Dr. Steven Pfeiffer, and Dr Tania Jarosewich are developing a Gifted Rating Scale that will be published by The Psychological Corporation. TIP publishes *Educational Opportunity Guide: A Directory of Programs for the Gifted* (2001), a valuable directory of educational programs for academically talented students of all ages. It lists 400 programmes, although there are many more in the USA, often individually organised within a school.

TIP has the goals of:

- Identifying academically gifted young people in elementary grades through high school
- Informing students about their abilities and academic options
- Working with schools, families, and communities to address the unique educational needs of gifted students

- Sponsoring innovative, challenging, and highly motivational educational programs
- Conducting research on the nature of academic talent
- Providing informational resources to students, parents, and educators.

TIP Summer Studies Programs offer intensive, fast-paced courses for academically talented students. Participants enrol in a single class during a three-week session and generally complete the equivalent of a year of high-school or a semester of college-level work. Classes meet seven hours per day, Monday through Friday, and three hours on Saturday. Typical class size is 16. The instructors are a talented and diverse group that include members of university faculties, outstanding teachers from secondary schools, experienced professionals, and advanced graduate students. Each class also has a teaching assistant who is an undergraduate or graduate student with demonstrated proficiency in the subject.

Depending on test scores, TIP Summer Studies students may attend either the Center for Summer Studies or the Academy for Summer Studies. Center programs are held at Duke University and Davidson College. Academy programs are held at the Duke University Marine Lab, Appalachian State University and the University of Kansas. They can take e.g. Algebra II, Plane Geometry, Precalculus Functions, America in the Sixties, Celluloid Visions, Computer Science-JAVA, Dramatic Reality, International Relations, Macroeconomics, Number Theory Microeconomics, Politics in Practice. Writing with Power. Advertising: Media and Markets, Archaeology, Balancing the Scales, Engineering Problem Solving, Explorations in Chemistry Forensic Science Genetics Introduction to Psychology, Primate Biology, Robotics, Science of Medicine, Social Psychology.

TIP Summer Studies

TIP Summer Studies Programs are designed for advanced students in grades 7-10 to learn highly challenging material at rates commensurate with their abilities. They enrol in a single TIP-designed course for three weeks of in-depth study, and attend nearly 40 hours of class each week between Monday morning and Saturday afternoon for a program total of 114 hours. Programs are offered at different college campuses, providing a unique opportunity to experience dormitory living, dining hall meals, and college classroom instruction. Classes, approximately 15-18 students in size, are taught by highly qualified instructor-teaching assistant teams. Each class also has a teaching assistant who is an undergraduate or graduate

student with demonstrated proficiency in the subject. Outside the classroom, a carefully selected residential staff supervises students, during meals, free-time pursuits, and planned social and recreational activities.

While participation in TIP fosters interwoven intellectual, social, and emotional growth, it is important to recognise that genuine academic motivation is the true heart of the program. Students not willing to rise to intellectual challenge or those primarily interested in a "summer camp" experience should not apply TIP Summer Studies Programs. The truly motivated student, however, will enjoy a stimulating environment and a community of peers unlike any other she or he has experienced before.

Depending on test scores, TIP Summer Studies students may attend either the Center for Summer Studies or the Academy for Summer Studies. Center programs are held at Duke University and Davidson College. Academy programs are held at the Duke University Marine Lab, Appalachian State University and the University of Kansas.

Other TIP programs

Motivation for Academic Performance (MAP) - Through identification, optional out-of-level testing, and the sharing of informational resources, MAP draws attention to the positive performance of younger academically talented students and motivates them to remain on course for high academic achievement. This program identifies highly able 4th and 5th grade students within TIP's sixteen-state region.

Talent Search - This program identifies academically talented 7th graders within TIP's sixteen-state region and invites them to complete the SAT or ACT college entrance examination. Resources provided to participating TIP students include the *Educational Opportunity Guide* (a directory of educational programs for academically talented students), a biannual newsletter, Insights, through 10th grade, and *The College Guide* (a college sampler magazine sent during 10th grade). Students who score at high levels on the ACT or SAT are invited to formal recognition ceremonies. TIP's sixteen-state region includes: Alabama, Arkansas, Florida, Georgia, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Nebraska, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas.

Educational Programs - TIP's Summer Studies Programs challenge students with fast-paced

courses in computer science, liberal arts, science and business. TIP students study on the campuses of major universities such as Duke, Davidson College, University of Kansas, Appalachian State University, and the Duke University Marine Lab in Beaufort, N.C., and in theme-based sites in England, Germany, Italy, France, and Greece. Students can take part in Field Studies in the Northern Rockies; Ghost Ranch in New Mexico; Mountain Lake, Virginia; Orange, California; and the tropical forests of Costa Rica. There is also a Leadership Institute offered on Duke University's East Campus. The PreCollege Program has rising 12th-grade high school students attend classes with Duke undergraduates during the summer session for university credit.

Services and Resources

TIP's services and resources include Scholar Weekends, Learn on Your Own, Distance Learning courses, the TIP Family Conference, and Advanced Placement manuals and workshops. TIP also supports an active Research Program and maintains close relations with Duke University programs as a training and research site for undergraduate and graduate students and faculty.

The programs vary in course offerings, cost, location, and philosophy. Because TIP has neither the staff nor the resources to evaluate the programs listed, inclusion in the EOG does not imply endorsement by Duke University Talent Identification Program. Students and parents are urged to evaluate any program that interests them. Some programs have limited enrolment and financial aid. If financial assistance is needed, local community groups, school districts, parent-teacher associations, and gifted advocacy groups may support student participation in educational programs.

CTD classes move quickly because the participants learn and use information quickly. The actual methods used in classes vary as demanded by the material to be studied. Being on the campus of a major, private, research university means that students and teachers have access to technology, equipment and materials that would be difficult to find in other settings. In 2001, CTD students were drawn from urban, suburban, and rural settings in 40 states and 13 foreign countries. Almost 50% of students return for a second year, and about 80% choose to reside on campus for their three-week class.

University of Denver

Rocky Mountain Talent Search

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E-mail: krigby@du.edu, Website:http://www.du.edu/education/ces/si.html

Rocky Mountain Talent Search Summer Institute

Now in its nineteenth year, the University of Denver Summer Institute offers high-ability students the opportunity to select from a variety of courses for intensive summer study in a supervised campus setting. Set against the beauty of the Rocky Mountains, the program offers rigorous high school and college-level courses in physics, chemistry, biology, geometry, advanced mathematics, creative writing, humanities, and social sciences.

Classes are small and the curriculum is fast-paced. Courses include lab work field trips and guest lectures. Instructors are university faculty, outstanding secondary school teachers, and content experts. Students select a three-hour morning and three-hour afternoon course. Daily organised recreational/social activities weekend trips special events and dormitory life promote friendships and social interaction.

University of Iowa

The Connie Belin International Centre for Talented and Gifted Education

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The Iowa Talent Search at Iowa State University appears to be independent of the Talent Search Model as practised by Johns Hopkins, but overlaps considerably. It operates a state-wide Talent Search and publishes a Talent Development Guide. The Connie Belin National Center for Gifted Education at University of Iowa offers testing opportunities for a wide age range, and the Belin-Blank Center an array of gifted programs and services. At the university's Belin-Blank Center for Gifted Education and Talent Development, precocious maths and science students are given more and harder theorems to master. It also offers gifted leaders lessons from leadership experts, such as in group dynamics, and they are taught to analyse their strengths and weaknesses.

In 1993, the Belin-Blank Center initiated a Talent Search for elementary pupils (Belin Elementary Student Talent Search - BESTS). Due to its success, in 1999 the B-BC expanded it to include the Middle School Talent Search (MSTS), as well as several Talent Search programs around the world (Australia, Canada, New Zealand). Altogether, this includes the provision of academic planning information and services for almost 45,000 students around the United States and the world.

To streamline operations, the titles of the Talent Searches were changed in 2001. The Belin Elementary Student Talent Search and Middle School Talent Search have been combined into a single Talent Search: *The Belin-Blank Exceptional Student Talent* Search (still BESTS). There are two above-level instruments: grades 4-6 now take EXPLORE, an 8th grade test developed by ACT. Students in grades 7-9 take the ACT Assessment, an entrance exam for college-bound juniors and, seniors. There is also a new program specifically for 2nd and 3rd graders, future *BESTS*. Wings is a weekend institute for gifted students at Belinblank.or.wings.

Summer camps

In summer, more than 450 junior high and high school students attend one of eight residential programs held on The University of Iowa campus, and over 500 elementary students attend classes at one of the eight sites in Iowa, Illinois, and Florida in a commuter program, Challenges for Elementary Students (CHESS). Students from 25 states came to Iowa for one, two, or more weeks of learning, both in and out of the classroom. The summer is filled with inventing, problem solving, writing, computing and investigating. Students study math,

anthropology, literature, medicine, law, and much, much more. Add to that pottery making, attending theatre productions, relaxing on the shores of Lake Macbride and learning how to salsa and swing dance, and there is a combination of challenge, excitement and fun.

The students take classes on the campus of a major research institution and live in the residence halls, just like regular university students, which gives junior high and high school students a real feel for college life. Working with state of-the-art equipment, taking advantage of the University's multitude of enrichment opportunities, and even managing the food line in the cafeteria, has given these students a glimpse of the many possibilities in front of them as they start thinking ahead to their own College years.

Those in the scholarship programs do some kind of volunteer activity that reaches out to specific individuals or the community as a whole. The students from the Iowa Talent Project have groomed animals at the Iowa City Animal Shelter; at the Environmental Health Sciences Institute, students did some cleaning at Iowa City's Emergency Housing Project; the students in the Iowa Governor's Institute picked up litter in Iowa City's City Park; the students in Project Achieve shared their talents with the students at United Action for Youth; and the participants in the Iowa Summer Institute for the Arts and Sciences visited with the residents at Iowa City's Lantern Park Care Facility. As in the past, the service projects benefited all involved.

One of the features added in 2000 was the publication of *News & Views.* This is produced three times weekly and distributed at lunch when the students, teachers, and resident advisers (RAs) from all the B-BC residential programs came together. In addition to providing important information from the staff it featured "thumbnail sketches" of the programs' teachers and resident advisors. Another regular feature was the Belin-Blank Question of the Day, which posed a thought-provoking question to the students.

In early June, the staff goes through extensive training in preparation for the summer. One of their exercises is to brainstorm the top five things that students hope to gain from their experience at a Belin-Blank Center summer program.

The five hopes for summer programs

- to be valued for their academic ability, individual personalities, and unique strengths
- to have new and fun experiences
- to meet and make friends with common interests
- to be intellectually challenged ... to learn and apply their knowledge
- to learn to be independent in a university setting.

One of the fundamental goals of summer programs at the Belin-Blank Center is social – that is to build a sense of community among those participating. This broader community includes a community of scholars, a community of friends, and a community of peers. The organisers say that so often, gifted and talented students do not feel that sense of community in their home schools, and argue that simply because students are in the same grade or are the same age as other students does not necessarily mean that they are social peers. They hope that the students find a sense of community during their stay and that they will keep in touch with their instructors as well as their fellow classmates, floor mates, and other friends from the program.

Information about the Belin-Blank summer scholarship programs is sent to all Iowa schools in November. These include the Blank Summer Institute for Arts and Sciences (formerly the Iowa Summer Institute for Arts and Sciences), the Iowa Governor's Institute for the Gifted and Talented, and the Environmental Health Sciences Institute for Rural Youth. Information about the remaining student programs (CHESS, JSA, NSA, and SICEI) will be sent to students in March.

Clinical Services

The Belin-Blank Center also offers clinical and assessment services. Counsellors are often supervised graduate students aiming for careers as school counsellors, psychologists and family therapists with expertise in working with families. Psychological tests are administered on an individual basis. A student profile is created to be used in consultation with family and school.

The Family Counseling Program is based on the premise that giftedness affects and is affected by the dynamics of family life. It provides for families of gifted children in two

major areas:

- Brief family counseling: a highly interactive and structured approach limited to about five sessions. These include assessment, goal setting, problem solving and school consultation.
- Family education: parenting workshops help parents learn how to handle the special issues related to giftedness, including the social and emotional needs of gifted children. The workshops also help parents explore and fulfil their roles as advocates for gifted education.

The Counseling Laboratory for Talent Development provides shorter developmental counselling for high-school and college students through group experiences, individual Counseling, and assessment of vocational personality needs, and values. It is a component of the residential pre-college programs. Research, an important element of this counselling lab, indicates that gifted students gain an increased sense of self and purpose through this program of career counselling.

Iowa programs expansion: Recent donations of millions of dollars have produced two major new initiatives in Iowa. A purpose build Myron and Jacqueline N. Blank Honors Center will become an Honors Residence Hall, with priority given to students in the UI Honors Program and B-BC Programs. There will be a library, lounges, classrooms, studios, and science and technology labs. It will integrate programs for the gifted from pre-school through the undergraduate years, as well as mentor programs, parent associations, professional development and interdisciplinary research. Also on line is an Iowa Communications Network Academy, a gift of the Wallace Research Foundation, which will make it possible for academically gifted students in rural schools throughout Iowa to take Advanced Placement courses on-line. This ICN Academy, will also be used for professional development throughout Iowa.

Some other university-based Talent Searches in the USA

University of Washington Halbert Robinson Center for the Study of Capable Youth.
Information available by phone at: 206-543-4160 through the web site or by postal mail to:

University of Washington
Halbert Robinson Center for the Study of Capable Youth
Dr. Nancy Robinson, Director
PO Box 351630
University of Washington
Seattle, WA 98195-1630

California State University at Sacramento has Academic Talent Search (ATS) and Accelerated College Entrance (ACE) Programs.

California State University at Sacramento
School of Education
6000 J Street
Sacramento CA 95819-6098
Phone: 916-278-7032
Terry A. Thomas, Director, Scarlet Maurin, Associate Director, email: scarletm@csus.edu

University of Southern Mississippi
Summer gifted program for grades 4-8, Leadership for grades 7-12 and Academically Talented grades 7-10.

Dr. Frances A. Karnes, Director
Center for Gifted Studies
University of Southern Mississippi
PO Box 8207, Hattiesburg, MS 39406-8207
Fax: 601-266-4978, Phone: 601-266-5246 or 601-266-5236
or contact: Joan D. Lewis, email: jdlewis@whale.st.usm.edu

Utah Talent Search
The Utah Talent Search is conducted by the Utah State Office of Education. It culminates in a

summer program known as the Youth Academy of excellence at the University of Utah. The web site is http://www.usoe.k12.ut.us/curr/g&t/talent/

International Education Center, Ltd.
PO Box 564400
College Point, NY 11356-4400
phone: 800-292-4452, email: plassr@stuy.edu

The Academic Talent Development Program (ATDP)
University of California Berkeley Graduate School of Education provides summer and other programs to students K-12.

Stanford University provides advanced mathematics for high achievers.

City University of New York (CUNY)
Although it does not run specific gifted programs, the City University of New York, with The New York Board of Education, is to open three selective high schools in September on university campuses expanding places for strong students who have not made it into the three elite high schools, Bronx High School of Science, Stuyvesant High School and Brooklyn Technical High School (NYTimes.com 15th May 2002). Each year, more than 20,000 students take the tests for about 2,500 places. The new schools will add nearly 400 slots each year, and use the same admission tests along with an interview.

In collaboration with CUNY, these new schools will build college courses into their curricula, similar to the Bard High School Early College, which started in September 2001. Invitations are being sent for information sessions about the schools to about 2,000 students who took the admissions test in 2002. Each of the new schools will take 125 9th graders in September 2002, eventually accommodating about 500 students. CUNY already houses 12 city high schools on its campuses, with nearly 8,000 students. Some are highly competitive, while others focus on potential dropouts; none use the special science exam.

Some problems with Talent Searches

Critics point to an under-representation of ethnic minorities and economically deprived pupils on courses, owing to an emphasis on high scores on the standardised tests (SATs) used by 49 states, said to favour children from better off white backgrounds. Most searches attempt to overcome this by awarding scholarships; indeed, CTY waived its $2,150 fees for 1300 students in 2001. CTY is also recruiting in inner cities, and to target black and Hispanic students has been obliged to experiment with criteria for entry other than by examination scores. As a result, the proportion of such students rose to 10 % of the roll-call in the 2001 summer school, compared with just a handful in previous years. But not only does this fall short of the 17% of the student population that blacks alone present in the US, there is a very much higher proportion of non-whites around Baltimore itself and minority selection is still significantly below representation of its local population. Overall, the Office for Civil Rights in 1999 (in Kitano & DiJiosia, 2002) estimated racial make up for gifted programs at 9.41% East Asian, 4.43% American Indians, 3.38% Hispanics, 2.43% Blacks and 6.79% Whites.

There is far from consensus in the USA on how to ‘serve’ (as they say) gifted and talented students. Dr Joseph Renzulli, director of the National Research Center on the Gifted and Talented (NRC) at the University of Connecticut, casts doubt on the value of the talent pools collected by examinations (Renzulli & Reis, 2000). He believes there is more to gifted behaviour than the measurable intellect on which such programs depend, and has spent more than 40 years exploring how above-average ability comes together with task-commitment and creativity. For such behaviour to occur, he says, there must be a confluence of traits - courage, charisma, sense of destiny and optimism - as well as above average intelligence.

In the NRC extensive international programme, Renzulli, whose centre is the only one of its kind to be funded by the US government, sees exam results as identifying successful lesson-learning, which he calls “school-house giftedness". To uncover creative aptitudes he solicits recommendations about exceptional pupils without academic credentials from both teachers - and the children themselves. Renzulli's denial of the exclusive importance of innate intelligence has drawn complaints that he is diluting the effectiveness of gifted programmes. But he counters that the purely intellectual approach has not achieved its aims.

Stanley's conception of the idea for the SMPY came largely from his observation that students spent many of their most intellectually fertile years on curriculum-based study. He reasoned that if they completed their doctorates when they were 24 instead of 30, they would have more productive years for creative inquiry. The clear assumption is that the academically gifted should take up further academic education rather than other vocational directions. However, Renzulli has pointed out how few alumni of gifted programmes have gone on to conduct leading-edge research, most entering worthy professions, such as medicine or law. The spark of creativity often seemed to be missing in the Talent Search high-achievers. The flaw of many programmes is that the focus on accelerated learning hurries students to the extent that they have no time to develop personal interests, wherein lies the chance of fostering a creative spark.

A major concern about summer schools is that they can do little to solve the problem of underachieving potentially gifted and talented pupils during the rest of the year. In the USA, the emphasis on camps for the test-selected few is now being re-examined in the light of greater access by all children to enriched education and available resources in the community.

Chapter 4

TALENT SEARCHES OUTSIDE THE USA

The German Schülerakademien (Pupil Academies)

Although the two major Talent Searches in Germany have no official relationship with one another, both were inspired by Stanley's American Talent Search Model. Whereas the Deutsche Schülerakademien (Pupil Academies) have taken up the residential summer programs, but selects by competition for a wide variety of subject areas, the Hamburg Model is a Talent Search for mathematical ability, selecting by examination.

The Schülerakademien began in 1988, when Bildung und Begabung eV, a non-profit German foundation sponsored by the Federal Government, developed residential programmes in the summer holidays for 16-19 year-olds. These were intended to fill the critical gap between the end of school and higher education with a pre-college type of summer academy. Courses may cover any academic discipline. Within the few years these programmes have grown greatly in number and have developed a unique style of providing outstanding high-level opportunity (Wagner, 2002).

Objectives of the Akaemien

- to offer several fields of primarily scientific endeavour to develop and improve methods and abilities of knowledge-acquisition, interdisciplinary thinking, research techniques and autonomous learning
- to challenge intellectual potentials to their limits
- to provide role models through encounters with highly creative, able, motivated and inspiring teachers and scientists
- to provide experience of a community of equally able and motivated peers to develop lasting friendships and thus the acceptance of each participant's own self as valuable and 'normal'.

Structure of the Akaemien

A 16-day academy typically comprises 90 boys and girls, each one participating in one of six courses covering a broad range of diverse academic disciplines. As an example, one of the

academies in the summer of 2002 offers the following demanding courses (see also www.schuelerakademie.de/dsa/2002/index.html):

- Mathematical structure of fundamental theories in physics
- Tumour research – an interdisciplinary challenge (Biochemistry, Medicine, Bioinformatics)
- Introduction to jurisprudence
- Democracy and deliberation (How to deal with conflicts in a pluralistic society)
- Enlightened or mesmerised? The concept of 'culture' in our society
- Music in the 'Third Reich' and in exile.

Each academy usually has a course in mathematics, one or two in the sciences, and one or two in the humanities, other courses may come from any academic or scientific or cultural area such as introduction to a foreign language and culture (Italian, Spanish, Polish, Chinese…), creative or journalistic writing, music history, computer science, economics, psychology, rhetoric or visual arts to name just same examples. Interdisciplinary subjects are favoured. The idea is to select a certain topic of a discipline which can be treated in thorough depth and breadth within the 16 days and which introduces participants to the terminology, the methods, the research techniques and the literature of that discipline. The total amount of time spent on course work is about 50 hours. The level of work is mostly comparable with advanced university seminars.

Two instructors (scholars, expert Gymnasium school teachers or free-lancers) plan and run each of the courses with a minimum daily duration of 4-5 hours. The rest of the day is filled with additional optional activities such as sports, music (instrumental, choir), excursions, discussions, drama etc. where participants from all courses mix and meet. Special emphasis is put on the training and improvement of the ability to clearly formulate and present research findings in oral and written form. Prior to the academy the participants are expected to work through a compilation of relevant texts and to prepare a presentation. Extracts from the written reports are later published for each academy in a 150-page proceedings Dokumentation (and see http://www.schuelerakademie/kurse/index.html). This also presents a complete listing of academies and courses.

Between 1988 and 2001, 62 academies with more than 5,400 participants were held in boarding schools which have proved to be ideal locations. In the summer of 2002 another seven academies with a total of 630 participants will be in action.

The overall director writes: "Within a few days, each of the academies develops an atmosphere which can hardly be described, filled with enthusiasm and motivation of both participants and instructors with intensive personal relations, discussions, and gatherings until late at night. The numerous overwhelmingly positive feed-backs and evaluations from participants, their home schools and parents as well as from scientific programme evaluation confirm the immense impact the academy has on the participants" (Wagner, 2002).

Selection of participants and instructors

The ideal participant has high intellectual ability, a strong motivation to achieve, diverse interests, and has already demonstrated far above average achievements. He or she should be in grade 11 or 12 in the 13-year German school system to which to carry back impressions and experiences from the academy.

As there are no routine standardised achievement tests in Germany, such as the Scholastic Assessment Test (SAT) in the USA. Two criteria are applied to find suitable candidates:

1. Successful participation in one of the intellectually demanding national or state competitions and Olympiads
2. Recommendations from schools; each year all 4,300 approx. high schools in Germany (Gymnasium or Gesamtschule) are individually requested to nominate one or two outstanding pupils who would match the above ideal profile. About 25 per cent of the schools respond. Over the years, both criteria have proven to be equally valid in finding the desired candidates.

In 2002 about 300 recommendations came from competitions while schools provided about 1,300 names. The total of 1,600 pupils receive a letter of invitation and the catalogue with the description of the academies and the courses offered. Regularly about 80 percent of the candidates apply. As there are twice as many qualified applications as there are places in the academies, difficult decisions have to be made, including the following criteria:

- the course chosen
- proper representation of e.g. boys and girls, winners in competitions and school nominees, individual federal states
- school grade (higher ones preferred, lower ones may apply again in the following year)
- usually not more than one participant per school, and no repeated participation of the same pupil so that as many different schools and pupils can have access possible.

Each year some 50 pupils from more than 20 foreign countries are admitted. They are selected by partner organisations or their home schools. Because fluent command of German is essential, a one week home-stay prior to the academy with the family of a participant of the same course is usually arranged. Pupils from former socialist countries in Central and Eastern Europe only have to pay for their travel to the German border; travelling in Germany and participation in the academy for them is free of charge, the cost being covered by donations and contributions from foundations.

The staff of an academy consists of a director, an assistant (usually a former participant), a coordinator for musical activities (choir, instrumental ensembles), and instructors for the course work. In total, 105 people have to be found each year to make the seven academies happen. The ideal profile for these people would include expertise in their fields, additional abilities and interests, pedagogical talent, cooperativeness, idealism, and willingness to an intense, exhausting personal involvement for 16 days. These idealists are found among expert Gymnasium teachers, academic faculty and (in some cases) free-lancers. They receive a modest remuneration for their considerable engagement, but most of them value the exceptional educational situation to work with a highly able and motivated group of young people and they return year after year.

The participants are expected to pay a fee that covers board and lodging, the rest of the expenses being subsidised by the Government, by foundations and private donations. Financial assistance is available to needy families. Pupils are invited to apply for a place after successful participation in one of the intellectually demanding competitions in Germany or being recommended by headmasters, teachers, educational consultants or psychologists. In 1998, 1,015 (86%) of the 1,178 boys and girls who were invited applied for the 540 available places in six academies.

Evaluation

The *Schülerakademien* are seen to have a tremendously beneficial impact on young lives. The organisers say that it would be highly desirable to increase the number of such programs, as the current demand far exceeds the existing supply of places. Extensive evaluations have shown their long-lasting positive effects on the participants especially with regard to –

- Personal development - motivation, self-efficacy, self-assertion, self-reliance, cooperation and communication skills. Similar effects are reported from residential summer programs in the United States.
- Opportunities for interaction with equally able and motivated peers. Pupils feel accepted, often for the first time in their lives, and many are astounded to discover how easy it is to communicate with and to make friends within this group. The results are frequently long-lasting relationships and communication networks.
- Encounters with excellent instructors provide valuable role models for an academic orientation. They can be helpful in career counselling and might open perspectives into yet unconsidered professional areas. The intense atmosphere of residential programs is capable of activating and stimulating dormant potentials. Many of these pupils relate with amazement what they were able to achieve in a short time.

Students can be said to gain confidence in themselves, and these social benefits are long-lasting, continuing in normal classes and the outside world. It might be the "relatively safe environment" which does this, providing freedom to think at one's own high level. Rogers, in her detailed synthesis of American research, calculated that precisely 37 per cent of the positive outcomes of these gifted-only social contexts are social (Rogers, 1991).

However, these often reported social benefits do not prove the value of the courses. Other courses or holidays in mixed-ability groups enjoying time together could have as beneficial social effects, not least in enabling the labelled gifted to mingle with normal children. Indeed, the effects of different types of social contexts on gifted children have never been investigated. At root, there also seems to be the supposition that the gifted are emotionally more fragile and need special social contexts such as gifted summer schools to feel good about themselves. Yet evidence of greater than usual emotional fragility among the gifted is

more than doubtful (Freeman, 1997).

Plans are being developed to establish a Junior Academy for 13 to 16 year-olds with an even stronger emphasis on mathematics and science as German universities register a dramatic decline of the numbers of students in the departments of mathematics, physics, chemistry, and engineering. It is considered essential to encourage highly able pupils – girls even more than boys – at the earliest possible age to pursue their interests and possible careers in these fields. If the necessary funding is provided, a first Junior Academy could be held in 2003.

The *Schülerakademien* is seeking relationships outside Germany. Plans have been drawn up for working together with the Israeli Ministry of Education. But these have been put on hold during the current crisis.

The Hamburg Model

Twenty years ago, at Hamburg University, psychologists and mathematicians developed an annual regional search for mathematically able 12-year-olds (Wagner & Zimmermann, 1986; Goldstein & Wagner, 2000). Selection is via a three-hour examination using German versions of the mathematical parts of the American Scholastic Aptitude Test and a test of mathematical problem-solving. The highest scoring students are invited to a Saturday mathematics program, and can come for several consecutive years.

Pupils interested in the Talent Search receive a preparation booklet in advance containing a complete version of the mathematical parts of the SAT to be worked through and attempted at home. Every year, bout 40 students, that is 20 to 25 percent of the participants in the Talent Search, are admitted to the program that takes place on Saturday mornings at Hamburg University. The pupils work in small groups on challenging mathematical problems, with topics that vary from week to week. Expert secondary school maths teachers, mathematics students and mathematicians serve as instructors.

Rather than cover future curriculum material, the mathematical areas selected are predominantly those which pupils would find interesting and appealing and at the same time are important for the application of modern mathematics (e.g., graph theory, combinatorics, representation of numbers in connection with measuring, number theory, geometry and game

theory). The problems are always chosen in such a way that they can be extended to allow the development of a small mathematical theory and put pupils in an elementary research situation. New problem areas are introduced by a short paper including a few initial questions which help motivate the pupils. In addition to developing and practising strategies for problem solving, special importance is attached to recognising, formulating and perhaps solving subsequent problems.

Despite the considerable length of the course (participation is possible for up to six consecutive years) and the very challenging course work, the extremely low dropout rate together with the high rate of attendance and the very positive opinions that the pupils have of the course are all indications that this type of program successfully meets such pupils' needs. The programme's success is due in part to the stimulus provided by the assignments and to the informal manner of working in small groups, in pairs, or even alone, which is quite unlike that at school. There is, on the other hand, an important social motive for taking part: in this group pupils meet age-mates of a similarly high intellectual level and with mutual interests, without encountering incomprehension or even rejection. The organisers say that this type of separate provision for the highly able does not (as is sometimes implied) lead to social isolation but actually causes participants to feel less like outsiders. For the first time, most are being faced with a challenge commensurate with their capability and aptitude.

Funds from the German Federal Government initially helped to get the program started. But after three years the program became self-supporting through contributions from the parents. Offshoots of the Hamburg project show that even when confronted with the typical transport and distance problems of a rural area the appeal of the program prevails despite the long journeys involved.

The Australian Primary Talent Search (APTS)

The Gifted Education Research Resource and Information Centre, GERRIC, is a self-funding Centre (apart from $25,000 from McDonalds Australia to help minority and disadvantaged children) in the School of Education at the University of New South Wales which runs the Australian Primary Talent Search APTS (Elder, 2001). It was established in 1997, although many of its courses and activities had already been operating informally for 10 years. In 1998 GERRIC embarked on a venture in partnership with the Belin-Blank International Center for Gifted Education and Talent Development at the University of Iowa, USA, to extend its talent search programme to Australia.

Australia, unlike the United States, has no tradition of standardised testing in primary school, which has required the development of other selection criteria, including the use of IQ or achievement tests, state-wide or national competitions, placement in school gifted programmes, or teacher nomination. Since 1998, more than 3,800 academically gifted students in Grades 3 to 6 have participated in the Australian Primary Talent Search (APTS).

Talent Searches also provide the administration with a database on the characteristics, educational needs and learning styles of the students who are identified. When it sends out its enrolment materials, GERRIC includes questionnaires for both parents and students. These include items that investigate attributions of success and failure, parental involvement in the student's school and home life. GERRIC and the Belin-Blank Centre are engaged in cross-cultural research using this data.

The essential goal of the Australian Primary Talent Search is to assist parents and teachers in educational planning. At the grassroots, level this depends on the responsiveness of teachers and schools to the educational needs of these children. On-going teacher in-service training conducted by GERRIC for education systems and groups of schools across Australia has meant that more teachers are becoming aware of these special needs.

EXPLORE

Youngsters in grades 3 to 6 who register with GERRIC for the Australian Primary Talent Search (APTS) take a test called *EXPLORE*, developed by American College Testing (ACT,

1995). Students applying to take *EXPLORE,* an above-level test normed on Grade 8 students in America, are required to provide evidence of high academic potential to participate in the testing programme.

It is a multiple choice test, which assesses four areas of student ability:

1. *English* consists of 40 items and is divided into two sub-tests: usage/mechanics and rhetorical skills. The usage/mechanics sub-test examines students' understanding of standard written English. The rhetorical skills sub-test measures students' grasp of strategy, organisation, and style in writing.
2. *Mathematics* has 30 items, which measure mathematical reasoning rather than simply the ability to memorise formulas or carry out involved calculations. Test items cover three areas - basic skills, application, and analysis - in pre-algebra, elementary algebra, geometry, statistics and probability.
3. *Reading* comprises 30 items that measure reading comprehension by focusing on the skills needed when studying written materials from different subject areas.
4. *Science reasoning* consists of 20 items that measure scientific reasoning skills. There are six sets of scientific information in one of three different formats: data representation, research summaries and conflicting viewpoints. The test measures how well students understand scientific information and draw conclusions.

Each test lasts 30 minutes and test scores are scaled to marks between 1 and 25. All students who register for the test sit for all four tests, regardless of where their area of talent lies.. GERRIC has found that high ability students may underestimate their abilities in what they believe to be a relative 'weakness'.

Selection

The feasibility of running APTS in Australia was initially hampered by the size of the country and the spread of population. Given that the talent search model requires pre-selection of those students who have already performed at the 95th percentile or above on a standardised test, only the top 5 per cent of a single grade are eligible to be tested. Identifying students who were testing already at the 95th percentile has proved difficult because of the general lack of standardised testing in Australian primary schools.

GERRIC had to develop its own identification procedures, particularly which would not

demand great amounts of time, personnel and money. This, Australia's *de facto* national centre for gifted education, realised that any set of selection criteria that it employed and published would swiftly be adopted by schools and other organisations as entrance criteria for other programmes around the country. In consultation with educators from other states, GERRIC compiled a list of criteria which qualify pupils for testing, as follows.

Talent Search qualifying criteria

- a score at or above the 95th percentile (indicating an IQ of 125+) on any individual or group IQ test or a subscale (for example, verbal or performance subscales) of an individual IQ test. This includes IQ subscale scores to ensure that students who were gifted but suffered from a learning disability were not excluded.
- a score at or above the 95th percentile on a standardised test of achievement in any academic subject area. There were very few students who used this as a criterion for entry, however, some of the tests cited included the *Neale Analysis of Reading Ability*, the *Tests of Reading Comprehension (TORCH)* and the *Progressive Achievement Tests.*.
- a score well within the top band of any of the state-wide basic skills tests. There is some testing of basic competencies in Queensland, Victoria and New South Wales, but traditionally these are multiple choice tests, with very low ceilings and virtually no power of discrimination for gifted students.
- a placement in a full-time, self-contained class for academically gifted students. Over 100 such classes exist in New South Wales and a few in other states too.
- an award of an academic scholarship.
- a Distinction or High Distinction in the Australian Schools Science or English competitions, or the Australian Primary Mathematics Competition. These are off-level tests that do not require curriculum specific knowledge; they are offered by the University of New South Wales as competitions from Grade 3 upwards and are similar to tests of aptitude and reasoning skills.
- a letter of support from his or her teacher, who believes that he or she has the academic potential to perform at a level well above the expected grade level in an academic area.

The purpose of these broad criteria is to give parents and teachers guidelines. Without them, societal and teacher prejudices might hamper access to the testing. Children are able to practice questions on the internet, which again indicates suitability. The criteria were

established to ensure that the those who took the test would not experience anxiety or be faced with material far beyond their capabilities.

Schools were approached at the beginning of the Australian school year (January) to act as test centres. Once the test sites had been established across the country, schools were sent information packs to distribute to eligible students. Parents were responsible for registering their children for testing. To ensure that no child was denied access to the test through financial constraints, parents who were recipients of government social security benefits were exempted from the testing fee.

Parental involvement allowed the enrolment in the testing programme of children attending schools that did not conduct standardised testing. The results of *EXPLORE* are sent to the parents of students, and to the schools, if requested by the parents. The APTS Interpretation Guide encourages parents to share the results of the testing with teachers, and gives strategies by which both parents and teachers can interpret and apply the results.

Results of testing

Prior to the initial testing in 1998, five Sydney schools piloted the Australian Primary Talent Search with small numbers of students. In 1998, GERRIC tested 1,085 students in New South Wales and the Australian Capital Territory (ACT). In 1999 the test was offered Australia-wide and over 1,800 students were tested. In 2000, 1,400 students took the test and in 2001 a further 1,500 students.

The results have provided a disturbing indictment of the level of the work presented in the regular Australian primary school classroom, as more than 50 per cent of the Grade 4, 5 and 6 testers have scored above the mean of the Grade 8 norms in one or more of the tests. Table 9.1 (see below) shows the mean scores for Australian students from 1998 to 2000. The average scores for US eighth graders are shown in the bottom row of the table by way of comparison. Gifted Australian fifth grade students gained scores above the scores of average Grade 8 students in *every* area except mathematics.

Australian and US Norms (1998-2000) by school grade and subject (Elder, 2002, p.121)

Grade	Eng	maths	read	sci	sum	n
Grade 3	*11.1*	*9.9*	*9.4*	*11.6*	*10.6*	*102*
Grade 4	*12.9*	*11.1*	*11.3*	*13.6*	*12.4*	*1,132*
Grade 5	*15.3*	*13.6*	*14.3*	*15.8*	*14.9*	*1,306*
trade 6	*17.3*	*16.1*	*17.0*	*17.8*	*17.2*	*1,364*
US Grade 8	*14.0*	*1 14.3*	*1 13.6*	*1 14.1*	*1 14.1*	*1*

Even though a few students in Grades 4 to 6 attain the maximum scale score of 25, research by ACT has demonstrated that, in general, the EXPLORE tests have enough difficult items to challenge APTS participants, and to avoid the ceiling-effect. These general results also suggest that the APTS participants are not unnecessarily frustrated by the more challenging questions.

Practical application

The primary goal of APTS is to provide parents and schools with information about the gifted student that can be translated into appropriate differentiated curricula within the school. Included with the *EXPLORE* results is a document entitled *The Standards for Transition (ACT*, 1997). This allows parents and teachers to align a student's scores with curriculum outcomes, to use this diagnostic information to locate the student in the sequence of core curriculum outcomes and engage in planning a suitable curriculum for the student.

The pyramid of curricular options for Talent Search participants provides 13 educational options recommended for talent search participants, ranging from the least accelerative to the most accelerative. From this array of options educators may select the most appropriate combination of interventions for the student.

The accelerative options include a wide variety of strategies designed to allow the student to move through the curriculum at a pace that is commensurate with their ability. The most accelerative options in the pyramid are recommended for those students who scored above the 50th percentile, as compared to US 8th grade students, in a particular subject area on EXPLORE. This pyramid of options is included with the *EXPLORE* results, which parents of APTS students are encouraged to discuss with their teacher or co-ordinator of gifted students.

Success of the qualifying criteria

The results gained by Australian students demonstrated that qualifying criteria for APTS developed by GERRIC were successful in providing a guide to parents and teachers as to which students would be the most appropriate candidates for above-level assessment. On the whole, students who qualified for APTS on the basis of teacher nomination did not fulfil any of the other criteria.

Holiday enrichment programs

All students who participate in the Australian Primary Talent Search are eligible to participate in GERRIC's holiday enrichment programmes for gifted students. These programmes are offered twice a year, in the summer and winter vacations, and attract more than 1,000 students on each occasion to the University of New South Wales. Additionally GERRIC has developed residential programmes for high scoring students, with the aim of fostering their talents and providing them with an opportunity to mix with other students of similar ability.

Since January 1999, GERRIC has offered between 60 and 70 places in a week-long residential camp for students who have obtained extremely high scores in APTS. These programmes give them a week of intensive, fast-paced, high level study in their talent area, and also interaction with like-minded students. The organisers have found – as in so many other residential courses – that the affective aspects of the week are probably been the most important feature for most of the participants.

The academic workshops are conducted by teachers who not only have postgraduate qualifications in gifted education, but who also have considerable experience of teaching academically gifted students. The workshop content is academically rigorous and fast-paced, with these primary students typically working on material not usually presented until the final years of high school.

Students are not formally evaluated on their performance in the workshops. Instead, each workshop gives a presentation to an audience of parents, siblings and other workshop participants, allowing students to demonstrate the learning that has taken place over the week to an interested audience in an intellectually and emotionally safe environment.

Evaluation of the programmes:

- The child participants (not the tiny ones), the Course Leaders and Assistants complete prepared evaluation forms after every course.
- The children taking the science courses are asked to evaluate the level of difficulty of the workshop the quality of teaching and the level and pace of the material which was presented to them.

Although the American Talent Searches rely on preliminary test scores to select candidates for above-level testing, GERRIC has found that non-standardised methods are both necessary and highly effective, for the following reasons:

Non-standardised identification of talent

1. *Inclusivity*. Unless teachers have had training in identifying gifted children, they may fail to identify them in whole-class teaching. If children are eager to participate, they should be permitted to. The screening process is designed to ensure that no child is made to feel anxious by being asked to sit a test that is too difficult. The aim is to include potential.
2. *Self selection*. As children get older they become more a realistic source of self-nomination (Gross, 1999b). Given ample information about the content and demands of a programme, most teenagers can make an informed and accurate assessment of its suitability for themselves. Obviously there are cases of over- and under-estimation by both parents and teachers, and circumstances in which children from differing backgrounds, experience and exposure need encouragement to engage with educational challenges of this nature.
3. *Equity*. Programmes need to build in fee-relief so that children who come from financially or geographically disadvantaged backgrounds can participate. No gifted children should be refused access to an appropriate programme because their parents are unable to pay.

A Spanish Talent Search

A parent-funded, and unofficially associated version of the Johns Hopkins Talent Search has been started at Pamplona, Navarre, Spain (www.ctys.net), Centro para Jóvenes con Talento or CTY – Espana (Tuerón & Reyero, 2001).

It offers the two-stage diagnostic procedure for entry to special summer schools (Programas de Verano). Phase I uses the SCAT – School and College Ability Test - developed at Princeton and used by CTY, and normed on the children of Pamplona to test verbal and mathematical abilities. Phase I can be done at home, school, by post or on-line. The SCAT is not seen as adequate for Phase II and so the team are working on a more complicated test. [The World Class Tests would fit this bill.] The first Spanish Talent Search is beginning in March 2002, followed by an experimental summer school with 50 participants. Identification of the talented is intended to assess whether the educational services are adequate and whether there is need for intervention, though the latter is always offered after identification.

Chapter 5

MAJOR NON TALENT SEARCH APPROACHES

The National Research Centre on the Gifted and Talented

Children who do neither find it easy to be creative in a test situation nor are attracted by competition jousts are included within the searching procedures of the National Research Center on the Gifted and Talented (NRC/GT) at the University of Connecticut. Unusually for the United States, the highest priority is given to identifying and helping youngsters of high potential who may not be identified through traditional assessment criteria. This humane approach nets a higher proportion of children with limited English, with disabilities and economical disadvantage. Since 1990, theory-based models of identification, alternative assessment, programming, evaluation, professional development, curriculum and intelligence make up the Center's quantitative and qualitative research portfolio.

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NRC/GT is a US nation-wide cooperative of researchers, practitioners, policy makers, and other persons and groups that have a stake in developing the performance and potentials of children from pre-school through post-secondary levels. The stated mission is to plan and conduct theory-driven high-quality research that is problem-based, practice-relevant and consumer-oriented. It is the only organisation promoting gifts and talents in children funded directly by United States Department of Education, Office of Educational Research and Improvement, initiated by the Jacob K. Javits Gifted and Talented Students Education Act. But it also has considerable private trust money.

The consortium consists of:

1. three core research universities - Connecticut, Virginia and Yale
2. over 360 collaborative school districts representing every state, and two territories, Guam and U.S. Virgin Islands
3. the Content Area Consultant Bank consists of over 165 researchers throughout the United States and Canada
4. 20 senior scholars at collaborating universities
5. 52 State and Territorial Departments of Education.

Arrangements with over 360 multiethnic and demographically diverse school districts provide research access to over 8,000 schools and classrooms (5.4 million students) across the USA. This is added to through cooperation with State and Territorial education agencies and the Content Area Consultant Bank, and other researchers who have made a commitment to assist the Center. This cooperative effort has created an atmosphere of ownership along with other persons and agencies who can benefit from the work of the Center (Fetterman, 1993). Many non-American post-graduate students come to the Center for research for their PhDs etc. The Center also runs a summer institute at the University of Connecticut called

Confratute for educators and academics concerned with the gifted.

The research agenda addresses questions such as the following:

- What are the personality and behavioural characteristics of gifted underachievers?
- To what extent can teachers modify reading practices for above-average reading students in regular classroom settings?
- What variables predict high achievement on international assessment of mathematics and science?
- What is the degree of consistency between teachers' philosophies about giftedness and classroom practices?
- What is the impact of differentiation of curriculum and instruction on students?
- What are the effects of state testing on schools and teachers relative to curriculum and instruction?
- To what extent will creative and practical abilities be of increasing importance to giftedness, with increasing age and across domains (reading/writing performance, mathematics/scientific performance, music performance, and gifted students with learning disabilities)?

The NRC triad of giftedness demands three above-average components for identification as gifted and talented:

- Ability
- Creativity
- Task commitment

In action for more than 20 years, Renzulli's Enrichment Triad/Revolving Door Model is probably the most comprehensive in the treatment of identification, administration, staff training and programme delivery, all set in normal schools.

The Enrichment Triad/Revolving Door Model

The model offers three types of experiences:

Type 1 Enrichment - involves general exploratory experiences, which expose students to "new and exciting topics, ideas and fields of knowledge that are not covered in the regular curriculum". The actual activities include field trips, speakers, learning

centres, readings, audio-visual materials, mini-courses, museum programmes, artistic performances and so forth.

Type 11 Enrichment - group-training activities, consists of activities designed to develop cognitive and affective processes.

Type 111 - Enrichment calls for individual and small group investigations of real problems. Special identification procedures are used to select children for Type Ill enrichment, especially for what is called "action information" or overt behaviour of the child that reflects current interests, motivation, or behaviour related to a specific topic or project. Type Ill enrichment activities usually are carried out in a special resource room and directed by a special resource teacher who is trained to work with gifted youth.

The Center has more recently evolved the more complicated Schoolwide Enrichment Model (SEM), “a detailed blueprint for total school improvement that allows each school the flexibility to develop its own unique programs based on local resources, student demographics, and school dynamics as well as faculty strengths and creativity.” (Renzulli & Reis, 2000, p. 367). It has the major goal of increasing creativity within schools – a sure way to promote gifts and talents.

Out-of-school enrichment, which overlaps and works together with in-school teaching, can be at least as effective as the acceleration employed by the Talent Searches.

Independent programs

Summer camps have long been a fixed element of out-of-school provision for youngsters in the USA. Whether designated for the gifted or not, rich opportunities are there for individual advancement. The cornucopia of subjects and styles to choose from overflows. The Renaissance Quest Camps of Boulder, Colorado, for example, provide a popular Family Quest designed for the whole family (discounts for adults), as well as a Heartfire Camp offering “angel guides, energy healing and telepathy”, at $590 for a weekend. There is the Constitutional Rights Foundation’s Summer Law Institute which takes youngsters round law courts and offices, and has them attend a trial and take lunch with a judge. The Secret Agent Camp at Lake Arrowhead in California offers three weeks intensive training in espionage

techniques. There is a circus camp, at $800 a week, or E.A.R.T.H. (Earth Awareness – Rediscovering Traditions and Heritage) to learn native Indian ways. Among others dedicated to the same aim, Camp Shane in Ferndale, NY, takes 800 children a year to lose weight.

Although not specifically dedicated to the gifted and talented, it would be difficult to take part in Advanced Space Academy courses without both high-level ability and enthusiasm. The Academy (started in 1982) in effect offers high-level out-of-school activities by self-selection. Operated by the US Space and Rocket Center, the Academy is a non-profit organisation which claims to be the largest camp operation in the USA, having hosted 300,000 campers. It provides astronaut training from five days to two weeks for young people, notably the mental, physical and emotional demands astronauts encounter. Participants must have computer and engineering skills, and leadership is encouraged. Youngsters must state their interest as potential pilot, mission specialist or payload specialist. It starts with camps for younger children of at least at 4th grade level and nine years-old, to advanced courses for students of 15-18 years. Camps are at Alabama, California and Florida. Details are provided on the web-site (spacecamp.com). It also offers scuba diving.

Competitions

Competitions provide the single outstanding international universal in out-of-school activities for the gifted, though they are not always labelled as such. They are relatively easy to administer and organise, and can be made accessible to large numbers and at the same time differentiated to suit any level of ability. Although at first glance competitions appear to be passive in only tapping what is already there, in fact they are active in eliciting, stimulating and challenging talents in many different fields. Because they can activate and strengthen the feeling for the subject matter, they improve knowledge and skills. Struggling with the tasks of the competition enhances the abilities to work autonomously, while researching, experimenting, problem solving, persevering.

The debits of competitions are that they appeal more to boys than girls, and to confident ambitious youngsters rather than more thoughtful introverted ones. This has been seen clearly in the USA, especially in maths and the sciences, at which American girls do much less well than boys in comparison with the rest of the developed world (Freeman, due 2002). Children are not necessarily pre-selected to enter competitions, though teachers can have a

strong influence, both positive and negative. In my own long-term research in Britain, several youngsters had entered competitions - and won - in spite of their teachers' discouragement (Freeman, 2001). One girl became the BBC Young Musician of the Year, and another girl secured a top Biology prize, both of them against strong school advice not to enter. Now as adults, both are following those chosen careers with success.

Some competitions are international. For example, to promote the idea of European integration the European Competition has been held since 1954. Each year, students at all age-levels in 19 European countries receive identical assignments to produce a pictorial or written treatment of European perspectives in social, economic, political or cultural affairs. In Germany alone over 100,000 students participate. The National Science Olympiad (The International Education Center, Ltd., PO Box 2196, St. James, NY 11780-0605, phone: 516-584-2016), presents a science test for 4th graders, bringing together Long Island, New York with Russia. It enrols gifted and talented high-school students into biology science research programs. Almost half the past students won a Westinghouse Science Talent Search award. Most European countries run competitions for young researchers in the sciences. In 1990 the most famous German speakers' science competition, Jugend Forscht, was sponsored by the Deutsche Bank to initiate a European competition for environmental studies. Up to three entrants from 39 nations may participate in the Young Europeans' Environmental Research (YEER).

Romania initiated in 1993 the Central European Olympiad in Informatics (CEOI) with (in 1998) Croatia, Poland, Slovak Republic, Czech Republic, Slovenia, and Hungary as participating countries. Other countries are expected to join.

German competitions

The Federal Republic of Germany probably has the most elaborate system of competitions for school-children at all levels (Campbell, Wagner, & Walberg, 2000). There, they are considered to be important and valuable additional instruments in the educational process, and for that are heavily subsidised by the government (Wagner, 1995). The youngsters are prepared for these in their schools. Follow-ups are currently being conducted on the effects of these competitions on prize-winners, particularly how they have fared at university.
By taking the challenge of a competition, the participants gain insight into their abilities and their position in comparison with peers beyond the confinement of their classroom and

school. Coming together with other participants, they have the opportunity to meet similarly interested and able peers who are usually not so easily found. Attractive prizes act as incentives though usually of an educational nature, such as payment for a course of the students choice in any country or subject.

In Germany, there are more than twenty federal (nationwide) competitions and dozens of smaller competitions at the state or regional level. On the federal level well over 100,000 students participate annually either individually or in groups in disciplines such as mathematics, science (biology, chemistry, physics, technology, computer science, environmental studies), foreign languages, social studies, history, creative writing, music, composing, drama, film and video production. Most of these competitions are subsidised by the Federal Government, with a total allocation of 4 million Euro in 1999. In addition, a considerable part of the cost is covered by sponsoring foundations and industry. While most of the academic competitions are aimed at upper secondary school students (16+ years of age), in most cases there is no lower limit for the age of participation, thus granting admission to all kinds of accelerated talents.

The most remarkable competition is the "Bundeswettbewerb Fremdsprachen" (Federal Languages Contest), as it is a unique comprehensive approach to support acquisition and application of foreign languages among secondary school students. The contest was initiated in 1979 by the Stifterverband für die Deutsche Wissenschaft (Donors' Association for the Promotion of Science in Germany) as a means to encourage students to learn foreign languages and to become interested in other countries and cultures at an early age. It has been developed and administered by independent experts from universities, schools and industry. Since 1985, the Federal Languages Contest has been sponsored mainly by the Federal Ministry of Education and Research. Bildung und Begabung eV, a non-profit-making private association, is responsible for the organisation and coordination of the contest.

The Federal Languages Contest has four levels:

1. A group-contest for 13-16 year-olds, in their third to sixth year of foreign language learning. The group-contest encourages project work to produce a presentation (audio or video tape and additional written material) on a self-assigned subject.
2. An individual junior contest for students in their fifth or sixth year of foreign language learning at 15-16 years of age. It consists of an oral section (listening comprehension and

oral production) and a written section (a cloze test, i.e., a text in which missing parts of words have to be filled in) and a creative writing task. The best participants in English usually demonstrate a higher proficiency than first year university students in English studies.

3. An individual senior contest for students of 17-19 years-old in which at least two foreign languages must be presented. This contest consists of four rounds over a period of twelve months. It begins with an oral production in two languages (e.g., explaining the situation depicted in a cartoon, reading a text and answering questions on the text). The second round is a written examination with elements of translating, writing and summarising. The task of the third round is writing a 3000-word essay on a given subject within a six-week period. The final round consists of a one-hour multilingual debating session in groups of four together with language experts and of individual oral examinations. Placement in all rounds depends upon achievement only. The participants do not compete against each other as in a sports contest.
4. A group contest for apprentices and for students at vocational schools. Here, again, a presentation on audio or videotape is required which has to relate to their working sphere. Many of the entries are multilingual.

More than 20,000 students participate in these four contests each year, the main languages being English, Latin, French, Spanish, Italian and Russian. Additionally, special contests are offered to pupils who study Japanese or Chinese.

Successful participants can expect a variety of prizes. Winners of a first prize in the final round ("federal winners") are granted a scholarship for university studies from the most prestigious scholarship foundation in Germany (Studienstiftung des deutschen Volkes). Second and third prizes consist of cash. Several prizes (e.g., travel grants, books, records) are awarded by foreign embassies for special languages. The Federal Minister of Education and Research annually awards a five-week stay in a summer studies program at a university in the United States to three participants who wrote outstanding essays on U.S. related subjects.

Russian competitions

In Russia, competitions form a large part of the extra-curricular activities as well as the school learning of the most gifted (Grigorenko, 2000). Their sights are on the international competitions in maths, physics, biology, ecology, geography, chemistry, and computer

science, attended by about 70-80 teams of teenagers from all over the world.

In Soviet times, to capitalise on the nation's intellectual resources and further the reputation of the society, there was a network of national competitions to identify the most gifted. The winner's talents were then developed through extracurricular support and specialised schooling. Then and today, Russian successes are outstanding.

But the system has changed somewhat. In Soviet times, the gifted were exposed via competitions and fairs to the most advanced ideas. Problems and topics at those events were of concern to professionals working at the cutting-edge of their fields. In addition, most leading specialised schools for the gifted were run by Soviet academics. For example, Math-Physics school no.18 was founded as an off-shoot of Moscow State University's Department of Maths and Mechanics by the famous Russian mathematician Alexei Kolmogorov. The majority of the teachers in this school were university professors, and many of the students conducted scientific research in the professors' labs. The gifted were channelled through a system - consisting of identification, different levels of education, and then work in appropriate jobs - carefully designed to develop and then harness their talents for 'progress'.

In the modern version, however, the field is not so open, so that the unrecognised gifted cannot rise from the ranks. Children are pre-selected by abilities very specific to these competitions to receive specialised schooling, then groomed and selected further. Students receive focused, competition-specific training. More and more, gaining the skills necessary to solve specific types of Olympiad problems is taking precedence over acquiring broad knowledge.

The most widespread types of intellectual competitions are Olympiads, tournaments, long-term extramural courses/competitions by correspondence, and pupils' conferences. These competitions present competitors with different sorts of tasks and feature a variety of structures and time constraints. Their major function, however, has been consistent: to identify talent (so that it could be developed to society's advantage) and to demonstrate Soviet/Russian achievement.

Some educators have responded to this funnelling of the gifted by developing different ways

of identifying talent, though still using competitions. These alternative competitions are intended to offer identification of a wider circle of talented children. The 'intellectual marathon' is one of the most popular. It involves competitors in three age groups and three subject domains (maths, human sciences, and natural sciences).

Mentoring and modelling programmes

The effects of mentoring come from a combination of the transference of ideas and the mentee's attempts to copy the mentor's behaviour based on those ideas. One contentious theory of how this might work is that of memes (Blakemore, 1999). A meme is a mimicking device which individuals learn – in the sense that imitating someone causes something to be passed on. Memes are a way of transmitting information. Richard Dawkins (The Selfish Gene) calls it the cultural equivalent of a gene and is intended to show how ideas behave in human societies. Instruction, rather than copying, is a far better procedure for producing an effective meme and acquiring information. The meme idea accords with the Vygotskian approach that children acquire complexity by being taught it, whether consciously or not, within a culture.

Models and mentors play an important role in the talent development process. Such adults also provide other types of support for gifted students. Mentorships provide important support for talent development in the form of an adult knowledgeable and interested in a talent field (Kaufman *et al*, 1986). People who work outside education, can become effective guides and specialist mentors in summer-schools, not least because there is a need for more association with the world outside education, such as commerce and industry. Teacher mentoring action in out-of-school activities for the gifted and talented is vital.

Research on the effects of mentorships for gifted students have yielded moderate to high effect sizes across studies in areas of cognitive development, self-esteem, and social understanding (Rogers, 2001, p.144). Pleiss and Feldhusen (1995) found that mentors were critical for aspiring scientists, while emulators or models, even from afar, were helpful to aspiring artists. Teachers and librarians many times provided important modelling for talented students.

The most pervasive system of modelling is practised in schools in the Far East (Chapter 7),

where teachers use it as a form of education. Hence the teacher's behaviour is a vital aspect of the child's future.

Mentoring Students and Teachers for High-Stakes Science Competitions

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Gifted school students are mentored by university students, teachers, and scientists at the Rockefeller University's Precollege Science Education Program (Science Outreach). Rockefeller is a graduate research institution, and although graduate and postdoctoral fellows have no teaching obligations, they choose to contribute to school education by mentoring pupils and teachers who want to learn science by doing laboratory research; and some volunteer as Scientists-in-the-Schools to work alongside teachers in their classrooms. All the Program requires is that novices have a threshold-level knowledge of science coupled with a high-level of self-motivation.

Of the 60 students, ages 16-18, who are mentored each summer, 10% consistently become semi-finalists. Moreover, some are co-authors for peer-reviewed journal articles and 20% of the 468 students return at least once accounting for 580 student summers. Most persevere in science majors and enter graduate school to prepare for biomedical careers. Four, including two African Americans, are currently on campus either as a research assistant, graduate fellow, medical student, or biomedical fellow for the combined degree.

The Program does not use any special signifier for gifted and talented students but relies on transcripts, letters of recommendation, an essay, and an interview with the potential mentor to gauge eagerness and threshold-level readiness. Since 1992, nearly half the students have come from 4 schools out of 127 overall. They are public schools known to attract gifted and talented students or have research classes, and account for most of the semi-finalists. Overall, 24 different schools contributed students who became semi-finalists, including some for the very first time. Thus, the Program is creating opportunities for more students from diverse backgrounds to enter these high-stakes science competitions. Annually, about a third

of the 60 students are disadvantaged and half are girls.

Another way that Outreach creates opportunities for diverse students is through its Teacher Program. Since 1992, 60 teachers have accounted for 111 teacher summers where the average commitment is for 2 summers. Forty have created research programs in their schools or districts. Annually, about half of the 12 Outreach teachers educate significant populations of disadvantaged students. Teachers are treated as members of a professional learning community and are chosen partly for their potential to implement inquiry-based learning. They are matched with scientist mentors, present posters, and write research reports just as the students do. However, they also create action plans that describe *how* they will implement their research experience back in their classrooms, and they design workshops aimed at disseminating the Program's materials and methods among their peers.

In 1998, the Program created the ScienTific Reading And Writing course (STRAW) as a way to help all Outreach students and teachers maximise their research experience by learning how to read scientific papers and write in the IMRAD style (Introduction, Materials & Methods, Results And Discussion). STRAW recognises that beyond gaining technical facility, scientific inquiry requires the ability to read scientific literature, write scientific papers, and communicate science orally using figures and graphs.

This novel course is planned and taught by a team of three experts: a scientist, a teacher, and a returning Outreach student. They have overlapping roles but mainly, the scientist explains the content of the model journal article and why it is considered a classic in its field, the teacher helps novices translate their research into a report, and the returning student helps new students negotiate how to work in a lab. In just 6 weekly sessions totalling 12 hours, novices learn how to communicate their research using a standard scientific writing style. STRAW is an excellent model for achieving inquiry-based learning. The Program recently added an evaluator who specialises in inquiry-based learning to help Outreach teachers adapt the STRAW model. The evaluator helps them internalise what inquiry looks like, facilitates inquiry learning in their classrooms and evaluates whether their students are learning by doing inquiry. The rationale for disseminating STRAW as a model for inquiry-based learning is based on the Program's success with Outreach students in achievement and retention in science. These outcomes are documented in longitudinal studies on Outreach students and in case studies on the students of Outreach teachers.

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The Illinois Mathematics and Science Academy (IMSA) is a public residential high-school for students gifted in science and mathematics. Its population is multicultural, equally divided between males and females and reflects the state's geographic demographics. The Director, Peggy Connolly, takes a broad view, writing: "there is a misconception that students successful in research are exceptionally intelligent. Discovery is not the result of brilliant insight, but of diligent commitment. Students achieve great things not because they are gifted, but because they are motivated, and because someone gives them the opportunity" (Connolly, 2002).

The IMSA Kids Institute is an outreach program which provides hands-on enrichment programs and projects in science, mathematics, technology and the humanities developed by the IMSA students for the benefit of Illinois elementary schools, students, and communities. 150 IMSA students now develop and deliver numerous programs; faculty members facilitate four programs, and co-teach three. Programs rely on an outstanding pool of corporate, scientific, and educational partners; some financial in nature, some resource-based, others a mixture of both. Over 100 Illinois institutions – corporations, museums, science laboratories, universities and colleges support the mentors who volunteer 20,000 hours a year.

Current programs include:

- Science Explorers: IMSA students plan and produce two, one-week science day camps, with a capacity of 144 campers.
- Science Explorers Field Trips and On the Road: Students provide a half day of hands-on science learning at IMSA. Science Explorers On the Road brings IMSA students to deliver science presentations to schools that cannot bring their students to the IMSA campus.
- Project READ: 50 IMSA students provide hundreds of hours of one-on-one tutoring for 2nd and 3rd graders. Students are also developing a Saturday Enrichment program themed around children's literature.
- Real Science: Our students produce free interactive CD-ROMs, based on annual teacher surveys which identify content areas where additional science enrichment is needed for 3rd to 6th graders. Real Science 2002 is currently under development for distribution to approximately 1,000 Illinois schools and libraries.
- IMSA Team Mars: Students deliver a 16-week, on-line science enrichment unit to selected Illinois schools. The coursework culminates in a Mars Fair at IMSA in May, where students showcase their work.
- Digital Art: Middle school students explore the relationship of art and technology, and integrate learning into electronic design (web art) under the guidance of IMSA faculty and students.
- NEW Math+Science 4 Girls: Co-taught by female IMSA students and faculty, and community members, this program involves middle school girls in discovery-based learning which includes forensics, investments (stock market, futures, bonds), medicine, and aerospace.
- Explorations in Science: A day camp that engages students in molecular biology, satellite imagery, and physics principles.
- Science Explorers @ Walter Payton College Prep: In its second year, WPCP students who were trained last summer by IMSA student-teachers will mentor younger WPCP students in science camp development and delivery.
- Project School Visit: IMSA Science Explorers work with IMSA's Admission Office to provide hands-on science program for minority middle school students.
- IMSA students teach grade-school students on Saturday afternoons in Inventors' Workshop, Architecture Workshop, Project READ, and Ecology @ IMSA.

Mentorship

The IMSA Mentorship Program began in 1989 with 28 students, and now involves about 150 each year, who actively participate in research in laboratories, in the field, in museums, corporations, and universities. They are paired with scientists and scholars who welcome them into the scientific and scholarly community, bring the students into their own research, guiding the students to be able to conduct increasingly independent and sophisticated research of their own. The essential components of successful mentorship are student and mentor commitment, and a viable research project. Research may be in any discipline. Projects include research in superconductivity, biochemistry, astrophysics, law, material science, nanotechnology, domestic violence, anthropology, economics, biomedical ethics, mathematics, paediatric oncology, computer graphics, genetics, art restoration, palaeontology, environmental engineering, archaeology, neuropsychiatry, fluid dynamics, immunology, public policy, and numerous other fields. Ethics, safety, identification of resources, structuring the inquiry process, presentation, and other aspects of research are addressed in addition to methodologies and techniques.

Most inquiries take place on campus, often in the Grainger Center for Imagination which provides secure individual work stations and storage, fume hoods, equipment, computers, and other accoutrements necessary to conduct research. The adjoining Grainger Workshop has tools, old machines and equipment for tinkering and building customised equipment. Some inquiries take place off-campus, for example in near-by marshes, museums, or other facilities.

Selection of students and what they do

- Students submit an application that summarises their academic and other preparation for research, and asks them to describe themselves, their character, interests, and special skills. The form documents the quantitative aspects of the student, but also encourages the student to express their passion and motivation for research. The student's passion for particular research is matched with the mentor's expertise.
- The applications includes summaries of articles from the professional literature. Hence, students must become familiar with the professional literature, understand significant works, develop a solid grasp of essential concepts and vocabulary, learn who the respected researchers are, and what their significant contributions have been.
- Students identify chemical, biological, physical, and radiation hazards in their research

environment, equipment, methods or materials; and understand procedures and use of equipment in case of exposure to hazards.

- Students are encouraged to examine professional codes of ethics to develop understanding of standards and expectations for judgement and conduct, and examine and their personal standards of ethical conduct.
- Students submit a research proposal, progress report, and final report. Each report includes ethical considerations, context of the research, hypothesis, methods and materials. The final report includes, data, findings and discussion. The content is supported by references from peer-reviewed literature.
- To invite scrutiny and discussion, students offer their research for examination, replication, modification, and application. Mentorship culminates in the annual IMSA Presentation Day in May, where students give both oral and poster presentations on their work. A few students also make presentations at professional research conferences; a few publish in peer-reviewed journals.

Evaluation

The evaluation of the IMSA students' work in Course Inquiry provides a fine example for others. Students must provide:

1. a description of the work of others which guided the inquiry, using proper citations and Internet and text sources;
2. clear articulation of the questions from which and to which, the inquiry evolved, which displays a progressive narrowing of the scope of the inquiry;
3. a detailed description of the steps and activities taken in pursuit of the questions;
4. a clearly articulated conclusion with supporting evidence;
5. a paper that is written with power, economy, elegance and;
6. a demonstrated use of technology by providing a meaningful illustration of the concepts or tabular presentation of data, where appropriate, which are either products of the student's work or attributed to the creator.

The Great Minds Program

As a style of mentoring, in outstanding minds, the goal of IMSA is to introduce students and their teachers to thought-leaders from around the USA. This is directed by Dr Leon M. Lederman, a Nobel prize winner. The guest speakers interact and stimulate ideas.

The Young Scientists Fund

The investments provided by friends' corporations and foundations provide additional resources to allow the IMSA students to showcase their research through publications, prominent state, national and international conferences and special forums.

The Young Academy of Sciences

The Young Academy of Sciences in the Ukraine started in 1991, and is active in high schools as well as non-school institutions, such as the Houses of Technical Art and the Stations of Young Naturalists. The outlook, though, appears to have a remnant of Soviet style rigidity. Students begin by reading introductory lectures of scientific-popular character while taking lessons of deeper study devised by the teacher, excursions to places of scientific interest and then start their research work either in small groups or as individuals on a teacher-proposed subject of investigation.

The results of their research must be presented as a thesis of about 15 pages and entered into the regional competitions of The Young Academy of Sciences. The winners are “sent” to higher level conferences, right up to the all-Ukrainian ones. For the past three years, the prize-winners have been able to enter the State Universities without entrance examinations.

Higher-level research work by the youngsters is carried out under the supervision/mentorship of university professors, researchers or collaborators of research institutions. The great advantage of entering the scientific environment is seen as the absence of differentiation of people by age and experience, so that the school-students can work as colleagues with other researchers.

The Pinnacle Project model

(www.apa.org/ed)

The Pinnacle Project, sponsored by the American Psychological Foundation under Dr Rena Subotnik, brings together established masters in the arts and sciences, outstanding researchers and professionals beginning careers (for each discipline) and extraordinarily talented high school students (one in each of the disciplines).

The overall purpose is to bring together both developed and developing talent in important disciplines to:

- Publicise the talent development needs of gifted adolescents.
- Provide an opportunity for highly gifted adolescents to learn from and be guided by mentors in their fields of interest.
- Plan investigations that would serve as a basis of mentoring relationships
- Discuss in a safe forum the joys, psychological stresses, and expectations associated with talent development at the very highest levels.
- Establish a venue for fertilisation of ideas about talent development across disciplines.

Seven disciplines were represented during the 2001 pilot activity: fiction writing, biology, music, mathematics, history, psychology, and journalism. Each disciplinary team consisted of one or two eminent scholars or practitioners in the field, an emerging star, and a high school-aged scholar who has already demonstrated outstanding ability, motivation, and creativity in the field. The masters included: Joshua Lederberg (Nobel laureate – biology), Faye and Jonathan Kellerman (New York Times best selling authors), Philip Scheffler (Executive Editor, 60 Minutes), Arthur Jaffe (Professor of Mathematics and Physics, Harvard University), Vincent Wimbush (Professor of Religious History, Union Theological Seminary), Beatrice Affron (Conductor, Philadelphia Ballet), and Martin Seligman (Professor of Psychology, University of Pennsylvania).

The adolescent participants were identified in one of three ways:

1. through established channels/talent searches conducted within each discipline
2. by the master or his/her associate
3. via gifted education networks.

Each day of the week-long summit includes opportunities for the discipline-based triads to meet, talk about their interests and plan for the coming year. Each day includes lunchtime roundtable discussions. During the course of the summit, each of the masters gives a lecture to the entire group. At the culmination of the week, each scholar presents what they have learned from their individual team meetings, and talked about projects that they were planning for the coming year.

Distance Learning

Tutorial and correspondence programmes have long been available to promote learning outside school, and will doubtless continue to be so. But today, large distance-education programmes offer coursework via the internet for all ages, from kindergarten to university. In Canada, for example, the British Columbia Open Learning Web site at http://www.ola.bc.ca/ is integrated into regular school work and can be found as part of the Open School site; college and university links are there as well. Australia has the Virtual School for the Gifted in Australia. In Israel, the Weitzmann Institute for Science runs high-level courses for children.

In North America, increasingly popular programs are now available for gifted learners online and through compressed video, e.g. case-based online coursework at CaseNEX at infb@casenex.com.

Four major universities in the USA offer correspondence programs for gifted students:

* Duke Talent Identification Graphics Calculator Program
  Tip@duke.edu
* Johns Hopkins Center for Talented Youth Expository Writing Tutorials
  Cty@jhu.edu
* Northwestern Centre for Talented Youth Expository Writing Tutorials
  Cty@nwu.edu
* Stanford Educational Programs for Gifted Youth (EPGY) in computers, mathematics, science, humanities
  Ravaglia@csli.stanford.edu

There are many non-academic web-sites which can be used either by children alone or with guidance, as a small example:

- Voices of Youth www.unicef.org/voy children to discuss the future
- Peace Pals www.members.aol.com/pforpeace/peacepals/index.htm international discussion
- Institute for Global Communications www.igc.org features on global issues
- The Web of Culture www.worldculture.com cross-cultural communication.

E-learning

E-learning is a form of distance learning which refers specifically to study delivered on-line, rather than content which is simply downloaded and installed on a computer later. Information technology is used to deliver coursework and workshops to children of all ages, and their teachers. It can incorporate the use of e-mail, chat-tools and other on-line facilities to offer a comprehensive means of learning new skills through a combination of self-study and support via an on-line tutor.

Digital video-conferencing, the internet or telecommunications such as television can provide educators with alternative formats and scheduling. However, its success is largely dependent on the validity of the programmes as well the effectiveness of the technology to address the issues. This system allows children to work any number of levels beyond their age peers, while taking classes in the regular school system. The main benefit is wide course selection, and the option to proceed with learning at their own pace in their areas of interest while having teacher support.

E-learning benefits teachers too. Internationally there are very few courses for teachers in the education of the gifted: perhaps two in the UK. This paucity is also surprisingly similar in United States (Gallagher, 2000). Even when such training programs are provided, the lecturers are not themselves usually trained or active in the field. The Open University in the UK, though, made a foray into gifted education in 1992 with Joan Freeman, including a film and course booklet.

The advantages to learning on-line:

- It is inexpensive; there are no expensive texts to buy.
- It takes place at the learner's pace and convenience.
- The learner can be anywhere in the world with access to any internet connected computer. No places to be reserved on a taught course.
- Course materials can be updated immediately, so that courses are always relevant, focussed, and can offer the latest developments and technique.
- Participants can work in groups, such as scheduled discussions.
- It is great aide in the often hectic environment of the teacher.

The elements of e-learning

1. Self-paced training modules include exercises and quizzes as well as core information about the topics covered in the course. This enables the learner to jump back and forth to specific sections, and freeze the module to continue at another time or place. Virtual lectures may be included whether recorded in a studio or in front of a real audience and then is available to be played back any number of times. Models and simulations can show examples of how processes work and real life case-studies with full multimedia support such as a geographical region's demographic data, climate or tectonic stability.
2. Contact can be made with an on-line tutor via e-mail at any depth at the learner's convenience. Other contact is through chat rooms, newsgroups and bulletin boards, where large numbers can discuss issues between themselves and tutors. Interesting real-time guests can be invited to lead e-mail seminars. A gifted child can even do a majority of course work via the internet, including connecting with tutors and submitting and receiving lessons. Lessons can be integrated into internet searches for information. The provider can use courses from around the world to supplement the interests and needs of gifted learners and some are currently using some courses from the internet with great success.
3. Access to good quality high-level information and interaction can be provided for every state and independent school.
4. Qualifications of a formal kind are less important, though they can be gained over the internet with appropriate administration. The advantages that traditional qualifications hold, such as their perceived status and their transferability, become less attractive for gifted pupils as a means of following their interests. For teachers too, in terms of CPD, there is no need for a specific qualification to gain access to a higher standard of learning.

The minimum hardware required is a computer and internet-connected modem, though it is usually preferable to have a sound card and speakers as well. All home computers have the necessary equipment for this, as do school and college computers, though most have their sound cards and/or speakers removed. The software requirements are a little more demanding however. Certain plug-ins are required to view most electronic content, such as Shockwave Player, Real Player, Media Player, Flash Player, Adobe Acrobat Reader, Java-compatible browser and possibly conferencing software such as Microsoft (MSN) Messenger. It is easy and cheap for a school to install these players purely for the use of staff-

training and with care these can be installed for student use with no significant dangers.

Commercial Printed Material

Although not organised as specifically out-of-school activities for the gifted, there are printed magazines for the gifted. In the UK, this would include, Aquila (www.aquila.co.uk) which is aimed at 8-13 year-olds, but could also be enjoyed by younger gifted children. It is described as 'a fun magazine for children who like challenges' and is set out in a colourful way with pages of information, interviews, word games, maths puzzles and science experiments. Regular features include space, the environment, history, technology, art, ideas, sport, things to make and competitions, and children can also send in contributions of letters, stories, poems and jokes.

In the USA many publications are not specifically aimed at the gifted in their titles, but instead offer high-level study aimed at children e.g. Current Science, Imagination, Let's Find Out, Zoobooks etc. Of course, there are books. Gifted children can advance themselves with challenging books above the norm for their ages, such as Mathew Lippman's Philosophy for Children, not to mention George Bernard Shaw's A History of Western Philosophy, and so on. Barbara Lewis has published two books with Free Sprit Press, Minneapolis, The Kids' Guide to Service Projects (1995) and The Kids' Guide to Social Action, (1998). Some books act as 'bibliotherapy' for gifted children with problems, all of which are American. However, not all gifted children like to read.

Parental and voluntary involvement

Parental evidence of their children's giftedness could be, for example, books the child has read, evidence of how quickly they learn, evidence of specific skills and talents, evidence from hobbies and interests, a portfolio of art works, or performance in some other arena, any psychological testing the child has had, educational visits made, formal reports from tutors and experts. Observations area also a valid aspect of assessment, which is what expert judgement is, as are the subjective feelings of the observers. It is always important to know what kind of education parents want for their children as they may not be supportive of children in out-of-school activities chosen by the teachers. Research in the development of children's music and art to a standard of excellence has shown how vital parent help is (Freeman, 2000).

Teacher check-lists can be used by parents, but these are not always reliable and can only serve as indicators. American rating-scales and tests include the California Achievement Tests (CAT), the well evaluated Purdue Academic Rating Scales (Moon *et al*, 1994) or the several developed by Renzulli and his associates, the Scales for Rating Behavioural Characteristics of Superior Students. An specific American Parent Inventory for Finding Potential (PIP), taps personality characteristics. Perhaps as part of that culture, acceptance demands confidence: "A child with little self-confidence or independence may not be a good candidate for grade advancement or working individually." (Rogers, 2001, P. 59). Clearly a young Franz Kafka would not be admitted to a course on creative writing using this criterion.

Educational planning for gifted children is particularly complex because these children often have both high academic potential as well as special areas of ability and talent. A parent cannot enrol a gifted child in the nearest school and trust that there will be someone there who will know what to do with a bright, educationally advanced youngster. Nowhere in the world, in spite of specialist teacher-training in the USA, do the vast majority of classroom teachers have training in what to do for such youngsters, no more than do administrators. But parents are essential even if a gifted specialist is around, because they usually know their child better than anyone else.

Successful educational planning for highly able children requires positive collaboration between the parents and the teachers in the school. It is helpful to put deliberations in writing to ensure follow-through and accountability. The goal is to achieve ongoing collaboration between all parties concerned, including the child.

Parent initiated activities

Parents are generally the first adults in a child's life to become aware of the child's talent. When the child enters school, it may become especially necessary for parents to provide supplementary activities by introducing the child to exciting and fascinating subjects. For many parents this task is rather intimidating. When they seek professional help and advice from paediatricians, teachers, school psychologists or educational counsellors they are sometimes confronted with ignorance and prejudice about the talented child and imputations that they are 'pushy' parents.

Faced with the predicament of having to solve their problems more or less on their own, the parents of highly able children in many countries have established self-help groups in the form of associations such as the Gifted Child Society in the United States, the British National Association for Gifted Children (NAGC), the Deutsche Gesellschaft für das hochbegabte Kind in Germany, Pharos in The Netherlands, Bekina in Belgium, Association nationale pour les enfants intellectuellement precoces (ANPEIP) in France, or Elternverein für hochbegabte Kinder (EHK), Schweiz, in Switzerland, and many more.

Voluntary societies provide the benefits of :

- help, advice and information to parents of gifted children.
- increased community awareness and understanding of the need to develop links with and information for local professionals such as teachers, social workers and medical practitioners.
- an opportunity for gifted and talented children to meet and to pursue their interests among their gifted peers.
- contact with interesting and informed adults, offering children intellectual stimulus and an introduction to a wide range of interests.

The debits of voluntary societies are:

- Lack of evidence on which they base their activities
- An assumption of justification for their activities
- Sometimes incorrect information in the name of authority
- A view of giftedness which can be biased towards emotional problems based on a heavy input of children with problems.

Most of the associations have regional branches. Joint activities or enrichment programs for the children are usually run by adult volunteers, often a parent of one of the children or someone who is generally interested in the children's progress. They determine to a large extent the selection of activities available.

The array of courses offered by parents' associations is dependent on diverse, often chance, influences such as the number of children of a certain age group interested and willing to participate, the availability of course instructors, or special rooms, materials and equipment.

This is typified by the well-run organisation, Pharos, in the Netherlands, which was founded in 1987. It is run by enthusiastic parent volunteers and has 20 branches around Holland, each of which designs its own activities, typically day-trips and family afternoons when the children play games and have discussions. There is no selection, no set programme or evaluation, and nothing is obligatory other than eating together. If children are not on the same wavelength they do not stay. Primary-age children can have a short weekend with one sleepover night, which is being extended to middle school in some regions. The primary purpose is for the children to meet others like themselves in a relaxed atmosphere, and the parents can share their troubles. Most parents join because of problems, usually in primary school, the biggest being the children's loss of interest in education and "under-working". The organiser states that many children arrive on the verge of "self-destruction" because they are not understood in normal schools. Pharos aims to bring the interest and normal functioning back, though this can take a long time.

Chapter 6

PROVISION IN WESTERN EUROPE

Across the centuries, Western Europe has recognised some individuals as capable of a higher level of functioning than most others - from the philosophers of Ancient Greece to the present day - influencing the way world history has unfolded. But there has never been a concerted effort across large areas to promote gifts and talents until in 1994, the European Council (a body for inter-governmental cooperation between 25 European states), issued a recommendation regarding the education of gifted children (Council of Europe, 1994). However, it emphasised that "special educational provision should ... in no way privilege one group of children to the detriment of the others" (p. 1).

European Council recommendations:

- to legislate for the special educational needs of gifted children to be recognised;
- to promote research on identification, the nature of success, and reasons for school failure;
- to provide information on gifted children and in-service training for all teachers;
- to make special provision for gifted children *within* the ordinary school system (i.e. Inclusive education);
- to take measures to avoid the negative consequences of labelling someone as gifted and talented;
- and to promote debate and research amongst psychologist, sociologists, and educators, on the vague and relatively undefined giftedness construct.

In time, European gifted education may emerge uniquely to cater for European needs and culture, though as yet high-level research in this field is small-scale compared to American work. Also beginning in 1994, the European Council for High Ability (ECHA) has provided a one-year full-time teacher- training course resulting in the ECHA Diploma. Based until recently in Nijmegen, Holland, it is Europe-wide, growing, and has about 400 graduates, some going on to masters degrees in gifted education in universities around Europe (including the UK).

Generally, national school systems in Western Europe opt for 'inclusive education' as

recommended by the Salamanca Statement (The UNESCO World Conference on Special Needs Education: Access and Quality, at Salamanca, Spain, in 1994). Legislation, therefore, often contains formulations on the rights of all children to education which should adequately support, and meet, their abilities and interests, merely implying provision for highly able pupils. Yet there is still a fierce political struggle in Western Europe between the ideals of élitism and egalitarianism. Although special provision for the gifted is condoned across most of Western Europe, it is not always legislated for, while elsewhere, such as in Scandinavia, it is not at all acceptable. The split is wide.

Geographical Europe consists of some 40 countries inhabited by approximately 700 million people. Persson, Joswig and Balogh (2000) sent a questionnaire to all administrators and politicians concerning political recognition, legislation, provision and encouragement for gifted and talented children in the school system, its history, nature and whether there was additional training for teachers. They received 25 replies which are contained within the descriptions below of provision for the gifted in all Europe. It was seen that there is no recognisable overall method for teaching the gifted.

Germany

Germany is a federal republic in which control of education rests with the individual states. Legislation stipulates that each young person is to be provided with an education regardless of his or her heritage or economic situation. Furthermore, it must reflect the child's talents, interests and inclinations. It is the responsibility of schools to make provision.

Although primary education is similar all over the country, several German states divide secondary education into three types of schools where the gifted can be supported. This includes flexible enrolment in the first grade, grade-skipping (though rare), elective courses and some choice within the curriculum. In the 'new' federal states school legislation was taken over from the former German Democratic Republic (GDR), largely following the previous system of support for talented individuals. This legislative legacy allows for some schools to support the gifted by following a special curriculum as well as offering a diverse array of extra-curricular activities.

There are currently 26 special schools in the new federal states of Eastern Germany

promoting gifted children, all part of the GDR Communist legacy. After unification in 1990, many were taken over by new sponsors (other than the state). Nine are devoted to mathematics and the natural sciences, eleven specialise in the arts and music and six focus on modern languages. Three schools support intellectually gifted students, namely the Landesschule Pforta, The Free School at Rostock, and Torgelow (a private gymnasium).

Additional schools especially for intellectually gifted students have opened in recent months:

- Talenta in Eringerfeld (Northrhine Westphalia) (www.talenta-schule.de)
- Sankt Afra in Meissen (Saxony) (www.sankt-afra.de).

Others are in preparation:

- Schule fuer Hochbegabte in Paderborn (Northrhine Westphalia) (www.schule-fuer-hochbegabte.de)
- Haus des Lernens in Heilbronn (Baden-Wuerttemberg) under the umbrella of the SBW Holding, Switzerland (www.sbw.edu)

Special classes cater to talented children from the 9th grade: one at the Jugenddorf-Christophorosschule in Braunschweig and one in Rostock. In Bavaria, the Ministry of Culture launched three special classes during the 1999/2000 school year in Munich, Nürnberg, and Regensburg. In addition, there are special classes, particularly for music and sports, at a number of German gymnasia. Considering former GDR's considerable prowess in sports, it is not surprising that, as part of the East German legacy, 20 gymnasia devoted to sports still remain. - compared to only nine similar gymnasia in the rest of Germany. Innovative provision for gifted children by Jugenddorf Hannover in 1995 provides continuity in both kindergarten and primary school where children continue a similar programme (Hartmann, 1998). Although they stay in mixed-ability groups, the special needs of the gifted are carefully monitored and supported, including advisory services for parents. Other advisory channels are provided by the Jugenddorf-Christophorus schools at Braunschweig and Rostock. More counselling and advice are available through the institutes of psychology at the universities of Hamburg, Marburg, Muenster, Rostock, Munich, and Tübingen. The first German Beratungsstelle besondere Begabungen (BdB), an institution for counselling the gifted, was founded with the support of the municipal government in Hamburg in 1997. The main emphasis is on individual counselling for parents, teachers and gifted pupils, as well as

giving advice to schools on how to recognise and further giftedness.

Competition is important in Germany (Chapter 4) in regional and state contests, conducting work groups, correspondence networks, and specialist camps or art studios, along with summer schools and camps, which are offered through the Deutsche SchülerAkademie and others. There are competitions for talented and motivated pupils, such as Jugend forscht/Schüler experimentieren (Young people's research/Students experiment) a natural sciences contest. There are also selection rounds for the international Olympics in informatics (computer science), mathematics, physics, chemistry, biology, and more uniquely, to a federal German environmental competition. Able students may also show their prowess in different language competitions, political education, German and contemporary history contests, as well as in the Pan-European contest, Europe in School. In the domains of music and culture there are further competitions in declamation, creative writing, singing, drama, film and video-making, and in musical composition, Young People Making Music, which is a federal contest (Campbell *et al*, 2000).

The most important organisation which has provided holiday programmes for the gifted since 1988 is the Deutsche SchülerAkademie, initiated by Bildung und Begabung eV (www.bildung-und-begabung.de) a charitable organisation in Bonn, in conjunction with the Federal Ministry of Education and Sciences. In 1993, however, the German Parliament (and in 1994 by a unanimous vote at the Ministry for Culture's conference) a permanent federal budget was set to form a starting point for supporting gifted and talented individuals. Since 1988 over 5400 highly-able students have participated in its holiday courses (information from the Director).

Some teacher training in Gifted Education is on offer in Germany, and specific programs have been developed by Heller (1999). His international Excellence program at the University of Munich, a four-semester continuing education program, is pioneering initiative in special teacher training.

Other organisations and associations offer a wide range of activities, such as the Hochbegabtenförderung e. V, established by parents, with 63 courses for 470 children in 13 German cities as well as individual assessment and counselling. The Deutsche Gesellschaft für das hochbegabte Kind eV, founded in 1978, has 3000 members in 15 regional groups and

organises advanced courses for children, as well as special days of study at universities. It provides advice to parents, does a wide range of publicity work and arranges activities for entire families with gifted children. Arbeitskreis Begabungsforschung und Begabungsförderung eV (ABB) in Rostock, is an association of researchers, educational policy-makers, and teachers, supporting giftedness research, which aims at integrating research findings into actual teaching.

Not all the numerous German initiatives started over the past few years can be presented in detail here for lack of space. Yet those mentioned show that a substantial effort is being made to bring gifted education into the foreground of German education, as well as aiming for a solid researched base for it.

Austria

The Austrian school policy aim over the last twenty years or so has been for flexibility - vertically as well as horizontally. This includes switching courses, different forms of acceleration and differentiation between achievement groups. There are numerous forms of out-of-school activities for the gifted, such as partial learning at higher grade levels, and Plus Courses in Salzburg, in Oberpullendorf and the Tirol. Some of the main-track schools and the general secondary schools host special classes which emphasise music, sports, or modern languages. Advanced learners can attend university courses. The Landschulräte (the state school boards) of Salzburg and Tirol, as well as the Stadtschulrat (municipal school board) of Vienna, have agreements of cooperation with the Universities of Salzburg and Innsbruck, as do the Mozarteum Conservatory of music and the Technical University of Vienna. In addition, home schooling is allowed in Austria as long as it is carried out under state control.

Competitions are held annually in modern languages and in the social Sciences, such as Europa machete Schule (Europe goes to school) or Jugend Innovativ (the innovative young). They may also compete in sports (in tournaments and championships), the arts (e.g. Prima La Musica), as well as in the Olympics for mathematics, physics, chemistry and computer Sciences. The Federal Ministry for Teaching and Culture is currently planning an evaluative study to examine the long-term effects of such contests on the personality development of students who participate in these events. Annual summer academies are offered in some states and the initiatives of a parent group (i.e. Austrian Club for highly talented children),

which was founded in 1994 and now has chapters in six of the Austrian states.

Belgium

Things are somewhat complicated in Belgium because of its three communities - Flemish, French and German - and two regions - Flanders and Wallonia, which are autonomous and have separate educational legislation. In neither region, however, is giftedness specifically recognised, though in Flanders there are private schools, five secondary Arts Schools and three secondary sports schools. Most normal schools recognise high ability with acceleration, enrichment projects and streaming. During the holidays, private organisers provide courses in modern languages, sports, creative writing, and computing for gifted and motivated students aged 12 and older. There are also annual Belgian Olympics in mathematics, physics, chemistry, biology and modern Languages for students in their final year of the secondary school.

There is currently no special teacher training in Belgium targeting the education of the talented, but two-day seminars are available to teachers on differentiated curriculum in primary and secondary education since 1995.

France

In the French education system there are three types of schools. Free state schools, private schools run under contract (usually denominational) where the state pays the teachers' salaries, monitors their competence and the content of the curriculum, and independent schools over which the state has no control, apart from ensuring the wholesome nature of the premises. Teachers in all three types of school are recruited through high-level competitive examinations. (Personal communication, Sophie Côte, head-teacher, Paris)

The reforms in the school system since the end of the second World War were all intended to transform an élitist system where only 8% of children were selected by examination for the Lycée (grammar school). In the early 1950s, in parallel with écoles communales (state primary schools) and cours complémentaires (equivalent to secondary moderns), the Lycées taught schoolchildren of all ages from kindergarten, to terminale (year 13). During the reforms, petits lycées (prep schools) were abolished. Any teaching which was considered

unsuitable for mixed-ability groups was abolished, starting with Latin in year 7, though later, it was revived for cinquième (year 8).

Then the overwhelming events of May '68 swept away the old system, marking a decisive turning-point. The Department of Education was deeply traumatised, and took a long time to recover, not because it disapproved of the ideology, but because it had been powerless to do anything for a number of months. Teachers and students alike, out on the street and on the university benches, had anarchically changed the world without it. This revolt speeded up the movement for change. However, in subsequent years, each time student groups threatened to take to the streets, the memory of those days caused Ministers to tread more carefully. Two important reforms re-established order. They were based on egalitarianism and enthusiastically promoted by the teaching unions.

Since 1977 there had been a common core syllabus with three hours of remedial lessons for struggling pupils, and three hours of 'further study' for good students – but due to lack of funds, the 'further study' never happened! This somewhat undermined the reforms. Maybe also the Department of Education felt that this part of the reform was unnecessary, reasoning that gifted pupils will always fulfil their potential, though uniformity of teaching has proved to be particularly harmful to them. What is more, since the remedial classes did not have the anticipated effect, the numbers of failing pupils simply continued to grow. A new category of children appeared: struggling gifted children.

Jospin's Law in 1989 completed the process of creating uniformity with the collège unique (all-inclusive high school). 100% of a class of the right age enter in year 7 at 11 or 12 years-old. All streaming has been abolished, so all receive the same teaching. The mixed-ability classes contain pupils whose knowledge has not been checked and who pass from class to class without the necessary skills to benefit from the fairly rigidly structured lessons; all these elements have particularly damaged failing children, gifted or otherwise, irrespective of the origin of their difficulties.

Currently, the French school system is organized around the selective Lycées, followed by a two-year preparatory period and possible admission to the élite Grande Écoles, a route normally accepted as meeting the needs of gifted students. However, acceleration is possible, whether early school admittance or grade-skipping. Home schooling can be guided with state

control. Some expensive private schools select by achievement, but only one, the expensive Lycée Michalet at Nice with 150 students is devoted to intellectually talented students. 13 free colleges provide special courses for intellectually talented students between the ages of 11 to 15. Since the 1970s, however, special schools in every region of France specialise in music and sport, most famously the Ecole de L`Opera in Paris.

For a long time, the dominant topic on the educational agenda has been 'remedial' teaching. Yet this has not been treated from its roots – prevention. Assessments of the results show they have been disastrous, particularly at junior high school level. The Department of Education has been altered and ministers are slowly beginning to rethink the system. Further assessment will soon be carried out at all levels beyond nursery school to identify pupil needs and establish where different arrangements need to be made. The Ministry has set up commissions whose studies and recommendations are expected to significantly increase the recognition of differences between children and the need for their differential teaching.

From 1996, all ministerial briefs recommend that the diversity of pupils be respected. Schools are to be given a degree of autonomy with recognition that some pupils have special needs. Though the doors to special gifted education are still closed, they are no longer locked, and head-teachers can seize this opportunity to adapt teaching to their pupils' needs.

At junior high school level, it has been recommended that in parallel with the national curriculum, diversified career paths and cross-curricular work should benefit children's own specific needs. In senior high schools, different modules enable a larger choice of disciplines, or more in-depth study of those already on the curriculum. Although education is compulsory up to the age of 16, the institution must keep places open for students who wish to continue their studies beyond that age. Lycées (senior high schools) have also undergone a significant transformation. Pupils in both general and technical schools often did not achieve the necessary level to continue, and the seconde (year 11) has therefore been reorganised into a year at which decisions are taken. The A B C streams which began in this year have been abolished and the distinction now begins in première (year 12): with literature, science, economics and social science streams. From the seconde, modular teaching allows for greater variety.

There are a large number of baccalaureates: general, technical, or vocational available in

France. The change which the Ministry had hoped would prove so positive, is in fact extremely negative. Adolescents are often steered into streams which are unsuitable or which they had not chosen because the general education system has effectively rejected them. Unlike Britain, 'technical' education has not had a good press in France. It is a great pity, because France is running short of workmen and craftsmen and does not know what to do with the numerous students who have committed themselves to studies, at the end of which they face a high level of unemployment.

University education is free, apart from enrolment fees. Any student who has passed the bac can become an undergraduate. The French education system has this peculiarity in that it is mainly open to all, at primary and secondary level, but is highly selective once it comes to the Grandes Écoles (competitive-entrance higher education institutions) where élite students are educated: the École Nationale d'Administration (Civil Service College), École Polytechnique and École Centrale (Engineering Colleges), École des Mines (School of Mining Engineering), École des Hautes Etudes Commerciales (Business School). Many studies have highlighted the difficulty for children from underprivileged backgrounds to get into these prestigious schools because of the need for two or three years of preparation for the entrance exams.

However, greater recognition of this fact is now evident. From this year onwards, the Institut des Sciences Politiques (Institute of Political Sciences) in Paris is recruiting, on the basis of their school record, some pupils from underprivileged suburbs who would not have passed the entrance exam. Maybe more of these privileged institutions will follow this example.

Along the same line of thinking, public entrance exams taken in the junior high schools, which had all but disappeared, have recently resurfaced, and if the state were to pay the full costs, as before, of scholarship pupils who are willing to work, maybe they will benefit from the 'Republican escalator' and will achieve the 'Republican élitism' of which one of our Education ministers spoke recently. Gifted children will be directly affected by these measures and, in this way they will receive educational 'justice'.

In general, the French attitude to giftedness is inconsistent. Although it is recognised by the government as an issue in primary and secondary education, there is no special policy or mandated provision.

France has regular competitions, including sports, chess and music. In addition, a variety of French associations organise scientific or mathematical games such as Les Olympiades de Chimie et de Physique, or mathematics competitions like Kangourou and Logic Flip. One Parisian university (Jussieu) regularly organises courses and meetings to specifically challenge teenagers. Once a year they gather young scientists from all over France to the Mathematics and Jeans Congress. The Ministère de l`Education Nationale also organises competitions in subjects such as French, philosophy, mathematics, English, German, and physics for the most outstanding students in the Terminales (the examinations concluding secondary education) at the end of the school year.

However, there are individual initiatives in France, some schools have attempted special courses for the gifted, and voluntary organisations run weekend and other courses and magazines for gifted children, such as -

Actions Talents et Sourdouements (ANPEIP)
14,Bld Jean Baptiste Lebas
59800 Lille
France Tel/fax 03 20 53 49 52, e-mail: maria.paoletti@libertysurf.fr

Madame Sophie Côte, Association Française pour les Enfants Précoces
13 bis, rue Albert Joly, 78110 LE VESINET
France Tel: 00 33 1 34 80 03 90, Fax: 00 33 1 30 53 68 20

M. Jean Charles Terrassier,
Psychologue
President Association Nationale pour les Enfants Surdoue's
26 Rue Paul Deroulede
06000 Nice
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Switzerland

The cantons, Switzerland's administrative regions, decide their educational policies, and the need for gifted education is but slowly finding its way into each one's agenda. At universities such as the University of Zürich, work relevant to the highly gifted is anchored in special education. But universities do not have a direct influence on educational planning or its implementation. Since the end of the 1980s giftedness has increasingly become a publicly discussed issue in the German and French speaking cantons, but it is still largely ignored in the Italian speaking cantons. The state ministries are not yet active in this area. But in Zürich there is an experimental school for artistically and athletically talented young individuals, and Talenta, a private primary school with 19 pupils. There are private secondary schools for the gifted at Basel (Minerva) and Solothurn. Talented athletes can attend a private gymnasium at Graubünden, and young and promising Swiss scientists may participate in the well-established Jugend forscht (Young people research). In addition, Schweizerische Studienstiftung (a foundation) offers talented young students diverse international programs to gain international experience.

State policies, aimed at keeping gifted pupils in mainstream education with little acceleration or enrichment measures, are changing. In the canton of Zurich it is possible to skip a grade at all school levels, and sometimes more than one. In the city of Zürich, an enrichment teacher (a special teacher for gifted education) is sometimes available. Individualisation in the classroom is recommended and new teaching and support materials for teachers are planned. The recent German adaptation of Renzulli`s Schoolwide Enrichment Model (Renzulli *et al*, 2001) is stimulating the German-speaking cantons to implement this classroom-based approach.

All Swiss provision for the gifted is private. In Zürich there an experimental school for the artistically and athletically talented, the K+S (Kunst und Sport), and two primary schools, Talenta, with 19 pupils, and Clix, (near Zurich) using Renzulli`s Schoolwide Enrichment Model, which will expand to secondary level in 2002. There are secondary schools in Basel (Minerva) and Solothurn, and in Zurich, where AKAD offers precocious pupils the Matura examination at age 15 instead of 19. Talented athletes can attend Graubünden (Hochalpines Institut Ftan, Sportmittelschule, Davos) and for scientists there is the well-established

Schweizer Jugend Forscht (Young people research). There are two charitable foundations; Schweizerische Studienstiftung offers talented youngsters diverse international programmes, and Stiftung für hochbegabte Kinder supports disadvantaged gifted children and adolescents.

The Netherlands

The Dutch government recognises giftedness as an issue in primary and secondary education. The Ministry of Education has stimulated and supported specific research since 1980 at the University of Nijmegen, focusing on primary schools, and at the University of Utrecht focusing on secondary schools. The Centre for the Study of Giftedness was founded in 1988 at the University of Nijmegen, with the sole European professorial chair on giftedness.

But inclusive policies are regaining popularity, evidenced by the recent government publication, *Together in School Again*, which signals that fewer children should attend special schools, and that regular schools should increase differentiated teaching. The Dutch New Schools, Jena-plan, Montessori or Dalton schools, which run parallel to the regular primary schools, can more easily offer special provision for gifted pupils since they work more individually. There are also special schools for pupils talented in music, dance or sports, which children can attend from about 10 years-old.

Competitions are available, as in most other countries of Europe. These are organized by the specialists in Curriculum Development (SLO), the Ministry of Education and/or universities in fields like mathematics, physics, chemistry, and information technology. Students can study for them either at secondary schools or university. These Olympics aim to promote the practice of the different sciences. Winners may continue to take part in the international equivalents or obtain a prize (up to 5000 NFG).

Gifted 14-17 year-olds were offered courses under university auspices in 1976, 1997 and 1998 with a private initiative, *Talent Support,* directed by Pieter Span (Pluymakers, 1997). The theoretical basis was that of Vigotsky, notably his concept of the Zone of Proximal Development (Kozulin, 1990). The gifted were to be pulled forward in their education and understanding by an extremely high standard with difficult and interesting tasks. It was intended to be international, but in fact only Germans and Austrians (as well as the natives) were able to work in Dutch. The participants had to attend the live-in courses for the whole

two weeks. In addition there were visits to cultural and scientific centres, such as concerts in Amsterdam and museums all over the country.

There was a little, though unanalysed and unpublished, research on the on the student body (personal communication from the Director). The scores from the Raven's Advanced Matrices were particularly interesting. Many of the students who had been chosen by teachers, were found to have only average scores, notably the more creative German youngsters. It was thought that the logical thinking of the Raven's did not truly tap into their varied abilities.

The Talent Support courses began at the mainstream University of Rotterdam, in the second year in conjunction with the Universities of Delft, and Enchede, a technical university, was chosen for the third year. University motivation was largely to attract the best students, because Dutch universities are in competition for students, but this did not happen. The young people from the Talent courses too often chose other universities to hold the hosting universities' interest. Hence these three universities became disillusioned, the big charity givers such as Shell were not interested, and so the money dried up. The courses needed 300,00 guilders a year (about £200,000) extra to what the parents paid for the courses. The Dutch Talent Support Foundation continues to offer support, as does HINT which offers information to schools and education authorities, as well as organising lectures, courses and activities for gifted children. FACTA (a foundation) organises summer courses on computer science.

Some Dutch teacher-training colleges offer one or two modules (one module equals 40 hours of study) for primary teachers in their third or fourth year of study. Training is being planned for secondary teachers. There are a number of School Advisory Officers in The Netherlands who offer information about gifted education to teachers.

Italy

Supporting the gifted is not a recognised issue in Italian educational policies. Although interest is slowly emerging, the notion is suspected of élitism, with the fear (post-fascism) that non-liberal and undemocratic education could be re-instituted. Even expensive private schools have had only limited success, including those previously supported by the Roman

Catholic Church and a few universities, which had selected students on financial as well as intellectual ability creating a social élite (similar to British public schools). Italian authorities now prohibit this type of selection for education, and as a result educational initiatives and research lean toward the general rather than the particular. Research at the Universities of Genoa, Pavia and Rome, for example, are currently studying the development of social and moral learning and motivation, the way gifted individuals live and behave, and identification by means of adequate testing - without the need of a separate educational environment for the gifted. But there are competitions in Italy, largely staged by private sponsors, in mathematics, the sciences and the arts (painting, writing, and film making).

Portugal

Different learning rhythms have been recognised in Portugal since the 1990s in the General Law for the New Reform. This paved the way for provision for gifted children, seen in the publication by the Department for Basic Education (DEB) of a booklet, *Gifted Students* which was distributed to all primary schools, and legislation for gifted children to begin education at age five instead of six as is usual. In 1996, DEB launched and implemented a project to specifically support intellectual precocity: Projecto de Apoio ao Desenvolvimento Precoce (PADP), providing extracurricular enrichment for students in primary and intermediate level schools. It also provides special courses and regular conference for teachers. The first official summer program took place in July 1998 organised by the DEB for 150 participants from grades 3 to 9.

There are four non-profit associations in Portugal devoted to the development of gifts. They all organise conferences, publications, teacher training and summer courses for children, demonstrating lively activity and growing interest - the Association in Portugal for Gifted Children (APGC) (founded 1986), the Portuguese Centre for Creativity, Innovation and Leadership (CPCIL) (founded 1989), and the Portuguese Association for the Study of the Problems of Intelligence, Creativity, and Talent (APEPICTA) (founded 1995) and, Associação Nacional para o Estudo e Intervenção na Sobredotação (ANEIS) (founded 1998).

Spain

The scene in Spain is lively, and now enshrined in law with the Ley de Ordenación General

del Sistema Educativo (LOGSE,1/1990, 3 October and the Ministerial Order of 24 April 1996), so that intellectual giftedness is now a *bona fide* category of special educational needs. The Real Decreto 696/1995, Article 3.2, however, stipulates that pupils must be educated in regular schoolrooms, though they can attend specialised centres of education and schooling which should be made more flexible to accommodate them. The gifted may now start early in school, be grade-skipped, have the right to psychological assessment and the use of special curricular measures and guidance. Not only can the gifted be accelerated but restructuring schedules and locations is accepted. This is all relatively new, however, and the Spanish authorities are still learning from experience and research to find the most effective practices for Spain.

The Renzulli Scales, for instance, were used to select Spanish pupils in a combined effort by the University of the Balearic Islands in Mallorca and the Autonomous University of Barcelona (Roselló *et al*, 2000). The 4856 subjects, who were selected first by Renzulli scales and the high scorers further selected by teachers as gifted, resulted in a sample of 733. A great disparity was found between IQ scores and the Renzulli scales which the researchers suggested showed that the latter were not a good way of identifying children with high abilities. (Renzulli would probably draw the opposite conclusion from these results.) The optimum solution, they suggested, is the combination of specific aptitude and creativity tests. Further work on psychological processes showed that the gifted use higher-level insight processes in memory using more effective codification, combination and comparison. They concluded that any enrichment or out-of-school activities should involve cognitive enrichment, notably teaching thinking skills, which they have been studying for two years in 20 schools in the Murcia region, from kindergarten through primary school. The researchers suggest that teaching thinking is a priority for the gifted, for these reasons:

Reasons for teaching thinking to pupils and teachers

- It helps teachers to be reflective and sensitive to how they teach and how their pupils learn
- It allows the gifted child to stay with age-peers
- It enables gifted children who are not balanced in their developing abilities to coordinate better
- It is easy to manage in the regular classroom and works well for most children.

Some support programmes and summer schools for gifted children have been developed at the University of Navarre for individuals or groups (Tourón, Iriate, Reparaz & Peralta, 1998). (See page 53) Teacher-training programs have been developed at the University of Madrid, which aim to develop specific diagnostics and identification instruments and the planning and development of suitable action. International exchange programmes have been developed. In 1998 university staff, teachers and researchers from universities, where research on gifted education has been in action over several years (Navarre, Santiago de Compostella, Madrid, Murcia and others), established an organisation, Sociedad Espanola para el Estudio de la Superdotación, which publishes FAISCA (Revista de Altas Capacidades), a scholarly journal.

Scandinavia

No other European countries display and enact egalitarian convictions and policies as do Denmark, Norway, Sweden, and to a lesser extent, Finland and Iceland. The Scandinavian ideal of equality and social collectivism at all levels of society is best understood as an inherent cultural characteristic. Modesty is encouraged, such that there seems to be some impropriety in personal pride and claiming what appears to be special privileges (Persson, 1998).

It is unlikely that the Scandinavian countries will ever conceptualise giftedness as it is in the United States or other active European countries. Scandinavian national curricula are, however, implicitly approaching the notion of Multiple Intelligences (Gardner, 1983). The theory is increasingly seen by researchers as a way forward in which to cater for highly able children in the inclusive classroom, since - in a sense - a classroom based on the notion of multi-faceted competencies much bypasses the egalitarian dilemma. It is likely that with indigenous values and tradition as a basis, the Scandinavian countries may well develop their own culture-specific approach to provide also for the gifted and the talented.

In the Third International Mathematics and Science Study (TIMSS, 1999), Sweden and Denmark, along with The Netherlands, were among the top performing countries - with virtually no special provision for the most able.

Sweden

It is somewhat paradoxical that Sweden hosts the Nobel Prize, where highly accomplished individuals from all over the world come to collect their prestigious awards. Yet the government does not recognise talent as an issue deserving particular attention in its educational system. While concern for the rights and welfare of every individual student in the regular classroom has been safeguarded in every national school curriculum since 1920, special needs have only been identified in reference to children with learning disabilities or a variety of physical or psychological disorders. High ability has never officially been singled out as a separate issue in education, and amongst school teachers it is occasionally even considered unethical to argue that high-achieving children are in need of special provision (Persson, 1998).

Yet special music schools for all ages exist in virtually all Swedish towns and cities, as do special secondary schools devoted to a variety of sports and music. While such special training does occasionally produce excellent athletes and musicians, selection is based on interest rather than special ability, although applicants must pass proficiency examinations to be accepted. However, a limited number of educational experiments have recently been launched, usually at a secondary level and in science or mathematics, which could be regarded as more akin to traditional gifted education. High-achieving students have been offered the possibility of taking more advanced courses than is typically offered at their level of education. These efforts, however, are local and limited to a handful of schools.

There is a glimmer of changed attitudes. The Stockholm Local Education Authority has allowed six special classes for the highly able at primary and lower secondary levels, made possible by a degree of autonomy enjoyed by local education authorities. Special teacher training for the schools, however, has not been considered, nor have strategies by which to evaluate this type of special school. Some training for teaching the gifted is available at Jönköping University, in which all students in the comprehensive teacher training programs are provided with rudimentary knowledge of high ability. A special course is also available, but applicants are few.

While high ability and individual success may not readily be acknowledged in individuals, it is certainly recognised in groups. One curious example of this - qualifying both as group-

orientation and élite-orientation - is the 'Gnosjö spirit'. Gnosjö is a small community in South Sweden in which entrepreneurial talent and prowess in the realm of small and medium-sized businesses is flourishing quite independently of political guidelines and policies decreed in Stockholm, making the area not only financially very affluent, but it also knows virtually no unemployment. This phenomenon has been subject to much study and praise by politicians and researchers, more or less regardless of their political creed. Additionally, though education is protected from perceived élitism, élitism is in fact practised, recognised and widely supported in professional life. There is therefore disagreement between industry and government education policy.

Denmark

The ideals of the collectivist welfare state in Denmark have prevented focus on gifts in education. Children's varied educational needs are to be met by differentiation within the inclusive mixed-ability classroom, although there is still the problem of teachers' lack of knowledge of how to teach the gifted. However, the Danish Ministry of Education has shown some interest in work begun in 1995 in the Danish National Institute for Educational Research at Copenhagen, whose objectives are to investigate potential problems and their incidence in relation to talented children.

Norway

In 1997 the Norwegian Ministry of Church, Education and Science reinforced the egalitarian ethos. It reconfirmed that high-ability (and low-ability) children should have their needs satisfied in the integrated and inclusive classroom. No special schools are available and no summer schools are held for the benefit of highly-able children, although schools can take the initiative to invite in experts to inspire not only students but also their teachers. Yet, as elsewhere in Europe, there are competitions in mathematics, computing and physics attracting the talented.

Finland

There is a greater feeling for educational flexibility in Finland than in the other countries of Scandinavia, largely due to decentralising decision-making in the school system and the

abandonment of a national curriculum. Individuality and freedom of choice are now strongly emphasised. As a result, schools have been encouraged to initiate a flexible schedule for acceleration and competition, notably Olympiad Studies (see the section on Competitions) (Tirri, 1997; Tirri, 2001)). Parents can decide that their child is ready to start school at age six in stead of the usual starting age of seven, and there is a movement towards allowing parents to choose which school to send their children. In addition, students in secondary schools may have their study schedule more or less 'customised' because most upper secondary schools operate on an ungraded basis.

Extracurricular enrichment is now available on a voluntary basis. Some primary schools, for example, arrange groups where pupils may advance skills and interests in their special talents. Such groups focus on thinking skills, mathematics, computers and the arts within a project-oriented framework, and greater variety is planned. Mathematically gifted secondary pupils regularly meet at the University of Tampere and also take part in courses at the Open University and on summer courses where they gain credits in linear algebra and physics for later studies at university. This project is sponsored both by the Ministry of Education and Finnish Industry. There is also a growing base of original Finnish research with regard to high ability, competence, talent and its training. However, there is still a reluctance on the part of Finnish teachers to make time and extra money available to their gifted pupils (Ojanen and Freeman, 1994).

Iceland

Iceland, a small island with a long unbroken line of records, has become the haunt of genealogists. Because of minimal contamination by socio-economic factors, the effects of differential educational treatment stand out more clearly. This is what happened with a Talent Search programme for gifted and talented school-children (Freeman & Joseppson, 2002).

For 12 years, from autumn 1985 to spring 1997, the City of Reykjavik supported The Curriculum Enrichment Service, Namsefnisradgjöfin (NER). Since then, though, there has been no special provision for the gifted in Iceland because the political atmosphere forbids any taint of élitism.

About 14,000 children aged 6-16 were contacted each year. Teachers identified pupils with exceptionally good learning abilities. 200 pupils born between 1970 and 1986 agreed to take part in the enrichment, and although a further 85 equally suitable youngsters had been selected, they did not participate for different reasons, such as their own lack of interest or because their parents were opposition to the idea. The NER programme did not purposefully interfere with regular schooling in any way. In 2000, the NER participants and the non-participants (then aged 14-30) were compared in terms of their achievements, interests and ambitions.

The NER programme was generous:

- *Saturday activities* This varied, for example, for two hours guest speakers were invited to talk to the pupils. These included artists, authors, scholars, businessmen, directors and specialists in different fields. Sometimes the pupils visited educationally interesting places such as a scientific laboratory, the Institute for Fisheries, the National Theatre, the Parliament, the National Television Station, the School of Agriculture, the Air Traffic Control, the Weather Station, etc.
- *High School Classes* Pupils in 9th and 10th grades (the two last grades of the elementary school) were permitted to take one or two courses at a comprehensive high school with older children. These courses were usually in mathematics, chemistry, physics, philosophy or literature.
- *Guidance* Pupils were guided with their school work by one of the three supervisors and given extra curriculum in the various subjects. This was done in co-operation with their classroom teachers and school guidance counsellors.
- *Pupils' journal* The pupils published their own journal, which they named H_2O. It had articles, essays, short stories, poetry, puzzles, pictures etc. The work was entirely done by the pupils and the editorial board was chosen by the pupils themselves representing the various age groups.
- *Essays, short stories and poetry* A contest for the best essays, short stories and poetry was conducted and funded specially by private firms, such as the Iceland Steamship Company and the Grand Fishing Plant.
- *Chess Club* Many of the pupils participated in the Chess Club and took part in annual Chess-contests of the Reykjavik elementary schools.
- *Talent show* Each year NER had a talent show, in one of the elementary school auditoria,

to which teachers, parents and friends were invited. It included all kinds of entertainment, particularly short plays, vocal and instrumental music, speeches, etc.

Of the originally selected children, both participants and non-participants, 138 responded to an extensive postal questionnaire. Results showed that those who chose the enrichment came from better educated and more stable families. The participants not only had a more positive attitude to education and life in general, but also a stronger self-concept and were physically healthier. Their expressed motivation for success was significantly higher. Participants said they did better than non-participants at school, and probably better afterwards.

The relatively uniform population of Iceland is ideal for research. But even here, the follow-up of the generous gifted programme showed that family background had influenced its outcomes. However, teachers did not always pick up on improved pupil achievements, and so the effects too often dissipated. The best pupil achievements came from coordination between in-school and out-of-school provision.

Chapter 7

PROVISION IN EASTERN EUROPE

Political changes since Communism have affected provision for the gifted across the ex-Soviet countries. Although most already had a long tradition of nurturing gifts and talents, Soviet-era provision was endorsed on the condition that outstanding talents became international 'ambassadors' to promote the ideals of the political system: taking those talents to be enhanced in other countries and with other systems was not acceptable. At the same time, the Soviet Union attempted to eliminate the idea of innate characteristics. Psychological tests, for example, were forbidden, as they were regarded as instruments of class discrimination. Hence, potential gifts and talents could only be selected by experts. Yet because of the outstanding world successes, the accumulated knowledge of Eastern Europe has been strongly influential world-wide.

Gifted education since the 1990s has been embraced with some fervour and ingenuity across former Communist countries, in spite of lack of resources and sometimes inefficient administration and organisation. Today there are increasing numbers of special schools for the arts, mathematics, the sciences and languages. Additionally, regular schools offer special classes for gifted pupils in mathematics, informatics, the sciences and languages. There is a variety of extracurricular activities for the gifted, such as clubs, summer camps, summer schools, festivals, shows and exhibitions. In Bulgaria, Edward De Bono's methods for enhancing creativity have been popular for many years, and 30 schools now teach with them. No scientific research has been done on the outcomes of this system, however.

Competitions are widespread across Eastern Europe at local, regional, national and international levels, offering prizes of admission to universities or prestigious Arts or Sports Academies. In Poland alone there are 24 competitions available in the arts, astronomy, biology, chemistry, philosophy, physics, geography, history, information technology, modern languages (e.g. English, Beylo-Russian, French, Latin, German, Russian, and Polish), mathematics, ecology, economy, technology, Polish studies, universal history, law, agriculture, and nursing. Some of these contests are held both for primary and secondary school children; others just for secondary schools. The winners of primary school competitions may gain admission to specialist secondary schools, and the winners of

secondary school competitions receive some priorities when applying for university. Additionally, there are many summer schools and courses for talented students in mathematics, fine arts, literature, and astronomy, lasting from one to two weeks at a time.

Mentorship systems are sometimes available at secondary school level; teachers being appointed as 'mentors' to prepare gifted pupils for national and international competitions. The tutorial system is increasingly becoming an established form of supporting gifted students. Professors and outstanding researchers allow secondary students to participate in university research work. In the Ukraine, several specially appointed counsellors provide moral support to the gifted and the talented. Specific research on gifted education is increasingly being published at universities, colleges and research institutions, and disseminated at international conferences.

In addition to the state education system, other public institutions endorse the promotion of talent, fully or as part of their agenda, such as centres for culture and community centres. In Slovakia, for example, the Slovak Association of Mathematicians and Physicists is very active, and organises competitions and summer camps, as do several associations of fine arts and music. There is also a growth of private schools ostensibly for the gifted, but possibly for the new rich.

Russia

Russian culture is associated with a passion for talent and national pride in its high-achievers. Indeed, long before the Communist Revolution in 1917, gifted and talented children from all over the country were sent to Moscow and Saint Petersburg to high-level special schools, rich in tradition, in fields such as painting, ballet and music. Surprisingly, excellence in mathematics and the sciences does not have a long-standing tradition; the first secondary mathematical special school was not created in Moscow until 1959 (much of this information below is owed to Grigorenko, 2000).

The Soviet system of teaching the gifted, in place for nearly a hundred years, still has some influence, even though there have been serious changes of attitude and provision since the opening out of perestroika in the late 1980s. Gifted education had been seen primarily for the good of the whole society, secondarily to promote progress, and coming only a poor third, the personal development of the individual. Youngsters received little social and emotional

support. Parents were rarely consulted, partly because of the lack of day schools for specialist teaching so the children often had to be boarded far from home.

Nevertheless, compared with more average ability children, the gifted did much better. They had the best of education (at boarding schools the government paid for tuition, room, and board), better teachers (often teachers working with gifted children also taught at universities), gained access to more esteemed universities (participation in intellectual competitions and diplomas from certain schools were 'tickets' to the best universities), and received more desirable jobs (special governmental committees assigned jobs such that higher-achieving students had better choices than their less-accomplished peers).

Soviet gifted education emphasised enrichment in popular domains, such as maths and science, and paid relatively little attention to the humanities. Children were to be identified early and either placed in special schools for the gifted or enrolled in special programmes. Gifted education in maths and science exemplified the best of specialised education. Numerous schools for gifted mathematicians were established; some of the leading ones are well-known both nationally and internationally. Among these are Moscow School No. 57, Saint Petersburg School No. 239, Moscow Boarding School No. 18, now called the Specialised Education-Research Centre of Moscow State University, and the Novosibirsk School for Gifted Children in mathematics, now called the Specialised Education-Research Centre of Novosibirsk State University.

These schools still flourish. Selection is by results in regional Olympiads, summer/winter maths schools, intellectual competitions by correspondence, entrance exams and special competitions organised by school staff. Each school has its own independent curriculum, hires its own staff, ensures compliance of content with national standards and takes an individualised approach to students' education. Each has established links to top higher-educational institutions and offers courses aimed at preparing students for entrance exams, as well as activities that involve young mathematicians in research. Yet, they have individual strengths, weaknesses and priorities. For example, graduates of Moscow School No. 57 and Saint-Petersburg School No. 239 have excellent track records in international competitions, whereas the other two schools (the university schools) are known for developing outstanding research skills in graduates. Graduates of these and other specialised schools have traditionally been channelled into the maths and science departments of quality

higher-educational institutions, and could later expect to receive job assignments appropriate for their talents. For example, among the graduates of Novosibirsk School for Gifted Children there are 12 members of the Russian Academy of Sciences (the highest academic rank in Russia), 120 Professors in leading universities - and 700 PhDs.

Post Communist changes

Gifted education has undergone tremendous change since the late 1980s and early 1990s with an explosion of different approaches and kinds of school. Of the 67,200 schools in Russia, 9,126 (or 13%) are of a new type, 540 (0.8%) are private and the number is growing fast. This new differentiation not only distinguishes between children of different abilities but also of different socio-economic backgrounds. Although giftedness is politically accepted by the government, there are no centrally stated priorities regarding support of particular fields of pursuit and provision, though this is changing as indigenous research in the field is growing stronger (Leites, 1996).

The democratisation of schooling has reshaped gifted education. Although in the mid-1980s the Soviet government had begun financing specialised educational centres for the gifted, a 1990 document, 'The State Program of Identification, Education, and Upbringing of Gifted Children and Youth with Creative Giftedness', objected to the closed nature of gifted education and suggested an alternative in which programmes could be made available to all educational institutions across the country. This pronouncement called for the development of both specialised schools and gifted programs - for use in regular schools. Partly due to this changed attitude and partly due to severe financial problems, funding has gradually been withdrawn from the specialised schools (which focus on the highly gifted) and invested in new approaches to teaching the gifted. The participation of parents and universities in specialised education has increased, but donations, tuition, and university support cannot begin to make up for the loss created by lack of resources.

In Russia, the term ‘gifted’ is usually avoided. In Moscow, approximately 1250 federal and 250 private schools, about half of which host enrichment programmes, call them ‘deepened’ rather than ‘gifted’. Yet both special schools and special classes are available around the country, ranging in focus from mathematics, natural science and technology to verbal skills (including foreign languages), music, the arts and sports, as well as vocational and practical skills. These are relatively few and usually intended for the exceptionally gifted, providing

radical acceleration, individually tailored instruction, psychological support, creativity and communication learning.

In the Soviet Union's normal schools, all pupils had received virtually identical teaching with the same textbooks and took the same exams. Every student learned integrals, Newton's Laws, and so on, which provided unrecognised gifted children with the opportunity to perform at a high level. But now a significant number of schools minimise or have even abandoned rigorous scientific study being replaced by noticeably increased interest in education in the humanities, arts, and social sciences. Additionally, all schooling is now handicapped by a lack of financial support. The role of parents too has changed, in that they are keen to become involved. The schools encourage this because of the financial help they bring, though it sometimes also brings disagreement between teachers and parents.

Special training for teachers about the nature and special needs of the gifted children does take place, but irregularly and usually as in-service training on the initiative of the Local Education Authorities. Such training typically includes the psychology of high ability, identification, strategies and models of gifted education, curriculum development, and the principles of creativity training. Russian school systems are supposed to emphasise differentiation and individualisation of instruction, but whether these guidelines are adhered to depends on individual teachers, number of students in the class, teachers' workload, individual interest and enthusiasm. There is a tendency amongst teachers to devote more time to children with learning disabilities.

A special programme for leadership was launched in 1991, and others in business and management are currently under development. There are still special boarding schools for mathematically gifted children from the remote and rural areas, though alternatively such children can take a special correspondence course hosted by Moscow State University. Mentorships exist; some schools use tutoring in which an expert works with a small group of students for a number of years. As a rule, these experts are former students of that particular school. The intention is to transfer the best of intellectual and cultural traditions of that school to the next generation of gifted individuals, challenge them in a particular subject and facilitate their transition from school to university.

An extensive network of extracurricular activities happen in cooperation with some

universities, where highly able children may find additional stimulation for their particular interests. These involve lectures, workshops, projects, fieldwork, and cooperative learning endeavours in traditional school subjects, as well as in other more specialised subjects, such as the study of animal behaviour, astronomy, archaeology, cosmology, palaeontology, folklore, Ikebana (Japanese flower arrangement), esoterics and more. Summer schools and programmes for the gifted are numerous. Perhaps the most spectacular example of such provision is the Summer School of Cosmonauts in the Siberian city of Krasnoyarsk.

Hungary

There is a very positive feeling for the gifted in Hungary, though they feel the lack of qualified teachers and poor educational conditions. However, to a far greater extent than any institute of higher education in the UK, since 1997, the Lajos Kossuth University at Debrecen has trained about three hundred teachers for the two-year postgraduate ECHA Diploma, and has carried out research and enrichment for children in individual schools for a decade. The university has supervised of a well -structured gifted programme in three schools for more than a decade. Many elementary and secondary schools are selective, and many others run so-called gifted programs with various content and level.

The Hungarian Ministry of Education has run a gifted program called "Arany János" since 1999. This aims to help disadvantaged gifted children living in small villages (less than 5000 inhabitants). The secondary schools with the highest prestige in the region (at this time 19) provide special classes (with boarding) for these children from the age of 14. The program for the pupils begins with an introductory year, mediating learning and communication skills.

Secondary school students are also involved in university research. The young people attend yearly conferences about their work and get the chance to participate in a gifted summer-camp. As an extension of this program very many scientific research groups have been established in secondary schools. There are also special programmes for arts, music, sports, etc. often within Hungarian traditions.

The Hungarian Association for Gifted in Budapest (which has 20% of the population) not only carries out research, but offers individual counselling for parents and children, a Parents'

Club which meets monthly to discuss problems and also enrichment programmes for children (Herskovits, 2002). The Centre is four years old, financially supported by the Budapest Municipal Local Government and the Budapest Institute of Education. Some activities are for parents and children together, such as museum visiting with a guide or asking parents with interesting jobs to arrange a demonstration etc. So far, 393 children have attended the Centre, aged from 3-10. As with similar untested groups, the ratio of males to females is 2:1. The children are with their own age in school, but can take learning to greater depths in the Centre in mixed groups of not more than six in weekly sessions.

The aim of the children's enrichment, whether the weekly sessions or the summer camps, is to widen the children's intellectual horizons and teach them how to approach a problem from a different point of view**.** The weekly sessions use a lot of fantasy to counteract academic work. They also aim to increase the children's self-confidence, belief in their own creative abilities, cooperation, self-awareness and persistence.

Summer camps have been run for about 30 children a time. Mornings are devoted to workshops led by specially trained teachers, afternoons are devoted to playful contests and demonstrations. Herskovits says that counselling becomes much easier when the psychologist can live for a while with the children.

Chapter 8

PROVISION IN ASIA AND THE ANTIPODES

The major and opposing difference between Eastern and Western philosophy is concerned with the responsibility for individual achievement, and is based on the relative effects of genetics and enviroment. Understanding these approaches throws a different light on what is normally regarded in the Western world as universal 'truth' about high-level achievement. In his many years of work in the Far East, Prof. Stevenson and his team at Michigan University, USA, have provided detailed evidence of these difference approaches (Stevenson, 1998).

In almost all international comparisons of children's achievements, those of East Asian elementary and secondary school pupils have been outstanding, even among the top performers. In the TIMMS (1999) study, "the top four of the 41 participating countries in mathematics, and three of the top four countries in science were from East Asia." (Stevenson *et al*, 2000 p. 167). Yet Chinese children show no special precocity in mathematics during their preschool years; their rise to success starts at school. Nor is this excellence limited to a few star performers as in the West: the overall achievement standards are excellent – and rising.

- In the East, environmental influences are seen as dominant. Every baby is born with similar potential, the main difference is in rate of development - which to a large extent is in the power of each one to fulfil through hard work.
- In the West, genetic influences are seen as dominant. Consequently, children are assessed and tested to discover their aptitudes – the vast majority being seen as incapable of high-level learning and achievements.

Confucianism

Confucian views, first aired more than 2,000 years ago, continue to exert an important influence on how achievement is regarded today in East Asian cultures. Although innate factors are recognised, environmental effects are emphasised, so that important individual differences are seen to arise through different kinds of experience. The keys to progress in all aspects of life are seen as diligence, persistence and practice: along with the belief by both teacher and pupil that the latter is capable of the learning. The teacher's efforts therefore, are

seen as critical to the pupil's success, rather than the child's innate ability. All children, with appropriate teaching, guidance and effort, are expected to be able to learn the school curriculum.

Models are seen as providing the basis for children's learning, so the most effective means of teaching others is by being a good model oneself. There is no élite group whose status or privileges are defined in terms of inborn superiority; each one has to earn their place . Emperors may have succeeded each other on the throne, but the government in large part has been entrusted to the most capable men in the population. Thus, more than 1,000 years ago the Chinese began selecting their civil servants on the basis of examinations. Boys who gathered in the capitol each year for the final stages of the examinations were picked on the basis of the knowledge they had acquired. The tests did not attempt to assess individual cleverness or intellectual potential.

China

The Chinese have an old saying, "Cultivating talents – the earlier the better". High achievers are termed 'supernormal children', implying that their success is only part of the wholeness of a child. Abilities are seen as developing rather than fixed, and individual progress is affected by personality and environmental factors. As development is seen as fluid, children are placed in schools where it seems appropriate. Children as young as 3 years-old can be admitted to primary schools, at 8 years-old can enter middle schools, and 10 years-old are able to enrol in colleges and universities. The official position is that they are qualified for early admission, not because they have been born "gifted" but because they were able to study by themselves at an early age and did so with great effectiveness. But there is no overall government policy for gifted children.

When Chinese and American high-school pupils were compared for attitudes to education, highly significant differences emerged (Stevenson *et al*, 2000). The Chinese had "extraordinarily high expectations concerning the levels of education they hope to attain on leaving high school. These beliefs are held in common both by students attending the élite school and those attending regular high schools." (p. 182).

Although natural giftedness is widely accepted in areas such as sports, the arts, and

intellectual life, as in much of the Far East, work, study, and diligence, rather than native ability, are still considered the keys to success. Gifted children are nurtured for the country's, rather than their own, advantage. The plums are plucked in the fame accruing in the international arena. It looks as though the combination of Confucianism, Communism and enterprise is a powerful model for success. Yet, the current surge in the Chinese market economy has boosted the attraction of entrepreneurial activities, which for many has lessened interest in formal educational success. The incomes of taxi drivers are higher than those of college professors or scientists.

China's turbulent modern history has affected current education. The Cultural Revolution of the 1960s closed many schools, directing children to become workers, soldiers, or peasants. All forms of mental testing were banned and admission to universities was restricted to workers who were recommended by their work-units rather than by academic excellence. The government promoted an extreme environmentalist position that made it 'heretical' to consider any human characteristics as innate. Cognitive abilities, according to the official doctrine, were shaped by the social class of the parents, and the lower the better. China still suffers from a diminished number of teachers. However, there was a sharp about-turn in 1978 when the country energetically promoted modernisation and there was a stirring of concern for gifted children.

At that time, the Cooperative Research Group of Supernormal Children of China (CRGSCC) was set up to conduct mass screening and individual testing (Zha, 1985). But the adapted Western tests are not entirely satisfactory and others are being constructed, notably for memory, thinking and reasoning, creativity and personality. A special class for very advanced adolescents was also begun at the University of Science and Technology of China (USTC), and since 1985, 12 major universities have followed suit.

Importantly, any system of selection for special provision for the most able in China starts with the child's rather than the teacher's evaluation. Any child who wants to be enrolled in a special class for gifted children starts with an application form, unless they are too young to read and write, when their parents do it for them. They are then given a conventional intelligence test and their personality and physical condition assessed. Sometimes parents or teachers are interviewed. The child who seems suitable is given the chance to try out the special class for a few weeks. Very few want to change direction.

Schooling in China

The basic quality of education, at least in large Chinese cities, is very high, and streaming is uncommon in primary schools. Stevenson and his team found the average scores of representative samples of elementary and high school students in Beijing exceeded those of their age-peers in Japan, Taiwan, Hungary, Canada, and the United States (Stevenson *et al*, 1993).

Yet advanced children are admitted to China's few “key” schools (rather like ‘magnet’ schools). Politicians are unhappy that this is counter to the egalitarian philosophy of a socialist state. Consequently, there is a counter-move to oblige children to go to neighbourhood schools and to dispense with the key schools. As a compromise, perhaps, emphasis is being placed on working within the regular school system with tracking in special subject areas.

At the International Mathematics Olympiad, Chinese students have often come first or second. Inspired by this, 18 Olympic schools were founded throughout China, for the study of high-level mathematics and science. The schools train outstanding students for future Olympiads, where they expect to be the best in mathematics. These schools have been criticised because of the heavy pressure they place on students rather than because they pose a philosophical conflict. In addition, schools affiliated with universities have had established classes for gifted teenagers in mathematics, physics, and chemistry since 1988. The children continue with their regular school curriculum, and in addition take part in these special classes for about 10 hours a week.

Kinds of Gifted Education in China (Shi & Zha, 2000, p.761)

Kind	Description
Enrolled earlier or skip	The gifted children who have passed certain examinations are allowed to enter primary/high school or university earlier than normal or jump into a higher class.
Special class	Gifted experimental classes have been held in more than 50 primary/high schools over the country; and several universities have set up special classes for gifted adolescents.
Special schools	All students of this kind of school are enrolled as gifted children. The educational programs of the school are only for the gifted, for example, the Hong Kong GT School.
Special activity within/ without the campus	Special courses for computer and the Olympic school of mathematics (physics/chemistry) have been held in certain districts over the country; children's palaces have been set up to organise various science/arts courses, activities concerning scientific research, invention, and arts have been undertaken in school.
Vocational or weekend programs	Many leisure-time schools have been set up to devote special courses, such as visual and performing arts, mathematics and sciences, social activities, and so on for the special need of talented children.
Instructed individually	The gifted, who are studying in the normal class, are instructed individually by the teachers/parents to learn in advance or undertake research work in leisure time.

In an experimental programme, Beijing No. 8 Middle School has an accelerated class where pupils are expected to finish eight years of schooling in four years. Research by the CRGSCC also indicates that the selected super-learners also made gains in intelligence. However, the Chinese insist that any acceleration must be accompanied by enrichment.

The gifted experimental class differs from normal classes in the following ways:

- It is based on the children's intelligence or special talent, while the normal class is based on age and cultural knowledge.
- In both primary and high schools, the period is four or five years for the gifted, while in normal schools the period is six years.
- In addition to the moral, intellectual, and physical development provided in the normal classes, gifted children are encouraged to develop analytical skills, to solve problems creatively and to develop good personality traits.
- There are alternative courses to meet the special interests and needs of gifted children in the experimental classes that are intended to further develop their potential and abilities.
- Teaching materials are modified according to the cognitive levels and traits of the gifted children to promote the development of their creative ability and reasoning skills.
- The instructional strategy attempts to make full use of and promote students' ability to study independently. Heuristics, discussion and research methods are adopted instead of cramming.
- Attention is focused on the development of students' self-concept and self-evaluation. In addition, the students are supported in setting up high ideals and developing abilities of self-regulation, self-education and self-actualisation.
- A proper balance is maintained in the relationship between collective education and personality development. Students arrange part of their study time at school on their own in order to develop their own interests and abilities.
- The assessments of the results of the educational program depend not only on academic performance (e.g. test results, proportion of students entering a higher grade in school etc) but also on appropriate criteria and methods that assess the all-round development of the gifted.

By 1998 USTC the University of Science and Technology of China had held twenty one gifted youth classes, and the graduates had gained more than two hundred PhD degrees (Ye & Kong, 1998). However, Freeman observed during a visit that the students were almost all boys; her impression being of a high-powered boarding school (Freeman, 1998). The senior tutor there told her that the children were well tolerated by the older students, but did not mingle much with them, and that about 15% of the class were introverts and unable to speak their minds.

To be accepted for a gifted youth class at the university depends on being:

- Under 15 years-old
- Excellent academic performance (equivalent to school-leaving results)
- Physical good health and good morality
- Re-examination success
- Successful try-out of the classes.

However, when the results of the means scores of a battery of creative thinking tests were compared for a sample of third year gifted youth at the USTC and normal students of the same age, the gifted youth scored markedly higher than the normal students (Shi & Zha, 2000). It must be said, though, that the creativity tests are notoriously unreliable. These highly selected gifted children and adolescents have been found to be in good health, and what is more, their average values of height, weight and chest measurement reached or exceeded those of the same-aged normal children in China.

Acceleration and special schooling in China are tiny in terms of its population of around 2.2 billion people. Almost all extra education for the gifted and talented is by self-selection.

Out-of-school education in China

The real thrust for the gifted and talented in China is through out-of-school activities. The newspaper, China Daily (26 March 2001), reported that the Beijing Municipal People's Political Consultative Conference had called for the expansion of out-of-school activities.

The aim of these activities is to upgrade all children's competence and reduce their homework overload. In Beijing alone, more than 4300 activity sites now operate, including Children's Palaces, science and technology museums, sports schools and libraries. Children from primary and middle schools attend extra-curricular activities 8 million times each year, and nearly 2000 staff work in education related jobs in the city. The extra-curricular research network has involved more than 170 institutions. These figures can be replicated for other major cities in China. However, the activities have run into problems, not only with "outmoded activities" and "small activity sites", but with illegal activities such as gambling (a favoured Chinese occupation), which have been punished. There is still no Children's

Palace in three of the capital's counties, which makes it difficult for some children to reach them.

Children's Palaces are widespread and popular. They practise a very different and highly successful means of identification by provision with primary school children, which again relies on the children's own motivation and interest for its success (Freeman, 1998). The Palaces can simply be a large house with rooms crammed with activities or a great purpose-built edifice which can deal with thousands of children at weekends. In one of the Shanghai Palaces seen by the writer, whole schools of mixed-ability children came at one time and were let loose. Some ran right through into the playground while others head for the calligraphy, puppet theatre, stationary bicycles, science labs, music rooms etc.

The concept of the Children's Palace is that it is freely available to all. No child is tested for entry and thus no child is turned away. Many are stimulated by the novelty of what they discover there to want to learn more. The rules are simple. Those who want to take their chosen subject further must make a contract to come for a specified number of lessons. If they do not attend them all (without good reason) they cannot continue. Some come for years and reach breath-taking standards in their chosen field. Normal teachers are paid extra for this work, which they say they greatly enjoy.

Prof Jiannong Shi (professor of psychology at Beijing University) is researching the Children's Palaces. He wrote to the writer in December 2001, "It is a very sophisticated system and plays a very important role in Chinese Child Rearing System. It is the most important after-school-activity system. Most are governmental under the leadership of Educational Department of China and Chinese Youth League. The principle of the Children's Palace is "Face to schools, face to youth pioneers and face to all children". The Palaces are expected to play an important role in moral education, science and technology education, social and artistic education, physical education of children. Scientific evidence is being collected, but it is difficult to present in scientific way because it is more of a movement than a scientific experiment. For example, the Beijing Children's Palace was set up in 1954, and has had 100,000 students every year in recent years. The evidence of its effectiveness, though, is difficult to quantify.

There is also a vast array of other out-of-school activities for children in China. Some are for

all children whose parents can pay and others are specially for the selected gifted, such as those in training for international contests. Out-of-school activities can be organised at any administrative level, from individual normal schools to governmental level. Areas covered include sports, arts (music, painting, dancing, singing, etc.), sciences (astronomy, geography, biology, mathematics, physics, chemistry, etc.), writing, English, history and so on.

These kinds of activities are often taken at weekends, holiday times or evening. There are many and varied summer and winter camps in the school holidays on special topics, for which children are selected on the basis of tests and interviews. Summer camps can last several weeks and winter camps one or two weeks. "Weekend schools are everywhere", Professor Shi told the writer.

The Chinese offer generous out-of-school activities provision to millions of children. But they do not refer to them or restrict them to a selected minority of supernormal children. They are termed "interesting classes" or "experimental classes" or specifically "drawing talent classes" or "musical talent classes".

Hong Kong

Interest in gifted children arrived a decade later in Hong Kong than in mainland China (of which since 1998 it became politically a part). It was not until 1971 that compulsory education was even extended to all 12-14 year-olds. Until then, only academic advancement in public examinations was recognised as a sign of giftedness, providing a passport to higher education. The Gifted Education Council (GEC) was formed in 1988, and government policy recognised the gifted as distinct in 1990 (Education Commission Hong Kong, 1990) at which time a policy was introduced under the rubric of the Confucian idea of equal opportunities for all. However, the Education Department still uses the (decidedly non-Confucian) 1972 American Marland Report (see UK and USA legislation) for identification of the gifted depending on demonstrated achievement, though psychomotor abilities have been added.

Most gifted children attend normal schools and some are offered the enrichment programmes, which began in 1996, stressing intellectual and creative thinking. These are provided by the Fung Hon Chu Gifted Education Centre, a resource centre run by the government to support the three-year pilot scheme for the academically gifted in primary schools.

Since then, three universities have initiated enrichment programmes and research, the Chinese University of Hong Kong, the Baptist University of Hong Kong and the Gifted Education Council (GEC) run weekend and holiday courses for the gifted. A (private) Gifted and Talented school was established in 1996 under the GEC, which somehow selects on Gardner's theory of Multiple Intelligences (Gardner, 1983), though there is as yet no validation of these methods. The private Hong Kong International School operates a special identification programme and special summer programmes for high achievers. The Gifted Children's Education Research Centre in Ysuen Wan Secondary School provides community funding for different activities.

Hong Kong mainstream secondary schools do not normally have policies for teaching the gifted, rather they are dedicated to teaching the average and are not usually aware of government support for the gifted (Fai, 2000).

A summer school in Hong Kong

Programs for the Gifted and Talented (PGT) have been established at the Chinese University of Hong Kong for more than five years. Beginning as a one-week residential program for gifted adolescents, PGT now addresses a wider clientele. These not only include summer programmes, but Saturday enrichment programs, school-based enrichment programs and a mentorship program. There are also teacher-training seminars in gifted education.

The Summer Gifted Program for 104 junior secondary school pupils held in 1997 was the first of its kind in Hong Kong, and very carefully organised. It is planned as a regular occurrence (Chan, 2000). Professor David Chan initiated and presented a one week residential program on campus, of whom one third of the participants came free. They were chosen with multiple measures which provided a profile of scores - a combination of teacher- and self-nominations, checklists and screening such as rating scales. School achievements and out-of-school hobbies were also taken into account. Children who wanted to join the courses but had not shown their mettle were firmly excluded to avoid "the admission of unqualified students to take up valuable time of teachers" (p. 92). The summer-school teachers, made up of university teachers, PhD students and assistants, undertook two training workshops in preparation.

This Summer Gifted Program offered enrichment classes in science, mathematics, computer science, language astronomy, psychology, performing arts, leadership training and other speciality topics. The curriculum for each course was developed by the course instructor who was required to file a course plan that included objectives, a course outline and resource materials. Each course received unscheduled visits by the program supervisors, and each rater indicated how often relevant behavioural characteristics were observed: ratings for each student found on averaging scores. The learning, motivation and creativity of the Hong Kong group were found to be higher than those of a similar American group, but leadership scores were the same.

Evaluation of the Hong Kong Summer Gifted Program:

- Students expressed overall satisfaction with the courses.
- Parents' reactions were very favourable.
- The diversity of the enrichment courses and activities was seen as particularly attractive.
- Initial teacher nomination was perceived as possibly unfair.
- Communication with schools needed improvement.
- Services should be more easily accessible and known.

Japan

During the years of compulsory education in Japan, every effort is given to making the educational system égalitarian. From primary through middle school, pupils stay in mixed-ability classes. Regardless either of what they know or their speed of learning, all use the same textbooks and take the same tests. Except for children who are profoundly deaf, blind, physically or mentally handicapped, or emotionally disturbed, there are no exceptions. Moreover, the classes contain on average 40 pupils with a single teacher.

Special treatment, such as allowing a student to skip a grade, is virtually unheard of. Any type of special treatment, including special groups or classes for gifted students, would be regarded by both educators and parents as unfair favouritism and a violation of the égalitarian philosophy on which the education system is built. It is not the potentially gifted who appeal to teachers, but the hardest working children.

Every child in Japan knows mottoes such as “If you try, you can do it”, and can tell the story of Ninomiya Kinffiro, the boy who continued to study even when he was gathering firewood for his family or doing other chores (Stevenson, 1998, p. 65). Older students can quote more complicated mottoes, such as, “Even genius cannot transcend effort”. The American equivalent, which seems to urge the cutting of corners and shows considerable cultural disagreement is, “Work smarter not harder”.

School teaching is primarily whole-class in which teachers divide their attention between all members of the class. Any differences in innate ability are disregarded. Whenever the class is broken up into small groups *(han)*, they are constructed so that the members are as diverse as possible, so that fast learners are mixed with slow learners, aggressive children are mixed with less aggressive children, and so on. Because Japanese schools precisely follow the course of study prescribed by the Ministry of Education at each grade level, teachers do not have the options of assigning more advanced reading materials to good readers or more difficult problems to outstanding students in mathematics. However, the gifted do not appear to find school boring and uninformative (Stevenson, 1998).

Fast learners are not seen as being in need of segregation or acceleration, but in each *han* are expected to help slower learners, the benefit to the fast learner is a more thorough understanding of the material. Teachers at each successive grade can be sure that all children have covered the content of a common curriculum. All children are taught the same material and are exposed to the same textbooks: no-one misses out.

Differences in development among pupils are accommodated by introducing several approaches during a single lesson. Each lesson consists of a series of three-stage sequences consisting of teaching, practice, and feedback. In mathematics classes, for example, the teacher may first ask the students to get out their ‘maths set’, a box of colourful materials used for providing concrete representations of mathematical concepts or operations. All children are asked to demonstrate a subtraction problem through the use of tiles. The next cycle may consist of having students solve a few problems in which the concepts are represented pictorially. A third cycle may involve asking students to describe as many ways as possible for solving the same problem. By varying the approach, offering opportunities for practice, and then consistently providing appropriate feedback, children's attention is sustained and even the most rapid learner finds it interesting to follow the ever-changing

approaches to the lesson. To further stimulate interest, rapid learners often are asked to explain their solutions to difficult problems, whereas those less able to grasp the concepts readily are assigned the easier problems.

Interest in classes is also enhanced by the style of teaching. Japanese teachers seldom lecture. Rather, they attempt to serve as knowledgeable guides, constantly seeking information from pupils, then asking others to evaluate the effectiveness or accuracy of this information. Because all pupils know they may be called on, they are attentive. Thus, even though advanced children may be able to answer the question readily, there is always the possible challenge that they will be called upon to explain their answer or to evaluate another student's answer.

Extra-curricular activities

Interest in school is maintained, even for the brightest students, through extensive provision of extracurricular activities which are obligatory after the 4th grade. Activities range from calligraphy, photography, music and art, to brass band, ping-pong, to soccer. During elementary school the average meeting lasts for an hour; in middle school for approximately 2 hours. Extracurricular activities are offered even during the 6-week summer holiday.

These practices, along with the many opportunities for socialisation with their classmates provided by frequent recesses, long lunch hours, and excursions, offer children at all levels of ability a school life that is active, interesting, and not totally reliant on academic classes.

The Japanese believe in the education of the whole child, shown in the large amounts of time provided each day for social interaction. School is a place for learning both the curriculum and social skills. Removing children from regular classrooms or paying special attention to gifted children runs the risk of depriving them of the latter and their integration into Japanese society.

Post middle-school

Dispersal takes over from equal opportunities when pupils leave middle-school, their futures depending on a reckoning of their work so far. The time has arrived to prepare to enter professions or trades. For the professions this means attending academically-oriented high schools with high standards; for trades, it means offering a combination of class-work and

practical experience.

Youngsters cannot attend the high-school of their choice, but are admitted on the basis of their scores by entrance examination. The quality of a high school is judged by the percentage of its students who gain admission to the more prestigious universities. The schools are organised hierarchically, so that the most rigorous curriculum and the greatest competition are encountered at the Number 1 high school in each city. A student must attend a high school where the requirements are in accord with examination scores, which means they are less likely to be adequately prepared to do well in a tertiary entrance examination. Those with the lowest scores go to vocational high schools, which take about 20% of students. In contrast to the regular high schools that seek to prepare students for college entrance, vocational high schools attempt to prepare students for immediate employment on graduation.

In addition to the separation of students into academic and vocational curricula, there are two main types of streaming decided by examination results. About 9% of schools use entrance examination and about 23% use the first-year mid-term examinations. Some academic high schools divide students into humanities and science/mathematics tracks, while others separate students into those who will be seeking employment and those who will be going on to higher levels of education. Despite the fact that a student is enrolled in an academic high school, many students in the academic track do not go to college. But, the percentage of schools making this type of differentiation is not large: 12% at Grades 10 and 11 and 8% at Grade 12. There is strong resistance to rigid tracking systems during the high school years. The attitude is more positive. Students are encouraged to take courses they are interested in. But as earlier, there is barely a nod in the direction of meeting the needs of highly gifted students.

After-school education

Juku, the after-school school, is an expensive after-school activity attended by 58% of teenagers. But its curricula cover a much broader variety of courses than merely cramming for entrance examinations - from English conversation to the use of the abacus, some being aimed at self-improvement in e.g. music, abacus, and martial arts. It offers opportunities for study that are more demanding than school, and help for those who are having difficulties, while others prepare for college entrance examinations.

In Japan, after-school clubs and classes are open to all, in addition to extracurricular activities provided during school-hours. The range depends on the size of the school, but includes such topics as orchestra, computer programming, sports, literature, geology, biology, art, chemistry, and journal writing. A high percentage of youngsters takes part in interesting and varied activities.

Singapore

The situation is similar in Singapore. Most pupils have remedial or supplementary classes several times a week before formal school starts. The serious time-fillers are tuition classes, whether one-to-one or small group lessons, and assessments, assignments and tests. The latter are among the nation's best-sellers; there being more than 1,000 different assignment books to choose from. Most children do a combination of both, although those from poorer families tend to have fewer tuition classes and do more assessments. Tuition and assessments each take from half an hour to a couple of hours.

There is widespread concern, according to the Straights Times (virtually a government mouthpiece) that the system is merely producing a nation of rule-bound automatons. This is seen in the country's lack of entrepreneurs and risk-takers, particularly compared with Hong Kong. To counter this, thinking skills were incorporated into the revised syllabuses and assessment modes in 1999, and the following year project work was introduced. But there is as no evidence as to any outcome from these moves.

From primary four there are three regular streams and a tiny minority at the very top follow the gifted education programme. Getting into a high stream is seen as more than crucial; it is everything. Lower stream pupils are pushed a lot less, have to spend more years at, school and suffer a social stigma along with their parents. However, this approach is paying dividends. The secondary enrolment rate rose from 78% in 1980 to 99.6% in 2001, and the number of students above the international average, as measured in the Third International Mathematics and Science Study (1999), in maths and science was 93% and 80% respectively.

India

Some of the major cities of India have maintained schools for gifted children. This is in spite of the report of Indian Education Commission (1964-66) which expressed a need for equal educational opportunity as the basis for an egalitarian and integrated society. Each school is different in terms of community, criteria for selection, instructional programme and out-of-school activities. There is a very long, 5-6 week, summer- school which brings children together from different schools, but so far there has not been any evaluation of these schemes.

One such school for gifted boys, the Jnana Prabodhini secondary school in Pune, works within and outside the classroom for its Enriched Educational Programme (EEP) (Watve, 2001). It aims to "nurture intelligence for the betterment of society". It was founded in 1969 with advice from the local Institute of Psychology, which still tests for entry and also offers guidance and counselling. Outside experts, lectures and field trips are part of the school curriculum. There are also school study-camps on e.g. political streams in India, and philosophy of the Gita to enrich thinking abilities, sports camps to nurture leadership, psychomotor skills and physical health. Officer-training type ventures encourage team spirit, and even tutoring in sales techniques is offered to encourage entrepreneurial thinking. Nor is prayer and spirituality forgotten. The teachers are selected as superior. A few girls are now admitted, though taught separately.

The long-term effectiveness of this all-embracing Enriched Educational Programme was examined in a rare (in the world) in-depth study on the long-term effects of enrichment. 25 years after their acceptance for the school, 27 men aged 30-40 were compared in-depth with 26 who had been identified as gifted (percentile rank of 95 on the Ravens Standard Progressive Matrices) but who had been educated in normal schools. The two groups were tested for personality along with the manifest aspects of life accomplishments, attitudes, interests, values and behaviour in both a quantitative and qualitative manner using a rating scale and a questionnaire. All instruments were given individually in English, though most of the boys spoke at least three languages.

Analysis of the data showed that in spite of the gap of 15 years since leaving school, compared with their controls, the EEP group were advantaged both socially and academically (as with the Iceland follow-up study, p. 97). They had more qualifications, were more

frequently members of social groups, with wider interests, greater self-control and sense of responsibility, and yet were flexible in their thinking. These were their advantages:

Influential factors benefitting the gifted pupils

- *The mentor-mentee relationship.* The effective mentors were praised by their mentees as - empathetic, emotionally involved in the mentee, logical and clear thinkers, imaginative, challenging, sensitive, industrious etc.
- *The school experience itself.* The enriched education appeared to have helped the men build their own value systems, rather than one imposed from school. However, the Control group from normal schools proved to be more enthusiastic and enterprising. Many of the EEP group, which had more professionals in it, still keep regular contact with the school; possibly the Controls were less attached to the school ethos and had psychologically grown out of aiming to be good school-boys.
- *Youth activities*. In addition to regular school, out-of-school activities were found to be effective in developing flexibility and self-acceptance.

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The Indian government Department of Science and Technology has itself initiated and funded a major programme of National Science Fellowships for older school-pupils, taking this help right through to undergraduates. Termed, Kishore Vaigyanilk Protsahan Yojana, this is due to start in August 2002. This high-level specific provision aims to tap the best scientific talent for research and development in the Basic Sciences, Engineering and Medicine. Generous scholarships are provided up to PhD level. In addition, there are to be summer camps in prestigious research and educational institutions and preferential access to libraries, laboratories, museums etc. This is intended to give students exposure to frontline research.

Selection Procedures:
For the basic sciences, about 3000 candidates will take a written aptitude test, of whom about 500 top scorers will be interviewed. For engineering and medicine, a project, chosen and

executed by the applicant and supervised by a teacher/ professional in the relevant field, is to be submitted. The projects should not be routine, such as measuring the well known properties of materials: evidence of the applicant's creativity and originality are essential. Up to 300 candidates will be called for an interview based on these projects.

Taiwan

The Taiwanese government has recognised that an island with few natural resources must develop its human resources (Wu, 1999). Since 1968, gifted education has been incorporated into provision for special education, and the government has accepted almost entire responsible for setting up and funding special education programmes. A few programmes for pupils with special talents, different from gifted programmes, are administered by private schools. Three specific types of programmes are provided, some within-class and some pull-out programmes for the intellectually gifted, for those gifted in maths, science and languages (who are presumably non-intellectual) and those talented in fine art, music and dance. The effectiveness of these activities, however, has been questioned by researchers and administrators as there is a complete lack of follow-up. There are no specialist or selective schools for the gifted and talented.

However, Taiwan has some subject specific separate schools, a tertiary college for mathematics and science. The special schools and special programmes have increased significantly over the 1984-1996 period. There are summer camps in computing, athletics, creative writing, leadership training and problem solving.

Malaysia

An interesting experiment to accelerate the top 1 per cent of 450,000 pupils in Malaysia has been abandoned. The children were chosen by their scores on the country-wide Primary School Achievement Test, and in 1997 were selected to be promoted directly from grade 3 to grade 5. After this acceleration, Adimin (2001) tested them at grade 6 but and found that they did no better than the unselected children on either the Ravens Matrices intelligence test or teacher recommendations. In fact, overall, the accelerated pupils did less well, especially in science: the non-accelerated pupils did better. Of his sample size of 564 pupils from 31 schools, some schools had up to 20 pupils accepted for acceleration while most had none. This cannot have been by chance and the researcher suggested that social or other factors may have been influential in the selection. In fact, 77.9% of the accelerated children's parents sought private tuition classes, though it made no difference; possibly because the classes were neither efficient nor aimed correctly, typically without emotional support. Additionally, there was no supporting programme to help the accelerated children overcome their missed schooling.

The Philippines

Manila Science High School, Philippines Science High School, and Philippines National High School for the Arts are working for the gifted education. Teachers for the gifted are also selected on the basis of criteria like enthusiasm, liking for teaching children and creativity. The Talented and Gifted Foundation Inc. has been very active in promoting out-of-school activities for a quarter of a century, though like other parent organised events these are never evaluated.

Korea

Korea is known to have seven separated special schools, special science high schools and two tertiary colleges for the scientifically gifted. The curriculum is based on non-graded and individualised instruction system with provisions for accelerations, grouping and enrichment with special teaching and instructional strategies.

Indonesia

Indonesia's Ministry of Education has established the 'High-schools of Excellence' since 1994.

Thailand

Gifted Education provision is based primarily at Srinakharinwirot University in collaboration with the Sodsh-Sarkdwi Foundation which has established the Foundation for the Promotion of Gifted Children. This was founded in 1980 and is registered with the National Cultural Commission. To help this along, Freeman's report for Ofsted, *Educating the Very Able: Current International Research,* has been translated into Thai and sent to schools all over the country.

The Antipodes

Australia

School education in Australia is the responsibility of the states, each of which have a different policy (Baker and Shergold, 2001). A quarter of Australian children go to independent and church schools. They offer scholarships, though do not necessarily make any special educational provision for their scholarship students. The states have maintained their interest in the area of giftedness and all released new policy statements and implementation strategies during the nineties. The Australian Association for the Education of Gifted and Talented Children was founded in 1985.

Two-thirds of the country is arid or semi-arid, Northern Australia is monsoonal and the north-cast is tropical. Consequently, the bulk of the population lives in the areas of temperate climate in the east and Southeast coastal regions and the south-western tip of Western Australia. The aboriginal population arrived about 60,000 years ago when Australia and New Guinea were part of the one landmass. They numbered around 0.3 million at the time of European settlement in 1788. The state of Victoria is in the south-east corner of mainland Australia and has a population of 4.5 million, or about one quarter of Australia's total. The present population is 18.6 million of which 95% are European, 2% Asian and 1.4 % (0.26 M)

Aboriginal. 23% of the population is foreign born.

Australians, particularly teachers, are keen on equality of opportunity and dislike the remnants of privilege. The majority of gifted and talented students are educated in mixed-ability classrooms with little or no differentiation of the curriculum. Yet, according to Gross (1999a), there has been a shift of attitude towards the needs of academically gifted. The reasons are changes of government and the influence of associations which has brought the education of the gifted to teacher in-service, undergraduate and post-graduate courses in several Australian universities.

In New South Wales, Australia's most populous state, more than 130 full-time self-contained classes for academically gifted students (Opportunity Classes) have been established in government primary schools, and several private schools also offer special classes. Nineteen Selective High Schools offer full-time grouping to academically gifted students from 7th–12th grade. Selective High Schools and Opportunity Classes allow gifted children to work with students who share their abilities and interests, on a fast-paced, intellectually challenging curriculum. Students are selected via teacher and parent nomination plus a battery of ability and achievement tests. But when tests alone are used, the racial mixture is better balanced.

The Gifted Education Unit in the Department of School Education of Victoria coordinates acceleration programs in 40 high schools in which special classes of highly gifted students telescope Grade 7 and Grade 8 into one year, and thus complete the six years of high school in five. More than 8000 gifted students have been accelerated (early entrance to school, grade advancement or single-subject acceleration) in New South Wales and Victoria since 1992. The State Education Department of South Australia has six SHIP (Students of High Intellectual Potential) primary schools and three SHIP high schools which provide a special focus on developing programs for gifted and able students. The Gifted and Talented Children's Association of South Australia, established in

1978, runs an excellent range of weekend enrichment programs.

The State of Victoria

Melbourne has had three select-entry state high schools for many years, but no official policy on gifted education. A Gifted Children's Task force was set up in 1977 to cater for individual differences in upper secondary school. Their work lead to the introduction in 1981 of an acceleration program at University High School (a select-entry public high school) which compacted the six-year secondary curriculum into four years.

When the Labour government was replaced by a conservative government in 1992, it made 3000 teachers redundant, amalgamated many schools and sold off the surplus. The remaining school principals were given wide-ranging freedoms in curriculum, staff matters and budgetary control. In 1995 the Department of School Education released the first Victorian policy on the education of gifted students entitled Bright Futures. The strategies for the implementation of the policy includes extensive professional development for teachers through Gifted Education Networks. These facilitate the delivery of a range of educational programs for gifted children. Provision is made for a system of accredited providers and mentor and parent support programs. Pilot projects have been established to provide enrichment for country children. Each educational region is to have at least two secondary schools providing select entry acceleration programs. In the light of the post 1992 reforms, school principals are free to take on as much or as little of these initiatives as they see fit.

The Victoria Strategic Plan 2000-2005 (published in 1999) predicted continuing growth in provision for gifted and talented students in these areas:

- The Bright Futures Program Professional Development
- The Identification of Gifted Students
- School-based program options
- School Models, theory to practice
- Planning the whole school program
- Classroom strategies
- Mentors and tutors.

48 NETWORKS provide a link between the schools and central office through which official

policy is implemented and the professional development package is administered. They have a certain degree of autonomy with minimal funding. Accredited providers are authorised by the Department of Education to assess, identify and counsel students and their families. Parent support networks include information nights, guest speakers, and informal meetings. Department of Education Programmes include the International Student Project, Horizons, Connections, As the Crow Flies, Virtual Mentoring and Young Researchers.

Select-entry acceleration programs allow pupils to complete their secondary schooling in four or five years. However, the autonomy of school principals has led to a patchy implementation. About 40% of primary schools adopt curriculum modification and ability-grouping strategies. About 60% offer enrichment and extension programs, largely provided by private organisations. The largest is Children of High Intellectual Potential (CHIP), established in 1987, which now has a Counselling and Assessment unit, an Educational Programmes Unit and a Research Institute in a purpose built two-story building, and is associated with Melbourne University. A second centre has been opened at Geelong 56 miles away. In 1995 it produced the first Victorian policy for gifted children. There is also Gateways, the Gifted Development and Education Foundation, Connections and McNally-Schubert pull-out programs funded mostly by parents. Pupils are selected by classroom teachers according to a behavioural checklist or specific numbers. This of course has the disadvantage that the teacher-pleaser may well get preference over the highly gifted underachiever with unusual behaviour.

A 2001 change in state government, and consequently in educational priorities, makes it unlikely that the predictions made in Strategic Plan 2000-2005 will happen. The present Commonwealth Government is undertaking a senate inquiry into gifted education but continues to actively encourage the proliferation of independent schools.

New South Wales

Professor Miraca Gross, Director of the major Australian GERRIC programme (Chapter 7) has explained to the writer that if the Australian summer was July-August and there was a six-week vacation instead of a three-week one, it would be possible to justify running three week out-of-school programmes for the gifted. However, the state schools go on holiday just a few days before Christmas. By the time Christmas and New Year is over, two weeks of the holidays have effectively gone. Although programmes for primary school children are taught

by teachers with postgraduate qualifications in gifted education (MEd or Postgraduate Certificate), it is difficult to get them to give more than a week of what is left of their holidays after they've done Christmas and New Year for their own families. Prof. Gross writes: “Having taught in both countries, I have always felt that British teachers are lucky that Christmas comes in the middle of the school year, while they are still fresh, rather than the end of the school year, as it does here, when they are weary!”

She explains that because of this short duration of the GERRIC programs, evaluations concerned with changes in achievement, attitude, self-esteem etc are not possible. Hence, GERRIC evaluations are necessarily of the efficacy of the programs in meeting their goals which are, of course, short-term because these out-of-school activities are not intended to be anything else other than an adjunct to what the school should be doing! If, for some children, they are a substitute for what the school should be doing, that is out of their control and certainly not the intention. Yet, they feel the evaluations are suitable in the circumstances and for the nature of the programmes.

Research on gifted children is carried out by Children of High Intellectual Potential (CHIP) at Melbourne University and the Krongold Centre for Exceptional Children at Monash University. However, there are no government-run out-of-school programs as such. Two or three universities offer vacation programs, such as Flinders University in South Australia (MariaMcCann@flinders.edu.au) and Charles Sturt University in New South Wales. Each State and Territory has a voluntary Association for Gifted and Talented Children, most of which offer Saturday programs, but without evaluation.

New Zealand

The approach to excellence in New Zealand is very different from that in Australia. Provision is also far more unified across the country and the model more robustly applied. The Ministry of Education in Wellington has opened its coffers to provide wonderful out-of-school largesse for its brightest children, possibly the most carefully considered and best activities per child in the world. The children are not selected. They can partake of what is on offer as they wish with opportunities enabling them to take their interests as far as they can. The premise is that these learning opportunities, not available in the normal school environment, add value in a cost-effective way to a school's curriculum delivery. A scheme

called Learning Experiences Outside the Classroom (LEOTC) provides youngsters with interactive, curriculum-based activities. The learning experiences also enhance and enrich the teachers' own curriculum delivery. (www.leamingmedia.co.nz)

Currently, sixty providers - museums, historic parks, zoos, art galleries, arts organisations and science centres - offered stimulating and challenging programmes on behalf of the Ministry of Education, which promotes them to ensure that they are widely accessible. The programmes are centred on local, regional, and national resources, with lessons and activities planned to meet specific learning needs. LEOTC educators and support staff are passionate about their particular areas of expertise. With hands-on investigation, explanations, and expert teaching, they bring the curriculum alive. Schools are encouraged to book well ahead for the programmes because they are in high demand. Many providers offer professionally developed materials prior to the visit, which teachers can then incorporate into their planning and pre-visit activities.

There has to be some consultation with local areas to address the needs of Maori education. In New Zealand there are 30,000 youngsters learning in the Maori language at school who have different cultural views of giftedness. This is not to achieve greatness for oneself, but to work for the common good. Hence, in the conventional sense, Maoris are much less likely to be seen as gifted as an individuals, but in terms of what one can do for others they can be very gifted.

LEOTC ICT, Environmental National Projects

Three new national projects were selected in 1999 to provide LEOTC opportunities for primary, intermediate, and secondary school students. All three relate to the publication Guidelines for Environmental Education in New Zealand Schools and make use of information and communication technology GLOBE, LEARNZ and National Waterways.

GLOBE www. globe.gov

Global Learning and Observations to Benefit the Environment (GLOBE) is a world-wide network of students, teachers, and scientists working together to study and understand the global environment. It was initiated in the United States in 1994, and is implemented through bilateral arrangements between the United States government and the governments of partner nations. New Zealand's participation in the GLOBE programme was formalised on 29

February 2000. GLOBE provides interactive experiences aimed at improving student achievement in science, social studies, and mathematics whilst increasing skills in information and communication technology.

Students participating in GLOBE undertake scientific and environmental research and have opportunities to record, access, and use up-to-date scientific data. In their local environments, the students take measurements in the four protocol categories: weather, water, soils, and land cover. This data is then made available to schools, through the GLOBE website, for use in a wide range of topics, projects, and classroom activities. There are now hundreds of thousands of GLOBE students in over 9000 schools in more than ninety countries. By bringing together these students, their teachers, and scientists from around the world, the project also has the potential to enhance international environmental awareness.

Under the GLOBE programme, participating teachers are trained in the correct protocols for taking the environmental measurements. They are also instructed in the use of the GLOBE website - how to log data and use the facilities of the site to extract data for project and research work. A feature of a preliminary training workshop for teachers, held at Lake Kataina, identified local and national environmental issues from different perspectives. The GLOBE programme will be introduced nationwide during 2001 and 2002, with workshops for teachers being held in both the North and South Islands, to find the latest details on New Zealand school participation.

LEARNZ www.leamz.org.nz/2001/index.htm

LEARNZ began in 1995 as an education programme making use of the great stories from New Zealand's Antarctic science research. The LEARNZ acronym was based on the initial focus - Linking Education and Antarctic Research in New Zealand - but the name LEARNZ has been retained as the programme has extended its areas of scientific research beyond Antarctica. From 1995 to 1998, LEARNZ developed the concept of the virtual field trip: ‘taking’ students on learning adventures to the Dry Valleys, the Antarctic coast, and the Ross Sea in the depths of an Antarctic winter on board a research ice-breaker.

Since 1999, LEARNZ, in partnership with the New Zealand Department of Conservation, has adopted a theme of World Heritage. LEARNZ99 introduced Fiordland's Secrets and, in 2000, LEARNZ2K introduced Nga *Taonga o Tongariro: The Treasures of Tongariro.*

The components in each LEARNZ programme include: a teacher resource kit; two virtual field trips, which 'take' students to unique locations to participate in research; a website; a discussion board, which enables students to ask questions and have them answered; an audio-conferencing programme, which is used in conjunction with the website and enables students to interact directly with the LEARNZ teacher. Classes can also send a young 'ambassador' to travel with the LEARNZ teacher. The ambassadors have their own websites and report back daily to their class by e-mail.

LEARNZ is increasingly being recognised as a professional development resource for teachers. With its combination of rich learning contexts, stimulating learning opportunities, and user-friendly technical support, it builds teacher confidence and helps overcome any uncertainties a teacher might have about working online. LEARNZ2001 is aimed at levels 2 to 4 of the curriculum, with a focus on science, social studies, and technology. A bilingual aspect is being developed that will provide material in Te Reo Maori. This year, schools have the opportunity to travel with the LEARNZ teacher on an Island Odyssey, visiting the mainland 'conservation island' of Rotoiti (the Nelson Lakes area) and the offshore islands of Tiritiri Matangi and Great Barrier. Participants in the Rotoiti programme (term 2) study: a honeydew beech forest ecosystem and the wildlife that it supports; giant snails, falcons, and predator control; the creation and formation of the Rotoiti area.

National Waterways http://nwp.rsnz.govt.nz/content/index.htm
This nationwide project provides primary and secondary students with opportunities to be involved in the monitoring of their local rivers and other fresh waterways. It teaches them the importance of maintaining waterways in pristine condition and encourages them to take responsibility for their own environment.

The context of waterways integrates a number of curriculum areas, including science, social studies, technology, mathematics, and health. Students learn how to gather, record, interpret, and assess data and how to use their findings to make wise decisions about the care and use of one of our most precious commodities - fresh water.

The project is available to schools through a Ministry of Education contract with the Royal Society of New Zealand, who will co-ordinate the programme during 2001 and 2002. They

offer training for teachers in planning field trips and gathering data, provide useful resources (including a website and a database) and can also supply schools with monitoring kits. The following are specific parts of LEOTC:

Technology

Capital E is a theatre, events, and activities centre for children, based in Wellington. They offer a technology programme called ONTV in which school students use the ONTV studio and adjoining classroom in a half-day module to record the day's news and weather on camera. Detailed and extensive teaching resources are provided beforehand to enable teachers to plan lessons based on particular curriculum achievement objectives. Students and teachers then work together in the Capital E classroom to develop the skills and knowledge required to put together a television production. The students work in teams to meet tight deadlines and take responsibility for writing, editing, and presenting the news. At the end of the module, they take away their half-hour news broadcast on a video to celebrate and share their achievements back at school.

The New Arts Curriculum

The Arts in the New Zealand Curriculum embraces the four disciplines of the arts - dance, drama, music, and the visual arts, learning in all four disciplines being seen as essential for a comprehensive education in the arts. In New Zealand this learning includes developing an understanding of art forms in relation to the multicultural nature of the society and its traditions. In drama, students can participate in Capital E's exciting LEOTC programme Theatre for Schools. This programme involves students in a full theatrical experience. Each show is supported by activities that offer students insights into theatrical production processes - acting, production, lighting, costumes, and design. Free teacher support materials are supplied when a booking is confirmed. These materials enable teachers to develop class lessons that link the theatre shows to the arts and other curriculum areas. Dance is promoted in the curriculum as "a unique medium for learning about self and the world" and is regarded as a form of self-expression that links "the mind, body and emotions," promoting personal growth (page 19).

Through LEOTC, the Ministry of Education is providing services to extend ideas in this new curriculum area. Two new providers in the arts are Dance Aotearoa New Zealand (DANZ) - www.danz.org.nz/ and Footnote Dance. The DANZ programme offers suggestions for

school-based dance activities and recommends music resources to teachers for dance projects. It also provides a number of programmes that promote the value of dance in schools. These include student and teacher workshops and theatre visits to help students appreciate and celebrate dance. The workshops are intended to develop teachers' confidence in their ability to implement the dance curriculum.

In 2001, nineteen primary schools throughout the country explored the theme: let your body do the talking. In workshop sessions, the students investigated the elements of space and shape and then used their findings to explore concepts of character. The second part of the workshop, which was based on the story of Cinderella, involved the students in using the concepts they had been exploring earlier to create an Ugly Sisters dance. This was the favourite part of the workshop for many of the students, particularly as it involved their teachers modelling how to play an ugly sister!

Footnote Dance has so far taken its programme to schools in Northland, Auckland, Wellington, and northern areas of the South Island. The programme offers dance education that promotes curriculum links and builds personal skills. It encourages students to develop movement through discovery experience. Footnote Dance offers a range of options for students, including a popular two-hour package of performance and workshop participation, with an emphasis on creativity and composition. Footnote Dance also provides either a defined repertoire performance programme or a residency (a week's work in schools) that helps students to appreciate and create dance as a living part of their day.

Art Galleries and Museums

When considering an LEOTC experience for their students, many schools focus on a particular event or exhibition and also choose a locality that is rich in a variety of learning opportunities in order to maximise the experience. For example, in March 2001, all six children from Tukemokihi School, one of the smallest schools in New Zealand, situated 35km from Wairoa, visited Wellington. Their trip included a visit to the City Gallery Wellington for an LEOTC lesson on the exhibition Home and Away: Contemporary Australian and New Zealand Art from the Chartwell Collection. As well as giving the students a guided tour of the exhibition, the gallery's education coordinator involved them in discussion of the art works and encouraged them to experiment with drawing and sculpting.

The museums' cultural history programmes include hands-on Maori technology (where students can use replica tools similar to those used by early Maori) and harakeke (a study that explores the versatility of flax and its importance to the Maori). The education programmes are closely linked to the science, social sciences, and technology curricula, but the Museum is also able to provide learning opportunities for students of arts and English who want to study topics in greater depth.

National Science-Technology Roadshow Trust http://roadshow. science. org.nz
National Waterways (Royal Society of New Zealand) (04) 473 1841
New Zealand Marine Studies Centre (Portobello) www.otago.ac.nz/1\4arineStudies/
Otago Museum and Discovery World www.otagomuseum.govt.nz
Department of Conservation www.doc.Rovt.nz/local/south.htm

Chapter 9

PROVISION IN THE MIDDLE EAST AND AFRICA

Israel

In spite of its geographical location, Israel's education system does not function in a Middle Eastern manner. It was established at the end of the 19th century, before the British Mandate, by East European Jewish settlers in the European tradition. Education is 10% of the national budget. Official gifted education began in 1973, guided by the new Department for the Gifted (Subhi and Maoz, 2000).

In 2002, 12,000 students in 3rd to 12th grades have been identified as intellectually gifted in Israel. They score in the 98.5th percentile on tests of general intellectual ability, tapping into verbal, mathematical and spatial abilities, and emphasising abstract thinking, memory, analysis and generalising conclusions.

The Israeli Ministry of Education offers the gifted:

- *Self-contained classes* which operate in regular schools six days a week in the cities.
- *Enrichment magnet centers* are regional centers that pull out gifted students from their schools for a special programme one day a week.
- *Extra-curricular enrichment courses* are offered to gifted students in the afternoon, after school.
- *Dual university enrolment* when gifted teenagers start part-time higher education while still at school.
- *University enrichment programmes* are offered by several universities, mainly in science and mathematics, this is particularly helpful for interdisciplinary work e.g. robotics, water, the community and young entrepreneurs (e.g. The Open University, Tel-Aviv, Bar-Ilan and the Technics enable high-school youngsters to finish a maths degree while still at school).

The decision as to which option to offer gifted students in any locale is made together by the Ministry of Education and district and municipality officials. All around the country there is a rich and complex network of opportunities for the gifted which function partly through the

state schools and partly through individual initiatives. Most larger cities and smaller towns have enrichment programmes for highly able children. Even by 1981, 5000 youngsters were attending centres for the gifted, which offered a wide variety of subjects.

In 1997, the Ministry of Education, Culture and Sport decided to broaden the definition of giftedness so that schools were to be responsible for initial identification, though this has not yet been entirely implemented. It is planned to hold a weekly one-day university education in special centres in 2002 as well as in the weekly regional centres. Science and art museums are very active in enrichment through their education departments, with particular concern for the gifted. There is a nation-wide network of science activities based in the universities and research institutions. These activities include summer camps, science clubs, mathematics and science Olympiads etc. Youngsters enrol on an individual basis for afternoons and holidays. A promising development is the cooperation of science-based industry with research and developmental departments which can adopt youngsters into their systems enabling them to work with professionals. This has proved to be neither complicated nor expensive. The essential ingredient is commitment on all sides.

High-level university programmes are offered to keen and committed youngsters whether identified as gifted or self-selected. Acceptance can begin in secondary school.
Israeli children start school at six years-old (though in immigrant areas children can start at three), and progress through intermediate school, high school, the army, and then university. The ultra-orthodox have their own schools. Selection for extra teaching for the gifted is at the 4th grade, with the possibility of trying again at the 9th grade. Parents can appeal using IQ tests from an independent source. There are also enrichment programmes at individual schools for pupils who do not get into the gifted courses. All children do a form of the old British Matriculation, and can opt to do a research project in place of an exam, although usually they chose to do the examinations. Teaching in Israel has been didactic, but it is in the process of being restructured, particularly using computers both to produce a more natural approach to sciences, and to differentiate learning tasks, accessing/monitoring data in all subjects.

Provision for the gifted in the Arab sector is the same for all schools in Israel, whether Jewish or Arab, until about the age of 14. About 3% of Arab children are in the gifted programme. Children are selected for specialist courses on the basis of psychometric tests at 9, 10 and 11.

All schools and parents are aware of the provision and can put children forward for it. Results of the testing go to the Ministry of Education, who selects without bias and decides who will be able to go and who will receive financial assistance. Parents do pay something, but most of the children have some financial help from the state.

Out-of-school educational provision in Israel

The Weizmann Institute of Science
Department for Youth Activities
Rehovot
www.weizmann.ac.il/youthact

Internationally, one of the most highly reputed science training programmes is offered by the Weizmann Institute of Science in Rehovot, Israel. This professional institute is devoted to research and teaching in the natural sciences, in mathematics and computer science. Each summer some 75 outstanding science students (high school graduates) from Europe, Asia, the Americas and Israel work alongside top researchers and use sophisticated scientific instrumentation. Applicants are selected on the basis of previous experience in laboratory research, successful participation in national or international competitions or science Olympiads, high motivation, interest in pursuing a career in scientific research, recommendations from their home school and interviews. The participants can choose a subject in accordance with their own interests. At the end of the three-week-long laboratory period the students are required to present their findings to a seminar and to write a thesis on the completed work. Additional parts of the programme are a four-day visit to a field-school in the Negev desert with an introduction to desert ecology, a tour of Jerusalem and other places in Israel, as well as lectures given by senior Weizmann Institute scientists.

The Weizmann Institute is a professional research institute in natural and exact sciences, but its scientists and research students are also involved in this science education for bright school-children. The Youth Activities Section offers many science enrichment programs to school-children, some particularly for the gifted, such as: Math-by-Mail for 3rd-10th graders (now adapted in the former Soviet Union and South Korea), Science competitions (physics Tournament for 11th-12th graders, Math Olympiad for high-school children, Junior Math Olympiad for junior high-school students): Summer science camps (an international

programme for high-school graduates, a national programme for 11th graders and a Science, Music and Art program for 8th graders - and more.

The Weizmann Institute started the Mathematics Olympiad in the 1970s: there is one for senior high-school level and one for junior high-school levels. Additionally, they run a competition by mail to schools, after which the best pupils are invited to the Institute for more tests designed to be fun, such as a treasure hunt with maths clues. There is one mentor to two children in the laboratories. Children come to summer camps for a couple of weeks.

With the big influx of released Jews from Russia in during the late 1980s, the Institute teachers had been obliged to take courses in Russian because of the immigrants who were passing these examinations so well but spoke little Hebrew. Although some normal courses contain only boys, others have about a third girls, but for the courses taken in Russian, there were equal numbers of girls and boys. However, as the girls adapted to Israeli society, many dropped out and boys regained their ascendancy.

Not all the Youth Department programmes cater for highly selected children. Science by mail is offered in the style of a national club with work-sheets which children send back for checking, and then receive another, etc. This is for children up to ten years-old, and thousands have been enrolled. Teachers use these work-sheets all over the country and families often work on them together.

The Institute never teaches what is taught in schools. The programmes are not intended to replace or compete with formal education, but they can complement schools in a number of ways, notably in providing some compensating challenges for gifted pupils. The pupils learn about topics which they have themselves chosen; the teachers are not told what or how to teach.

Sometimes, though, they do have to teach some basics which the children's normal teachers have neglected, such as a preparatory course for applicable ‘real-world’ maths, because in schools pupils only learn computation. A post-summer course follow-up showed that the children's image of science had become more positive, although there has never been an achievement follow-up. Sometimes the Youth Department sends teachers out to schools, but they prefer to change the children's scientific learning atmosphere and bring them in.

Extracurricular science education taught by scientists is a section which has grown steadily over the last couple of decades, and today there are more than twenty different extracurricular programmes in which science-oriented youth is matched with youth-oriented scientists. Over 5,000 young people get together with about 200 scientists every year in activities that include weekly science clubs, a full day intensive 'field school' of science, popular science lectures, science fairs, mathematics Olympiads, summer science workshops, and international summer science institutes. The scientists find great satisfaction in sharing their fascination for scientific research with keen youngsters. But more than that, there is a tradition among Weizmann Institute scientists of becoming involved with problems of Israeli society, rather than cloistering themselves in pure science. In fact, two presidents of the State of Israel were scientists in the Institute.

The Department of Youth Activities at the Technion

Israel Institute of Technology, Haifa (Scitech) (ttrtehi@technion.technion.ac.il).
This summer research programme caters to exceptionally bright and science-oriented high school students.

The Ort Organisation

Ort was founded in Russia for poor Jewish children from the Pale (an area of exclusion far distant from the capital in which most Jews were obliged to live), with the aim of rehabilitating and training them. The Ort system is international and is the biggest of its kind in the world. It provides two types of enrichment programmes for gifted children, either a day a week in a central place and an enrichment day, or a special class. The children take as many subjects and opportunities as possible, the hope being that if they do not take their exams while they are at school, they will come back after the army (three years for boys and two years for girls) and again pick up subjects in which they are interested.

School policy is for provision for the gifted in the school in a special class which would set a faster pace and allow graduation a year earlier. General selection for the top 1% is by IQ, plus an ability test for the high ability programmes. The gifted pupils study their compulsory subjects in separate groups at higher than regular levels (2-3 points) and at a faster pace, the aim being intensive learning and preparing the students to sit for the final exams by the end of the 11th grade. For some of the elective subjects taught at the highest levels (5 points), the

groups also included other pupils who had chosen that particular level of study and who had shown outstanding learning abilities at that specific subject. They made up about 15% of the class. Thus they can achieve a complete integration of the gifted students, and at the same time intensive learning at the required levels.

In addition, the gifted pupils participate in extracurricular enrichment programmes. They can receive enrichment in one subject chosen by them and tell the school what they want to do, and at various academic institutions (such as the Technion or the Weizmann Institute) at the rate of approximately three hours per week. In 1992 the schools adopted a different programme: every two weeks the students attend lectures given by professional lecturers on a wide range of subjects.

The pupil and the family take total responsibility for attending individual courses out of school, the school does not check up. Teachers have found that some of the highly selected gifted children are lazy learners who cannot always be bothered with the enrichment programmes. But they are sometimes inspired when they see the subject as useful for their own futures. A teacher suggested to the writer that this is possibly because they are saturated with enrichment programmes in the primary school.

The social adaptation of the gifted pupils was believed to be improved when they had a home-room at school. Other students may come from the region for other schools and are soon accepted into these home-groups. The system does not seem to cause resentment in the non-participants. In Israeli high-schools these lessons are not obligatory; pupils can leave when they are ready and take examinations on their own.

The ORT schools apply the following principles:

- Complete social integration between the gifted pupils and regular students, rather than separate classes
- Individual attention to each and every pupil
- Levels and styles of learning suited to each group
- Preparing the pupils for most of the final examinations by the end of the 11th grade, so as to enable them to attend courses at institutions of higher learning in the 12th grade.

In order to accomplish these goals, the gifted children are divided among the home-rooms of their age group, so that each home-room contained a number of them. Within these home-rooms they study contemporary issues, sports, field studies, and an additional subject such as biology, e.g. in the 10th grade. They also attend the daily 10 minute meetings with the home-room teachers. This integration of the gifted pupil into the school system prevents their social isolation, contributes to a pleasant atmosphere and ensures their participation in the social and volunteer activities of the school.

Department of Biotechnology, MIGAL

MIGAL is a science research institute at the Galilee Technological Center which offers out-of-school science activities to keen teenagers. Researchers in biology, biotechnology, agriculture and chemistry supervise their research work and guide them in preparing individual matriculation projects. Not only have a number of the students' dissertations reach a level equivalent to a Master's degree and gained publication in the scientific media, but almost all felt that this was the most meaningful education they had undertaken. Pedagogical support is given by the Association for the Advancement of Science Education in Galilee.

MIGAL Research Institute has most of the staff, facilities, experience, technical ability and infrastructure needed to conduct research programs in biotechnology, chemistry, biology, ecology, agriculture and aquaculture. It has diverse facilities from bench-scale laboratories to pilot. It owns ten extension farms, in which research work is conducted by its staff. MIGAL has the equipment and resources for work in fermentation and microbiology, chromatography, biochemical and chemical assay of toxic materials, enzyme purification and analysis, with incubation rooms, cell disruption equipment, gel scanning and general lab equipment, providing the infrastructure for its research work, all of which is made available for the education activities at the Science Education Center.

This out-of-school work is quite hard on the working scientists; some youngsters may get a hundred hours of time from someone desperately trying to finish a research PhD. The Institute tries to give each child its own space and helps them to be creative, rather than just technologists, trying to get them to make mental connections. They also train teachers, fly them in dozens and give them a training in chemistry, for example. Some are in groups of four, and there is also a two week summer camp which is very intensive: 75% of the camp take up a project instead of the matriculation exam. The youngsters do have to pay

something, although the Jewish Agency contributes, as does the Department of Education. For the workers in MIGAL, support from the administration and academic management of MIGAL and the other research institutes is crucial to the project. Until recently they were not paid directly for their work, though MIGAL could buy sophisticated equipment and materials from their normal research work.

The students receive educational support via:

- Individual scientific tutoring of each student by the supervisor (usually a researcher of PhD level) and the research group. This tutoring includes introducing the student to a specific research problem and teaching all the theoretical and technical approaches needed in order to obtain results.
- Five days of workshops over the year provide the students with the skills required to ask scientific questions and initiate research, design an experimental work, use the computer and databases and to write a research paper (organisation, presentation, analysis of statistics, etc.).
- Individual guidance in writing and editing the paper by the Science Education Centre.

Criteria for selecting the students who participate in the project:

- The motivation to participate in a demanding scientific research program.
- Intelligence and the ability to learn the skills required for the project.
- Scientific curiosity.
- High grades in science at the school and a good English and Hebrew writing skills.

Although initially entry was by interest alone, it proved more economical to check that students had the above basics to enable them to continue at a very high level. These characteristics are assessed by evaluation papers, filed by a teacher familiar with the student or by a researcher who has supervised the student in the Summer Science Camp, and a personal interview with each of the students or by the staff of the Science Education Center.

The principle behind this endeavour is project-based learning (PBL), an educational approach that focuses on creative thinking, problem-solving and interaction of students with their peers in creating and using new knowledge, in a context of active, scientific dialogue with supervisors who are active researchers. PBL actively engages students in understanding and

solving real world problems, and reflects the natural, social and technological complexity of dealing with these situations. It can enable students to understand subject matter better, while learning technology skills that are highly valued in higher education and the community at large. To teach science successfully and meaningfully to students, the focus must be placed on their creative work in small groups, in collaboration with other students, on specific science projects, under the supervision of active researchers (Marchaim *et al*, 1998; Marchaim, 2001).

It is estimated that more than 80% of the jobs of the 21st Century do not even exist today and that curricula in sciences and technology currently used in most schools are not suited to future needs. Migal Methodology, in cooperation with the researchers and the administration of the Institute, as well as the teachers and educators from over 30 schools in Israel, have developed an adaptable system for the students and methods for the educators. It aims for flexibility, adaptability and mobility, and most importantly, the ability to 'learn how to learn'. Students must therefore be prepared to think creatively, to know how to apply information to practical use, to use technology to help them examine and analyse the many aspects of multi-disciplinary systems, and to work collaboratively in teams.

The MIGAL programme aims to develop a process of widening study through active discovery and collaboration. Immediacy of feedback and communications from the researcher, coupled with a revised pedagogy which focuses on learning how to do science, rather than learning about science, creates an entirely new basis for lifelong education, both socially and organisationally. (This is in entire agreement with the British CASE work by Adey and Shayer (Adey, 1999).

The Matriculation Project is optional part of the demand for the Matriculation Certificate, the external end-of-school examinations that are required for entry to the university in Israel. The candidate for this project selects a topic from a list from the Centre which is drawn up from current research projects. Other topics on the list are offered, in cooperation with a government hospital and local industries, through the mediation of MIGAL. Annually, 10-30 researchers are involved in supervising the students.

The candidate becomes a member of the regular research team, working under the supervision of a PhD student or one of the leading research workers. The student's work is therefore

conducted at a high level of science, involving the use of the latest instrumentation and methodology, under a level of supervision which is naturally unobtainable within the framework of the high school. Furthermore, the work and dissertation are a genuine part of current, mainstream research, factors which make a great contribution to both the student's motivation and to the standard of work. The opportunity to use sophisticated scientific equipment, such as no high school can possibly afford, is yet another factor in the high motivation and successful results of the students.

Topics chosen are in the fields of Life Sciences. The exposure to real scientific research and the potential to contribute to scientific progress and/or the development of Galilee, together with the discovery of how interesting and rewarding such work can be, may well result in the return of the student to Galilee after Army Service, to take his or her place in the region, whether in R&D or in industry, to contribute to the economy and educational development. This result must be seen against the background of the universal tendency of talented youth to leave rural for urban areas, to the detriment of the former. Experience shows that the project has had a distinctly positive influence on the way students consider their future in science. A number of students have been named as co-authors in articles published in leading international scientific journals, on such topics as seaweeds, tropical fish and avocados, among others. Some chose to work in MIGAL as a result of their earlier experience of attending one of our summer study camps for 10th Grade pupils, where they first established their interest in scientific research.

The youngsters communicate by computer with many schools in America, and all over Brazil. The project has been remarkably successful to date, with students gaining an average mark of 93.3%, well above the national average.

Similar relationships to that between Migal and industry are growing around the world. For example, the Rockefeller University in New York runs a Science Outreach Program (see page 74). www.rockefeller.edu/outreach. However, these are only once-a-year summer courses rather than an integral component of schooling as in Migal. Rockefeller students gain mentored research experience in laboratories while also learning the basics of communicating their findings to scientific peers and the lay public through weekly seminars in a classroom environment (the Scientific Reading and Writing Course, STRAW). Sometimes students are included as co-authors on peer-reviewed journal articles, and most go on to good universities and stay within science. Unusually for the States, the program is free and open to all, being

funded by the Rockefeller University. Over half the Science Outreach Program participants are female and a quarter are from minorities.

The Young Person's Institute for the Promotion of Art and Science
Tel Aviv University
Dept. of Psychotherapy

The Institute's work is to offer out-of-school enrichment programmes in a wide range of fields to gifted children aged 5-15. Founded by the psychoanalyst, Dr Erika Landau, its basis is a holistic creative existential philosophy, such that the insecure person who is afraid to take risks is intellectually handicapped (Landau, 1990).

Those who attend the Institute itself tend to be middle-class and privileged, so the Institute now holds sessions for gifted disadvantaged youngsters in their own neighbourhoods, on whom the program effects were investigated (Landau, *et al*, 2001). The teenage 40 boys and 40 girls had been recommended to the program by teachers using a purpose designed check-list. The girls faced a considerable triple hurdle, being female in a largely North African immigrant society, being gifted and at the same time very poor. After the enrichment program, the girls' performance on the Peabody intelligence test was higher than the boys', although they had started out with slightly lower scores. Inexplicably, the girls with the lowest intelligence scores at the beginning of the program increased the most. Clearly this out-of-school programme had produced a measurable and beneficial effect on gifted children who were underachieving.

Three reasons for the girls' raised intelligence scores were suggested:

1. External motivation, in the form of emotional support, of the program increased the girls' internal motivation and self-images. The freedom, security and unbiased responses of staff, novel to these girls, allowed them to rise to the challenges set by the sessions.
2. The girls were encouraged to redirect their natural curiosity towards scientific and intellectual questions, giving them greater familiarity with scientific modes of thinking.
3. The program is cooperative rather than competitive, no grades are given and group problem-solving is encouraged. These approaches to learning are often considered to favour girls' ways of thinking.

The Director, Dr Landau, believes in acceleration and that maturity comes with giftedness, so

that even gifted children with emotional problems, she believes, should go through university more quickly than others. The Institute's new building has had to be built with gas-proof windows and air-raid shelter conditions - a legal obligation for new schools in Israel.

Tel Aviv University

The Unit for Science Orientated Youth, at Tel Aviv University has since 1981 run an inter-disciplinary study programme for gifted high school pupils both in schools and at the university. Its activities are supervised by a university committee composed of representatives of every faculty. Over 25,000 have graduated from the hundreds of courses. The teachers prepare them at school for this advanced thinking, often around the subject rather than merely acquiring new knowledge.

The courses are held in the afternoons once a week. In 2001 3500 youngsters participated in these study days. Intensive summer-schools for about 700 students are held for two weeks on the same topics as studied in the academic year. The Summer Youth University promotes youth "from the periphery" aged 14-18, bringing them closer to the academic, cultural and commercial worlds. The university also operates a virtual campus on the internet for youth activley involved in the scientific community. Every week the players in a learning science game are given a different learning experience and new tasks in different areas of study e.g. geography, genetic engineering, history and art. Students and lecturers hold a virtual synchronic discussion every week.

There is additional within university action for the gifted at Tel Aviv. Professor Gideon Zwas uses mentors from the university for mathematically gifted children especially for their matriculation dissertation which they can offer in place of examination. He does not select but says to them - "enter these courses only if you like mathematics". He asks them every time they come - "What have you discovered this week?" Professor Avner Ziv has researched socially gifts. He showed some children a film of actors who were both lying and telling the truth, and he reckoned that the socially gifted guessed better than the non-socially gifted as to which were the lies and which were the truth.

Israel Arts and Science Academy

This is a residential high school for children talented in both the arts and sciences. Five years of research, planning, and development preceded the September 1990 opening, so that the

next century's leaders could have an interdisciplinary education to be able to solve tomorrow's problems - including the values of tolerance, democracy, and pluralism. Facilities are generous, including the school's own planetarium. The new integrated curriculum is one of the critical elements which makes this school unique, consolidated through the Curriculum Development Unit. They even produce new tests to be shared with the rest of the Israeli school system. There is an Ongoing Projects Room, which is of great importance to students who are developing a project requiring extended isolation from the regular work-spaces in the rest of the school.

Selection is not by IQ tests, but by general knowledge. They believe that if the children are motivated to come to this interdisciplinary programme they will manage it alright. Each applicant has to show a project, composition, etc. Then they are invited to a three-day workshop which is just like the school. Some are unlikely to fit in because they are too individualistic; one of the aspects the school looks for is how a youngster can work with other people. Every single pupil learns art, music, and science. The school takes 60 pupils a year at 15, they have two intakes a year. They also have an "Open Discovery Programme", a kind of Head Start. This is twice a week for three years, with teachers they have trained themselves.

Pupils are very mixed, including Arab children, country children, and city children. The school alerts the army and the universities about such youngsters who will come to them, because they are so extremely highly educated. The army dominates the lives of Israeli youngsters, and of course their parents. It is possible to go into the army for five years, and they will then pay for university, but you can finish the university first. When the school set up, even before they advertised their existence, 98% of all their teachers contacted them. All the teachers have a least a Masters Degree and are all part-time. The school starts at quarter to eight in the morning and finishes at nine with special interest classes. The 15 enrichment choice subjects are all elective and could be, for example, symmetry, ball games, etc.
The Director told the writer that 1% of the pupils are extraordinary - they do not follow any developmental rules. Such children often have a fragmented education because no-one can offer them a whole one, unless they find an institute like this which is dedicated to their needs. The school takes children from 79 communities, and has found gifted children everywhere, including the remedial, discovery programmes. Only children who merit a place get one, otherwise he would have to take all who apply. Preparation, he said, comes before

entry.

David Yellin Teacher's College

This normal teacher's college in Jerusalem runs four centres for gifted education around Israel. The two projects are on computer networking, Project Negev, and a Young Entrepreneurial Course. The College also works with MIGAL (above), and both institutions have international connections, such as with Jordan.

There are many more initiatives for the gifted in Israel e.g.:

- Wingate School for sport near Natanya
- Betzalel School of Art
- Thelma Yellin School of Music
- Hebrew University Secondary School, Jerusalem.

Arab Countries

About 50% of the population of Arab countries is under 15, at which age they may leave school. Gender distinctions in education are often planned in, such as drawing only for boys and embroidery only for girls at primary school, though in strongly Muslim areas, girls are unofficially denied a rounded education (Subhi and Maoz, 2000). Prior to 1960, education was based on the Arabic Islamic heritage, though with influences from British and French occupations. A great deal of learning was (and still is) by rote. Although there have been considerable improvements in general education since then, much is still in the realm of aims. The very rich, however, can find educational advantage either in their own countries in expensive private schools, or abroad.

Gifted children are normally recognised in most Arab countries (if at all) by their school achievements, as well as by standardised intelligence tests, creativity tests and other ability tests. Grade-skipping is possible in Bahrain, Iraq, Jordan, Qatar and Kuwait, and advanced placement in single subjects in Egypt, Morocco and Lebanon. Most countries also use grouping and special classes.

The American Enrichment Triad Model (Renzulli & Reis, 2000) has been implemented in some private schools in Jordan, the West Bank and Bahrain. Prof. Renzulli has travelled

widely in these areas. However, the program is not in action in the surrounding populations, so there is little chance of children who are not already educationally well provided for being identified as potentially gifted, as the programme is designed to discover. In Morocco, the Ministry of Education has established a National Committee for Gifted and Talented Scholars, though there has been little positive outcome. Jordan, Bahrain, the United Arab Emirates and Egypt hold special Friday classes for gifted children. These are varied and include computer science, journalism, archaeology, space and astronomy. In neither Syria nor Lebanon is there any recognition of gifts and talents. However, there are regional, national and cross-national competitions in varied subjects in many Arab countries, including the educational Olympiads.

The Jubilee School in Amman, Jordan, is a school for the gifted. It was opened in 1993 and is very well provided for under the aegis of the ex-Queen Noor al-Hussein, including boarding facilities so that it can take children from around the country. It selects children of both sexes by tests, school achievement, behaviour and creativity. Some pay and some do not. The school sponsors the Centre for Excellence in Education, established in 1999 to disseminate innovative approaches to teaching for secondary school teachers. The writer visited this fine school in 1996 to help guide the setting-up of an Arab Council for Gifted and Talented, representing 13 Arabic countries. However, there is still no sign of agreement and effect. The Jubilee School holds a three week residential summer programme for high-school students. University mentors take part and cover many subjects. During the course, the Mentor Connection students are enabled to participate in real scientific discovery.

Egypt has had a school for high achievers since 1955. Saudi Arabia has conducted research to find out the best approach to gifted education, but of course for females who are severely restricted in the subjects they are allowed to study, these moves are somewhat ‘academic’. An interesting survey of computer use in Arabic countries was made by a Jordanian, Subhi (1997). He recommended that gifted pupil’s records should be computerised for easier monitoring of their progress, and he has designed a programme to help this. The problem, he found though, is that although there are computers in Jordanian schools, there are very few of them and the teachers do not generally know how to use them.

It looks as though most, if not all, Arab countries are willing to recognise and help the gifted, and several have made forays into out-of-school activities, but the overall outcome is still

difficult to define.

Africa

Ideas of giftedness in Africa are culturally opposed to Western ones, giving greater weight to social than to measurable signs of gifts. In the old African culture, children are brought up to be social and people are seen as more important than technological objects. Gifted children were selected at an early age to serve in the king's court to learn the intricate role of a courtier. A talented boy linguist might become the village spokesman and advisor to the chief, and later a wise man and elder. New ideas of giftedness in Africa therefore have to accommodate both Western and African viewpoints to be widely acceptable, and that means that it will be recognised as long as it benefits the family or community. Though this balance is changing in favour of Western ideals with the spread of communication, the IQ and the 'me' culture of the United States still appears to be most unsuitable.

For many across Africa, gifted education is associated with élitist education (Taylor & Kokot, 2000). This is partly a hangover from Colonial times when the finest education was reserved for a few and the vast majority of the population received almost none. Members of the élite owed much of their passage to success through such systems. Hence, special schools for the gifted are not in favour in Africa. In fact, the essential first aim in Africa is universal primary education.

South Africa

In South Africa things have been different from other countries in Africa under the 400 years of Dutch rule. For the Whites, who were given a sophisticated Western education, an Office for the Gifted and Talented was established in 1969 in Port Elizabeth by the Education Authority there. The Human Sciences Research Council in Pretoria became interested in the 1980s when the first attempts were made to investigate gifted black children (Freeman and Span were invited to initiate research and programmes). Several provinces, such as Natal and the Transvaal established centres for gifted education for every child. Conferences were planned, but sometimes boycotts by black teachers prevented their attendance (Taylor & Kokot, 2000). There are currently small improvements in the education for the gifted, mostly within school, such as acceleration and enrichment for selected children.

Some out-of-school activities are put on by the National Association for Gifted and Talented Children in South Africa, such as Saturday morning activities for the academically top 2-3 per cent of local school-children, though parent run and unevaluated. There have been small attempts in Black townships, such as Soweto and Daveyton, in a scheme now called the Growth of Children's Potential, which is based on Vygostkian ideas. The University of Pietermarizburg set up Thinking Actively in a Social Context (TASC) to develop higher levels of cognitive skills among poor black children and the effectiveness of their teachers (Adams and Wallace, 1991). The research is continuing.

Chapter 10

PROVISION IN CANADA AND SOUTH AMERICA

Canada

Canadian education for the gifted has diminished across the country over the last decade. Leroux (2000) blames it on the state of the economy and a change of government, noting in particular the disinclination of teachers to specialise and consequently their poorer competence in recognising and teaching the gifted. The approach to special educational provision of this North American country is extraordinarily different to that of its neighbour, the USA.

Canadian attitudes to gifted education

In 1998, Leroux surveyed school boards, local Ministries of Education and Faculties of Education, regarding current provisions for the gifted (43% response). For most administrative bodies, the term 'gifted', she found, usually means intellectually gifted and there is little attempt to accommodate any other form. What is more, any provision is normally given to youngsters who are already demonstrating advancement as measured by tests, teacher nomination and sometimes parents.

There is little or no concern for underachieving or disadvantaged children of high potential. Most Ministries reported that there was no special provision outside the normal classroom: the gifted were educated alongside normally able children. All respondents reported that there was neither provincial research nor evaluation programs in place. There is rarely a

stated policy for education of the gifted and no mandated training for teachers in gifted education. However, 20% of the respondents still offer a gifted education advisor to schools.

In Canada, where school districts can be as big as some European countries, transport is a matter of concern in all special education. Less than 40% of the respondents provided any help with it. Hence, if one school does offer support for the gifted the distant children may not have access to it and are dependent on local facilities. Special educational provision, Leroux found, is "sporadic and under-funded".

School Boards in seven provinces reported having no evaluation for their gifted programmes, and no-one seemed to take responsibility for them. In Calgary, however, parents brought about the foundation of three charter schools for gifted children in 1998. In the universities, there are two "shining examples" of professional development for teachers. McGill in Montreal has a summer credit program for teachers of the gifted. Calgary has teacher in-service sessions, a school out-reach program which teams master teachers with local classroom teachers. University personnel go into local schools to help teachers, parents and administrators. But there is some independent work at Calgary and other universities (in Vancouver and the University of Alberta at Edmonton).

The Centre for Gifted Education at the University of Calgary
Provides a program supported by the CBE The Gifted and Talented Education (GATE)
Calgary Board of Education: www.cbe.ab.ea
Alberta Learning: www. learning. gov. ab.ca
University of Calgary: www.ucalgary.ca/giftedue/faculty.html
Gifted Canada: www3.bc.sympatico.ca/
TIPD: www.dfee.gov.uk/tipd

Calgary is situated in the eastern foothills of the Canadian Rocky mountains. Its location makes it an important transportation and distribution centre in western Canada. With a population of 800,000, it is the sixth largest city in Canada. Originally established as a fort by the Northwest Mounted Police, Calgary has grown into the oil and gas capital of Canada by the two major oil discoveries last century. Agriculture, particularly cattle, and tourism are the other major job creating industries.

Education in Calgary city is organised by the provincial government department, Alberta Learning, which is responsible for the delivery of education programs and services in the province of Alberta. The Calgary Board of Education, CBE, administers the education system within the city. The Centre for Gifted Education at the University of Calgary provides a program supported by the CBE - The Gifted and Talented Education (GATE) program, established by the CBE in 1987.

The program is currently offered in four congregated settings in the geographical north and south of the city. There are two elementary (grades 4-6) sites and two junior high schools (grades 7-9) sites. Queen Elizabeth Junior/Senior School introduced a Senior High school (grades 10-12) GATE program last year. The latter has been based on languages, arts and humanities. As of this year, the program in Senior High is to be extended to include Biology (including a university credit element), a careers and life management course (CALM) and Physics and Mathematics courses.

Admission to the GATE program is based on CBE Special Needs criteria for those children in grades 4-9 who are intellectually gifted. Referrals to the GATE program are made through the individual School Resource Group in consultation with parents. The Admissions Committee reviews all referrals and determines the applicants to be admitted to the GATE program.

Criteria for placement in the program include:

- Very superior scores on an individual psychological assessment (WISC-III IQ test and WAIS achievement test) An IQ of 130+13 is required to be coded 80. Funding is allocated by the CBE for such students and they are also eligible to apply for the GATE program.
- School nomination form Parent nomination form Student written response.
- An IPP (Individualised Program Plan) submitted from the referring school.

A rare aspect of the GATE program is that it also includes students who are coded as gifted and have a learning disability. The admissions process is both a time-consuming and a costly exercise including psychological testing at a cost of $400+ per pupil. Currently, the GATE provision takes in 550 students. Students admitted to the GATE program studied in the GATE schools dependent on their age and home location in the city. The students met for

certain lessons as a GATE group taught by specifically appointed GATE teachers and at other times were integrated with students in the rest of the school.

GATE is not the only option for the more able student, and some who were coded 80 chose to remain in their present schools. The Junior/Senior high school visited had recently set up a GATE program for grades 10-12. However, not all GATE students progressed to this program, instead choosing other forms of qualifications. Advanced Placement schemes and particularly the International Baccalaureate were proving to be popular, particularly the latter as it was more readily recognised by the 'top' American universities. A small number of pupils who go through the GATE program do not continue on to university, choosing to set up or expand their business interests.

The teaching and learning styles observed in GATE classes centred around open ended project work. Discussions and student presentations features heavily. GATE lessons often gave the appearance of 'hot housing' where students discussed and creatively thought about issues and topics. Crucially, students were aware of their role in the education process and their responsibility for their own learning. It was also evident that intra and inter personal skills were developed in the schools visited, and these were observed in GATE students who worked both individually and collaboratively.

Despite the enhanced funding arrangements of the GATE program, there appeared to be no formal evaluation process to measure its success. In this respect, teachers were offered the autonomy to work as individuals and, as teams in the GATE schools and in the CBE. It was refreshing to observe and discuss such teacher autonomy, clearly not evident in the English education system. Similarly, although Alberta Learning and the CBE worked with teachers to develop the provincial and local curricula, there was no prescribed assessment-led national curriculum with its attendant testing regime. Achievement tests did feature in grades 3, 6 and 9 and were posed to monitor student progression. Achievement tests were not currently used to measure school and teacher performance, although discussions with professionals indicated this could be the case in the future.

The visit provided an excellent opportunity for both personal and professional development. An investigation of the GATE program offered an insight into the possibilities for gifted and talented education. However, education systems exist and must be seen in a cultural, social

and economic context. It was clear that the Canadian education system as a whole offered greater curricula flexibility and autonomy for teachers. It is in this context that the GATE program exists, and has developed during the last fourteen years in the interests of its students. Although the visit provided a generic understanding of the needs of gifted and talented, it would be a bold and ambitious step if the UK Government or an LEA was to replicate or model its gifted and talented provision on the GATE program.

South America

Brazil

Here are two unusual and worthwhile programs for finding and providing out-of-school enrichment for gifted children in Brazil. The first takes the emotional development of the gifted as one of its main aims, and the second is concerned with finding and helping very poor children who would not normally be seen as gifted.

Center for Talent Development Lavras (CEDET)
Minas Gerais
Brasil
www.cedet.lavras.mg.gov.br
Director Dr. Zenita Guenther

Probably uniquely, the Centre for Talent Development (CEDET) in Brazil takes a concerted approach to the emotional development of pupils with gifted potential, as well as providing them with high-grade out-of-school enrichment activities. This holistic and non-testing approach, works along with enthusiastic and involved classroom teachers (Guenther, 1995; Freeman & Guenther, 2000). The Center, founded in 1993, has grown to nearly 800 students of all school ages, enrolled at regular schools in both urban and rural areas. Its out-of-school activities aim to provide support, stimulation and encouragement to youngsters who need a more ample and complex education than a regular school could offer. The municipality, (Prefeitura Municipal de Lavras), with help from the State Secretary of Education and the Federal University of Lavras, financially support the general structure, including its personnel.

CEDET's aims for gifted children are to:

- develop a positive self concept
- cultivate sensibility, caring and respect for others
- build a broad, rich and well informed internal frame of reference to perceive and interpret the world.

Identification at CEDET

Identification is based on a style of direct observation by which every child can be considered for the program, diminishing the risks of being missed by teacher selection. However, the classroom teacher does participate in the identification process as an observer of behaviours, attitudes, actions, reactions, and attributes of the students. The teacher completes a data-sheet, registering information about the whole group, without judging or even focussing on particular gifts and talents. Using this paradigm, note is taken of each child's process of comprehension and production, style of being, perceiving, and behaviour within the everyday life of the classroom. School achievement is also considered, but not isolated from other signs, such as attitudes and means of gaining information, thinking, analysing, approaching the situations, as well as interactions with others and the environment. The comparison group, natural and present, is made of classmates.

Data is collected at the end of the school year, from kindergarten to 4th grade. After 5th grade, when the single classroom teacher is replaced by a set of subject teachers, the sample sheet no longer provides reliable data because the teacher's attention moves from the students to curriculum content. When parents ask for their child to be enrolled, they must first talk with the school, the Center's main partner. Educators have to be in agreement on decisions about each pupil.

The identification procedure:

1. A questionnaire of 26 items encompassing several ways of expressing intelligence, creativity, and other areas of potentiality is filled-in by the classroom teacher at the end of the school year. Its purpose is to place each child in relation to their classmates with regard to any characteristics signaling higher ability and talent.
2. This initial assessment is followed by a year of observation assisted by the Center personnel, in different situations and types of activities, allowing a closer comparison of the child's ability within more demanding group settings in school.
3. There is a second end-of-year data collection by classroom-teachers working with the children during that school year, usually a different teacher and a new comparing group of students.
4. When there is agreement among at least two of the three observers that the child does show signs of high ability he/she is enrolled at the CEDET.
5. Once identified and enrolled, the children start on an individual work-plan settled according to each one's potential, needs, expressed interests, inclination and personal

choice. Both the Center and the school take responsibility in following up with these plans, making sure that whatever is agreed upon will be effectively carried through as planned.

The CEDET program:

- The gifted children stay in the regular school with their age peers.
- Out-of-school activities take place at the Center, where youngsters interact with others of similar ability drawn from wide-ranging schools and neighbourhoods.
- The educational programs provide activities involving real-life experiences in a larger and more diversified setting than they would find in their normal lives.
- Through the Center's activities they come to interact with adults, such as the counsellor-facilitator who works with them on an individual basis, the volunteers who lead interest groups and projects, and other staff members.

Individual work plans are organised around at least three avenues to enrichment:

1. *Projects* - take place within the community, guided by someone who has a known degree of expertise on that theme or subject.
2. *Interest groups and general encounters* - meet out of regular school time, either at the Center or another location in the community, for a two-hour period of work each week.
3. *General Encounters* - are large sessions with about 100 children from the various schools in the community, sharing a given set of common characteristics. The Encounters happen once or twice a month for 4 hours. Its goal is to provide opportunity for togetherness, a variety of stimulation opportunities and shared experiences.

Volunteers from the community work with the children to guide the content activities. The selection of these volunteer/mentors emphasises, besides expertise, personal qualities leading to positive educational influence, inspiration and displaying of good role models for the children. More than a thousand volunteers have worked at CEDET, some for as long as four or five years. Usually there are from 60 to 70 each regular semester.

Evaluation

An exploratory study was conducted in May 2001 with 31 youngsters (14 boys and 17 girls, aged 15 to 17) who had attended the enrichment program for at least three years. They answered the following questions:

1. What, if anything, has the work at CEDET done for you?
2. Which facts, happenings, and/or events, have you experienced at CEDET that you consider to be relevant to your personal growth?
3. Which suggestions would you provide to improve the work at the Center?

The answers were submitted to a content analysis looking at three categories:

1. Self concept development
2. Understanding the concept of 'others' and improving social interactions
3. Broadening, deepening and enriching the internal frame of reference to interpret the world.

Results: All responses were generally favourable to the experience of the Center, and the few suggestions were only for more and longer-term activities. The girls wrote more and gave more ideas than the boys on the first two categories. The boys contributed more on broadening, deepening and enriching the internal frame of reference to interpret the world.

Developing Self Concept: This category produced the largest volume and diversity of ideas (46% of the total). CEDET was seen to be:

- Assisting in developing, valuing, discovering, recognising and expressing talent, abilities and qualities in oneself.
- Discovering, opening doors, giving direction, clarifying, helping to build roads and ways to the future; to a profession; to new possibilities; and to new areas of interest.
- Increasing self-assurance and self understanding by helping: to realise one's dreams; exploring what you want to learn; knowing your own ideas; expressing your opinion and point of view; losing your shyness and fears; and conquering your own goals and purposes.
- Providing opportunity for new learning; more interest in studying, including studying school subjects; running your own school schedule; and developing personal qualities (such as responsibility, accountability).
- Experiencing positive emotions such as - looking at his or her own first oil painting; being well accepted - helping others; knowing a new world of learning; and being able to talk about every and any subject you want.

Understanding "Others" and improving social interactions:

- To make friends, meet new people and live with other persons;
- To learn to get along with peers; appreciating living in groups; learning and doing things together;
- To feel and to share other people's personal problems and be able to help them;
- To have a chance to admire other persons, (citing names of different adults at the Center) and to be admired, accepted, appreciated by others;
- To develop a sense of collectivity that is larger than one's own group.

Conclusion: Although this study is limited because the level of participants' stated satisfaction is not a reliable measure of outcome, the program appears to be achieving a certain degree of success in both the educational and emotional enrichment of the youngsters.

Rio de Janeiro

In a rare, probably unique, move, the charitable Institute Rogerio Steinberg programme is directed at the poorest children of the Favella shanty towns in Rio de Janeiro who show some signs of talent. It aims to promote creativity training for talented children as a way of helping them develop their talents. It is growing rapidly. In 1996, work started in three schools with 300 children and three teachers. The schools programme now has 11 schools,14 teachers and volunteers, and 1300 children being provided for. From those, 60 children between 8-18 are selected for an extra two hours tuition a week in the institute. Other partners, who can be persuaded, give them free lessons with private pupils in e.g. dance or theatre. The work in schools is proactive, and involves developing psychological themes like feelings, body consciousness, creativity, stimulating the pupils to show their talents. The creative development of teaching is as much as part of the programme as the conventional teaching with these highly talented children.

Peru

The Peruvian Ministry of Education is promoting and supporting the development of pedagogical strategies for gifted and talented children in normal schools, in the following ways (Blumen-Pardo, 2002, and personal communication:

- Identification programs in the maintained schools in Lima, using the instruments validated for that population by Sheyla Blumen.

- Enrichment programmes, including an after-school programme (PAENFTS), are being piloted with teachers trained in gifted education by the European Council for High Ability. Some of their dissertation suggestions are being put into action. Evaluation is being carried out by the Ministry of Education and results are expected in 2002.
- PAENFS. This experimental program was formally established in 1988. However, it is somewhat snarled up in red-tape of all the different Peruvian governments, and is not being monitored.

There are three private schools for the gifted in Peru. The Alfred Binet School in Arequipa, the Leon Pinelo school and Reina del Mundo in Lima (under the supervision of Sheyla Blumen) and a private institution, Mente Futura, in Lima, which supports research on identification and programmes for the gifted.

Chapter 11

CONCLUSIONS

No out-of-school education for the gifted and talented works in a vacuum; each depends on national and local government and educational systems for take-up, function and outcomes. These strong influences on practice make it difficult to distinguish with precision between wider cultural effects and those of a particular kind of provision. Nevertheless, this world-wide overview has attempted to provide descriptions and comparisons so that the variety of different procedures within their contexts can be judged, adapted and used where it seems appropriate.

Concerns affecting international education of the gifted and talented

Provision

National policies for the education of the gifted and talented can be entirely opposing: where one country provides generous extra help another provides none at all. But this extreme variation in special provision is not necessarily related to outcome because other factors are involved, such as both the level of basic education and attitudes towards it. In Japan and Scandinavia, for example, although there are neither centres nor summer-schools for the gifted, the achievements of the most able children there are frequently superior to those of countries which do have them.

Selection

How children are chosen for special education varies to extremes. Whereas in China children can select themselves for its many hundreds of centres for talent development, notably the Children's Palaces, in the USA, most centres, such as the influential university-based Talent Searches, select (and deselect) children on teacher recommendations and test results.

Funding

Financial support is vital for extra provision, but the style and quantity again varies to extremes, which can affect the type of provision available to children. For example, gifted education in China is funded by the State, though with some parental input, while in the USA it is almost entirely privately funded and often extremely expensive. Germany competition winners received with grants from both State and private foundations. New Zealand makes generous and varied State provision across the country.

Overlap

All over the world, virtually every programme for the gifted and talented overlaps and interacts with local educational systems, sometimes with international contacts such as competitions and web-site cooperative lists, sometimes with part-time enrichment, as well as summer-schools, and almost all supported by parental involvement. Distinguishing the precise effects of school and program is virtually impossible.

Comparison of out-of-school models for the promotion of gifts and talents

The Talent Search

Principle: Children of all ages who are already achieving highly are selected by a battery of tests for extra education.

***Predominant countries*:** USA, Germany, Australia, Israel

***Assumptions*:** Some children are innately superior in potential to others. This superiority can be discovered by testing so that a bespoke gifted and talented education can be provided to actualise it.

Pros: Children who make it onto the courses and summer-schools are provided with excellent, varied and stimulating education. Acceptance can lead to improved life-chances.

Cons: Although some modest allowance is made for unrecognised potential, many Searches fail to net proportionate numbers of ethnic minority and genders. Youngsters, possibly of equal potential, who either fail to pass the tests or do not enter the testing arena are discounted, so that unrecognised potential can run to waste. Just-missed applicants could possibly have achieved as well - given access to that richness of provision. The Talent Searches and summer-schools depend on vast amounts of money, provided not only by generous private donors, but by parents. In Canada and in Holland, Talent Searches were started and eventually failed because of lack of financial support.

Outcomes: No immediate and visible surge of national excellence has been measurable from the very many thousands of American youngsters who have passed through these programs since the 1930s. There has never been any comparison between programs, so it is impossible to know which aspects of the education that each Search and summer-school provides is the best or most appropriate for the society. Outcomes are confused between the predominance of well-to-do children on the courses and the excellence of the provision.

Because of their careful selection and excellent provision for learning, the Talent Searches can offer an extremely high level of provision.

Self selection by provision

Principle*:* By providing all children with the educational means and encouragement to exercise their abilities in fields in which they are interested, they are enabled to become manifestly gifted and talented.

Predominant countries**:** China, Renzulli in the USA (with some selection), New Zealand.

Assumptions: Children's' interests allied with opportunities will enable them to excel.

Pros: Most countries already have the means to promote this system, such as work with children in museums, the arts and sciences. It is not expensive. With a will, local educational extras are usually to be found. It is positive in that no child is barred by tests or shortage of money from taking learning further.

Cons: Unless there is some (preferably nationally) concerted organisation, provision could be patchy. This is particularly true for a Federally administered country, such as the USA or Germany.

Outcomes: China's successes in international competitions are outstanding, and are especially remarkable for a poor country.

Wide provision enables a large number of youngsters to experiment in different fields, and for the talented and motivated to reach extremely high levels of achievement.

Hard work

Principle: The onus of success at school and in life is on both child and teacher. It is teamwork: individual children's success is not only dependent on the extent of the labour each puts into their learning, but the teacher is also responsible for good teaching to enable the child to reach excellence.

Predominant countries**:** The Eastern World, notably Japan

Assumptions: Each child start with similar potential and is capable of reaching a standard of excellence.

Pros: Child, teacher and parent are expected to work in harness for the best results. All educational research shows that teamwork is the most effective route to educational excellence. For every child, the perspective is positive: there is no selection and no rejection.

Cons: The pressure on the child can be heavy as can the work-load, cutting into time for being a child, creativity and fun.

Outcomes: For gifted children, Japanese, Korean and Taiwanese success in mathematics is the best in the world. Despite complaints from educators and parents of a lack of creativity in education, industry and art in Eastern countries appears to be thriving.

Creating an atmosphere of encouragement to hard work in combination with good provision provides the greatest benefit to the greatest number and to the society.

Competitions

Principle*:* Prizes of e.g. summer schools, educational foreign travel and entry to the best universities are offered to youngsters who are chosen (usually by expert opinion)as the best in their field for their ages.

Predominant countries**:** Germany and Eastern Europe, but competitions are found all over the world and in all fields.

Assumptions: Children who are talented are also ready and keen to compete.

Pros: Competitions are open to all, and the glittering prizes and prestige attract youngsters to prepare for them.

Cons: There is no concern for previous facilities for learning, so that children from poor circumstances are handicapped. Youngsters who are more introverted, or who prefer to get on by themselves are denied the benefits of the extra educational help they could win. By their nature, as with Talent Searches, competitions are highly selective, so that equally-able non-winners will not receive extra help.

Outcomes: Standards can be extraordinarily high. The prizes for the winners can give serious help to individual careers, as seen in Russian music competitions or international Chess championships.

Competitions are the most easily controlled and probably the least expensive method of providing extra for the highest achievers

Voluntary provision

Principle: Mainly parents, but sometimes teachers, form organisations which arrange out-of-school teaching for children supposed to be gifted and talented.

Predominant countries: Everywhere in the world.

Assumptions: The educational system (or the local school) is not providing an adequate education for the gifted and talented, so that action must be taken.

Pros: Access to activities is usually open; often siblings or sometimes the whole family can take part in activities. The sheer numbers and prevalence of these associations is potentially an influential force for positive changes to national systems.

Cons: Such provision is rarely in concert with teachers' efforts; in fact, parents may choose not to tell teachers of their perception of their child as gifted or of their participation in these out of school programmes. As volunteers, the organisers are not concerned with children whose parents are not members.

Outcomes: No scientific research has ever been done on these extremely widespread activities. Their quality and outcomes are unknown.

Voluntary provision, although varied, can be harnessed and directed for supplementary help

Summary points

1. **Perceiving the gifted and talented**. Whether one believes that 'all children have gifted potential' or 'only some children have gifted potential, produces extreme differences in provision. Understanding this difference is essential to any discussion about offering available resources and energies.
2. **Children's' interests.** The most direct route to excellence has been found through research and biography, to be where children can follow their own interests, with the means to experiment and learn.
3. **Hard work**. At the end of his life, Henri Mattise, the painter, summed up the reason for his great genius: "Without the hard work, talent is not enough".
4. **Open access**. Out-of-school activities need not be designated exclusively for the selected gifted. For example, competitions, evening classes, libraries and sports centres are relatively plentiful in cities, though harder to find in rural areas.

5. **Cherry-picking** The Chinese are setting a fine example of cherry picking, taking what appear to be the most useful systems from others, while at the same time developing a distinctly Chinese approach. Confucianism is put into practice by providing generous resources for self-selection for enrichment, while also (to a much lesser extent) using selective systems and acceleration where it seems appropriate. It is evident that Chinese children's standards of excellence are going up sharply in all areas.

Evaluation of outcomes

It is impossible to present a precise evaluation of the relative outcomes of the above five major types of out-of-school support for the gifted and talented for the following reasons:

- Though outcomes can be compared in recognisable world terms, e.g. Olympic medals, scientific advances, eminent artists, it is not possible to conduct a statistical experiment as to the relative efficacy of each type of provision within each separate culture.
- In spite of considerable search by the writer, no comparisons could be found between programmes even with one country (e.g. USA), so it is impossible to say which aspects of which provision are best in any given situation.
- Confusion is brought by the overlapping of models and opportunities for individuals. Thus, a high-flying professional career, which includes invitations to both a prestigious university and the best workplace, could come either from vaulting the hurdles of tests to land in a Talent Search program or helping oneself to rich out-of-school provision and winning the top prize in a competition.
- Some provision models require great effort from the youngsters to even start e.g. Talent Searches and competitions, so that they are likely to attract more ambitious youngsters than Children's Palaces and the many opportunities in New Zealand. Such personality differences could be expected to have different long-term outcomes, though research is minimal and inconclusive.
- To some extent any model of educational intervention is likely to have a beneficial effect on the participants. Inevitably, any keen child will learn more from special enrichment than children of equal ability who have not had access to that provision.

There is no need, and indeed it could be detrimental, to place every egg in the same basket by providing for the promotion of gifted and talented children based on a single adopted and unmodified system from another culture. Any of the varieties of ideas and practice from other countries are adaptable to another culture.

Additionally, links and cooperative ventures are there to be taken. For example, Dr Harald Wagner of the German SchülerAkademie has expressed keen interest in forming links with the Academy of Gifted Youth in the UK (Wagner, 2002).

Application of American ideas

Out-of school gifted education has had a century-long head-start in the USA, and is supported by many millions of dollars more than anywhere else. The major model of the Talent Search, which is superbly administered and effective for its participants, has influenced much received knowledge on how to educate the gifted and talented. Yet overwhelmingly, research and publications are carried out and concerned only with American children within the American educational system - without reference to any other.

At the start of the research for this report, it looked as though the dominant American Talent Search programs would necessarily be chosen as the flagships to follow. But as the wider world revealed its treasures (at least in terms of out-of-school activities) it became apparent that there are indeed other ways of catering for gifted and talented children from which the manifest outcomes appear to be at least as good. What is more, transplanting whole schemes to a context somewhat different from their origins requires consideration of cultural assumptions. There are usually good reasons why procedures emerge in one geographical and cultural area which might not be appropriate elsewhere, as considered in Chapter 1.

Evolution of American and British attitudes to high-level potential have been very different, which shows in legislative and practical outcomes. American provision is attuned to a disparate immigrant society, with a still relatively low level of general education, so that it appears important to lift up the brightest minority with special high-level provision. In Britain there is a very much smaller, less disparate population with a generally higher standard of education. The need for minority selection appears to be less pressing, and so

relatively more children could be offered special enrichment if they want it.

American Talent Search proponents themselves do not claim to have fostered world-class excellence. And after two-thirds of a century of extremely expensive endeavour on a tiny proportion of youngsters, there is still doubt as to whether these programs are as effective and economically efficient as others might be. There is also the possibility that these great monoliths are beginning to stumble a little, evidenced by TIP Canada being obliged to close programs. Though the perhaps because of the more competitive culture of the USA, there is no shortage of applicants there.

Administratively, the Talent Searches are unquestionably superb, but in terms of finding submerged gifts and talents, particularly from disadvantaged groups, they could be greatly improved. Even on American home-ground they have their critics, mainly because the whole concept of giftedness is opening out from the limited understanding available when the Talent Search Model was conceived in the 1920s. Those were the days when abilities were believed to be fixed for life, notably the IQ. On that basis, selection was believed to be essential, first by teachers and then by a battery of tests. Otherwise, it was - and is - considered that special enrichment would be 'wasted' on unsuitable children.

The only institution directly funded by the US government, the National Research Center at Connecticut is expanding, demonstrating contemporary American changes of attitude towards gifted education. It offers 'Schoolwide' guided self-selection programmes, i.e. not restricted to the tested gifted. Evidence from the rest of the world, such as the Third International Mathematics and Science Study (TIMSS, 1999) and international competitions has shown the winning effectiveness of wider and more flexible approaches to the promotion of excellence, not only by the Eastern World itself but in East Asian immigrants to the United States: "East Asian subgroups tend to demonstrate higher levels of school achievement and educational attainment than other groups in the United States." (Kitano & DiJiosia, 2002, p. 79). However, in 2002, these bright children as adults still "earn less than the U.S. population".

Hearteningly, in May 2002, British 15 year-olds occupied the upper end of the performance table as assessed by the OECD (PISA tests) (Hargreaves, 2002). Out of 31 countries, the UK ranked 7th in reading literacy, 8th in mathematical literacy and 4th in scientific literacy. Unlike other international achievement comparisons, PISA digs deep, aiming to measure

foundations in reading, mathematics and science. It attempts to find out how well children have indeed learned to learn, and are then able to apply that learning to their lives, both flexibly and in different contexts. PISA recognises that performance is related to the learner's control of the learning process, this being a formative rather then a summative assessment.

Although special high-level courses are normally held on university campuses, these are inevitably restricted by money if not situation, and there has been a surge into e-learning and internet interaction. In the UK, the National Grid for Learning is on the way, and the nettle is being firmly grasped by the Qualifications and Curriculum Authority (QCA) in the World Class Tests project, which is not only concerned with assessment, but also functions as a learning tool (Richardson, 2002). Internet learning not only includes pupils, but teachers and maybe parents too, which provides an educationally healthier support system. The QCA World Class Tests project, which started with mathematics and science is now being broadened to include some of the humanities.

It does not seem wise for the Academy of Gifted and Talented Youth in the UK, to tread soley in the footsteps of the American Talent Search programs. No single institution can provide what the youth of any nation needs.

The social aspects of special out-of-school education

It is true for everyone, that to be with others like oneself is more comfortable. Summer-schools can allow the gifted to stride out intellectually, while continuing to learn the social skills of making relationships. The social learning can demonstrate to individuals that hiding behind their brilliance is a false defence because even among their intellectual peers relationships are not necessarily smooth.

One outstanding benefit of the gifted summer-camp is social – for youngsters whose heads have been perhaps too deep in books. Evidence from America, Australia and Germany (Rogers & Span, 1993: Wagner, 1995) has indicated that the learning of the gifted becomes more creative when they spend time with others of similar ability. This does, however, raise the question of how much of this beneficial socialising is due to intellectual high-level interaction and how much to being together in a friendly atmosphere. It is hard to be sure, as

the evidence is almost entirely anecdotal. Hence, it is not impossible that there could be equal social benefit to gifted youngsters from engaging in e.g. a challenging trek or a drama camp – along with others of normal ability.

Possibly it is the implicit psychological permission to be oneself which lies at the heart of the emotional advantage of the summer camp - and not solely the higher level mathematics.

A framework for the development of gifts and talent using out-of-school activities

Variety is the key. Every effort should be made to provide a choice of measures to meet the needs of youngsters who are eager to learn and achieve. These measures should be practical, easily accessible, flexible, differentiated and as open as possible. Ideally, they would be free of serious financial charge to parents, the admission voluntary, and the treatment effective for the children with gifted potential and not just gifted achievement. However, the specific properties of a programme and/or the large number of applicants for a limited number of places may determine some sort of selection.

Yet all selection carries the possibility that the chosen may not continue with their high level of achievement, while those rejected may later surpass them. Because the selection procedure is part of its success, systems must have built-in flexibility to allow for correction. Complete dependence on testing to decide a child's life path, whether tests are educational or psychological, is well known to be fraught with possible error. Test-makers know all too well about the inevitability of error variance and strive to keep it low. Neither can the social context be ignored in the name of objectivity because it always affects children's results, and so is part of the measurement. Although it must be said that the most promising sign of future success is present success, and that high grades today are still clearest indication of high grades tomorrow, gifts and talents have a way of appearing apparently from the blue and at different points in life.

The following list of features provides a sound basis for out-of-school activities, whether in a Talent Search or any other type of programme (Goldstein & Wagner, 2000; Duke University Talent Identification Program (TIP) in Elder, 2002, and considerations from this research).

Effective measures for out-of-school activities for the gifted and talented

- *Incitements*: Curiosity, quest for knowledge and the interest in learning should be incited by a variety of exciting experiences and sources of information, preferably with easy access.
- *Options*: A variety of options should be available such as workshops, courses, summer programmes, competitions, and suggestions from the youngsters.
- *Challenges*: The difficulty and level of the activities should enable youngsters to feel sufficiently challenged and obliged to exert considerable effort to reach the goal.
- *Tasks* should be both complex and open-ended, with focus on concept mastery and abstract examples as well as an appropriate balance between the acquisition of facts and the understanding of key relationships between them, particularly causal and sequential.
- *Incentives*: Activities should provide experience of success, rewards and personal recognition.
- *Counselling*: The young people and their parents and teachers should have access to professional help in understanding potential and seeking resources for its development.
- *Teacher* guidance and training should emphasis higher-order thinking, such as the later stages of Bloom's Taxonomy of Educational Objectives - namely analysis, synthesis and evaluation.
- *Policies* should guide provision for the gifted and talented with consistent challenge and the opportunity to work at their own rate, pursuing their own interests to a high level so as to produce expert performance.

Helping children to excellence

Perhaps the most important finding to emerge from this survey is that all around the world there is a growing inclination on the part of authorities to allow students greater, and more frequently voluntary, access to very high-level opportunities for advancement. In spite of the fear, it seems that open access systems do not get swamped by moderately able children using resources that are more appropriate for potential high-flyers. This is clear from China's Children's Palaces, Renzulli's Schoolwide Enrichment Model and New Zealand provision - children who are not interested either drop-out or simply do not attend.

The essential difference between selection by experts and tests and self-selection is that nobody is turned away *before* they have had a chance to try the out-of-school provision.

One can describe this in evolutionary Darwinian terms as the effect of variety on development – blind variation and selective retention - in the way that one cannot plan entirely for what is to come and what talents will emerge from wide provision. After all, children are not selected by teachers or tests before they attempt to read any level of books or view television programmes, they are free to try what they fancy.

This swing away from the medical model of diagnose-and-treat is seen in countries which had used tests or expert opinion for many years as criteria for entry to gifted and talented programmes; these include Russia and Israel and the USA. In other parts of the world, where the idea of extra education for the gifted and talented is new, such as Spain, the established American Talent Search model of careful selection of relatively few pupils appears to be more attractive as perhaps more easily manageable.

Some of the most exciting extra-school programmes in the world, though not specifically for the selected gifted, provide the educational means and support to take fields of interest to any height, such as the American Renaissance Quest Camps, designed for the whole family, the Advanced Space Academy or the Chinese Children's Palaces. There are, of course, many out-of-school resources in which the whole class can participate, such as visits to sites of interest, museums (e.g. the Children's' Museums movement in the USA), art galleries etc.

Freeman's Sports Approach

In all cultures, excellence in some abilities is more acceptable than in others. In most parts of the world, for example, local education authorities encourage talented young footballers to take up extra tuition outside school hours, provide them with equipment, arrange transport for them to meet and engage with others at roughly the same level as themselves – and pay for it all. There may be extra provision in a few other subjects, notably music, mathematics contests, art classes in museums, but the idea of opening up the school labs for a Saturday morning practice in chemistry is rare, if it exists at all. It is not difficult or expensive to find out what interests and motivates pupils via questionnaires, interest tests – or simply by asking them. And the facilities are already largely in place to provide excellent support for most abilities, other than football.

Freeman (1998) has proposed that given the opportunity, and with some guidance, the talented (and motivated) should be able to select themselves to work at any subject at a more advanced and broader level - the 'Sports Approach'. In the same way as those who are talented and motivated can select themselves for extra tuition and practice in sports, they could opt for extra foreign languages or physics. This would mean, of course, that such facilities must be available to all, as sport is, rather than only to those preselected by tests, experts, supportive homes or money to pay for extras. This is neither an expensive route, nor does it risk emotional disturbance to the children by removing them from the company of their friends. It makes use of research-based understanding of the very able, notably the benefit of focusing on a defined area of the pupil's interest, as well as providing each one with they facilities they need to learn with and make progress.

The Sports Approach: identification by provision

- Information on what is available should be readily available to pupils
- Encouragement to experiment should be explicit for pupils
- Help in the identification of talents by teachers and experts should be process-based and continuous
- Help in identification should be by multiple criteria, including provision for learning and outcome
- Indicators should be validated for each course of action and provision
- The pupil's abilities should be presented as a profile rather than a single figure
- Increasingly sharper criteria should be employed at subsequent learning stages
- Recognition should be given to attitudes possibly affected by outside influences such as culture and gender
- The pupils must be involved in educational decision making, notably in areas of their own interest
- The pupil makes some form of commitment to participation in the extra education, and should this be broken for no good reason that opportunity is lost to the child.

The Sports Approach requires agreement within an educational authority. The principle is in allowing wider and easier access to the educational provision - which is already in place – including higher educational institutions. The Sports Approach is currently in action in Somerset.

End thought

The human spirit survives most attempts to be categorised, selected and treated in accord - for good or ill. Virtually all world-class high-achievers have selected themselves to progress in the area of their prime interest, and have somehow found the educational means to make their marks. Across the years and up to the present day, it is doubtful whether more than a handful of world leaders in any field have ever taken tests and attended summer-camps for the gifted.

Perhaps this is fortunate because innovators such as Sigmund Freud and Marie Curie, rather then being directed by others' ideas, created their own systems of thought and science and changed the way others think. Nor is it likely that the school achievements and independent outlook of e.g. Albert Einstein, Georgia O'Keefe, Mary Robinson or Nelson Mandela would even have allowed them access to Talent Search programs.

Those selected by virtue of their ability to do well in examinations are a particular group with very specific mental skills, and they certainly do not represent all gifted and talented individuals – Pablo Picasso had a lifelong difficulty with reading, due to minimal school education, and yet was obviously highly intelligent as well as being an artistic genius. It would be impossible to net all the potentially brightest minds, artists and sports people for special education.

But perhaps the purpose of the exercise in providing out-of-school education for the gifted and talented is not to produce world-class scientists and artists. Maybe it is the entirely worthwhile aim of making bright children's lives richer, more productive and more satisfying for themselves, as well as to the wider society.

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