

Educating Students with High Ability

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Introduction

In 1994, at The World Conference on Special Needs Education in Salamanca, the representatives of 92 governments and 25 international organizations reaffirmed their commitment to Education for All.

The Framework for Action which resulted from the conference stated that every child has the right to a fundamental education which takes into account the wide diversity of needs and characteristics of individuals, whilst recognizing that every child has unique characteristics, interests, abilities and learning needs.

The education of children worldwide has to be a priority if the challenges of the 21st century are to be met and the opportunities of the 21st century to be fully exploited for the benefit of all. The provision of education of a high standard is seen as requiring urgent action across the world. As stated in Paragraph 3 of the Introduction to the Salamanca Statement and Framework for action:

*The guiding principle that informs this **Framework** is that schools should accommodate **all children** regardless of their physical, intellectual, social, emotional, linguistic, or other considerations. This should include disabled and gifted children, street and working children, children from remote or nomadic populations, children from linguistic, ethnic or cultural minorities and children from other disadvantaged or marginalized areas or groups.*

When the issue of special educational needs is raised, it is most often with regard to pupils who have one or more educational disadvantages or difficulties. Relatively rarely, unfortunately, is consideration given to corresponding needs of children with different kinds of high ability. There is no doubt that education in the regular classroom for children with difficulties can have important benefits in respect of their social equality and in raising the ever-so-important expectations of their academic achievement, though the task of the teacher becomes considerably more complex. The benefits and limitations of the regular classroom for children of high ability are less well explored and may challenge the appropriateness of the universality of regular classrooms as the best practice for all.

Not with standing the many gaps in our knowledge, there is a clear common reality (in practice) that in all classrooms teachers educate the full range of children, from those who learn easily and quickly to children who have difficulty in learning, do so slowly, and require much more help in the process. It may also mean that there will be children who have particular problems such as hearing or visual impairment or some other kind of disability in the class. It certainly means that there will be a wide range of ability, prior knowledge, and home support resources in all classes which the teacher will have to take into account if he or she is to work efficiently and effectively with each individual student and the group as a whole. This challenge becomes even more formidable when classes contain students of different ages, classes are very large in size, teacher training is minimal, and physical or financial resources are severely limited.

It is within this context that this handbook has been written. The focus is on the education of students with high ability whom we are defining in several ways simultaneously as pupils who display a high level of accomplishment, typically in a culturally valued domain, who demonstrate the potential for such accomplishment (much harder to identify than the realized potential!), who perform at a high level in school, in absolute terms on an individual basis or relatively in terms of high placement (such as the top 20% within a class or school), or any combination of these or similar qualities. Special care is needed in basing decisions on relative performance, since the number or proportion

of students of high ability is not an arbitrarily fixed proportion or total of the students in a school or school district. In some classes or schools, most of the pupils may be performing at a high level, and to restrict the cut-off to the top few or a small percentage may do a disservice to the pupils and to the effectiveness and reputation of the school. On the other hand, when outstanding performance is not clearly evident, it is fair to assume that the potential for high accomplishment is widely distributed and even in a less highly performing class or school, for whatever reason, it should be assumed that the pupils who do notably well are among those to whom this book refers.

Differences in pupils' achievements across schools or districts may have any of a large number of causes, and we are concerned about fairness all-round, that is, not to devalue accomplishments where they are evident, nor to assume that past lower performance or unfavourable circumstances forever preclude such successes. By including the potential to do well, we also flag the possibility that enhancing the opportunities for pupils to excel will also raise expectations that could facilitate the accomplishments of children thought to be of average or even below average ability.

Focussing solely on the brightest students in a class also implies direct comparisons between children and divides them into a minority of winners and a majority of losers. This larger group of potential losers can be protected from the comparison if the school or teacher refuses to acknowledge high ability. This may be "democratic" in a numeric sense, but it is not the only democratic solution, nor is it equitable. Instead, we are much more comfortable with the focus on specific achievements or potential in absolute terms, not on comparisons between or among children. We seek to ensure that attention to children with high ability is not at the expense of others and further that it is to their benefit. The 1981 Fourth World Conference on Gifted and Talented Children in Montreal had as its theme, The Education of the Gifted for the Benefit of All Children. We are strongly committed to the benefits of enhancing opportunity and expectations in realistic ways for the benefit of all children, consistent with the spirit of the Salamanca resolutions. We stand by this focus and these issues are elaborated

within this text as we also try to address the needs of children of high ability.

Although this handbook is about high ability students, much of what has been included has general implications for managing the teaching and learning of all students especially the information which relates to the planning and organization of learning. Some would say that if teachers work effectively with students with different or diversified learning needs then they are likely to work well with all students and improve educational standards overall. This assumption may have some merit, since dealing well with high ability students requires attention to areas of high performance or potential as well as honest but not exceptional accomplishments at other times or in other contexts, even for the same child. A teacher who does not give some thought to the needs of high ability children, on the other hand, may be seriously challenged by the task of effectively teaching such pupils.

There are two important points with which we want to preface the advice given in this handbook. The first of these, alluded to earlier, is that highly able children are sometimes resented because they are seen as an undeserving élite, overly endowed with characteristics that give them an unearned advantage. This perception is built into many of our languages, for example “surdoué” in French, “superdotados” in Spanish, or “hochbegabte” in German where there is some ambiguity of translation between “highly” endowed (not so bad) or “over” – endowed (less friendly). These terms can also imply that the children were simply given some advantage, without credit for their efforts or those of their families and teachers. It is often true that high ability or achievement is observed in children whose families can afford high quality education or receive access to it through their social position, in some cases while the educational system as a whole struggles to provide the most basic services. We have all observed that excellent financial and social resources are available to a minority of children in the world, though perhaps to the majority in some places, and this gives an ongoing educational and social advantage to these children. In effect, they constitute an educational élite. This volume does not endorse nor seek to create any kind of élite. To the contrary, it

seeks to enhance the quality of the educational lives of all children by helping teachers, school administrators, parents, and legislators capitalize on what we can learn and achieve by ensuring that the intellect and creativity of children with the potential to achieve at a high level also have the opportunity to do their best.

Élites arise in schools and in general when the opportunity to excel and to reach one's full potential is granted only to a few, and especially when such opportunity is denied to others by policy, explicitly or implicitly. Such discrimination is an anathema. Nevertheless, when all children are given a chance to learn to swim with competent instruction, some will become life-guards or Olympic medalists, and others will do well to safely paddle at the beach. When all are given a similar, well coached chance to learn to dance or sing or play an instrument, some will become professional entertainers, and others will be a supportive audience. We do not resent different levels of attainment in art, sport, cooking, or gardening, whilst at the same time honouring success. The same positive attitude can be brought to educational or intellectual accomplishment if we strive to equalize opportunity and access and to provide good teaching to everyone, which will not necessarily result in identical outcomes. We can encourage those who can go further, more deeply, with greater complexity, with greater ease in unfamiliar territory, or faster, as long as we also honour the achievements of other pupils in relation to their honest and well motivated and supported efforts.

The second point we want to emphasize is our awareness that we are largely addressing readers whose physical and financial resources may be limited, even severely limited. This handbook is not a substitute for the many excellent general resources available commercially to educators in economically privileged societies. There are many fine books that guide teachers and children in the creation of everything from World Wide Web pages, to the production of video-recordings, or other exciting possibilities. On the other hand there are schools without paper and pencils or electricity, and with enormous classes. We have tried to extract from the literature on the education of highly able children – a literature largely generated in more affluent countries – a number of basic principles that can be applied everywhere

by any dedicated educator or parent. Even if only some of the ideas are used, progress can be made toward this goal. We are motivated by the vision that education is an optimistic profession. Teachers make a positive difference in the lives of young people. Teachers take enormous delight in their pupils' accomplishments. We hope to fuel that enthusiasm.

Nonetheless, highly able, bright, clever, or gifted students are often not the focus of the attention of the class teacher because on the whole these children are thought to be academically successful and they often do not appear to require very much help from the teacher. Yet they too, like all students, do have needs and what we are trying to do in this handbook is to explain what these are and suggest ways in which class teachers can begin to meet these needs, even when they are working in difficult circumstances with little support. Many of the ideas we have put forward can be used by teachers easily if they are accepted as being useful and appropriate perhaps others will require modification and some may not be appropriate for a particular teacher in the context within which he or she is operating. We hope that you will find some which will be practically useful, and that you will be generally informed and motivated by the principles addressed.

We have divided the up the principal content of this text into sixteen sections organized around a series of questions and answers, plus an appendix of resource information. Some of the sections are further divided in order to provide different perspectives on or advice on an issue. We have selected questions frequently raised by teachers and parents and in the literature on the education of high ability children, with the intention that this will help the reader to identify a personally relevant point of contact with our suggestions.

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United Nations Educational, Scientific and Cultural Organization (UNESCO). (1994). *The Salamanca Statement and Framework for Action on Special Needs Education*. World Conference on Special Needs Education: Access and Quality.

Identification of High Ability

*I am not certain that
I have high ability students in my class.
Which students are they
and how can I systematically identify them?*

In every class there are high ability students. This may sound unlikely but in fact it is the case. It is next to impossible to teach an identifiable group of children if one does not in some way determine who they are. On the other hand, it is extremely important not to spend so much time and resources on identification that one fails to actually get around to addressing the needs of the group. So we start with identification, all the time eager to get on to questions such as how we can effectively manage their learning.

There is no single, universally acceptable definition of high ability. The concept is culturally variable, as widely as what is good music or gourmet cuisine. So the first thing that needs to be clear in any teacher's mind is what she or he understands by the concept of high ability. Even to say "does well in school" is not terribly helpful, because the school experiences of children around the world are very different, not only in relation to culture and history, but also in relation to climate, economics, and the urban and rural nature of the societies, amongst other influences. Do you include athletic ability? Leadership? Creativity? General knowledge and memory? Kindness and consideration? The list

goes on, and there are no right or wrong answers, only choices. We recommend inclusive and less restrictive definitions, but we cannot anticipate every context in which our reader is located. We therefore propose a list of alternatives and urge that you reflect carefully to maximize the likelihood that the identification procedures you select from these or elsewhere are well matched to your working definition of high ability and to the kinds of programme adaptations your resources and experience allow you to make. Furthermore, we urge you to allow your definition of high ability to be as broad as possible, to include the potential for high accomplishment under optimal conditions, and, as much as humanly possible, not to be biased in favour of one group or another in ways that perpetuate privilege or unfair access to quality education. Any definition of high ability which is to be of practical use needs to be inclusive rather than exclusive, its aim being to help teachers and parents identify exceptional ability or aptitude so that it can be nurtured.

Should high ability students be identified? Yes, certainly, but there are many ways to do it, some inexpensive, and some very expensive. Here are several examples.

Classroom performance

Teachers classify students' work as poor, satisfactory, good, very good, or excellent and in each class there will be at least one student, often a group of students, who achieve better grades and work outcomes than the rest, in one or more subjects. It is possible to say that in comparison to the rest of the class, these students are demonstrating high ability and they are therefore high ability students. In some cases this may apply to one subject or a few, in other cases it could apply to general performance across the curriculum. It is always important to think about what the students are succeeding at. What does a pupil have to do to excel? Memorize well? Think originally? Apply knowledge to novel situations? Around the world it is well known that school children spend a lot of their school days memorising what they are told or read and repeating it back to the teacher. If they remember well and repeat it back correctly, they

get good grades. Very rarely, in comparison, do students get higher grades for asking a good question about something that is not clear or that interests them, for learning something on their own that was not taught in school or simply going beyond what was taught in the lesson, or for correcting the teacher! – any or all of which could attract the displeasure of a teacher, depending on the circumstances. However, if when you say high ability you mean more than good memorisation, for example, curiosity, independent learning, or clear evaluative thinking, then it is critical that the assessment of the children's performance be based on their performance on relevant tasks. This is a subtle but absolutely critical topic and we say more about it in the Section 4 on Teaching Methods. For now, the general principle is that classroom testing results can, with careful thought, reflect high ability, and these data are easily and inexpensively available to every teacher.

Teachers can also make use of the regular ongoing assessments of work done by the students in class to make judgements about them and use these results to inform their teaching. Any tests set by the teacher at the end of a lesson, a term or a semester can be used for this purpose. High ability students should almost routinely score highly on tests or regularly produce outstanding pieces of work, however, the judgement about whether a student is a high-ability student ought not to be based on one work outcome or project or a single activity. High-ability students demonstrate a high level of performance over time whether it is in the academic field or in the field of sport or whatever.

This is a particularly important point to make with regard to sport where it is possible for a child to demonstrate high ability at certain times in his or her life when he or she is physically better developed than the other pupils in the same age group. Sometimes the high level of performance is related to the fact that the child is bigger, stronger or better coordinated than his or her peers, may be a few months later that child will not look to be so outstanding because their peers will have caught them up.

Critical incidents

Formal testing may not happen every day or even every week, but there is another approach that teachers can take which gives very valuable data. Teachers can observe students in class and as soon as possible after school has ended for the day write brief field notes about what the students did. They can note what the students actually said and did, and their own observations about what struck them as exceptional. A note need not be written about every student every day, but an effort should be made to reflect on at least a few “critical incidents” such as an insightful comment, a good debating point, an exceptionally well-done piece of homework, excellent work of any sort. Taken together with the work outcome, if this is done on a number of occasions over weeks and months, it is possible for the teacher to get a detailed picture over time of the student’s attainment level as well as information about how they learn. It is helpful, once again, to think about what kinds of efforts might be anticipated as reflecting high ability, but remain open-minded about other things to be noted down . Reading through the notes every few weeks will generate a list of students who repeatedly demonstrate high ability in one or more respects.

Portfolios

A further useful idea is for teachers to have a record of work outcomes and to keep a portfolio of exemplary work done by students. The teacher can add occasional notes to the portfolio. The portfolio may be something as simple as two sheets of paper, a file folder, or an old cereal box for each student. Younger students (and perhaps some older ones) might enjoy decorating their portfolio holders. Careful analysis of a student’s work aids the identification process. This work will not, of course, always be written work; it could for example be a model which has been designed in a technology lesson, a painting, a cassette tape recording of a piece of music or a poem or an interesting solution to a problem. All of these can provide the teacher with evidence of achievement which can be examined in

detail to help them decide who the high ability students are and where their high abilities particularly lie. During the year, the teacher can put together a wonderful record of the accomplishments of each child. These can be shared with parents and official visitors to the class. At the end of the year, each child's portfolio can be sent home as a record of the child's accomplishments at school so parents and the child have a tangible momento of the work done.

If a student is taking any public examinations then these too will provide useful information about those who are high achievers, but little about potential high achievers. Such information should be contained in the student's record or portfolio of achievement. Ideally this record should travel with the student throughout his or her school career and go between schools when students transfer from primary to secondary school. In practice, not all countries are presently able to carry out, for example, a language and mathematics test of every 12-year-old, but teachers can at least talk to each other about students or send samples of work with students to their new school. The point about a portfolio is that different kinds of useful information can be inserted. In respect of the child's privacy and the good name of the family, any item placed into a portfolio should emphasize the positive, and concerns should be expressed discretely with a view to helping the child.

Teacher nominations

Teachers can also tap into their accumulated knowledge about children and their talents, either individually or at a meeting convened for this purpose. At the secondary level in particular teachers need to remain open to recognising that although they often have greater sensitivity to achievement and potential in their own subject areas, they may be less aware of this in other subject areas. At the elementary level, especially in situations where teachers do not have a university-level education themselves, teachers may not be as aware of the intellectual opportunities and challenges which could be offered to their students. A rating scale such as the one which follows may help teachers to identify high ability students. (see table, page 18)

Sample Questions for a Teachers' Rating Scale

Consider each student in your charge with regard to the following qualities. Indicate "outstanding" when you can especially think of specific examples.

<i>Characteristic</i>	<i>Poor</i>	<i>Average</i>	<i>Good</i>	<i>Very Good</i>	<i>Out-standing</i>
Concentration					
Vocabulary					
Fluent Use of Language					
Computation					
Perseverance					
Abstract Thinking					
Making a Sound Argument					
Leadership					
Independence/Initiative					
Problem Solving					
Articulating Ideas					
Providing Explanations					
Creativity/Imagination, Ability to Speculate					
Regular Class Work					
Learning Speed (especially for routine topics)					
Memory for Details and Relationships					
Extended Concentration					
Sense of Humour					
Organization					
Asking Probing Questions					
Analyzing Complex Ideas					
Seeing Others' Perspectives					
Reflecting on Answers					
Flexibility (e.g., thinking logically or divergently as appropriate to the situation)					
Aptitude for ... [name of subject]					

Parent nominations

Parents normally know their children better than anyone else. Therefore, parents too can, and should, play a part in identifying students with high ability. This is especially the case with very young children. If parents are informed that the teacher wishes to provide appropriate learning opportunities for children who are capable of going beyond the regular curriculum in depth or breadth, they may be willing to share valuable information about their children. It has been found in some cases, however, that parents may sometimes fear that special programming may cause their children to miss something important in the regular programme. When asking for parental input, it needs to be stressed that the information is being sought to improve their child's learning experiences in school. It is best if parents can be told what kind of programme modifications are being proposed and what the implications are for their child, for instance, will two years of a second language be compressed into one, will students be given special preparation for a national mathematical contest, will a history fun club be established or a youth orchestra, or is a jazz band being started?

There are two main ways that parents can provide useful information for teachers, firstly and more informally, they can be encouraged to simply tell the teacher what they believe their child would be capable of or interested in taking part. These data can be collected by class teachers asking the parents, or sending a note home where this is feasible. More detailed data that allow teachers to make precise assessments can be obtained from questionnaires. If the parents are likely to have the reading skills needed to complete a questionnaire, or to have someone at hand who can assist, this may be a very useful way of finding out a lot about children and their exceptional abilities. A questionnaire need not be long. It should ask parents to indicate if their child has interests or aptitude in the areas being considered for special programming, now or in the future, and, in a more open section, to ask what are the special interests and abilities of their child, so that programmes can be designed to match these.

Here are some examples of questions parents can be asked in the form of a check-list. These can either be answered orally or a written copy can be sent home. Teachers can select for use the questions that best apply to their own situation. It is best to limit the form to one page. It should be double spaced (whether typed, hand-written, or word-processed) because there is a rather high intercorrelation amongst items on forms such as these. (see page 21)

An affirmative reply to a few of these questions could indicate a young child of high ability. With older children, parents' replies to such questions may still be helpful, but teachers will have had a chance to get to know the child as well; we offer suggestions for teacher check-lists later.

Peer nominations

Children in a group can identify each other's strengths quite well. They demonstrate this when they seek out help with homework or choose to be on project or sports teams. Often they choose to work with peers who are very good at a subject or an activity. Collecting information from children about each other however requires considerable discretion since there are principles of privacy and good manners which must be respected.

Students can aid the process of identification by filling in a questionnaire such as the one below or providing the information orally. Also if it is done with care, other class members can nominate students with high ability, sometimes in classes where teaching in groups is common, such reports by peers draw the teacher's attention to evidence which they might otherwise not be aware of in a busy classroom environment. These reports need to be given appropriately in a way which does not cause embarrassment and this works best in classrooms where praise by the teacher and their peers is routinely given to all students for effort and achievement. In some cultures it is less acceptable to give praise openly than in others so as with all other suggestions we have made, they should be utilized only if considered to be appropriate. (see page 22)

Sample Questions for Parents

Compared with other children about the same age as your child, in your best judgement

- Did your child walk early? When?
- Did your child talk early? Which? When?
- Did he or she read early? When?
- Was he or she especially curious and interested in everything? Please explain.
- Did or does your child use words appropriately that you would not have expected at a particular age? Can you think of examples?
- Did your child learn to draw or write earlier than expected?
- Was your child very persistent and did he/she spend long periods of time engrossed in a task?
- Was she or he persistently interested in why things happen?
- Was he or she able to concentrate for long periods of time, maybe looking at books or television or listening to stories or adult conversation or talk on the radio?
- Have your child's favourite companions been the same age, older children or adults?
- Has your child ever exhibited a surprising sense of humour, perhaps one that was not appreciated by other children the same age?
- Has your child been in a day-care or pre-school programme that has given him or her a head-start in working with numbers, reading or writing, music or art, or general knowledge?
- Can you report anything else that made you think he or she had a high level of ability?

Sample Questions for a Pupil-Identification Questionnaire

These questions may be posed by teachers, parents, peers, health or youth workers, among others, or by pupils themselves in a self-assessment.

- What do you like doing best in school? Why?
- What do you least like doing? Why?
- Are there any special activities in school which you particularly enjoy and why?
- What subject or ideas are you most interested in? These subjects may not be school subjects, they may be things that you do out of school.
- How do you like to work in the classroom? By yourself, with the whole class, with a friend who is interested in the same things as you? Or is it a mixture of all of these?
- Do you like the teacher to tell you what to learn or do you prefer with your teacher's guidance to find things out for yourself?
- Which are your favourite sports activities?
- How do you spend your free time?
- Do you like making things? If so what and why?
- Do you enjoy reading? What kinds of books?
- Do you belong to any clubs or groups?
- What would be the most help to you to make the experience in school more enjoyable?

Intelligence testing and IQ

So much has been written about intelligence testing and IQ that it is easy to overestimate the need to use this index of high ability. IQ, the initials of “Intelligence Quotient,” is the result of dividing the “mental age” age of the pupil – the age-level of the graded mental tasks that the child can successfully complete, such as vocabulary, pattern comprehension, and general knowledge – by the child’s chronological age, multiplied by 100 to get a whole number. So, if a 10-year-old can do tasks normally completed successfully by 12 olds, the quotient (result of division) is 120. Sometimes IQ is broken down into components such as verbal or spatial-mathematical, but the overall procedure is similar. There are some group tests done in an examination format. The latter do not identify students with extremely high scores as effectively, and the results risk being biased by the examination-like conditions of time pressure and the absence of dialogue with the tester. In general these tests need to be administered by a psychologist. Not all schools by any means have the services of a psychologist on a regular basis, and most schools on a world-wide basis have none at all.

IQ tests reveal a particular kind of high ability, namely that related to good verbal skills and problem-solving skills in terms of simple problems. All the questions require a single correct answer, together with the ability to correctly complete a lot of these questions in the shortest possible time. IQ tests do not however tap creativity, subject-matter knowledge, high motivation, or interest.

There are also serious concerns about whether such tests are culture-fair. IQ tests were developed around tasks and intellectual predispositions of European North Atlantic cultures. Children who work better under conditions of collaboration rather than competition, by reflection rather than speed of response, or through exploring alternatives instead of right answers to questions for which the right answers are already known, may be disadvantaged when they take the tests. Children being schooled in other than their native language, and those who have not had experience of sitting still for a long period in an examination-like setting may also not score as highly as they ought

to and it is even possible that they will not be identified as having high ability when they actually do.

Specific intelligences

During most of the 20th century, there have also been many advocates of refining the idea of general intelligence as reflected in a single IQ score to anywhere from two or three to over a hundred specific intelligences. There are measures for most of these, but cost and availability remain an issue for most schools. Awareness of these points of view may be a worthwhile first step, serving to sharpen our attention to different ways in which children have the potential to excel.

Theory and research into intelligence has moved away from the notion of intelligence as being a general problem solving ability which can be tested by a single intelligence test towards the view that there are different kinds of intelligences. Some high ability students may only be very good at one subject, for instance science or languages, and demonstrate high intelligence in that specific area. Others may be very good in all subjects. It is certainly possible to be highly intelligent or have a markedly superior talent in only one area, nevertheless, one indeed finds students with high ability who demonstrate all round intellectual ability. (In the next section we briefly discuss even more recent conceptualizations of intelligence based on the psychology of cognitive processes rather than on overall differences in test performance.)

The most recent of the popular multiple intelligence theories, that of Gardner, postulates eight – and possibly nine – different kinds of intelligences. These are linguistic, spatial-motor, logical-mathematical, musical, bodily-kinaesthetic, interpersonal, intrapersonal, and environmental intelligences. Environmental intelligence is one of Gardner's most recent ideas and it describes students of high ability who are very much aware of global environmental issues and concerned to solve serious world wide problems of pollution, poverty and famine. Gardner also thinks that there may be evidence of what he is calling

an existentialist intelligence through which a person seeks to address issues such as why we exist and what is the purpose of life. The utility and cross-cultural applicability of Gardner's ideas remain to be shown, nonetheless, these eight or nine specific types of intelligence correspond well to common experience about high ability, for example, that some children and adults excel in music, others in human relations and so on. These can be identified to some degree by teachers, parents, and children themselves. Furthermore, we support the implication that if one identifies talent or potential in a specific area, for example, linguistic, then it makes sense to expand the child's learning opportunities in related areas such as language, literature, writing and additional languages. Adding precision to the identification of talent makes it easier to establish and maintain the necessary link between identification and appropriate programme.

Expertise and cognitive processes

In the last third of the 20th century there has been a major revolution in the psychology of thinking and problem solving, usually called cognitive psychology. This is the branch of psychology that led to programming computers that can defeat grand master chess players from time to time, that guide a jumbo jet on automatic pilot, adjust the shifting points of an automobile automatic gearbox according to the load in the car and the flatness of the terrain. It is based on analyzing how experts in a complex area of activity think their way through problems, then trying to programme computers or teach people how to solve problems in the same manner as experts. One of the important discoveries of what we now call cognitive science is that experts do not just work faster or more accurately than others – and remember speed and accuracy are all we measure on an IQ test – but, rather, they actually think their way through the task differently compared to people who do not have the same degree of expertise. This applies to doing mathematics problems, making economic decisions, planning a classroom lesson, kicking a soccer ball, or making a medical diagnosis. The expert actually thinks differently. Another exciting part about this evolution of psychology is that

experts become experts in part through a teaching and learning process. Furthermore, it has been repeatedly demonstrated that high ability children think in many ways similarly to experts, though not always as consistently or with the same sophistication, but clearly in a related manner. There have only been a few attempts to develop formal tests of these expert thinking processes, and some of the differences are particular to the subject matter. For example, expert musicians think about issues that never occur to an expert automobile mechanic. However, there are some commonalities, and many of these can be observed simply or directly by a teacher without complex or expensive instruments. Here are a few examples of expert-like thinking that highly able pupils also demonstrate.

The knowledge of experts is well interconnected, they can explain how different ideas are related to each other, not just list the ideas. A teacher can see evidence of this expertise in their students by asking them to do more than to report back the main ideas learned from a lesson, they can also be asked to explain how these ideas are related. Students can make a chart of the main ideas on a sheet of paper or on a slateboard, then draw lines to connect ideas that are related. On those lines they should be asked to explain how the ideas are related. For example, in a lesson on electricity, the concepts such as as volt, amp, watt, current, resistance, parallel and series can be straightforward, knowing what each of these means is not uniquely characteristic of expertise. But persons with less expertise may have difficulty linking all of them together in some kind of a web whereas an expert or very able learner will do so with relative ease and explain the links very well. The completed chart is called a knowledge map or concept map. Another fascinating research result is that teaching pupils to make concept maps (they can receive some help from the teacher in identifying the important concepts, but later they can do this on their own, as well) improves pupils' ability to solve complex problems where all the elements of the solution are not set out in advance, and students have to think through several steps. This provides a remarkable challenge to the assumptions in IQ testing that abilities are built in, perhaps inherited, and our task is to simply measure them and prescribe the right dosage of educational medicine.

From the cognitive perspective, to some degree not yet known we can actually teach people to be smarter. In the final analysis, abilities probably are a combination of both, but for teachers, practitioners of the optimistic profession, cognitive science shows how we can not only teach things or facts or skills, but also better thinking.

More briefly, other ways (among many) in which experts think differently include

- (a) metacognition, paying attention to, evaluating, and adjusting one's thinking processes,
- (b) solving problems more slowly rather than more quickly when the problems are not trivial, that is, they really demand some thinking – the extra time is devoted in part to working with a plan rather than automatically, or randomly searching by trial-and-error for a solution,
- (c) being flexible, pursuing more than one way to solve a problem, especially when faced with a very difficult task, and
- (d) actually preferring more complex problems and learning situations.

All of these can be observed by asking a student to talk about what they are thinking while they are solving a problem. This can be done at the blackboard for the benefit of the class, with students working in pairs or small groups, or in a private interview. And how do students learn to do these things better? One way is for the teacher to model the process. Instead of just doing a demonstration problem, the teacher can talk about the thinking processes they are using and decisions being made. It may be a little noisier in the classroom while the students do this with a classmate, but the exercise can be limited with ease to a few minutes at a time. The measurement technique is simply close observation of the students and careful listening. The students do not all have to talk to the teacher if they talk to each other, the teacher can then circulate around and hear the level of nearly every dialogue within ten minutes or so, even in a large class.

Creativity

Renzulli suggests that as well as above average academic ability, high ability students demonstrate the characteristic of creativity. Creativity is a complex concept, most people recognize it in great actors, artists, musicians and scientists but find it hard to explain exactly what it means. Urban describes it as “the creation of a new, unusual and surprising product and an insightful perception of existing data by analytical, solution-orientated but highly flexible processing which utilizes unusual associations and new combinations of this information”. There are a great number of general techniques intended to measure creativity, but the research literature is not very kind to most of these tests. There does seem to be some agreement that the best evidence of creativity is actually creative productivity. So, a child who invents mathematical problems and questions is displaying mathematical creativity. A child who paints well and in some manner with originality, demonstrates creativity in art. If production is the best way to identify creativity, then the task of the teacher seeking to find creative ability is to provide opportunities for students to engage in such activities in different subject matter, and to examine the products, if necessary with the assistance of others who are more knowledgeable in the domain. For the moment, this remains a rather subjective process, but it can be done with fairness and an open mind.

Identification by provision

Engaging in a formal process of identification, as noted earlier, runs the risk of drawing finite resources away from the direct task of teaching and learning. Tom Marjoram, an English school inspector, coined the phrase identification by provision in the early 1980s. This stroke of good sense points to a worthwhile element of any identification process. The essence is that fish find water. If teachers and schools provide programmes that are well suited to the needs of high ability pupils, these children and their families will seek them out. This is especially the case for children with talents in the performing arts. At a more mundane level, the advice allows for children to try

out a challenging curricular option and to respond perhaps unintentionally to the opportunity. Provide curricular options in accord with the talents of the teachers, and students will surface who are well served by it. That is an excellent start, and the next step is to use one or more of the above identification procedures to identify more students who would be especially well served by the programme.

Final words on identification

The ultimate purpose of identification is not to identify. The goal is to match students to appropriate services. In addition to the specific identification options, some cross-cutting points are very important. First, we should never lose sight of the imperative to provide opportunities for learning at a high level. All the identification in the world will be wasted without the creation of new opportunities to learn in appropriate ways. Second, our success at identifying highly able children will be increased if we do not rely on any one or maybe even two identification procedures. There may easily be preferences or biases in single criteria. Multiple criteria for the identification of high ability cast a wider net and provide a more heterogeneous group of identified pupils, consistent with the multiple meanings of high ability. Third, we should always be prepared for and welcome our expectations being exceeded. Just because we did not formally identify a child as having high ability, we should welcome positive surprises. We have done a good job as teachers when students go beyond what we can do ourselves. The world's greatest athletes have coaches, few of whom is an equally accomplished athlete, but all of whom know how to help an excellent athlete learn how to be even better. We should not limit our expectations for any child to the level we currently see in the child, or even to the best we ourselves have done. There should be no preconceived level of achievement. Fourth, the goal of identification is to include, not to exclude. Therefore, in seeking to identify high ability in children, our goal is to look for talent, not to exclude children because they were not outstanding on the criteria we happened to set. The onus is on us to seek out the high ability. This may lead to the identification of children with very different arrays of high ability.

A list of such children within a school, covering as much as 20% or even more of the school population, is what Renzulli has called a “talent pool” (see Section 16, topic 5 for a slightly expanded discussion). Children identified according to different criteria may reasonably be expected to need some differences in how their educational experiences are adapted.

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Impact of Identification

Being identified as having special talents has the potential to bring about both advantages and disadvantages. What is the impact of identification or labeling on children identified as having high ability, and how may this process be carried out in a positive manner with cultural and personal sensitivity?

Before leaving the topic of identification it is important to think about the impact of identification on the high ability students themselves. Is it a good thing for them to be described as high achieving, highly able, gifted or talented? On the surface this seems a strange question but perhaps being described as having high ability, being gifted or talented can create difficulties for some students. Many cultures, including several Asian and North American Native societies highly value personal modesty and explicit identification might not be welcomed. Although many studies have shown that high ability students are usually well-adjusted and socially adept, not all are. High ability students tend to have extremely high expectations of themselves, even to the extent that they may be perfectionists. They are very self-aware and care desperately about being seen to be successful, particularly by those they hold in esteem such as their teachers or parents whom they might earnestly wish to please. As with any student, how they are perceived by their peers is also important to high ability

students. Of course having been identified does not necessarily cause particular highly able students to become perfectionists or to be well or poorly adjusted. Nevertheless, the combination of these factors can mean that students described explicitly as high ability students can feel under pressure to perform very well and to perform very well all the time. They perhaps have more to lose than their peers if they score disappointingly on a test. It can become further complicated if high ability students are fearful of the consequences of disappointing their parents or their teachers. On the other hand, students who are embarrassed by being singled out may then underperform so as not to stand out in the crowd. Identification can be a double-edged sword.

So, whilst on the one hand identification can appropriately facilitate the education and thus the development of high ability students, it can also cause problems which need attention. Students can be helped by teacher-mentors or counsellors to whom they can talk in confidence. Discussion groups, especially for girls, since girls may be more sensitive than boys in many cultures to pressure to exhibit compliant behavior, have been shown to be very effective. Sometimes practical help is what is required if, for instance students may require advice about how to study better in a more challenging curriculum. The teacher-mentor can teach them study skills which will help them to learn more effectively. Examples of learning habits that facilitate high-level learning include two mentioned in Section 1: preparing concept maps in different courses of study, and engaging in dyadic discussions based around high-level questions created by pupils (see Section 4). The literature on study skills, going back several decades, also points out that the most effective way for students to review is not to read notes or texts over and over. They will learn much more effectively if they attempt to reconstruct each lesson in their own words. Taking notes is fine, where appropriate, but in this situation too there should be the opportunity either orally or in writing to reconstruct the main points of the lesson. Combining this with preparing a concept map and engaging in a question-and-answer with other pupils would be a highly pro-active approach to learning that is well adapted to dealing with high level curriculum because it extends beyond the mere accumulation of facts.

There has been some research, and there have been reports of interesting case studies, about the direct impact of formal identification on bright children, their parents and their siblings, and these can be fairly rapidly summarized. These studies have largely addressed self-concept. One must be careful not to over-simplify the results, but the most general points are that children formally identified as high ability are usually helped by this recognition. The impact on brothers and sisters is less straightforward since it interacts with birth order and age spacing, both of which have their own effects regardless of ability similarities or differences. Siblings perceived by parents as less able sometimes exhibit lower self-esteem and higher anxiety. Sibling competition and comparison appear to contribute to the high esteem of identified youngsters, and lower self-esteem in non-identified siblings. Parents with first-born highly able children may be less sensitive to the abilities of later children, too. Anecdotal reports have suggested that when a younger child is identified as highly able and is close in age to an older child, there may be pressure on the older sibling. Another study, however, found no traces of negative effects on a five-year follow-up. It appears that there may frequently be some adjustment impact when one child of several in family is formally identified as highly able. The best way to deal with it is to encourage parents to relate positively to all their children and value each for what they can do, and not to place extra weight on identification as highly able. Since this may be a source of pride in some cases, or an embarrassment in others, this is easier to say than do. The good news is that over time most families appear to cope well.

The impact on parents is more speculative. There are reports of some parents whose feeling of self-worth is very much tied up in their children's successes. They may need help in separating their self-esteem from their children's accomplishments from loving and caring for all their children equally and enjoying their own adult lives as much as possible. There is a small number of rather tragic case studies of children under extreme parental pressure, but it is very difficult to draw the line between encouraging children to do their best and celebrating every child's successes, and being so overbearing that the child is a pawn in a chess game rather than a well supported individual growing

person. There is not a good literature on how to deal with this, but a good start might be to discuss these potential concerns openly with parents when their children are identified for provision arising from high ability. And when a child is identified, it may also be a good idea to verify perhaps through interviews if there are any siblings who should also be included.

3

Unrecognized Ability

The special talents of many people are realized only in adulthood when they make some special contribution to society or achieve high personal goals.

Why is it that many high ability students are not recognized or identified?

In this discussion, we are not referring to underachievement, a situation in which a child performs at a level below that of which he or she is capable (see Section 5). Here we address achievements that may be up to potential but are not recognized because they are overshadowed in the eyes of the beholder by other characteristics such as misbehaviour, cultural differences or gender, or their accomplishments are not perceived as occurring in worthy areas of performance.

If high ability students do not enjoy school or become bored, they can become disinterested and even behave badly. This behaviour is not what is expected by many teachers when they think of pupils with high ability and in a lot of countries such behaviour would be considered as especially unacceptable. In most countries it would certainly be undesirable as it would result in the student not doing as well in school as might be expected. Teachers and administrators then focus on punishing (we merely observe that practice, and do not endorse it) or, better, trying to correct the undesired behaviour, but they may still miss the underlying cause that in this instance may lie within the classroom, the school, or the programme, and not the child.

Generally speaking, teachers expect high ability students to be enthusiastic, hard-working and polite. They may think that these students are likely to show an interest in everything they hear about and are taught. They see high ability students as being creative in their responses to activities and relating well to both their teachers and their peers. Many high ability students do indeed display these characteristics, but some do not and it is when they do not that they are less likely to be identified as having high ability.

Some high ability students have characteristics that lead to them not easily conforming to accepted behavioural standards, even when they are not bored in school. For instance, some are prepared to challenge what adults say and do because their lively minds can see alternative ways of doing things or solving problems. It is not an accident that a disproportionate number of identified high ability children are single children or first-borns whose earliest formative years are spent enjoying a high level of attention from and interaction with adults, in particular, their highly engaged parents. Later children encounter parents already pre-occupied with other children and less anxious about their parenting skills. High ability students may also ask provocative and difficult questions of their peers as well as their teachers and parents which can cause offence or annoyance or a feeling of inadequacy amongst adults. Some high ability students have an unconventional sense of humour and can disturb the orderliness of a classroom by saying wild, wonderful and silly things. If this humour can be utilized or channelled by the teacher it often benefits all of the learners because it demonstrates that learning can be fun as well as being a serious business. However, such humour can also make teachers feel uncomfortable and it is seen to be a distraction from the aim of the lesson unless the teacher is able to respond positively. Also in some cultures this kind of behaviour is not seen to be appropriate, particularly in schools, and would be actively discouraged. Teachers who prefer a more formal classroom atmosphere, or schools that demand it as a matter of policy, can permit a less formal environment in clubs, sports, and other extra-curricular activities, some of which can be geared to fun, such as a comedy society, to give a possibly extreme example.

The main reason why high ability students are not recognized in schools is that teachers are not sufficiently aware of the characteristics of these students. Schools therefore need to have a portfolio of information for teachers which they can use to identify these students and which might include everything from a careful record of achievements in class to examples of best work outcomes across all curriculum areas to class test results, school examination results, intelligence and cognitive test results if appropriate – although for many schools these may not be readily available – and, as suggested above, general checklists and subject specific checklists as well as student and parent questionnaires.

There is also a growing concern particularly in Africa and South America, but indeed in a lot of countries around the world, that there are many high-ability students who are disadvantaged. They are sometimes described as the gifted underserved. By no means can all high ability students be considered as being advantaged materially or socially. Many students are poor and their families cannot support them adequately in their school work or needs for materials. This topic straddles the underachievement heading (see Section 5), but there the underachievement is in regular school material. These same children may demonstrate leadership talent (to good or poor purposes) in their neighbourhoods, they may be breadwinners at home when more affluent children would be doing homework or reading, or they may have extraordinary skills in carpentry, working with animals, or caring for the elderly or very young. Talking with children about their lives away from school may reveal significant domains of high ability upon which the teacher can build. Most importantly, expectations can rise, and it is difficult to find anything more motivating than the high expectations of significant adults in children's lives. The task for the educator then shifts to not being unfair in one's demands, given whatever else may occupy a child beyond his or her control.

Many high-ability disadvantaged students however are always highly motivated and very keen to learn even under difficult circumstances, they are alert, give their full attention to the task at hand, and work intensively for extended periods of time. They will overcome any difficulties they have when taught how to do so and they may

well demonstrate qualities such as leadership, be extremely articulate and good at solving problems.

Another reason why high ability is not recognized in some children can be summarized as cultural differences. The continuing movement of people for reasons good and bad increases the variety of backgrounds that are encountered among children in classrooms even far from large cosmopolitan cities that are sometimes more accustomed to dealing with this diversity (but not always well). For a while, language differences may mask abilities, but even after a child has mastered the language of the school, children may find that the school is searching for talent in text-rich materials, be they in history, science or health, but the child comes from a rich oral tradition where talent is not as evident sitting quietly in a classroom where the teacher does most of the talking, or from a culture that highly values music, dance, or ranching, none of these being easy to demonstrate sitting still in that same room. Knowing about pupils' cultural backgrounds, discussing with colleagues and parents what talents are valued in their culture and observing the child to ascertain if he/she demonstrates such talents, can reduce the risk of nonrecognition. This also invites schools and teachers to change their attitudes in some cases, to see diversity as an asset, not as a complication and liability.

The final reason for nonrecognition of high ability is regarded in many places as a kind of cultural difference, but it can stand on its own. This is gender. High ability sometimes goes unrecognized in students just because they are girls. No society is totally immune. The status of women, and hence of girls, remains a worldwide issue. Expectation, usually in the form of limitations, are different for boys and for girls because there is still unevenness in terms of career expectations and social roles. If women are not perceived as future leaders, leadership and initiative in girls may not be valued as highly as in boys. If women can do the book-keeping and other management functions for the family business but not become the chief financial auditor or treasurer of a major corporation, analytical and mathematical talent in girls may not be acknowledged. And, to a lesser extent, the tables can be turned: if men can be brick layers or physicists, but not nurses or day-care teachers, then a high level of nurturance and patience with

young children will not be seen as talents in boys. The teacher who cares about high ability and fairness, however, can help by being sensitive to gender stereotyping as a mask for high ability, probably the greatest source of loss of human potential in terms of recognition and identification.

Teaching Methods

“Special needs” is an ambiguous term, most often referring to handicaps or disabilities, but it also includes high abilities.

“Special needs” also refers to different children or groups of children benefitting differentially from adapted pedagogical approaches.

When, how, and why should teaching methods be different for high ability students?

One of the interesting observations across many domains of performance is that highly able children need a different approach to teaching at each stage of development . In the early years, up to about age 10 or early teens, children benefit most from teachers who exude warmth and enthusiasm for the topic or skill, who liberally provide praise and who basically make the activity attractive and fun. The second stage, usually through the first half of adolescence, for youth who are strongly committed to moving ahead, be it in chess, violin or figure skating, calls for teaching principally focussed on technical excellence. The third stage is the coach or mentor, letting the “student” be largely in control of his or her learning and creative efforts, but stepping in from time to time with suggestions and reminders, and especially responding to requests for assistance. These stages form a backdrop for the central role of the teacher in nurturing the development of high level talent.

Despite the need, and the ability of teachers to adapt their teaching, an observational study of several thousand elementary school

classrooms in the USA showed that in the typical classroom no adjustments were made to meet the intellectual needs of highly able pupils. That was the bad news. The good news was that teachers were willing to do something to correct that situation and a series of one-day workshops on curriculum compacting, one of the ideas described below, led to a noticeable increase in its use. Teachers are the key.

Teachers have two major roles. The first is the responsibility to teach the subject matter of the established curriculum. Some of our advice in this section addresses a few fundamental steps that can be made to the set curriculum so as to ensure that it is covered in a way adapted to the wide range of ability levels of the children. Just as accommodations are made for children with learning difficulties, so can these be done for children with special talents. The second avenue open to teachers arises through their being the educational professional outside the family who spends more time than anyone other than the parents with each child. Just as parents enrich children's learning by bringing to their attention a range of experiences from home skills to travel to listening to the radio or reading a newspaper, so may the teacher exercise initiative in adding to the curriculum in ways appropriate to the needs of each child. This parallel responsibility with parents, and its opportunities, are expressed legally in nearly every country through the long-standing legal expression "in loco parentis," Latin for "in the place of the parent." The teacher must act in the best interest of the child with the authority of the parent while the child is in his or her care. This can include going beyond the fixed curriculum when the latter has been addressed. In addition, developing extended curriculum is a very rewarding professional engagement for teachers, extending their role from transmitter to creator. If children's creativity is to be encouraged, it can help if teachers are also creative.

In Section 1 – Identification we tried to establish that children with high ability do have unique qualities that call for the adaptation of curriculum and teaching. The other side of the equation is that when not stimulated by the school environment high ability students can be inattentive, bored, and unable to make good relationships with peers or teachers. They may also find themselves punished for

misbehaviour or they may underachieve to their own lifelong disadvantage and that of the community they live in.

There are very many things which teachers, schools and government education departments can do to facilitate the effective learning of many, but probably not all students with high ability:

Reducing repetition

The first adaptation that teachers can make is to take advantage of the superior memory, thinking skills, and learning speed for routine matters, of many high ability children by reducing repetition and review in the first instance and the time these pupils spend on each new topic. There are two basic ways to meet these needs, and then if faced with a large class the teacher also needs strategies for productively filling the learning time of more able students without causing an administrative impossibility. We shall take these three concerns one at a time.

To avoid redundancy, it is imperative for teachers to find out what the students already know and the easiest way to do this is to directly ask them what they know about the subject which is going to be taught. If there are portfolios these may also be consulted. Another way to do this is to ask the students individually, in groups, or as or as a whole class to draw a concept map (see Section 1) about what they already know about a topic together with any questions they want to find out about the topic. Once the teacher has this information and has asked the students some further questions in order to establish the depth of their knowledge then it is possible to map this information onto the curriculum which has to be taught and plan a programme which will be of interest and stimulate the students.

Adapting teaching time

The second concern is how to reduce the time spent learning what other students need more time to learn. The best thought out model for addressing this is called “compacting,” and research has

shown that it can be learned very rapidly by teachers. The essential step is to look at the planned lesson and set about minimizing the amount of explanation, reducing the number of practice examples, and reducing the size and number of homework exercises to a minimum with emphasis on the more challenging parts of the work. A good way to imagine this is to think of one of the more able pupils and one of average ability. Suppose both students missed a week of classes on a new topic due to illness or some other legitimate reason. Neither child will forever be a week behind. With some coaching from the teacher and fellow students, they will both be back on track sooner or later, the high ability pupil probably sooner. So what can be left out for the average ability pupil? And what further could be cut back for the more able pupil?

There is no point in teaching a high ability student in a slow-paced step by step fashion about things that he or she already knows and can do. The student will become bored and demotivated. It is essential to challenge the student and provide tasks which are of interest as indicated from the concept map or through questioning. It has also been shown that they do not like to spend too much time practising examples of the same thing such as doing twenty sums of exactly the same type. The high ability student mostly will be able to master new rules quickly and ought to be given permission to do a small number of examples, check out the answers and if they are all correct move onto the next section of greater difficulty. Practice is essential for all learners including high ability students but they need far less practice and repetition than most other students. The limitation of practice is one way of compacting the curriculum and ensuring that high ability students can be provided with a rich and more satisfying educational environment. If the curriculum is compacted, high ability students can use more of their time to develop higher order skills as described in Bloom's taxonomy which include the ability to question, evaluate, speculate, analyse, transfer ideas and skills to another curriculum area, make links between their learning in one curriculum area and another.

Using students' freed-up time productively

The third concern is about what to do to fill the time created by reducing redundancy and repetition for highly able pupils. They cannot just sit around and wait for the class to catch up. To answer this we draw upon our extensive knowledge about how high ability students prefer to learn. They enjoy working for longer periods of time on tasks which interest them, longer than is usually allowed in normal sessions. They like finding out for themselves by undertaking their own research, they enjoy working with like-minded peers although they also like working on their own, many are enthusiastic about solving problems and doing investigations although in some cultures with more traditional approaches to education, using these approaches may require some discussion with the school administration to gain support.

Renzulli proposed a very useful structure for creating curriculum strategies that would enable highly able pupils with extra time to work productively and to take advantage of these characteristics, called the Enrichment Triad Model. We shall later address the details of how curriculum is modified, but for the moment the idea for the structure is essential. There are other curriculum models, but this is one of the easiest to implement with little impact on material resources, and it has been demonstrated to work in many places outside the USA where it was conceived in the 1970s. There are three levels or types of enrichment in this model:

Type I.

These have the goal of general enrichment and motivation. They also create an opportunity for teachers and pupils to discover high level interests and abilities that might not show up in day-to-day classroom life. Type I activities can be as simple as a recipe box of idea cards created by the teacher, and even by pupils, of puzzles to think or write about, mathematical games or amusements, books or magazines with questions to ponder, or small research tasks that can be planned for the community within or outside the school. Examples of these can include interviewing local officials or merchants about their hopes for the future, or elders for stories about how local life was different in the past. Type I activities are designed to captivate children's interests and

motivation. They should be small projects, not requiring extended investments of time, anything from a few minutes to a few hours spread over several days. If a child chooses to extend the project, that is fine. Then, however, it becomes a Type III.

Type II.

These provide students with specific skills that they need to pursue independent learning individually or in small groups. Type II activities are normally taught in groups, and might cover such skills as how to do a survey or conduct an interview, use photography or sound-recording equipment, organize and summarize information, or critically read and evaluate newspaper and newsmagazine reports. Where facilities exist, computer and Internet skills are also relevant. Type II activities may be provided by volunteers, a student teacher, a school administrator, as well as the class teacher, and they may be shared by any interested students. These activities are arranged on an ad hoc basis in response to students and teachers identifying needs as students move from Type I to Type III activities.

Type III.

These are individual and small-group independent projects on topics selected or identified by the pupils usually with the teacher's agreement. When students must remain in their classes, they can engage particularly in Type I and III activities. It is better that they have some successful experiences with Type I activities before Type III so that they can build up practice working on their own, undisturbed by, and not disturbing, the rest of the class. It is typical that students will be so motivated that they will continue to work on these projects outside class time.

There should be an opportunity for this Enrichment Triad work to be shared with the class, other pupils, parents, and school visitors, but informally. This especially applies to Type III activities, but some Type I undertakings lend themselves to such sharing. And most importantly, all this work is undertaken for the pleasure of learning, not for marks or grades. It is very fair, however, to accurately report what and how well they learned.

The extra time can also be used simply to read or for instance to help organize a classroom library. Some caution is required about a common practice, namely the use of more able students to coach or tutor pupils who are having difficulties. Some such use of their time

is very helpful for the pupil being helped and it might also provide some new insights to the helper. Furthermore it may indicate the value given to social responsibility toward others. But the dangers are that it puts two children, two peers, in an unequal social relationship that may cause the helped student to feel more inferior than if the teacher helped, and working at a lower level on material the more able child already knows contradicts the goal of reducing repetition and redundancy. A little is fine; a lot is a problem. A small amount of tutoring might be better used to provide help for younger children in a lower grade or form. Younger children are well used to receiving help from older children and there is no stigma attached. Working with a partner as an equal is very different from being subject to the authority of the other, even the authority of knowledge.

Adapting curriculum

Maker proposed that there are four ways in which a programme can be amended to make it more appropriate for highly able pupils. The teacher can revise the content, the process or method by which it is taught, the product that is expected of the students, and the learning environment in which all three take place, consistent with some of the characteristics of high ability. Here is an overview of her key principles and advice for changes that can be made. This is a menu from which to select according to one's circumstances, eventually adding new elements.

With regard to adapting the **CONTENT**, one can:

- (a) make the subject matter more abstract
- (b) make the subject matter more complex
- (c) add more variety to the subject matter
- (d) organize the material differently, according to different criteria. e.g., chronology or major themes
- (e) compact the content, that is, reduce the amount of time devoted to initial presentation, examples, practice, etc.
- (f) emphasize important people in the field and their relationships
- (g) use methods of research or creative thinking in the field (how new knowledge is created), and
- (h) explore relationships with other content.

TEACHING METHODS OR PROCESSES can be adjusted in at least eight of ways that respond to high ability:

- (a) address questions and assignments to high levels of thinking, such as fewer questions about facts or comprehension and more about applying knowledge to new situations, analyzing complex situations, synthesizing ideas such as plans or complete arguments for building models, and evaluating by a variety of different criteria or perspectives
- (b) ask questions or give assignments that are more open-ended, meaning the teacher does not already know the answer in advance or will not insist on a particular answer
- (c) use a discovery approach wherein students are given materials or ideas to explore with the goal of discerning the principles that are at play
- (d) place the emphasis on understanding the proof or reasoning behind a principle or fact, rather than on the fact alone – one example from first-hand experience was a high school mathematics teacher who presented the traditional Pythagorean plane geometry proof of the right-angled triangle theorem then, knowing that the students were also studying algebra and vector geometry and trigonometry gave the class 48 hours to come up with a proof expressed in the language and notation of those subjects
- (e) provide students with choices of what to learn or independent projects to pursue
- (f) encourage students to work in groups (see the next subsection on Managing Group Work)
- (g) change the pacing, that is, speeding up instruction for fairly simple matters, and slowing it down to allow for planning and reflection and discussion on more subtle or complicated topics, and
- (h) use variety in teaching methods, such as, apart from lecturing, organizing debates, inserting games, asking students to give presentations, using a Socratic approach built around question asking, or, where facilities permit, using television, videos, cassette tapes, and the radio to serve as foci for discussion.

The **PRODUCT EXPECTED FROM THE STUDENTS** can be varied in at least four ways from the most common, an error-free repetition of what the teacher or textbook recently stated:

- (a) build teaching and learning around real problems that can be elicited by asking students to contemplate real situations that call upon or reflect the material being taught, e.g., the environment can be an intellectual exercise or a project aimed at the abandoned lot behind the elementary school
- (b) address real audiences, such as when learning to write business-style letters, write about something meaningful to a real person in a real company, such as commenting on a product, a suggestion for a new product or service, or seeking information about products or services offered
- (c) consider setting criteria for evaluation of the products and this can be built into the work through self-evaluation (an important component of metacognition), and
- (d) try to express ideas in more than one medium – if you have written an essay, now give the same or similar message in song, in a graphic chart, a skit or play, or a tape-recorded simulation of a radio interview and as illustrated in the triangle area proof instance above.

Finally, to amend the **LEARNING ENVIRONMENT**, the teacher has several choices:

- (a) make it less teacher-centred and more student-centred, including such straightforward steps as devoting part of the lesson to topics or questions suggested by the students rather than chosen entirely by the teacher, aiming the lesson at the present level of student understanding, and letting students discuss topics with each other, and
- (b) encourage independence by allowing students to set some of the agenda and to propose the criteria for the evaluation of their efforts, and generally to be more responsive to variety rather than conformity, even to taking into consideration which pieces of work the students wish to display (they could be in charge of this component).

Another element of adjusting the curriculum is that it can be extended into TOPICS NOT ON THE PRESCRIBED LIST, with the same kinds of variety that Maker proposes. One need not do all of the above. With practice and experience even one adjustment at a time will benefit the student with high ability. In every scheme of work or lesson plan, teachers, if they are to make adequate provision for high

ability students, should anticipate and include activities which are often described as extension activities which will challenge the student and involve, as was described above, problem solving, in-depth research or a novel or imaginative response to a task.

For the class or subject teacher in the ordinary classroom setting, therefore, one of the most crucial challenges is to provide questions, activities and tasks which enable high ability students to UTILIZE THEIR HIGHER ORDER SKILLS. A useful exercise is for a teacher to use a taxonomy such as Bloom's to check out their lesson plans over a period of time, say for instance over a week, and see how many times they gave their high ability students the opportunity to speculate or hypothesize or whatever. Here are two examples of how this taxonomy can be used to vary the level of questions or assignments, one drawn from social studies and the other from cooking. The lower level questions (under knowledge and comprehension) are not necessarily easy, but they do not require as much reflection as the higher levels. (see table, page 51)

Levels 3 to 6 contain many opportunities for students to choose project questions as well as to answer those posed by the teacher: the point of entry can be a topic of interest to the pupil, or just as easily the teacher's selection from the required curriculum. Here is a simple way for students to practise framing higher level questions. Each student reads a common text that would normally be assigned, or if there are not sufficient copies one text could be read to them or by one of them to the group. Each student then tries to think of two questions that are not just about the facts of the material but use the information in a new way or situation, breaking it down or comparing or contrasting it to other situations, using it to work toward a larger idea, or evaluating the logic or external relevance of the material. Just one of these at a time! Then each student should think of what would be a good answer to his or her question. At this point the students sit in pairs and each asks the other his or her question in turn, the partner gives an answer, the questioner offers the answer she or he was anticipating, then they discuss together what the best answer might be, perhaps a composite of the two. Research has shown that retention of the facts and higher level understanding are significantly increased by each

<i>Level Topic</i>	<i>Social Studies</i>	<i>Cooking</i>
1. Knowledge	When did the Mongol occupancy of what is now Western Europe occur and what present countries did it encompass at its peak?	What are the ingredients of Hollandaise sauce?
2. Comprehension	Could this occupancy be described accurately as a conquest? ...as a colonization? ...as an invasion?	Why is Hollandaise sauce yellow?
3. Application	Aside from the risk of battle injury, what would have been the major risks to the health of the advancing soldiers along their route?	How can the cooking temperature be kept steady and very close to 100°C?
4. Analysis	Name three adjoining countries not invaded and suggest why those areas were not conquered.	If a chef's Hollandaise sauce contained hard yellow lumps, what might have been done wrong in the preparation?
5. Synthesis	Propose a plan for a research study to discover if any traces of this occupation can be found in any modern European languages.	Suggest two-course menu in which Hollandaise sauce would be a tasty relish and its high cholesterol somewhat counteracted by other foods or drinks.
6. Evaluation	The Mongol army was largely a cavalry. Could they have been transported by a better means? Could they have come by a less arduous route? Had they done differently, would they have succeeded?	Prepare a small amount of Hollandaise with one egg and a suitable quantity of unsalted butter. State three criteria for comparison and compare it by these to a sample of store-bought sauce that will be supplied.

step. And the teacher hardly has to do any explaining. Students can record their questions in their notebooks or on slates and the teacher can quickly check them to see if they are at a high level. Most students need a little coaching the first or second time, then they get the idea.

In our concluding advice on teaching methodology adapted to the needs of highly able pupils, we wish to include a few general points, some of them elaborations on the above. Another useful idea which some teachers have used to plan appropriate lessons is to decide on aims and objectives which all the students in their class must achieve, then list aims which most students should achieve and finally have a list of aims and objectives which some students including high-achieving students could achieve. The teacher's burden can be eased somewhat and the high ability students' learning skills sharpened by assisting and encouraging them to describe some of the adaptations that could be made for them in the curriculum. Students can learn Renzulli's three types, or Maker's four categories of revisions, as well as Bloom's taxonomy to help them design the curriculum. This might even alert these students to some of the ways teaching can be a challenging occupation to which they might be drawn.

One way of making the curriculum more student-centred is to manage learning in a variety of different ways. If the ordinary classroom setting is to be a successful environment for the high ability student it may well be that the class or subject teacher has to ensure that as well as whole class teaching, they work with students in pairs, groups or as individuals. In each situation the activity initially has to be clearly planned and might well be within the approved curriculum, but as the teacher and pupils gain experience and competence in these situations, the students can manage the small groups on their own, and they can be more adventurous in the selection of subject matter, particularly in time they earn for themselves by working through the required material quickly or through curriculum compacting.

Managing group work

Some students with high ability sometimes avoid or withdraw from group activities and prefer to work alone, but highly able pupils can be positively engaged in group work without coercion. When they are steered into group work, especially without choice of partners, two unacceptable outcomes need to be avoided. The first is the feeling that they may end up doing a disproportionate amount of the work in order to ensure that the group undertaking is up to their standards. The second and related concern is that the overall grading of the work may be deflated, which could affect scholarship chances, etc. (see Section 9 for a brief discussion of marking or grading).

Sometimes the best way to manage who works with whom is to let the students work it out themselves with one rule: no-one is to be left out or to be matched up with others with whom they are very uncomfortable for any reason. This alone would be a good lesson in human relations and human resource management for the children. With clear rules for fair play, the teacher can be spared a difficult burden, and the children will be motivated by being able to work with a friend. Teachers sometimes break up friendship groups for class work, but unless the children abuse the privilege by fooling around, the advantage lies in letting effective existing groups support their members. Adults think children come to school to learn. Children are very candid about what they like most about school – to be with their friends. We may as well capitalize on this and thereby make group work for highly able pupils, and others, a positive experience. It also provides another example of change of pace.

Adding enrichment

Every pupil needs the benefit of enriching experiences in his or her schooling. On the other hand, providing enrichment experiences for all students will only meet our obligations and desire to do a proper job of educating highly able children well if it is appropriately geared and adapted. More precisely, it depends what constitutes the enrichment. The principle of enrichment is universal, as are some of its

applications; sometimes it needs to be specifically adapted to the students' needs.

The general meaning of enrichment is any addition to the regular curriculum that goes beyond the prescribed course of study but does not by itself necessarily change the overall rate of progress through school over the years. Enrichment can include any of the curricular changes discussed earlier in this Section 4, and, if these are created with the needs of highly able pupils in mind, then they will be beneficial.

Some types of enrichment activities may, in general, be suitable for the entire school. This might include guest speakers, trips out of school, independent study or projects, a collection of books, magazines and other items in a learning centre for additional reading in a number of subjects, clubs and societies, putting on a play or concert, watching a concert, publishing a school newspaper or radio heard at lunch-time. Any extension to the regular curriculum, even a related discussion of current events built onto a history class, or a daily review of the news during the opening moments of the school day to heighten pupils' interest in the world around them, are all enrichment. They are probably all good, but their merit for a given child or group of children depends upon the manner of their implementation.

Unless the enrichment includes the adaptations specifically geared to the characteristics of children with high ability, they do not constitute an adequate response to their educational needs. Perhaps the solution to the frustration of not being easily able to provide general enrichment while meeting the needs of highly able pupils might lie in the manner in which the programme is conceptualized and administered. If the school creates a programme for highly able pupils, it can mandate those responsible for and involved in the programme to ensure that there are spin-off and shared activities that reach out to the entire school community. For example, a mathematics club that looks at unusual mathematical puzzles might also devote some of its energy to using geometry to perform better at billiards or similar games. A visiting speakers series might alternate popular topics of general interest along with

the more esoteric. An internship or work-place experience programme that placed highly able school children a half day a week in offices or laboratories or in the company of a medical or veterinary worker could also arrange more familiar assignments for other pupils. It is very likely that an enrichment programme for highly able pupils will more easily be adapted for the larger group than the reverse, because the personnel responsible for general enrichment may not be as well informed about the needs of the high ability pupils.

Involving mentors

For pair and individual learning, it is possible to use mentors, that is experts from industry, commerce, business and higher education to work with high ability students. The mentors need to be carefully chosen for suitability and teachers have to brief them before the lesson so that the activity undertaken relates to the school curriculum or to other experiences upon which the children can build, and ensure that it is done in more depth and at a more challenging level. Equally important for successful mentoring is the debriefing of the mentors by the teachers after the session. Mentors need to hear from teachers about what they are expected to do and afterwards teachers need to hear from mentors about what has happened in the session. This is a good way to bring into school people from the outside world and high ability students enjoy contact at that level with adults who are successful in their fields. Another important consideration in setting up mentoring programmes is to develop a list of potential mentors and discuss it openly at a teachers meeting. In addition, some schools invite the local policeman or policewoman, social worker, or community worker, to look over the list and ensure that there is nobody listed with a known record of any form of abuse involving children. In fairness, prospective mentors need to be informed in advance that this step will be taken to protect the children and the reputations of the mentors themselves. All prospective mentors should also name character referees and these should always be contacted to verify their good reputation. These precautions are necessary because teachers are trained and licensed to work with children; and their work is

accountable to the school. Volunteers are rarely trained in working with children, and they do not have the same “in loco parentis” responsibility as teachers.

As well as getting feedback from mentors or any other specialist teachers who teach in the classroom, it is always important to hear from the high ability students themselves about their learning experiences. Amongst other things this information will inform the teacher what to teach next. A good way of doing this is at the end of a lesson or activity to ask the students two questions to which they can either respond orally or in writing. These are:

- What have you learned? and
- How did you learn it?

The second is often more difficult to answer than the first and it may require some help from the teacher to answer it. By attempting to answer such questions it becomes possible for high achieving students and their teachers to understand how they learn best and thus it will help them to become more effective learners. It does not necessarily follow that high achieving students are effective learners. One of the most important skills which a teacher can teach a student is how to be an effective and independent learner and to study efficiently. High ability students need to be able to read with high comprehension, précis or summarize, to analyse, synthesize, and generalize. All students need to be able to do these things but it could be argued that once taught these skills high ability students are likely to be able to make better use of them, and to use them at higher levels.

Anticipating career-related content needs in school

All students need career guidance and counselling in order to prepare for life after school but it has been shown to be particularly important for more able students. Depending on what students hope to do later in life, they will need to learn different things. In addition to modifying the existing curriculum, and to enriching the programme with various additions, other changes are desirable in the

core curriculum experienced by highly able pupils in order to meet this challenge. Such changes are known collectively as content differentiation. The main reasons for this need are first that high ability pupils think and learn in ways that sometimes differ from those of other children, though this can be a matter of degree as well as pattern of thought, and second that highly able pupils will be drawn to professions and advanced studies that will be less attractive and perhaps less open to children whose best school performance is not as high as the most capable might achieve. Few countries in the world admit more than half to two-thirds of secondary school graduates to post-secondary education, including technical schools. Rarely are more than ten to fifteen percent of young adults enrolled in university graduate studies and professional education. Yet a great number of very interesting occupations demand post-secondary education of some sort. Indeed, in the current context world-wide, the small numbers of students in advanced education are encountering a greater and greater variety of career opportunities, not least in the new technologies, as they progress, and most of these are totally unfamiliar to the majority of secondary school pupils. Even to make intelligent choices about school and higher education entrance examination subjects requires some knowledge of these career possibilities and the content they are built upon, be it in biology, mathematics, or language, to cite but three. There is also a rapid growth in new and multidisciplinary studies. From this point of view as well, highly able children need exposure to these kinds of content. Of course there is no harm in making some of this exposure available to any interested child, but the material should be geared to a high level in accord with a selection of relevant principles from the preceding parts 3 and 4 of this Section 4.

Another relevant characteristic of many highly able pupils is sometimes called multipotentiality. Highly able children and adults are often interested and competent in more than one area. Some, of course, are sufficiently focussed so that they know exactly what they want to do with their lives from before adolescence, but there is no shame in changing one's mind, this often happens after an internship, mentorship, or work-study experience demonstrates that the pupil had been looking at the career area without adequate attention to the parts

she or he would consider negative. Meeting the educational needs of multipotential children is an additional burden that goes beyond the regular curriculum, even to the extent to which it needs to provide knowledge about multiple career paths, possibly even unique combinations of career paths (and new subjects are emerging regularly across the boundaries of familiar disciplines). Being prepared, as well, for a life that may include several career or employment changes, is also a special challenge. Highly able people may be more readily prepared for such an occupational path.

Questioning for depth

Finally, an example of two very simple initiatives that teachers can take in recognition of the needs of pupils with high ability, both of them reported by high ability students as being really appreciated:

- Being given time to think before making a response to teacher questions instead of being expected to make a one word rapid response.
- Being asked a second question as a follow-on question by the teacher because the students reported that this showed that the teacher was conducting a more natural conversation and was indicating a genuine interest in what they said. It also seemed to encourage a more in-depth response to the initial question.

For the most part across the world the main responsibility for managing the learning of high achieving students is that of the class or subject teacher, hence the focus above on what it is that such teachers can realistically be expected to do. These kinds of strategies can be employed by most teachers to enrich the learning experiences of all of their pupils. Many of the strategies used successfully for high ability pupils are also useful in broad measure to enhance and add variety to teaching and learning for all pupils, but the expectations will be different. The best way to find out what works locally is small experiments with any or all of the ideas presented in this section, one or two at a time. The suggestions do not exhaust the list of possibilities,

but they respond to the differences in competencies and thinking styles of high ability children, and give an overall sense of how teaching methodology can be addressed to the pedagogical special needs of children with high ability.

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Underachievement

*I have seen very capable students do poorly
when they should do much better.
This also appears to be an anomaly,
so how can we pick out highly able children
who might also underachieve
and what can we do to help them do their best?*

Not all high ability students will necessarily be doing as well as might be expected in school. They may be underachieving, not demonstrating their potential. The research literature indicates that when very able children underachieve, the problem, obviously, is not a lack of ability. The most common problems are a lack of a feeling of self-worth or confidence, a learning disability or medical or physical problem, insufficient development of basic skills, and “tuning out” due to inappropriate curriculum or unresponsive or insufficiently adapted teaching.

High ability students are not always recognized for a number of reasons. Sometimes they are not sufficiently stimulated by the curriculum on offer and they become bored and do not produce work of a high standard or work at a level of which they are capable. They can become frustrated by teaching methods which focus on a step by step approach to teaching which is too slow for them. Another reason why some students are not identified is because they may not be proficient in one or more of the fundamental skills necessary to be successful in school. For example the skill of writing is of crucial importance the

world over. If you are to be successful in school you need to be able to read and write with ease but many students, including those who might be described as high ability students, are not able to express themselves clearly or they may have other problems such as eye-hand coordination difficulties. Further impediments to high performance include a lack of proficiency in the teaching language and slower overall physical development. For high ability students in particular who are good at thinking, understanding, imagining, making links between ideas, synthesising and critically evaluating, not being able to write legibly and with ease is very frustrating. Often these students fail to demonstrate and do justice to their ability because they cannot easily record their thoughts, ideas and opinions in writing. In these cases, different products (oral presentations, art, debates) can be helpful. Sometimes high ability students have difficulty in school-type activities such as reading or writing because they have not had the opportunity to practise either skill, even at the most rudimentary level, before starting school. They can be disorientated by the relatively formal group process of schooling itself, maybe they even feel alienated by the experiences they are having in school which are so very different from anything they have done before. This can result in some of these students lacking in motivation to attend school or to do well when they get there. Sometimes they are not supported by parents who themselves have not attended school or if they have been educated, they have not been happy at school or done very well.

The great challenge in identifying an underachieving high ability student is that the high ability is usually shrouded in mediocrity, not in absolutely poor performance. The child's work simply does not stand out either way, and the high ability needs to be probed rather than observed. The challenge in teaching high ability children who underachieve is that the effort has to be directed toward bringing down the fences that block the accomplishment. Very rarely is it a matter of trying harder. The child may not even be aware of what is causing the problem.

There are two main approaches that can be used to identify high ability underachievers. The starting point for both is to look particularly among the middle performers in a class, obviously not the high

achievers, and usually not amongst the lowest though that sometimes occurs, but rarely. The first approach, where resources permit, is to use formal psychological testing in a search for areas of high potential. These would be IQ tests and other measures that do not directly assess what should have been learned in school, but concentrate on the thinking processes and general knowledge that are often indicative of high performers. In this case one is looking for a discrepancy between the potential and the actual performance. When the performance lags behind the indices of potential, this is an indication of underachievement by a high ability pupil. Another way in which discrepancies can be found is when children's underachievement is selective rather than general. There will be widely varying highs and lows in a child's report card. If the lows are consistently in subjects demanding reading skills, this could be the reason for the underachievement. If the underperformance is regularly in mathematics and science, then this provides the teacher with a starting point for teaching.

The second general approach is to look at the child's record over time. If there has been a rather dramatic drop-off in performance over one to three years, then it is clear that up to a point the child had both the potential and performance hoped for in a child with high ability. The decline would indicate current underachievement, and the search for more details about what has happened can begin. The search needs to explore the cause of the gap between potential and accomplishment. This usually requires an individual interview with the child by a trained psychologist or counsellor, but experienced teachers can acquire some of these skills. It is important to find out if there is a situation that may be saddening the child, if circumstances have changed radically at home (divorce, loss of work, death – even of a pet). There is no point in trying to directly improve a child's self esteem, however, if the underlying cause is, for instance, a medical or organic one such as an auditory processing problem. Underachieving children, including those with high ability, should receive as thorough a medical examination as possible, especially focussing on eyesight, hearing, eye-hand coordination, fine-motor control and other factors that can interfere with school success. If available, simple neuropsychological tests can point to brain problems or trauma. The

check-lists in Section 1 also provide several nonacademic indicators which, if positive, may stand in contrast to the academic performance. The search for underachievement in high abilities is primarily a search for contradictions. It needs to be conducted in classic detective style, one clue at a time.

The day-to-day reality for a very large number of children in the world is that resources to address any kind of special needs are very scarce, and solutions to the two-pronged challenge of underachievement and high ability may seem out of reach. The schools serving these children endure inadequate resources, ranging from insufficient numbers or teachers with inadequate training, the severe limitation of materials from chalk to paper, impoverished home circumstances of students and other types of social and economic disadvantage which means that students, even the most motivated, are disorientated by the demands of school or perhaps not healthy enough to be able to participate fully in all school activities. In a great number of situations, even in parts of so-called developed countries, children and adolescents might arrive in school without having had breakfast, and they may not have not had sufficient or adequately nourishing food to eat for many days at a stretch. Usually, under these circumstances, even high ability students underperform.

Helping underachieving high ability children is possible, but not easy. They often need intensive remedial teaching, at the appropriate level, to help them catch up on accumulated missed content and skills. They require teachers who are patient and good at diagnosing learning obstacles. They may need to be fed, they may need eye-glasses or to be sat nearest the teacher. They may need medical help or a safe place to do homework with supervision. They benefit from not being singled out as failures, but taught in a small group of potential successes, at least for several months to begin. Since the causes of underachievement vary widely, the rescue programme needs, wherever possible, and as much as possible, to be extensively individualized. At the core of most successful interventions lies the expectation of the child's success backed up by the particular kind of help the child needs. This may refer to making up for having fallen behind in specific subject areas, or it may have to do with nutritional,

medical, or social intervention. As with high ability and other special needs in combination, the presence of high ability needs to dominate the educational provisions. As much as possible some of the ideas in Section 4 should form part of the intervention.

The most difficult challenge in overcoming underachievement, especially in high ability children, is that it does require human resources at a level far beyond what some, perhaps most, schools have available. This shortfall may be partially alleviated through the use of peer tutoring and volunteers where these are available. Parents, of course, are critical to this success in encouraging their children, focusing on their strengths rather than shortcomings, and where, they have the knowledge and can make the time, helping with the school work itself. Working on an individual or small-group basis with underachieving children can also be a very valuable experience for student teachers, especially if they can rely on the advice of a sympathetic and experienced member of the teaching staff.

6

Student-Teacher Relations

*Students with high ability seem more likely than others to challenge the authority of teachers.
How do highly able students relate to teachers and how can this be made into a positive and rewarding experience for both pupils and teachers?*

Most teachers realize that evaluation is a two-way street. As often as teachers make judgements about pupils, the favour is reciprocated. From the first day of school, and sooner when our reputations precede us, children are communicating their likes and dislikes or preferences to each other and to their parents. This information sometimes even works its way back to teachers. Highly able children can be especially judgemental or evaluative.

Whatever strategy is used, the relationship between the high ability student and the teacher – as with the relationships between all students and teachers – is central. We know that high ability students relate best to teachers who know their subject well, treat students fairly on a day-to-day basis and in examinations, have a sense of humour, are enthusiastic, teach creatively, enjoy a challenge themselves, and are confident socially as well as academically. They enjoy engaging with their teachers on a person-to-person level and like to feel free to ask provocative questions and question authority. Many have a particularly high level of comfort interacting with adults, in some cases arising from birth order – first-born and only children, for example, may spend much of their early lives with adults rather than being in

the company of older siblings – and in other cases arising from shared interests more with adults than other children their own age. These traits, and particularly familiarity with adults, are of course more acceptable in some cultures than others and, even in cultures where they are accepted, teachers on the whole may tend to be conservative and prefer to teach by traditional methods in a more didactic and formal mode. Some high ability students will respond well to this kind of teaching because it is their preferred way of learning as well, but others will not. Most of us learn in a variety of ways, some of which are more student-centred rather than teacher-directed.

It is sometimes proposed that teachers of the highly able themselves should be highly able. Given the many meanings of high ability, this is probably not a terribly useful criterion. Much more important is the acceptance by the teacher of the general and unique characteristics and educational needs of highly able students, and a positive attitude toward them and the challenge of teaching them. Should a good football coach, that is, an excellent teacher and motivator of football players, but himself or herself a player of acceptable but not outstanding quality, decline to coach a top team? The fact is that only a few top athletes become coaches. Perhaps the competitive, activity-oriented personal style of the top athlete is different from the patient, analytical, supportive role of the teacher and coach. Are world class musicians frequently the best music teachers? Not necessarily.

Being an excellent teacher is a domain of excellence unto itself, whether in sport, music, or mathematics. Competent, caring, dedicated teachers should not be intimidated from taking on the teaching of high ability students, as long as they have the kinds of qualities indicated above. Feeling threatened by high ability students can result in responding with arbitrary authority and quickly losing their confidence and respect.

A true story about an exceptional piano teacher who might have been a top concert pianist if he had so chosen, but we'll never know that, and who remains a coach for a number of top concert pianists and accompanists, illustrates the attitudinal element. He was asked by an eleven-year-old pupil how he knew when he was doing his job

well as a piano teacher. The answer was immediate: “When the pupil is a better pianist than I am.” The goal was not to bring the learner near or up to his standard. He fully accepted that the pupil could be capable of much more and had confidence in his ability as a teacher to support the pupil’s learning and performance well beyond his own performance level. Since not all his students were gifted musicians, his reply also conveyed a confidence about what could be achieved by all of them (as long as they practised regularly!). With this positive view, such a teacher will never feel personally threatened by the competence of a pupil. Successfully teaching highly able children is not a test of the teacher’s ability on the matter being taught, but more a test of the attitude and ability as a teacher. If teaching highly able children seems like a scary prospect, approach it slowly and try to experience the joy. If it sounds too good to be true, it may be, but it is extremely rewarding socially and intellectually.

The last point to be added about student-teacher relations is that they are directly affected by whether or not teachers have some in-service or in-set training, or even a university qualification about high ability children. Teachers who have had such training have a more positive attitude to high ability children and are more inclusive in their identification. Of course, some self-selection may be involved here, meaning that the teachers who were chosen for this training or who chose to do it themselves may have been those who were initially more positively predisposed toward high ability children and whose identification philosophy was already more inclusive. Whatever the cause-and-effect relationships, having such additional training is associated with some advantage to the relationship between teachers and high-ability pupils. Until we know more about cause and effect, it is wise to assume that providing such training is desirable, since unless it is offered even those who are positively predisposed cannot get the training.

Organization of Learning

On one hand every teacher knows that there are limits to what can be accomplished in a single classroom, especially given the size and ranges of age and experiences that may be represented there.

On the other hand there is a sense of fairness implicit in every child being educated in the regular class.

Are there defensible alternatives to exclusive use of the common classroom for the education of all children?

Is it possible to provide an appropriate education in the regular classroom setting for high ability students? There is certainly too much variety in world-wide practices to deduce an answer from what a whirlwind tour would reveal.

In countries where provision for the education of high-ability students is more developed, the view is often stated that it is imperative to utilize the talents of all high ability students if progress is to be made, the world is to become a better place to live and if the challenges of the next millennium are to be met. Some Eastern European countries, for instance, for a long time have had specialized schools for gifted mathematicians, scientists, or musicians. Others such as Slovenia are making visible progress toward multiple opportunities. In other countries such as in the United Kingdom (until recently) and Zimbabwe there are government-sponsored schemes by which high ability students can be awarded scholarships to study at schools with

a good record of high academic achievement. On the other hand in countries where there is a strong egalitarian tradition such as in Scandinavia, high ability students are taught in the regular classroom setting by the class or subject teacher. In both Italy and Spain, where schools are inclusive, all students are taught together, so in any class there are likely to be high ability students as well as those with special educational needs. In North America high achieving students are often taught by specially trained teachers in special programmes for part of the school day or school week for which they are withdrawn from their regular classes.

Programming in the regular classroom

It is surely possible to provide for some of the needs of high ability students in the regular class. However, it needs to be recognized that barriers will be imposed by large class sizes, little variety in teaching methodology and resource materials, and teachers not sufficiently trained to address the diversity in learning needs in the classroom. Today, the move towards inclusion, presents a challenge to schools and teachers in addressing these barriers and in creating learning environments which respond to the learning needs of all children, taking account of differences in rates and patterns of learning. Teachers are quite capable of mastering what needs to be done. The problem is that they are not generally adequately trained and/or equipped to fully address the wide diversity of needs in an inclusive classroom. The first group to be ignored under such pressure is often the highly able. The assumption that they will “get by” with less intervention from the teacher is sometimes true, but will they thrive or meet their full potential in that situation.? Most probably not. This dilemma has been confirmed by research which has shown that the typically there is no adaptation of the regular classroom curriculum to address high ability. The same study also found that a modest amount of training immediately increases the appropriate selective use of at least one adaptation, namely compacting.

The principle, therefore, that the needs of highly able children should be addressed within the regular or community school, should

not be overgeneralized to mean that the regular classroom teacher should shoulder the entire responsibility herself or himself. In this volume we have outlined many things the classroom teacher can do (in Sections 4 and 9, particularly).

Within the regular classroom, one useful organizational technique is called cluster grouping. This is sort of a classroom within a classroom. Cluster grouping can be on an as-needed basis, relatively part-time, or it could sometimes occupy a greater part of the day, week, term, or year. It is most often implemented as a relatively permanent grouping (as distinct from group work – see Section 4, part 5) procedure, but it differs from other grouping in that it maintains the primacy of the regular classroom. The easiest way to imagine it is to imagine the small rural school where the children in a single classroom may vary widely in age and several grades will be taught together. There will be a small cluster of children at each grade level. The teacher essentially presents a separate curriculum for each group, and relies on occasional help from older students tutoring younger ones. Inclusive activities can also be planned, such as in drama, music, sports (where there is no danger from large and small children bumping into each other), or current affairs. By staggering recess and lunch hours, if the overall group is large, smaller groups may be present at certain times to facilitate remedial teaching. A cluster group of high ability students would be treated similarly. Since pupils in a cluster group are part of one of the regular classes in a school, it is easy to move them back and forth between the regular and special programme if that should ever be necessary. Cluster groups can also be cross-age and gather children from several classes, and be located with some of the more highly trained and willing teachers.

Programming in the school but outside the regular classroom

One of the ways is to gather students with high ability in resource classrooms, classrooms with specially trained teachers, additional materials (a focussed location reduces the cost of making these available to more students), and adapted curriculum.

Gathering high ability children together at least part of the time, by whatever means, has the additional advantage that it allows the regular teacher to devote extended periods of time to helping children who learn more slowly or with difficulty, without constantly anticipating that the highly able students will also require active attention. Note, however, that grouping or tracking as an organisational or administrative strategy has little academic benefit on its own; achieving its full potential requires that the programme is also adapted once the children have been congregated. Grouping creates an opportunity; it is not a solution.

One of the most common arguments against even part-time tracking or grouping of high ability children is that they will become arrogant and insensitive to the needs of children not so capable. This question has not been well researched, but an alternative proposal is not hard to imagine. In most cases the special needs of high ability children are not addressed. Forcing the child to spend eleven or twelve years of schooling in a situation that is badly matched to his or her needs will do little to develop warm feelings about school, the teachers, or the other children. For some reason we think of children's peers as their age peers. We do not do that to adults. From eighteen or twenty-one throughout the lifespan, one may associate with whomever one wishes. Those associations are usually built around common interests – sports, the book club, cooking, car racing, stamp collecting, dancing, or whatever brings adults together. To learn to respect others one does not have to be with them all the time. If one's own needs are also respected, this might enhance the mutual feeling. It seems fair and reasonable that a good balance can be maintained between many or most highly able children and their age-mates by a judicious combination of time with their ability peers and time in the regular classroom. The proportions will vary, but the principle seems to apply.

It has been noted that some very able students, indeed some students at all ability levels, may prefer to work on their own. This is not a criticism of the organizational strategy grouping; rather, it addresses the pedagogical question of group work. Grouping is not the same as group work. Grouping refers simply to assembling students, part-time

or full-time, in order that they may be taught together. Group work is a teaching technique that can be used whether or not pupils are grouped by age, by ability, by course of study, gender, or whatever. It involves pupils collaborating with each other a task or a problem. A preference by some pupils for individual work over group work is not an impediment to grouping. Neither is it an impediment to sharing through class presentations, displays, knowledge fairs (see Section 16, topic 2), or other means.

Part-time grouping is a greater management challenge for a school, since teachers need to coordinate their teaching timetables, and flexibility is needed to ensure that children are not penalized (e.g., through double homework assignments), by being pulled out of regular class to attend a special lesson or class. On the other hand, it is more closely compatible with a desire to implement inclusive education if this is measured simply by time together. Full-time grouping is administratively easier, it assures a more consistent curricular experience, but it maintains barriers even for parts of the curriculum where these are not pedagogically justified.

The impact of grouping on both high ability children and those in regular classes has been examined in many studies and the combined effects of these studies were reviewed in detail by Kulik and Kulik. Their final conclusion was that grouping is helpful to the academic achievement of highly able pupils and that it neither raises nor lowers the achievement of other children. Research has been less clear about the social or emotional impact, but the balance of evidence is that high ability children fair slightly worse and average ability children benefit somewhat more when the more able students are present. Nobody seems to have studied in detail how much integration or separation is just right. There is probably a wide margin of error. The best advice seems to be a combination of separate grouping since it benefits high ability children all round with some time together because this involves minor cost to the high ability children (likely counterbalanced by the grouping) and brings a social benefit otherwise lost to the rest of the class. It is interesting that advocates of the regular class for all children usually argue that removing the high ability children may be bad for their social development, but research indicates that the opposite is true

in two senses: high ability children are not negatively affected, but the other children benefit socially from their presence.

Programming outside the regular school

Depending on the proximity of the school to other schools and other resources, this may be feasible on a part-time basis.

The literature suggests one category of exception to the balanced practices proposed above in the discussion of grouping. There are some areas of performance where the regular school as a whole, even the reasonably well resourced school, simply does not have the specialized resources that are essential to attaining adult mastery in certain domains. These areas are particularly in the performing arts, dance, voice, instrumental music (especially strings), and gymnastics (including circus arts such as contortion and trapeze). These benefit greatly from an early start, total immersion for extended parts of every day, specialized teaching, and special facilities, instruments, costumes, or other equipment too expensive to duplicate in many schools. Some authors have argued similarly for mathematics and science, and there is little doubt about the extent to which performance can be remarkable in a specialized school for highly able mathematics and science pupils. Study of some of these areas can begin in secondary school, e.g., classical voice training and large muscle sports, so the regular school, full or part-time, may suffice at the elementary level. For students with highly focussed skills and motivation in these areas, a network of specialized schools with selected faculty members is probably the only way that these talents can be fully developed.

Another suggested solution is to ensure that at least one school in a region is well resourced with regard to materials, facilities, and teacher expertise, and this school can be used by all the schools in the zone or district to help address problems such as underachievement; sometimes special groups of students will go to these schools for extra classes or special tuition taught by advanced skills teachers. Such designated or magnet schools could be adapted to serve a

special need while also being the neighbourhood school for the majority of their pupils. Many countries also have music conservatories and similar institutions that may also provide after-school or summer courses.

In the same category would be regional resource centres that serve several schools, even whole regions. Urban areas with well developed transportation systems would most benefit from any option that requires either the students to travel between sites, or that personnel and equipment move around. There have not been reports of the evaluation of this type of organizational provision. There is some potential, however, for at least having a specialist consultant in such a centre, and this can be useful to personnel adapting curriculum within the schools and to helping obtain or maintain policy and resource support from central authorities.

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8

Gender and Culture

*We have children from many cultures in our school,
and they value different talents to differing degrees.
How is high ability reflected, similarly or differently,
across culture and between males and females,
and how can this be both honoured and taken into account
in teaching?*

Earlier in this century, and still in some people's minds, matters of human abilities related to culture and gender were couched in the language of biology, and specifically genetics. The general form of the question was who is smarter, colour X or colour Y, men or women. We absolutely disavow these questions. On the other hand it is completely fair and fascinating to ask if high ability is conceived or expressed differently in different cultures and between males and females. The purpose of the old form of the question was to sift the winners and losers, to maintain an unequal distribution of wealth or power. Or both. We are now in a period of transition where consideration of differences in how persons from different cultures or genders does not presume the existence of genetic superiority or defect, and the principle of equality is gaining support. Practice falls somewhat behind principle, but progress is clearly evident. Communication on Internet might accelerate this, since one can no longer make assumptions about the person with whom one is communicating: Stories abound about people on the Internet and World Wide Web (the multimedia part of the Internet) who take on false identities, including cultural and gender. Such uncertainty is a great equalizer.

The purpose of the new question is to understand and value diversity, to learn to see things through others' eyes, and to improve our ability to teach and learn where cultures and genders meet. Issues of culture and gender enter the education of children with high ability in two ways,

- (a) understanding others from arm's length, as one might study chemistry or any other subject, often called intercultural education and
- (b) how to cope when cultures mix, multicultural education, or when boys and girls are taught in the same classes – coeducation. We shall look briefly at both issues, and refer to other relevant sections of this handbook. These topics are themselves the subjects of volumes.

At the level of intercultural education, the individual learning goal is to improve the child's ability to take the perspective of another person. The famous Swiss developmental psychobiologist Jean Piaget examined even young children's ability to imagine how another child sitting across the table would view a set of objects located between them. He showed that this ability grows with maturity. Subsequent research has shown that preschool children who score higher on IQ tests perform more accurately on this task, even if the view of the other person is just a bit to their side. Less capable children think that the other person sees exactly what they see, even after walking around the table to confirm. This provides a wonderful background for thinking about another person's perspective, older students and adults could be encouraged to do this in a classroom debate (try switching sides), in a real dispute, or in avoiding international conflict.

The study of other cultures is a prerequisite to being able to take these perspectives. This is a topic that can certainly be one of the content modifications made to a curriculum. Of course all children can study foreign lands or neighbours who are different in this respect, but looking at the world, or even our disagreements with them, through their eyes, is an especially valuable task for highly able children since this adds richness to their understanding and, from a practical point of

view, they often find themselves in leadership roles. This is also a relatively safe topic in terms of sensitivity.

It is clear that different cultures value different kinds of talent, especially in the social domain. Assertiveness and initiative are valued in the industrial west, courtesy and respect for elders in the orient. Individual achievement is valued by some, teamwork and interdependence by others. Western music is highly characterized by melody and clearly demarcated rhythm, others more by mood and variation in tempo. As the global village shrinks, there might be increasing concurrence on the value of high ability in chemistry or physics or computer science, but there are important differences. For example, to the rest of the world, Western Europe and North America seem very similar in cultural terms, but scientific education has a much stronger theoretical tradition in Europe, and it is valued much more for its practical applicability in North America, especially in the USA. When cultures mix, particularly in the classroom, these interesting but distinct differences become very real. When the children are very capable, these differences are amplified.

The multicultural classroom is increasingly common around the world, which raises questions about the language of instruction. There is no doubt that a child learning a new language is constrained from maximum performance for a few years. In order to provide opportunities for the recognition of high ability, wherever possible, the identification process at least, and perhaps some of the curriculum that extends beyond the regular programme, can be in a language other than the official language of instruction, where numbers warrant. This is an extremely important point to communicate to parents, since they will want their children to integrate well into the new situation, and will often be hesitant about their children being enrolled in a programme that is not the regular programme, out of fear that they will be missing something. Highly able children can also be offered supplemental language courses to speed up their ability to join the special programming.

The most important challenge is for the teacher to put aside stereotypes, positive or negative. A teacher who believes that Asian

students are superior at mathematics will set inappropriate expectations for a new Chinese student who loves history and gets by in mathematics. Another who believes that people from country Z are lazy will set low expectations for an immigrant child from there. This is a delicate balancing act, being culture fair and culture blind at the same time.

It is also fairly safe to talk about gender in general terms, for example, that girls need special encouragement to choose and to persist in the study of mathematics, science or engineering, not because they are less capable of handling the material, but because these areas are perceived by both women and men as masculine areas wherein women's self-image is challenged by bias or folklore. Even when they study these subjects, girls and boys tend to make different career choices. One of the possible reasons for this is the nature of interpersonal relations experienced within the communities working in these areas. For example, top-ranking scientists have the reputation of demanding that young scientists work 16-hour days, and survival also means that there is a high level of competition for research funds. Some, perhaps many, young women find that this is too much of a conflict with their wish to work and have children as well, and also because women are socialized to work more collaboratively rather than competitively compared to boys and men. Of course the women could learn to play the game as men do, but should the rules of the game be changed? The issue is seeing it through the eyes of women, a view to be equally valued. Gender differences in this context are a form of cultural differences, and teachers of highly able children have a unique opportunity to address this because most highly able children are able to deal with such abstract and complex issues.

There are many problems, however, because gender roles are sometimes not only strong traditions but in some societies set down in law. Most of what has been said so far in the section may be viewed as representing a "Western" view. Be that as it may, gender is one of the most important masks of high ability because the same kinds of high ability that are valued in boys are not in many cases equally valued in girls, and those that are valued in boys are thought to be a more accurate representation of the external reality in most societies. Aside from

whether this is true or false, good or bad, a matter of controversy and cultural difference, the objective fact is that it impacts more on girls than boys, and especially more on high ability girls because they may have the ability and ambition to play a mainstream role.

Some of the curriculum adaptations that seem to level the playing field for girls and provide no disadvantage for boys are:

- (a) having clear role-models for the girls, especially in the function of encouraging them to keep their career and study options open,
- (b) keeping mathematics and science as required subjects for all pupils – in Canada, a fine arts state school with a majority of girls in its secondary programme, and where the regular programme is compressed for all students so the arts can be a central theme, only offers the advanced mathematics, science, English and French courses at the university-entrance level, so the pupils have all their career doors open at the end of high school,
- (c) providing high ability girls with group counselling or group discussion sessions wherein they can discuss their aspirations and concerns, and help each other to work through dilemmas, and
- (d) thinking carefully about teaching methodology to ensure that a balance of processes favourable to girls and boys is used, for example, balancing spelling bees and other competitive and individual activities with collaborative group work, and more straightforward things like ensuring that mathematical or physics examples aren't always about the acceleration of motorcars or trains, that the famous historical persons held up to good example are not all men (or from one cultural group, for that matter), that the central characters in literature are not all men, and that the women featured in novels or plays carry out a variety of roles including leadership, and
- (e) being careful not to always send girls on messages or to clean up.

This is only a starting list, and while it applies generally to all children, each point has special applicability to those of high ability. Group counselling sessions need to respect point (a) about role models in terms of leadership or visitors.

Finally, lest the balance of gender advantage or disadvantage appear entirely one-sided, there is the special case of underachieving gifted boys. Some bright boys also underachieve. It is not yet clear from available research to what extent boys and girls underachieve for similar and different reasons. There are bound to be both.

For the special situation of cultural and gender differences in relation to unrecognized high ability, please refer to Section 3 above.

Different is fine as long as it does not carry the baggage of better or worse. Given the wide cultural diversity, we can only make the working assumption of equality of opportunity in respect of differences, and leave it to the reader to integrate this with local realities.

9

General Advice to Teachers

*This seems like a lot more than I can cope
with on top of all my other professional concerns.
How can I start at a reasonable level
and gradually add to what I do to accommodate
the particular needs of highly able pupils?*

Whether a teacher is new at the profession, or merely new to an appreciation of the characteristics and special needs of children with high ability, even the small selection of highlights covered in this handbook could be overwhelming. If the problem is so complex, how can any individual have an impact? In this brief section we suggest some starting points for teachers, selected from the multitude of points raised, plus an additional comment on the marking or grading of students' work.

A teacher would be off to a remarkable start if, over the first year or two, he or she could do some or all of the following:

- ▶ Plan to work initially within YOUR OWN CLASSROOM or classes because there you are the professional in charge. If your initial efforts create a burden for others, this could be an impediment to progress.
- ▶ Accept and internalize that high ABILITY IS WIDELY DISPERSED, not narrowly, amongst your pupils, that it is waiting to be discovered or acknowledged, and (to use food as a metaphor) that cultural and gender differences only alter the flavour of high ability, not its nutritional value, so expect it equally

amongst girls and boys and among children from all cultural groups, though it may be expressed differently in each. Contrary to some myths, high ability does not always show up of its own accord. A concerted effort may be needed to find it in a particular child, and it is more readily found when teachers and others expect that it is present.

- Select two or three of the IDENTIFICATION STRATEGIES suggested in Section 1, strategies that are feasible within your situation. Be proactive and apply them, at least informally. Remember, for example, that if you want to use a survey form, it can have just a few questions. Choose the questions you can use effectively at this time.
- When you identify high ability in a particular child, think of one way that it could be ADDRESSED IN SCHOOL during some free time available to the child. Try to implement it. If a small group can be created to work together, they will help each other and demand less of you in that time period.
- Exhibit FAIRNESS AND SENSE OF HUMOUR, and welcome dialogue with the children. Let your authority flow from your knowledge and mutual respect more than from your position. Be prepared to say you do not know something, but we can try to find out together.
- Once the first small group of high ability pupils is identified, determine what parts of the REGULAR CURRICULUM CAN BE COMPACTED for them by reducing repetition or the number of practice exercises, and even the number of deskwork, practice, and homework exercises. This is where they will find time for curricular intervention.
- Start with developing a small STOCKPILE OF ENRICHMENT IDEAS based on Type I activities (see Section 4). Five ideas would be plenty to start. The pupils can actually help develop and expand this list as one of their small projects. Concentrate initially on adding supplementary content (even old newspapers contain feature stories, and old magazines are even more attractive because they contain colour

photographs). For each small topic, try to attach two or three higher level thinking questions such as illustrated earlier. A good way to check your questions is this: if they can be answered with a fact or yes or no, they need revision. They should force the children to think, discuss, or both, for at least several minutes. The pupils can also help prepare high level discussion questions, then they can try to answer their own questions. Pupils often ask harder questions than teachers. As your collection of ideas grows, a picnic basket or any other portable carrier can replace the recipe box.

- ▶ If other students express an interest in the enrichment materials, let them have a look. Remember “IDENTIFICATION BY PROVISION.” There will be some pleasant surprises. They should be told that in order to work with these materials, they need to finish early or come at lunch, recess, or after school. If a regular class finishes early some day, you will also have a prepared set of activities to let everyone engage in. You could also try to carve a little time out of the schedule every week, even 15 minutes, to do something special. Even secondary students might enjoy story time: one especially capable history teacher enriched his European history course – all full of battles and dates and kings’ names – with love letters written by those kings and queens, mostly to each other. It cast a whole new light on the personal part of history, and tapped a deep interest of adolescents!
- ▶ Be fair and thoughtful in assigning GRADES OR MARKS, especially for group work or for challenging or additional learning or activities that go beyond the regular curriculum. Regarding group work, and particularly when there is a possibility that any of the partners have carried a larger share of the task, ensure that the contributions of each child to the totality are explicit summarized, and each child should receive feedback relative to his or her potential to make a contribution and a mark or grade in relation to the requirements of the task, if marks or grades are needed at all. A less able child should not be penalized simply for having made a smaller

contribution, and a more able partner should not be penalized for the fact that not all parts of the shared work are what two or more highly able children would have produced. As for activities that go beyond the required curriculum, wherever possible, this extra work should simply receive constructive correction, and not be formally marked or graded. Even when the teacher has no choice but to submit a grade, there would be a serious injustice if a highly able child missed a scholarship or a place in the next level of education due to a lower grade on a more challenging exercise, when with less effort a higher grade could have been obtained if he/she was just examined on the regular work. Anecdotal comments which credit the extra work are most appropriate. If students are all accountable for a common curriculum they should receive their school grades relative to that curriculum. By avoiding punitive grading of additional challenging work (at which we it is entirely appropriate to struggle intellectually), we also encourage highly able young people to accept and seek out difficult challenges, a quality that if nurtured can be highly beneficial to themselves and society in the years ahead.

- ▶ Keep a JOURNAL, LOG OR INFORMAL DIARY (separate from any personal diary and official book of records) of what you do and what the children accomplish. (Encourage the pupils to do the same if possible.) Teachers should look over their journal at the end of each week and underline or otherwise highlight what strikes them as particularly interesting or important, or is recurring over and over again. In other words, search out important clues and patterns which can take practice forward. These journal-analysis activities serve as foundations of the teacher as a researcher of his or her own practice, something that all teachers can do at some level from basic to expert, and that facilitates working well with one's pupils.
- ▶ Consider the possibility of WORKING RECIPROCALLY WITH ANOTHER TEACHER to find out more about what is going on

in your classrooms by using a preparation period, staggered lunch time, or other opportunity to observe each other and offering back non-judgemental feedback as well as ensuring time to talk about teaching and learning, which, although they are the cornerstones of a teacher's work, they are rarely discussed systematically. In this case the observations can be specifically directed to the situation of children with special needs and especially those of high ability.

- ▶ At the end of your year, WRITE A LETTER describing what special things you and the pupils did to the editor of an international magazine or newsletter (see the Appendix), so the rest of us will know and learn from what you have done and also learn about your corner of the world. If you wish, do it directly in the form of a short article, or the editor may make this revision. Consider writing it together with the identified pupils or with another teacher with whom you exchanged observations. What worked well? What can be improved next time?

Then read this handbook over and add a few new elements to your plan for the next year.

10

School-Level Initiatives

*Even though I am an experienced teacher,
I cannot meet all the educational needs of pupils
with high ability on my own.
What can the school as a whole do,
led by the head teacher or principal
and the governing councils of teachers and parents
(where these exist)
to facilitate meeting these needs?*

A number of different school-level initiatives are possible to support and add to what can be accomplished within a class by the regular teacher. Here are some examples:

- A school can put SOMEONE IN CHARGE of enrichment and the education of high ability pupils. It certainly is helpful to teachers to have one teacher in the school with a particular interest or expertise in the field of high ability students who can advise and support colleagues. It is also useful if that teacher can organize staff development programmes for all staff to give them a chance to share their ideas and concerns about working with high ability students. It is even better if this teacher in charge can have a small committee of teachers to share the overall responsibility.
- The school is a good level at which to conduct IN-SERVICE EDUCATION or in-set for teachers on the topic of the education of high ability children. This can be self-study groups

using shared materials such as this text or others. There may be the opportunity to bring in a visiting speaker who has experience with initiatives of this sort, such as from a nearby school, the local education authority, a college or university, or a government education department. There are also films and video tapes which can be used in in-service programmes.

- ▶ In some schools and education systems ACCELERATION – that is the opportunity to work with older pupils – is an acceptable school-level adaptation for high ability pupils and this remains the most popular way of managing the education of high ability pupils worldwide. Grade skipping is the most common form. Another is subject acceleration, moving up one class perhaps to study one subject, that subject at which the student is exceptional and beyond his or her peers. A third and more complex form of acceleration is called continuous progress wherein children move at different rates within the classroom, but this demands a relatively high level of resource availability; teachers in small multi-grade schools, however, maybe well equipped to do this. Sometimes acceleration can even result in early transfer from primary school to secondary school and taking public examinations early. It is generally accepted that acceleration works best when the student is not only high achieving academically but is also psychologically and socially mature. The students need to feel confident that this is what they want to do and is right for them and, of course, parents too should be involved by the school in this process. It also helps if the ethos of the school is one which actively promotes acceleration so that it is not such an unusual occurrence for either pupils or teachers. Again in some cultures it is less usual to take the views of children and young people into account so there might be less likelihood of this happening where it is thought that parents or teachers know best what is right for the child. Another potential problem with acceleration is that there can be a considerable loss of

face if it does not work and the child wants to return or should be returned to his or her former class. It may be wise to institute trial transfers with the clear understanding that the child will decide if he or she likes it after a month or so. Finally, grade or subject acceleration is only a partial solution. If the content and teaching methods in the new class are again aimed at average ability, the pupil may well catch up quickly and again be ill-served; the only advantage would be to shorten the period of discomfort by spending fewer years in school. Our hope is to do better than that by adapting the curriculum appropriately and making the best use of children's time in school, for all levels of ability.

- ▶ Rather than acceleration some schools encourage FLEXIBLE GROUPINGS of students which are not necessarily age-related groups but ability and interest-related so students of different ages but with a particular ability in for instance design and technology can have some lessons together every week led by the school's specialist teacher in design and technology. This assumes, of course, that schools have specialist teachers and not all schools do. If the grouping are within regular school subjects, one of the interested teachers in the school may well be able to handle the group. Flexible groupings are temporary, which avoids loss of face if a pupil cannot handle the work, but they require cooperation between all of the teachers from whose classes the pupils are drawn. For example, teaching plans and schedules have to be coordinated and there needs to be agreement that pupils will not be penalized by being expected to complete any assignments covered in the regular class while they were attending the flexible group class. It helps, then, if all teachers are working in the same content area when the flexible groups are convened. That takes a school-level decision by the teachers' council, the head teacher, or both in concert in the best situations.
- ▶ It is important for the school to AGREE ON A POLICY for teaching high ability pupils if the regular school, the regular

class, and the regular class teacher are to cater for these students. The policy can be drawn up by the teacher with special interest or expertise in this area based on ideas which emerge from discussions about strategies and techniques that all of the teachers in the school use in their classrooms. But they can also include guidelines, if available, from the government education department or local education authority. A school policy should be concisely written and realistic and if possible generally agreed by all teachers and the school administrator. It is a good if there is a consistent approach to high ability students throughout the school. A policy statement should ideally be very brief, and it ought to be revisited from time to time to update it. For example, it might state simply

“School X seek to meet the educational needs of all students at all levels of ability to the best of its ability and available resources. We have agreed to support the following initiatives in the foreseeable future to particularly meet the needs of children with high ability.

- (a) We shall appoint a teacher as coordinator or enrichment,
- (b) we shall institute a systematic process of identification of talent amongst all our pupils, beginning with [at this point insert a couple of selections from Section 1], and
- (c) we shall commence services with the following pedagogical and curricular initiatives: [select a few from Section 4 and elsewhere]. Girls and boys and children from all ethnic groups are equally eligible for this programme initiative.”

Although resources in very many places across the world are limited, if there is a policy in place then a finite amount of that resource is more likely to be targetted at high ability pupils and initiatives to support them. For instance, some schools organize special enrichment initiatives after school, at weekends or even in the holidays when high ability students can work together on projects such as solving environmental problems or creating musical compositions or organizing a community development scheme, all of which require

financial support. We do advise, however, that as much as possible, any activity that is required, such as a revised curriculum, should be held within the school day. When this is not possible, outside regular school hours is better than never, but it could preclude some children's participation if it conflicts with other responsibilities, school bus schedules, and the like.

- Schools can also offer SUPPORT TO PARENTS because sometimes parents are unsure what to do for the best to help their children when they have high ability. Indeed there has been some work to show that high ability students can be pressurized by their parents and their teachers to succeed to the extent that they become unhappy and unable to perform as well as they might have done usually. High ability students are often extremely self-aware and sensitive. They set themselves very high standards and because failure is unusual for them, they take failure very badly. It is important for teachers that they are aware of this and that they, and parents, do not expect the high ability student to do the impossible, that is perform to a standard of perfection all of the time (see Section 15 for a short discussion of perfectionism). If and when high ability students do experience any difficulties or make mistakes they need to be reassured that this is quite natural and that with some help or redirection the problems can be overcome. Group meetings with parents a few times a year can help this process.

And here, with little elaboration, are some other fairly simple initiatives that can be taken at the school level:

- The principal or head teacher can keep an eye out for materials or other resources and pass them on, thereby signalling continuing ADMINISTRATIVE SUPPORT for the initiative.
- The needs of high ability students can be discussed at STAFF MEETINGS from time to time, as well as the progress of identified students.
- Build a small REFERENCE LIBRARY that teachers and parents especially can consult (if new books would be a budget

strain, as new editions of books come out, still useful previous editions may be presented to the school as donations, and many governmental and related items are available without charge).

- Create a small DISPLAY SPACE where the progress of the programme can be exhibited with a rotating selection of students' work. This can be as simple as part of a display board, perhaps where sports successes are also celebrated. If possible, include photographs.

Parental Involvement

*I have my greatest successes as a teacher
when I receive active cooperation and support
from parents, who are, in fact, my pupils' first teachers.
How can parents help in the educational
of highly able pupils?*

Parental INVOLVEMENT IN IDENTIFICATION can be used as a basis for developing a partnership between home and school in which the teacher can explain how the student is being taught and how the parent can help, bearing in mind of course that some parents will be in a better position to help than others. It may be necessary for the teacher to spend time with the parents explaining how they can help and possibly, resources permitting, provide them with resources which they can borrow and make use of with their children.

Sometimes just as good is for teachers to suggest ways in which parents can ENCOURAGE THEIR CHILDREN TO LEARN by training them to be independent and responsible within the family and the community, by allowing them to develop leadership qualities and interpersonal skills which many high ability students have in abundance. In other words a really good way for parents to encourage their high ability children to develop their powers of thinking and organization is to use their day-by-day life experiences. Many high ability students can offer creative solutions to community problems if given the chance to do so. Of course in some cultures it may not be considered appropriate for children and young people, especially girls, to be involved

in this way. Where it is possible however it helps with the holistic development of the student, which includes the intellectual, social and emotional aspects of development.

Probably the most important contributions that parents can make occurs PRIOR TO THE CHILD'S BEGINNING SCHOOL. The most important learning tools that the child brings to the first day of school are language, curiosity, and perseverance. The home, or the extended home – grandparents and other relatives or family friends, as well as child-care workers – can do a lot to enrich development. The best way for a very young child to master language is to experience a lot of it in conversation, stories, and reading. Curiosity is built in to every healthy child, but it can be extinguished. Children are infamous for always asking “why,” and the natural tendency of a tired parent is to deflect or ignore the question. An important benefit is to be had in trying to answer the “why” question as much as possible, and certainly to welcome the question. Perseverance comes from having the opportunity to sustain interest-based activity for extended periods of time. It is also assisted by not insisting on instant replies but favouring reflective replies. Parents can also be alerted to the difficulties that can be created by favouritism amongst children and the pressures that siblings may already feel arising from the identification of high ability in any of them, and particularly of the need to value the good qualities of all children and not seek their own sense of accomplishment through their children. Research has shown that the very youngest infants display a powerful need for competence, and if we help it along through opportunity and praise, this persists through life. Children and adults like to be good at things, whether grabbing hold of a cradle rattle, getting a caregiver to bring a drink, skipping rope, being friends, playing a sport, driving an automobile, sustaining an loving adult relationship, or doing a job. This all starts and gets its greatest push at home. By the time teachers take the reins at age 4, 5, or 6, the process is well under way.

Parents of high ability children often have SPECIAL CONCERNS ABOUT SCHOOLING. Where there is a choice of schools, parents seek the most appropriate for their children. When the parents' level of schooling is not high, they may also have fears about being able to

help their children with school work. If the work is to be even more advanced, this fear can be aggravated. Some of these problems are aggravated when there is a single parent trying to cope. Occasional group and individual meetings can be a good vehicle to assist parents with these issues.

In more and more parts of the world, parents play an important POLITICAL ROLE as local educational authority (such as school district) and school-level governing bodies and advisory councils are elected. Parents run for these offices and parents vote. Educators who wish to see strong support for educational initiatives directed at children with high ability are well advised to keep parents informed about what they plan to do, about their successes, and about how it can benefit the entire school (see Section 16 for some ideas). This information can be conveyed through discussion meetings and, where resources permit, a school newsletter sent home with programme news, or both. Finally, the political role of parents can also take place outside elected office at the level of advocacy in many forms, but particularly two: Seeking suitable educational services for their own children, and helping to convince policy makers and educators to provide appropriately differentiated programs for children with high ability.

Community Involvement

Some of the most exciting school experiences for my pupils arise when we go beyond the school and get involved in the community.

Are there special insights about how the community around the school can help meet the educational needs of students with high ability?

There are several contributions to the education of high ability children to be had from the community in which the school is located. The initiative for collaboration can come from any source, parents, teachers, school, or the community-based resources.

In respect of the importance of early childhood experiences, the community can support a Home-Start or Head-Start programme: these are programmes that focus on helping mothers in particular develop literacy skills where they are lacking, and bring basic helpful materials to them, such as children's picture books. Programmes like this are probably best initiated through community health units so that they can begin with post-natal visits where these are offered. They benefit all children, especially those who might be at educational risk. They are often integrated with health and nutrition services and they have the added advantage of nurturing talents as well.

Communities can support EXTRA-CURRICULAR ACTIVITIES that add depth and breadth to children's experiences, for example, through a parks or recreation centre, or at a library. We understand that these may not exist everywhere, but when the opportunity to create any of

them occurs, consideration can be given to mandating these kinds of opportunities. Activities can include singing and choral classes, dance, drama, the plastic arts (e.g., clay modelling and carving), drawing and painting, chequers and chess or other strategic board games, reading clubs, and – a special help to crowded or noisy households and where parents may not be home from work until closer to the supper hour – supervised homework time after school for children as well. Mixed in with this can be informal play time, organized physical games (very helpful after a day behind a desk), and even a quiet supervised room or corner where a child may get some sleep.

MENTORSHIPS can be organized at the community level and offered to schools. These involve matching the interests of individual pupils or small groups with a responsible adult who can help them with a special project or interest. Mentors normally donate time to come to the school to work with the children for a few hours, perhaps regularly. Precautions must be taken in selecting mentors, including checking character references and ensuring that there is no legal constraint against the potential mentor's associating with children. It is usually wise not to engage a potential mentor who objects to such a background check, and to ensure that the meeting place for mentors and pupils is in view of school personnel.

The surrounding community can provide SETTINGS FOR INTERNSHIPS AND WORK-STUDY opportunities. These, too, are elaborated in Section 16. Internships are like mentorships except they take place outside the school, usually in the workplace of the volunteer. The same screening is needed for internship supervisors as for mentors for the safety of the children, when the individuals are not well known to the community and the school in particular. Since the school has the responsibility of the parent during the school day, it needs to demonstrate that it is prudent in placing the child in the care of a person outside the school, even occasionally. Internships for highly able pupils should focus on professionals and persons in industry or commerce who have a relatively creative role but one that does not violate confidentiality. So connection to a dentist or architect, marketing director or designer could be fine; this would not be possible in the office of a physician (except perhaps a specialist with

infants) or a lawyer (again, except if the case load includes topics like public policy or the environment.) College and university personnel are also often willing to take part in mentorship programmes or to offer a small number of classes at an advanced level, in those places fortunate to have such an institution nearby.

Finally, the community is the primary territory for EXCURSIONS AND FIELD TRIPS, whether nearby on foot or slightly farther afield by other means where these are accessible to the school. It is highly desirable to connect social studies and science and mathematics classes, for example, to the real world, especially the world that is familiar to students. Such excursions bring home the idea that schooling is partly preparation for a life “out there,” not a total end in itself within the school. Some excursions, as simple as those to a railroad station, factory, post office, or large store, usually require permission in advance. It is a good idea to maintain a roster of sites that welcome visits. High ability children are generally good visitors. They impress the hosts with their curiosity about and understanding of what happens. They then pave the way for other children to be equally welcome. Consider using children identified with high ability as ambassadors to new excursion sites. All children should be prepared in advance of field trips, including some suggestions about what to look for and the obligation to follow up with some kind of a product, anything from a drawing to an analysis of some aspect of the site or its history. For most students, teachers should help them to prepare some straightforward questions they can ask (e.g., how many people work there? what do they do? how did they get to work there?), but for more able pupils it is appropriate to try to apply Bloom’s taxonomy and ask some higher level questions (e.g., how is this place similar to or different from another that was visited? if you could make a plan to redecorate the entrance space what would you propose? did you get any ideas for how they could improve their product or service and that you could think about and write to them with a thank-you letter?). The questions can be planned with the pupils, and should always be set out in advance so they can sharpen their observations when they are insitu. It is preferable not to set a visit at the very end of the school day, especially the last day of the

week but to allow a little time for children to record their observations while they can still confer with each other and the teacher before they start to forget many of the details.

LEA and Government Support

*At some point we bump into the rules
and regulations set by the Local Education Authority
("LEA," also known as school board
or commission or district in some countries)
that governs schools in our region, and these policies
are important to the success of new initiatives.
What kinds of policies and other support
can be appropriately sought from the LEA?*

It is clear from evidence around the world whether in the so-called developed or developing world that the issue of gifted, talented, more able or high ability students is one which is often contentious and problematic. Where resources are limited there is the issue about how it is to be fairly apportioned. Where there are extra resources available some countries channel this towards universal literacy and numeracy. Few countries world-wide make decisions to offer additional resource to any great extent to students who are assumed to be doing well at school anyway. Although, as we have suggested above, many with the potential to become high achieving do not in fact do so because of other factors, one of which is lack of resource to provide materials, well-trained teachers and support for out-of-school initiatives. An argument could of course be made that these resources, if targeted at the high ability students, would not only benefit the high

ability students but all students. For example all students should learn more easily from working with teachers who understand more about the processes of teaching and learning, so if teachers were given this kind of training specifically in order to be able to teach high ability students, then all pupils would gain more effectively.

In order to make adequate provision, governments have to BE AWARE OF HIGH ABILITY STUDENTS AS AN ISSUE and in countries which believe that all children should be educated alongside each other, it is particularly important to consider the needs of high ability students as part of the equation because the diverse learning needs of all, as stated at Salamanca, are to be given full consideration. This statement clearly implies that all students, including high ability students and those with other special characteristics, have needs which should be taken into account. Different groups of students have, of course, particular needs each of which have resource implications. Often the amount of resources channelled in their direction will depend on whether as in some countries it is decided that the high ability students are those most urgently required to deploy their talents for their country. Highly able students certainly have the potential to contribute to their countries, and every country places preparation for responsible citizenship at the head of the legislation outlining its broad educational objectives. We do suggest caution, however, in treating any children as a natural resource of the country. Growing up in the 21st century is ever so much more complex and challenging process than in the past. A balance between opportunity for personal growth together with a commitment to service to the community, encouraged by opportunities within the curriculum, might provide a valuable balance that gives growing youth a feeling of some control over their destiny. This can be highly motivating, as well as contributing greatly to dignity and self esteem. Highly able children are very sensitive to injustice and will likely be very positively affected by this balanced approach.

Governments which value achieving students will need to have in place a STRATEGY FOR SUPPORTING THEM WHICH INCLUDES A POLICY. They might offer scholarships for high achieving students to attend special schools where they can develop their talent in music for example, or they might provide scholarships to schools of academic

excellence. On the other hand they could provide teacher-education courses to ensure that ultimately all, or at least most schools, have a teacher with special expertise in teaching high ability students, expertise this consulting teacher can share with colleagues and thus every teacher will be able to manage the learning of high achieving students more successfully.

LEAs and governments can also APPOINT KEY PERSONNEL AT DISTRICT LEVEL with experience of high ability students and the education systems which appear to support them best and organize district level support to schools and students so that students from different schools can be taught together by expert teachers in the curriculum or talent areas within which they have exceptional ability. Such key personnel can advise on programmes, organize on-the-job training for teachers, and interact with parents and community leaders. Since it is frequently not possible to make this a single, full-time responsibility for anyone, the role can be undertaken at least initially by a chief mathematics or language consultant, a special education coordinator, or any other LEA-level educator who is interested (alternatives include health officer, inspector, or librarian). It is particularly important that teachers have as regular contact as is possible with peripatetic or itinerant personnel who can provide them with ideas, advice and possibly resources.

Governments can INCORPORATE EXTENSION THEMES AND ACTIVITIES INTO THE CURRICULUM so that all teachers have information about ways of extending the curriculum for high ability students. These can be presented as core or supplementary subjects, but also in the form of regional or national festivals and subject matter fairs such as science fairs often arranged in collaboration with colleges and universities. Government sponsorship will greatly facilitate the availability of space, transport, and publicity for these events.

Since government education departments and LEAs are often responsible for teacher-education institutions, they are in a position to request that attention to the needs of high ability students is at least introduced in the initial training of teachers, and also perhaps in advanced specialist training for teachers.

The ultimate responsibility of LEAs and governments is to create and enforce the laws that set the parameters for the education system. It is very helpful to those who provide educational services if at a minimum the REGIONAL AND STATE, PROVINCIAL OR NATIONAL (AS MAY APPLY) EDUCATION LAWS EXPLICITLY RECOGNIZED THE FULL RANGE OF ABILITIES, and at least permitted schools and teachers to provide adapted education for all special needs, including high ability. One step better would be to require it, as some states and provinces have in Australia, Canada, and the USA, and some countries, such as Portugal. And the best would be to require it and to designate human and fiscal resources to ensure that it happens. If necessary, encourage LEA and legislature members to take the first step of recognition. It is much easier to convince people to engage in activities that are legally sanctioned; when the law says nothing, one's actions are perhaps more susceptible to arbitrary actions.

Resource Equity

*We have pupils with desperate problems,
and even if highly able pupils have special pedagogical needs,
we cannot sacrifice the more vulnerable pupils in our charge.
How can high ability children be served
without according an unfair portion
of limited resources to meeting their needs,
and certainly without encroaching upon the resources
available to others?*

There is a belief in some societies that high-ability students are already advantaged and will do well because they have a special talent and that scarce resources should be given to those students who are disadvantaged and who do not have special talents because they will become doubly disadvantaged. High ability students are not always advantaged and even if they are, they will perform better if an enabling environment has been provided for them which allows them to work hard at their subject or talent in an intense and concentrated way for a substantial period of time, even up to ten years it has been suggested, for exceptional performance to result. The educational success of all children is correlated with their future successful employment and later ability to pay taxes.

The response of society to people with high ability – who are often described as gifted or very able – has varied considerably in the past as it does today for social, economic and philosophical reasons. One response is to say that high ability students should have the same

resources and educational experiences as their peers, this is their right. This notion of equality of opportunity suggests that everyone ought to be entitled to the same resource, in this case educational resource. A different response is to use the principle of equity which is based on the notion that not everyone needs the same because each person is different.

One way to put equity to work for the benefit of all is to provide a reasonable amount of opportunity for grade acceleration where this is appropriate to some highly able and high performing children (as described earlier). School funding normally reflects registration or enrollment. If a child completes school in fewer years, then, there is a savings to the financing authority. Typically the LEA or government never passes on these savings, but it could be legislated that the savings are shared, part could go to the financing agency for the most general reallocation, part to the school for use at its discretion, and part to the school and LEA specifically targetted to provide personnel and materials for enrichment and the identification and education of children with high ability. If a plan such as this is implemented, the comptroller's or auditing department should know about it so that the use of the funds can be tracked.

What is important therefore is that every student has access to the type and amount of resources which he or she requires. Whilst this remains a goal which is presently unattainable in many places, nevertheless the principle is what is important. In the case of high ability students it means that they have the right just as all other students do to access resources and that they should not be ignored or penalized just because they have high ability.

The major advantage of the concept of equity over equality would appear to be that it provides for a more efficient and effective use of resources because it advocates resource differentiation which is tailor-made to meet the need of individuals. Nevertheless it has to be said that in some of the poorer countries in the world governments are not in a position to do this and there is grave concern that very large numbers of students with the potential to become high ability students do not get the chance to develop their potential into performance. That

is one of the challenges we face in the 21st century. There are some things that cost absolutely nothing, however, and these could be a good starting point for any jurisdiction. These include:

- (a) legislating a first level of policy that recognizes high ability as a basis for special or differentiated educational services and also permits teachers and schools to make these provisions, (b) assigning responsibility for the dossier to a senior official in the administration,
- (c) adopt a fiscal proposal such as stated just above, perhaps with some caps – such as no more than 5% of the school population per year that would qualify for the protected funding – to prevent undue taking advantage of the system, and
- (d) requiring that programmes for teachers in training address the full range of abilities, including high ability. In addition, a number of the proposals throughout this handbook can be put into practice at very little cost.

Caveats and Concerns

*Advice freely and simply given seems too good to be true.
Are there any dangers or caveats,
and what pitfalls should I look for as a teacher, parent,
administrator, or legislator?*

Indeed there are always hidden traps, and some very visible. Being aware of potential difficulties can be helpful, but it can also cause one to hesitate for fear of making a mistake. Some of the following points echo previous sections, but some are new. Rather than just stating the pitfalls, we have also added relevant notes of encouragement. These are not hard to avoid. We have organized these in quick point form under the group of persons who should particularly be on the alert. (Several of these are suggested by Davis & Rimm, 1998.)

Teachers

- (a) AVOID A STRICTLY FUN-AND-GAMES programme. A substantial part should be curriculum expansion.
- (b) INVOLVE AND COMMUNICATE OPENLY WITH COLLEAGUES, both other teachers and a school administrator. This generates a good information flow about the extent of the effort and skills involved that helps to counteract any false impres-

sions that it is easy to work with students perceived to be the brightest and most easily motivated.

- (c) Excessive pressure on pupils can be counter-productive, so AVOID COMPETITION and even formal grades for the additional or extended work.
- (d) DO NOT OVERLY RELY ON IQ TESTS or lament that they may not be available to you. There are many types of high ability and a child identified by a high IQ is not more genuinely highly able than a child identified in another way.
- (e) Be careful NOT TO MAKE THE PROGRAMME A STATUS SYMBOL by only selecting high achieving, well groomed, polite children. Use a checklist or test results to have some objectivity.
- (f) DO NOT TRY IT ALL ALONE. Be sure that at least a school administrator or senior colleague is in favour.
- (g) Be proactive in STEERING CLEAR OF DISCRIMINATION based on culture, gender, or any other source of diversity in the class.
- (h) Whilst it is true in general that high ability students are popular with their peers and have good relationships with them, some are not out-going, find it hard to relate to students of their own age, and mostly enjoy their own company. It is necessary for schools and parents to be aware of this and to ENCOURAGE SOCIAL AND EMOTIONAL DEVELOPMENT as well as academic. However precocious an eight-year-old high flying mathematician might be, there will be many times when he or she will react like any other eight-year-old and need to be treated as such.

Parents

- (a) The programme for high ability children does not have the only claim on the best teachers. Be prepared to SHARE TEACHERS' TALENTS as well as pupils'.

- (b) DO NOT ENCOURAGE PERFECTIONISM; it can be very debilitating for a child never to be satisfied with his or her work. It can be associated with procrastination and fear of failure. Assure your child that she or he is loved for being a wonderful person, and for making an honest effort. Every child and adult should have a recreational life as well as a work life. Some children need help balancing their lives. Especially assure them that there is no shame in making mistakes.
- (c) Keep an EYE OUT FOR NEGATIVE EFFECTS on siblings, jealousies, temper outbreaks, a new level of withdrawal. A child identified as high ability may flaunt this status. A loving discussion may be in order.

Administrators

- (a) A FORMAL, WRITTEN POLICY is more than useful, it is necessary for the sustained success of a programme. One can probably begin without a formal policy in a demonstration project (a good way to begin), but one of the outcomes should be a policy that assures the continuation of the programme once the original personnel move on to new challenges.
- (b) Everything that is done in a programme for high ability pupils is NOT DIRECTLY TRANSFERABLE IN THE SAME FORM to all pupils. If some thing in that programme looks like a good idea, it may well be adaptable in some way for other children, but the level and content of a good programme for high ability children makes intellectual and creative demands upon them that would be unfair to others.
- (c) High ability pupils CANNOT THRIVE ON THEIR OWN. Neither can their teachers thrive on their own. Be sure to reassert your support at regular intervals, and to discuss the programme at staff meetings, include it in continuing professional education plans, and try to find a line for it in the budget.

Legislators

- (a) A programme for high ability children should be presented as part of providing an APPROPRIATE EDUCATION FOR EVERY CHILD and reflecting the increasing sophistication of educational services in the jurisdiction. Programmes that are presented as prestige items, or as serving children with special status or value to the society, engender ill-feeling and, when financial resources are limited, risk being trimmed, eliminated, or never being supported in the first instance, along with any other item deemed to be an unnecessary luxury or privilege.
- (b) Programmes for highly able pupils NEED NOT COMPETE WITH OTHER PRIORITIES. They can be fiscally self-supporting and contribute in many ways to the quality of general education. Please see Section 16 for 19 examples of how this is so.

REFERENCE

Davis, G. A., & Rimm, S. B. (1998). *Education of the gifted and talented* (4th ed.). Boston, USA: Allyn & Bacon.

Value Added

*It is not enough merely not to harm the quality
of education we provide to all children
to meet the particular needs of even a worthy group.
Suppose we undertook some initiative in this regard,
can the benefits go farther?
Are there benefits that return to general education
as a result of attending to the special needs
of highly able pupils?
Is there “value added” from this engagement?*

The extent of this inventory of value added is perhaps surprising to some. A few of the elements, such as the use of Advanced Placement courses for university entry are expensive in world terms, but within the societies where they are most often used, notably North America, the benefits are nonetheless shared with the general educational system. Many other items in this list echo suggestions made earlier in the handbook and serve their role at little or no additional cost, for example valuing the arts in the curriculum or providing mathematics, poetry or other extra-curricular clubs. Here is the full list, in no particular order other than to which they came to mind.

Bringing attention to the full range of performance and potential in children

Nearly a century ago when Binet's device for screening children for potential learning problems in the Paris prefecture found its way to Stanford University in California, it also spawned one of the most extensive longitudinal studies of high ability, the famous Terman studies. Interest in high ability is built in part on the tradition of the psychology of individual differences, with all its advantages and disadvantages, but it has never disavowed a concern for learning problems with which it shares this important common historical thread. Increasing interest in high ability children with learning problems has heightened this contribution. There is considerable benefit to be found in contemplating the strengths in children who come to our attention because of their weaknesses, and the weaknesses in those who come to our attention because of their strengths. It is the full range of abilities that matters, and how that range is manifested within each individual learner.

The promotion of knowledge fairs

This includes science fairs, the most common, but also exhibitions of children's work in every imaginable domain of knowledge, or across different subject areas. A knowledge fair of any kind is an occasion for students to display the products of a project or independent study for public display. The display might be a demonstration of a science experiment, drawings or photographs, writing, etc. The fair can have a subject theme such as science, history, creative writing, or mathematics, or it can have a general theme such as peace, an international day of labour or for women,) community, good citizenship, or neighbours, that allows children to display writing, drawing, experiments, models, photographs, or any agreed-upon medium. The items are placed on display in a location such as a school gymnasium or

entrance area, or in some other suitable area. The students are present to answer questions and the rest of the school and the community are invited to visit and interact with the pupils. Some interesting problems still need to be resolved, for example, are knowledge fairs equally effective when participation is required as when it is optional, and, if they are optional, will they be equally attractive as an activity to all students? Or how can they be made so? We need to learn more about how best to handle knowledge fairs across wide ranges of abilities, the advisability of prize giving or compulsory participation, the limits of assistance children require and want in their participation, and where they go for help. Our advice at this stage is to make participation voluntary but to encourage it, to provide students with help from teachers or volunteers in planning their projects and preparing their exhibits, and to give a certificate or other token of participation to all participants rather than to have winners and losers.

**Embracing major curriculum reforms
which place inquiry-driven curricula,
the student and teacher as researcher or explorer,
at the centre of pedagogical practice**

These reform proposals have been gaining momentum since the late 1980s in mathematics, science, social studies, and language arts. High ability education favours practices which place an emphasis on children learning to think independently, critically, and to use high level literacy skills to accomplish these goals. Rich and enriched curricula as understood by persons well versed in gifted education are highly compatible with the best knowledge we have about human learning as we enter the 21st century in an increasingly learning-based society. Contemporary cognitive psychological theory does a much better job than older learning theories of anticipating the kinds of thinking competencies people need to be recognized as experts, as creative, or as having inquiring and critical minds.

Formally incorporating high-level questioning into curriculum

Through widespread advocacy of the use of Bloom's taxonomies of educational objectives (especially in the cognitive domain – there are two others, one affective and the other psycho-motor) ranging from knowledge and comprehension at the basic end to application, analysis, synthesis, and evaluation, programmes for high ability pupils have provided some of the best examples of the application of this theoretical work to daily educational practice and the enhancement of curriculum. This gives teachers and learners themselves tools, not necessarily perfect tools or the only ones, but tools which enhance the level of learning beyond rote learning, and which can be readily applied to any classroom by ensuring that questions and assignments are framed at the higher levels as well as the basic. Research has also shown clearly, from Kindergarten to graduate studies, that if students practice asking each other high level questions about a reading or a lesson, try to answer the questions, then give feedback to their partners, their mastery of the material is significantly enhanced.

Using formal curricular models to plan curriculum

The most comprehensive of these is Renzulli's "School-Wide Enrichment Model" ("SEM," backed up by a 400-page manual) but several others are also used in practice. Many of these models were conceived or have evolved into models for general educational improvement and talent development, but their history is clear. They began as models, skeletons, or outlines, for gifted education.

The SEM incorporates the "talent pool" idea for identification (refer back to the conclusion to Section 1), seeking to include rather than exclude, with the intention of identifying 20% or more of a school population. The second major feature is that Type I and Type II

enrichment activities (refer back to Section 4, topic 3) are made available to the entire school. Of course different children will capitalize differently on these opportunities, but the benefit for the entire school is critical. Students in the talent pool receive some specific Type II activities that are particular to their needs in Type III activities, and they engage in these Type III activities. Note, however, that the idea of individual and small group projects is not restricted to identified high ability students, but the model implies a commitment to provide these to the identified students as a priority because this approach meets some of their particular needs exceptionally well. Another feature of the SEM is curriculum compacting (refer back to Section 4, topic 2). Less time is spent on the regular curriculum to make time for the SEM. In each component of implementation, the teacher and school have many choices so that the model can be adapted to local circumstances.

Another model is Feldhusen's Purdue Three-Stage Enrichment Model that recommends three components to curriculum adaptation for high ability. Stage 1 programme elements focus on teaching both convergent and divergent thinking skills. Stage 2 concentrates on the development of creative problem-solving skills (for example, with the Creative Problem Solving model developed in the USA or de Bono's CoRT – Cognitive Research Trust – materials developed in the UK). Stage 3, like Renzulli's Type III, focusses on independent learning skills at a creative level. This model is more oriented to creativity, but less comprehensive.

There are many other models, each with its particular emphasis. The advantage of these models is that they lay out a bit of a road map or template. Many of them have one or more of four disadvantages: they do not cover all the needs, they may be difficult to adapt to local circumstances, and too often they do not allow sufficient integration with the core curriculum, and their implementation may be dependent on specialized training that is not widely available as well as on a particular delivery or organisational pattern. Our advice is to use models as checklists or templates, reminders of considerations not to be overlooked, rather than as recipe-book solutions. For this purpose they are very useful, and if a teacher or school discovers that one of them is

especially well suited to their own situation and preferences, then there will be a number of available sources of useful materials and advice.

Embracing a working link between education and the movement

This is especially interesting because many of the key scholars and trainers in the creativity field are also closely connected to the world of business and to other disciplines such as psychology. Definitions of giftedness or high ability frequently include originality of thought or other forms of creativity, and programmes for high ability children from France to Japan and points in between have made creativity a central feature, for example, in activities such as Creative Problem Solving, Odyssey of the Mind, or Future Problem Solving Bowl, and in regular classroom activities such as brainstorming. High ability education has been a consistent test-bed for this development.

Championing the teaching of the performing and fine arts in schools

Gifted education, as programmes for high ability pupils are sometimes called, have loudly protested the disappearance of arts programmes, usually due to budget compressions, and have played a major part in preserving the tradition as well as cadres of trained personnel in the one alternative often open, the special, magnet, or key schools for the performing and fine arts. One of the great tragedies of the threats to the arts in regular schools and classes is that this part of the curriculum is closely connected to the cultural vitality of the community. It is amongst the most portable parts of the curriculum throughout life and can provide personal fulfillment or employment for many people. The fine and performing arts can also be a great source of fun in school for both children and teachers, a change of pace from normal classroom activities.

Leadership in of advocating the enhancement of additional language, global, future, and intercultural studies in schools

These could perhaps be elaborated as four or more separate points, but they are examples of a single category of extensions of local curricular needs in the direction of world citizenship and awareness. They are also, in a major way, interdisciplinary, addressing the need for greater complexity within highly able learners, and the opportunity for such experiences with all learners. Within several organizations in gifted education we find special interest groups for global and future studies, but not as often can we find such formal expressions of interest in second and third language learning and intercultural education. High ability, gifted and talented education has been a strong ally to these curricular thrusts.

Searching for talent across cultural, national, or linguistic, boundaries

Though there are many more common qualities than differences in what different cultures, nationalities, or language groups value as an indication of high ability. For example, musical or artistic talent, though it may take different forms, is widely shared. Some important differences, however, may be very subtle, such as the higher valuing of competition and individual achievement in one group, and the preference for compromise, sharing, and group achievement in another. One may strongly favour achievement in verbal or linguistic domains (such as the need for psychologists, social workers, and teachers to follow and create a logical flow of thought in an ongoing conversation) and another in more representational contexts (such as the need for engineers to work well with technical drawings). It is perfectly natural to view others through our own experiences and background. The search for talent in school children imposes an important responsibility to reach beyond our personal lens to look for such talent through multiple lenses chosen with sensitivity and respect for the differences among the children. As many parts of the world become

increasingly multicultural, multinational, multilingual, and multiracial (because there is only one human race, we hope we can find some better language here), the search for talent in each classroom and school becomes a more demanding task. We have sometimes not kept our actions in perfect coupling with this philosophy, and programmes for highly able pupils are still too often more accessible to children privileged by economic circumstances, even within wealthier countries, but we do know better and the written record from within gifted education is positive. Educators know well that the upper limits on what any individual might achieve are barely scratched in nearly every case. The opportunity to excel is increased when identification recognizes and values the different starting points that each learner brings to school, not only at the individual level, but as a result of the cultural or other group from which each pupil comes. Diversity creates challenge, but it is an asset, not a liability.

**Expanding the view of vocational education
from basic job training for young people
lacking scholastic aptitude to links with the full
range of occupations**

Programmes for high ability students have made effective use of executive internships (part-time or temporary placements of students outside the school with professionals in many fields), mentorships (matching expertise and interest in the community with children's interests within the school), and similar learning experiences. All such arrangements require careful screening of the outside persons so as to ensure the safety of the pupils (see Section 12). While the practical forms of education traditionally available to children who have not succeeded in school have for the past century and more maintained links with the world of work, gifted education made the idea viable for high achieving children as well. Several colleges and universities also have "cooperative" or "sandwich" learning programmes in which classroom experiences are alternated or run in parallel with relevant work experience or internships. This double thrust increases the opportunities for all young people to benefit in some way, for example direct

experience in the workplace or mentorships. In addition, highly able pupils frequently make a very favourable impression when they go on field trips or individually work in a mentorship or work-study programme; in this way they are wonderful ambassadors to the world beyond the school yard and may open doors for others to enjoy similar opportunities.

Focusing the attention of the entire education system on the under-representation and sometimes underachievement of girls and young women

Even in the most economically and technologically advantaged or advanced countries, this continues to present an important challenge with regard to solutions, but there is no ambiguity about the underlying data. Educators involved in the education of highly able pupils have been very sensitive to the fact that the participation rates of girls and women are below those for boys and men in, for example, science, mathematics, and engineering, and have shown that this participation can be redressed, sometimes more easily than others. We have also learned that achieving this equality of access can sometimes have drawbacks, and that care is needed in the implementation. We look to the future with the realisation of the value of group counselling as a useful part of programming for bright girls, and need to ask what accommodations boys should learn to make. We have learned about the importance of adapting learning situations to respect the ways that girls have been socialized to learn best, such as increasing opportunities for shared learning experiences, and decreasing the emphasis on competition and always jumping over hurdles.

Supporting high quality, universally accessible state-supported schools

In many countries, not restricted to the most affluent, parents in search of good quality schooling for their children often choose private, fee-paying institutions. There is no systematically collected evidence

for or against this choice, and it is not our purpose here to argue against its availability. However state-supported schools that provide well for high ability children directly enhance the quality of the overall educational enterprise and do so within the context of a high level of accessibility. The flow of resources to the state-supported system is usually directly related to enrolment. When state schools fail to address the needs of high ability students, they seriously risk a drain of resources and talent, both among pupils and teachers, to private schools. When the size of this transfer of resources becomes large and exceeds some reasonable balance, the students who will lose the most are the students of average ability and those with difficulties, because overall, enrolment-driven funding to the public schools decline, and the societies that thereby do not develop to the fullest the talents in all children.

Advocacy for the concept of talent development on the school agenda

It is ironic that schools should, generally, have followed rather than led the corporate world in bringing this goal to the front, there is no harm acknowledging and adopting a good idea. Of course schools have always been in the talent-development business, perhaps without realising it explicitly. Talent is not only discovered or selected; it is also developed. Talent development has become a central theme in many models of education for high ability pupils, and it generalizes beautifully to all children. It is a good example of the optimistic character of education as a profession.

Support for flexible school-entry ages

Some children are ready for school at 5 or 6, others are not. Some jurisdictions allow delayed entry for children with developmental delays, but such children may be better served in a good school from a younger age than waiting. Invoking the same respect for individual differences, some very able children have both the academic ability and social readiness to start school a year or two earlier.

The greatest advantage is gained by flexibility, and many high ability children provide examples of the need for this flexibility to be applied to all children.

Support for subject-matter clubs

Highly able children are frequently among the pupils most likely to be drawn to mathematics, science, or history clubs, dramatic or literary societies, second-language circles, and similar extra-curricular clubs that may be too scholastic for some children's interests. However, interest is the reason for joining, and these less formal meeting grounds allow children and teachers to go well beyond the curriculum. As a result, children of average ability can explore these with low personal risk. If their interest is not captivated, they can leave without failing. If it is captured, a whole new and unanticipated talent area may be discovered. We perhaps tend to give too much relative weight to ability over motivation in educational decisions, in any case. Adults commonly choose friends and associates, even life-long partners, on the basis of shared interests. The same opportunity can be available to children across ability levels.

Creation of college-for-kids weekend and summer programmes

Secondary schools add new educational vistas to those at the elementary levels, and colleges and universities similarly expand the horizons of exotic areas of study and careers unimaginable to most high-school students. The motivating power of expectations, one's own or shared by others, is enormous. A number of programmes for children with high ability include condensed tertiary-level curricula in order to provide enrichment at a suitable level, but also to entice children to pursue their education to another level, for their own benefit and society in general. Some of these programmes present actual college courses (such as with Advanced Placement curricula described earlier) but that is not the essential ingredient. These programmes can easily be offered on an interest basis to a wide spectrum of pupils.

Many have successfully made themselves available to siblings of formally identified highly able children with excellent results in terms of accomplishment, and the important side-benefit of avoiding or reducing negative comparisons within families.

Support for Advanced Placement (AP) courses and examinations, and related forms of acceleration

Advanced Placement courses are university-equivalent courses taught to secondary school students on a voluntary basis. These can be used to accelerate completion of tertiary education. AP programmes were not designed with the intention of being the exclusive offering of high ability programmes. They are also expensive and mostly available in North America. It is quite likely, however, and at least a testable hypothesis, that formally organized gifted programmes' support for AP courses has enhanced their availability for any interested and qualified student. Surprisingly, there have been very few follow-up studies of students who take AP courses and use them to accelerate either university entry or completion. While AP courses themselves may be of limited international applicability, the critical contribution is that university-level curriculum can be successfully completed by a respectable number of secondary-school students. Agencies ranging from "open universities" to radio, television, and other "distance" education designed at the tertiary level might be well advised to consider accepting course-by-course registrations from interested secondary students, and allow them to accumulate the credits to advance the pace of their formal education. This is both motivating for the students and cost-effective for the educational system. The AP system trains local specialists (usually secondary school or community college teachers) to assist such students and this can also be adapted to local circumstances.

Being alert to the potential for loss of substance and level of the regular curriculum

Researchers in the USA have noted a decline of almost two school years in the reading level of middle and high school textbooks over recent decades. This may not be a problem or even a risk elsewhere, but international comparisons seem not to have been made. If such a slide can be avoided, contained or reversed, while providing appropriate support and alternatives for children who cannot cope with increased demands in the regular curriculum, then high- and average-ability students will benefit. It might also benefit public confidence in the overall educational system. The ability of elementary and secondary schools to deliver adapted, quality programmes in core subjects and areas of interest, supported by attention to defensible standards in curriculum planning, will likely be an important contributor to avoiding and resolving this problem. The greatest challenge raised by this issue is meeting the needs of children when nearly 100% of the age group completes elementary and secondary school. This represents a tremendous range of diversity to schools, teachers, and curriculum planners. The challenge to address such diversity grows in every country with the increase in universality of participation in elementary and secondary schooling, and with inclusive policies designed to serve the greatest number of children, including those with special needs, in the shared school.

Keeping up the “class average”

Whilst the higher performance of exceptionally able children certainly increases the average performance of any classroom, the success of the overall educational system in sustaining the accomplishments of these children is reflected more broadly as well. National and international comparisons of educational attainment are increasingly being made, for better or worse – another issue beyond the scope of this manual – and it is certain that such comparisons will continue to be made. Many of these comparisons can be fairly criticized for focussing on basic knowledge of subject matter, and for

ignoring higher level intellectual goals such as promoting independent learning and critical thinking at which more able pupils particularly have the potential to excel. Nonetheless, the absolute and relative performance of any classroom, school, district, or country will be affected as much by how high the most able students score as by how low the least able pupils score. One of the most important ways to raise the class or national average further is to tackle the incredible disparity between the most and least advantaged members of society, but the overall position will not be helped if the performance of the most able is held back by not fully exploiting their potential to learn. Gifted education has many examples of reaching out to disadvantaged children and youth, for example, a study of Davis and Rimm, 1998 – see especially chapter 12. Gifted education cannot directly reform or protect the health system or social safety net, both central to families' support for their children, but it can provide useful models for overcoming some of the earlier disadvantage. Of course, it could do more if some of that disadvantage and opening handicap were removed. There are, then, two points to be made here:

- (a) the performance of any unit from a classroom to a country to all of humanity's children seen as one will be enhanced if the most able students are well served and perform up to their potential, and
- (b) efforts that improve the achievements of the lowest performing children – sometimes the poorest or those most remotely located from major centres – will have a similar impact.

What we actually do within these agendas for bright children may be different from what we do with others, but the framework is common. We can and must share in realising those agendas with our colleagues in general education. When we are asked where our interest, knowledge, and enthusiasm for these issues comes from, we can be open about our exposure to them in our work in the education of highly able children. We need to bring the gifted education agenda into the mainstream education agenda by tackling important

issues in general education from the perspective of the insights we have developed in our more specialized work. We should not think of gifted education as something separate from general education. Such divisiveness is bad politically and pedagogically, and bad for general education. Education of the gifted for the benefit of all children. What has gifted education done for general education lately? Quite a lot.

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Appendix

Resources for Teachers and Schools

For further reading

GENERAL

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Organizations and Journals of Interest

WORLD COUNCIL FOR GIFTED AND TALENTED CHILDREN

18401 Hiawatha St.
Northridge, California,
USA 91426
phone 1-818-368 7501
fax 1 818 368 2163
worldgt@earthlink.net

The Council organizes a World Conference every two years for all those working in this field as well as intervening regional conferences across the world. It publishes a journal (Gifted and Talented International), a newsletter (World Gifted), and the proceedings of World Conferences on Gifted and Talented Children in book format.

THE EUROPEAN COUNCIL FOR HIGH ABILITY

Bildung und Begabung e.V.
Kenneyallee 62-70
D-53175 Bonn
Germany
phone 49-228 959 15 10
fax 49-228 959 15 19

ECHA produces regular newsletters and journals (High Ability Studies) and organizes conferences throughout Europe every two years. ECHA also sponsors an international master's degree in gifted education, offered through the Worcester College of Higher Education in the United Kingdom.

GIFTED EDUCATION INTERNATIONAL

AB Academic Publishers
PO Box 42
Bicester, Oxfordshire, UK OX6 7NW

(This is an international publication aimed primarily at teachers.)