What are the options?

Extension programs for gifted and talented students in comprehensive schools

A discussion paper 2004
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Overview

Policy and implementation strategies for the education of gifted and talented students (revised 2004)

Input from parents/caregivers → School policy → KLA policy

Identification

Needs and characteristics

School organisation

Aim of the extension program

Program goals

Differentiation of the curriculum: enrichment and extension

Acceleration

Flexible grouping options

Counselling

Evaluation: formative and summative

Extension programs for gifted and talented students in comprehensive schools
Outline

1. The document *Policy and implementation strategies for the education of gifted and talented students* (revised 2004), forms the foundation for the development of extension programs in comprehensive secondary schools.

2. Gagné’s *Differentiated Model of Giftedness and Talent* (DMGT) provides research-based definitions of giftedness and talent that have a logical connection to identification and curriculum programs.

   **Gifted students** are those whose **potential** is distinctly above average in one or more of the following domains of human ability: intellectual, creative, social and **physical** to a degree that places an individual at least among the top 10% of age peers.

   **Talented students** are those whose **skills** are distinctly above average in one or more areas of human **performance** to a degree that places an individual at least among the top 10% of age peers who are or have been active in that field or fields.

3. Gifted children are advanced compared with age-peers in terms of their cognitive and social and emotional abilities, but may be underachieving in some or all of these areas.

4. Gifted and talented students are a diverse group. Boys and girls with high intellectual potential are found in all cultures, socio-economic levels and geographic locations. Within the gifted population students vary in terms of the nature and level of their abilities.

5. The first step in enabling gifted students to receive developmentally appropriate opportunities is an effective, equitable and defensible identification program. To achieve inclusiveness, appropriate strategies are required to identify students who:
   - are from culturally diverse and disadvantaged backgrounds
   - are of Aboriginal background
   - are from non-English speaking backgrounds
   - have physical disabilities
   - have learning difficulties
   - are underachieving.

6. Home-school partnerships are critical to the identification process. Parents are usually reliable sources of information about their children’s abilities and characteristics.

7. The process for identification for gifted and talented students must:
   - be dynamic and continuous
   - allow for identification at any stage of the child’s development
   - allow for the highly talented to emerge from the larger talented group
   - ensure that the identification of students from disadvantaged and culturally diverse groups is not overlooked.

8. Multiple criteria should be used to accurately pinpoint gifted and talented students for appropriate programs. Using multiple measures reduces the risk that students with specific disabilities or a history of underachievement are ignored. Nomination, screening, placement and monitoring are all important parts of the identification process.
9. A useful distinction can be made between provision and program. Programs are permanent and well articulated sequences of goals, content and strategies, in contrast to provisions, which are usually fragmentary, short-lived and an add-on to the core curriculum.

10. The purpose of extension programs is to provide the appropriate level of academic challenge to cater for the intellectual and affective needs of students. Extension programs encompass curriculum goals, instructional strategies, grouping, enrichment, extension and accelerative options. Counselling is an important component of gifted programs.

11. The key ingredient to the success of any gifted program is access for students to developmentally appropriate opportunities. This means that teachers require skills in differentiating the curriculum. In a differentiated curriculum, teachers offer different approaches to what students learn (content), how students learn (process) and how students demonstrate what they have learned (product).

12. It is advisable to develop gifted education policies for individual schools and in each KLA. School policy development enables an assessment of current offerings and guides the development of future management plans for the education of gifted and talented students.

13. An implementation plan and curriculum support for extension programs will be provided via the gifted education web pages at: http://www.curriculumsupport.nsw.edu.au/gats/index.cfm

Extension programs

Introduction

The 1991 Policy for the education of gifted and talented students endorsed a flexible approach to meet the needs of these students. Flexibility also underpins the recent recommendations for revision of this policy, which are based on research in twelve schools as well as advice from key educational and academic organisations and expert consultants. Major findings from the policy revision are in Appendix A. The Policy and implementation strategies for the education of gifted and talented students (revised 2004) provides the foundation for extension programs in secondary schools.

The 2001 Senate report, The education of gifted children, a key document in the policy revision, found misunderstanding of acceleration, extension and enrichment to be commonplace. The terms that relate to the development of extension programs and appropriate educational practices for gifted students are not well understood and will be clarified in this paper.

Definition

A shared understanding of giftedness is important in the establishment of programs for gifted students. Gagné’s (2003) Differentiated Model of Giftedness and Talent (DMGT) has been adopted in the revised policy because it is internationally recognised for its strong research base and accessibility to teachers. It has a direct and logical connection to identification and curriculum development. An important feature of the model is that it acknowledges the gifted underachiever.
Gifted students are those whose potential is distinctly above average in one or more of the following domains of human ability: intellectual, creative, social and physical to a degree that places an individual at least among the top 10% of age peers.

Talented students are those whose skills are distinctly above average in one or more areas of human performance to a degree that places an individual at least among the top 10% of age peers who are or have been active in that field or fields.

(Adapted from Gagné, 2003)

Giftedness corresponds to aptitude that is distinctly above average in one or more domains of ability: intellectual, creative, social-emotional and physical. Talent refers to human performance that is distinctly above average in one or more fields. Students may be gifted in one or more domains of ability and these abilities may combine in different ways to produce one or more specific talents (Gagné, 2003).

The DMGT has six components: domains of natural abilities, talent fields, intra-personal catalysts (IC), environmental catalysts (EC), learning/practice (LP) and chance (CH). The translation of giftedness into talent results from application to appropriate opportunities for learning, training and practice. Thus effort is a key ingredient that enables potential to become exemplary performance.

Gagné (2003) distinguishes two types of catalysts that may facilitate or hinder the translation of gifts into talent: intra-personal and environmental. Psychological factors in the intra-personal category include motivation, volition, self-management and personality traits. A distinction is made between motivation (interests, needs, intrinsic/extrinsic motivation) and volition (effort, perseverance, self-control, regular monitoring). These factors are important in maintaining effort in the face of obstacles and frustrations. Personality characteristics include self-awareness, adaptability and self-esteem.

The four main groups of environmental catalysts are persons, milieu or context, provisions and events. Parents, peers, teachers and mentors are key persons. Context can be considered at the macroscopic level (geographic, demographic, sociological) and the microscopic level (family size, socio-economic status, neighbourhood services). Since schools in New South Wales vary markedly in geographic location, size, student population and nature of teaching staff, the circumstances of individual students must be considered. Events can also have a profound influence on talent development. For example, the opportunity to work with a mentor in an area of deep interest can have far-reaching effects. Thus individual talent develops through a complex interplay of factors, and outcomes for gifted students will be enhanced if these are understood. A more detailed discussion of Gagné’s DMGT is available at http://www.curriculumsupport.nsw.edu.au/gats/index.cfm

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8
Gagné's Differentiated Model of Giftedness and Talent (DMGT.EN.2K) [sic]

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Characteristics and needs of gifted students

In general, gifted children display unusual cognitive behaviour from infancy. They may use abstract thought at an early age, process information quickly and display persistence in areas of interest. They may have especially well-developed memory, early language development, curiosity, a preference for independent work and the ability to generate original ideas. Affective characteristics observed in the gifted often include concern with justice, mature moral reasoning, a keen sense of humour and high levels of energy coupled with emotional intensity. These attributes can enable optimal development if properly nurtured, but otherwise may be concealed or expressed in negative behaviours (Baska, 1989).

Silverman (1993) provides a useful summary of the intellectual and associated personality characteristics often exhibited by gifted students (Appendix B). She states that, although these traits may be typical of gifted students, different patterns of characteristics are found because children differ in intellectual level, specific abilities and degree of mental activity. In general, the distinguishing characteristics of the gifted are often exhibited to a higher degree of intensity and energy, with greater frequency or for longer duration among the more highly gifted (Clark, 1992; Gross, 2000).

Many highly gifted children may develop the skills required for generalising concepts from one context to another to an unusual degree (Gross, 1998). Another striking ability of many exceptionally and profoundly gifted students is their capacity for dual processing. Some children have the ability to attend to one problem while thinking about the solution to another. This cognitive style may not be recognised by teachers and unfortunately may appear to be distractibility in the child (Gross, 1998).

Boys and girls with high intellectual potential are found in all cultures, socio-economic levels and geographic locations. However, giftedness may be expressed differently, depending on a student's background and cultural values. Gifted students are usually well adjusted, but certain emotional and behavioural issues may become increasingly problematic the more highly gifted the person is. If the curriculum is not sufficiently stimulating, students can become de-motivated and engage in disruptive behaviours. Rebellious behaviour is less often reported for gifted girls than for gifted boys, who are experiencing intellectual frustration, boredom and peer rejection because there is a discrepancy between their mental and social maturity and their educational placement (Whitmore, 1980).

Gifted children will often conform for peer acceptance and so conceal their ability and interests in class. Students who are not with mental age peers may experience the dilemma of forced choice (Gross, 1989) where they have to choose between fitting in with a social group and achieving their potential. This is particularly true of gifted students who may go “underground” during adolescence (Betts & Neihart, 1988).

Degrees of potential

Gifted and talented students are diverse, both in the nature of their abilities and in their level of giftedness. But many educators assume that the gifted are a homogeneous group, which can result in misidentification, inadequate curriculum provision and incorrect grade placement (Gross, 2000). The intelligence quotient (IQ), which can be derived from various psychometric tests, provides a useful if somewhat simplistic taxonomy of the levels of giftedness. Table 1 illustrates a

What are the options?
classification of levels of giftedness and indicates the frequency with which children with particular IQs are found in the general population. IQ tests profile a student’s strengths and weaknesses and can reveal discrepancies between chronological and mental age. Children with an IQ in the gifted range are likely to be adept at many cognitive tasks (Gross, 2000).

<table>
<thead>
<tr>
<th>Level of giftedness</th>
<th>IQ range</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mildly</td>
<td>115 – 129</td>
<td>&gt; 1:40</td>
</tr>
<tr>
<td>Moderately</td>
<td>130 – 144</td>
<td>1:40 - 1:1000</td>
</tr>
<tr>
<td>Highly</td>
<td>145 – 159</td>
<td>1:1000 - 1:10 000</td>
</tr>
<tr>
<td>Exceptionally</td>
<td>160 - 179</td>
<td>1:10 000 - 1:1 million</td>
</tr>
<tr>
<td>Profoundly</td>
<td>180 +</td>
<td>&lt; 1:1 million</td>
</tr>
</tbody>
</table>

(Feldhusen, 1993, cited in Gross, 2000)

Recent research has shown that effective teachers of the gifted understand the nature and needs of gifted students. They have insight into the behaviour of gifted students who are bored and under-challenged (Croft, 2003).

**Identification procedures**

The first step in enabling gifted students to receive a developmentally appropriate curriculum is an effective, equitable and defensible identification program. Gifted children may come from culturally diverse and disadvantaged backgrounds, possess handicaps or learning difficulties, or be underachievers. Appropriate identification strategies are required to identify these students and students from low socio-economic, non-English speaking and Aboriginal backgrounds who may be disadvantaged by some assessment strategies or contextual factors.

Home-school partnerships are crucial in the identification process, as parents are reliable sources of information (Porter, 1999). Communication between home and school may require the provision of interpreters, parent-teacher evenings and information provided in the parents’ native languages. Parents often have no background in gifted education and it is difficult for them to act as advocates for their children. This is particularly true of individuals from culturally diverse groups, who because of modesty, language difficulties, mistrust and defensive attitudes do not identify their children’s aptitudes or talents (Hadaway & Marek-Schroer, 1992).

Five key principles of identification are:

- Defensibility: procedures should be devised to identify students in all domains of giftedness and fields of talent.
- Advocacy: teachers should use assessments to promote students’ interests and should not expect students to perform equally well on all measures.
- Equity: there should be equitable procedures for identifying groups who may be disadvantaged by the mainstream identification procedures.
- Comprehensiveness: multiple sources of data should be used appropriately.
• Pragmatism: identification needs to be consistent with the level of resources available.

(Richert, 1991)

The process for identification of gifted and talented students must:
• be dynamic and continuous
• allow for identification at any stage of the child’s development
• allow for the highly talented to emerge from the larger talented group
• ensure that the identification of students from disadvantaged and culturally diverse groups is not overlooked.

(NSW Department of Education and Training, 2004)

Developing an identification program

No single technique can pinpoint the strengths and needs of students. Information should be collected from parents, teachers, peers, school counsellors, the community and the students themselves. Objective assessment methods, such as achievement, ability and aptitude testing, are key aspects of the identification process, particularly for those who may not be easily identified by teachers or peers. A balance of objective and subjective information can provide the rounded view of an individual that a single observation or test result cannot.

Methods of identification

Identification is a three-stage process of nomination, screening and monitoring.

Nomination
This is the identification of gifted and talented students by parents, teachers, peers, community members and the students themselves. It involves the collection of subjective information, usually via checklists. Checklists may need to be translated into the target population’s language to collect valid information.

Screening
Screening involves the use of a combination of measures of potential and performance. It is more objective than nomination. Ability tests are useful for assessing potential, whereas achievement tests assess student performance in syllabus outcomes, and generally classify students into bands. Underachieving students with high intellectual potential may score poorly on achievement tests. Diagnostic tests are designed to identify specific areas of difficulty and do not identify students with higher abilities.

Screening may consist of the following measures:
• individual IQ assessment
• non-verbal ability test, e.g. Raven’s Progressive Matrices
• scholastic aptitude tests
• behavioural checklists
• school grades
• grade 6 report/referral from grade 6 teacher
• portfolios
• competition results

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• performances
• interviews.

Scholastic aptitude tests are available from the Australian Council for Educational Research (ACER), Independent Testing Service of Australia (ITSA) and the University of New South Wales, Educational Assessment Australia. Contact details are given in Appendix C. IQ tests must be administered by qualified psychologists. Gifted children can underachieve on these tests, and assessments should be used in the context of a multi-criteria approach to identification. If there is a discrepancy between a selection test result and an established IQ assessment, the IQ assessment is considered to be the more reliable measure of potential.

Recent work by Chaffey (2003) has suggested that care must still be taken when using culture-fair tests such as Raven’s Progressive Matrices as they may still pose problems when assessing students from low socio-economic and Aboriginal backgrounds. He coined the term invisible underachiever, defined as an individual whose assessed potential is less than his or her actual potential and who also underperforms in the classroom. He demonstrated that individual dynamic testing designed to improve the self-efficacy and metacognitive functioning of Aboriginal students enabled a more valid assessment of their potential using Raven’s Progressive Matrices.

It is important to be sensitive to the values of different cultural groups. These values will have an effect on student behaviour and on observations made by parents and teachers. For example, Aboriginal students are reluctant to stand out from the crowd and may shy away from attention. Some cultural groups place the needs of their community before those of the individual.

Gender issues may need to be considered in particular contexts. A greater weighting given to ability tests may result in more boys than girls being admitted to a program (Kerr & Nicpon, 2003). More reliance on teacher assessment may result in more girls being admitted to a program, depending on the criteria used. An emphasis on presentation in assessment schedules may skew the gender balance towards girls. Other considerations in selecting students for extension programs are that girls are more likely to conceal their ability as they approach adolescence (Kerr & Nicpon, 2003), and some boys are likely to shun academic activity and hide their intellect (Hawkes, 2001).

Monitoring
It is important to track the progress of students once they are identified. This stage is often neglected but is essential to ensure that the program is suited to the student. More detailed information about methods of identification is in Appendix D.

Principals, in consultation with their staff, determine what kinds of programs should be developed for the gifted students in their schools. An important requirement of identification is to select those students whose abilities/aptitudes, needs and characteristics fit or match the program goals and types of ability served in the program. For example, a musical program for advanced students will require a very different identification strategy from one developed for identifying gifted students in mathematics.

Discussion of individual cases by a school-based committee should determine admission of students to gifted programs. Different weights that are given to
different kinds of data should be decided before data collection and be justifiable and explainable. Furthermore, the individual’s progress should be continually monitored and assessed to validate the decision strategy. It is important to use multiple criteria because they reduce the risk of error and the possibility that a child with specific disabilities or a history of underachievement may be ignored. They may also improve the selection of those students who have aptitude in affective or creative areas if such measures are part of the criteria selected for inclusion.

What is an extension program?

Program versus provision
A useful distinction can be made between provision and program. A program is a “comprehensive, sequential system for educating students with identifiable needs” (Berger, 1991). Programs are permanent and well articulated sequences of goals, strategies and content, in contrast to provisions, which are “fragmentary, short-term and an adjunct to the core curriculum.”

The curriculum for gifted learners has been guided by certain beliefs, including the following:

- The needs of gifted learners encompass cognitive, affective, social, and aesthetic areas of curriculum experiences.
- Gifted students are best served by a curriculum that incorporates both accelerated and enriched learning.
- Curriculum experiences for gifted learners need to be thoughtfully planned, written down and incorporate explicit assessment.

(Van Tassel-Baska, 2003)

Gagné (2003) indicates that provisions for gifted students may include a variety of individual or group interventions specifically targeted at developing talent. Gifted education provisions are generally divided into three areas: enrichment, acceleration and grouping. Unfortunately this has often been interpreted to mean that acceleration practices are not enriching. Also these provisions are often regarded as being mutually exclusive, which is not the case (Gagné, 2003). Such provisions for gifted students may be important components of a program, but short-term, ad hoc and fragmented provisions which are not connected to the core curriculum should never be considered a valid substitute for a comprehensive program (Tannenbaum, 1983).

Three criteria useful for deciding whether curriculum opportunities are appropriate for gifted students are:

1. Would all students want to be involved in such learning experiences?
2. Could all students participate in such learning experiences?
3. Should all students be expected to succeed in such learning experiences?

If the answer to each of these questions is “yes” then the curriculum is not differentiated to cater for the individual needs of gifted students. What is more, opportunities should not be exclusively provided for gifted students when all students can benefit from the experience (Passow, 1982).
Academic challenge

The purpose of extension programs is to provide the appropriate level of academic challenge to cater for the intellectual and affective needs of gifted students. There are various ways in which appropriately complex extension opportunities can be offered to gifted students. Extension programs encompass clearly articulated curriculum goals, instructional strategies, grouping, enrichment and accelerative options. To accomplish this it is important to define the particular terms used to describe the various options available.

Curriculum and instruction

The curriculum and instructional strategies form the cornerstone of extension programs for gifted and talented students.

Table 2: Defining curriculum and instruction

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum</td>
<td>Content that a teacher plans to teach or outcomes that need to be achieved as prescribed by the NSW Board of Studies</td>
</tr>
<tr>
<td>Instruction</td>
<td>How the curriculum will be taught. Components of instruction include: 1. management (how the children will be organised) 2. delivery (the forms of the instruction) 3. process modifications (how the teacher will teach and the students will learn)</td>
</tr>
</tbody>
</table>

(Rogers, 2002)

Instructional management

In terms of management, decisions relate to how students will be grouped for instruction. Individualisation refers to how an individual will proceed through the curriculum or how a group or class can proceed through the curriculum.

Table 3: Examples of instructional management: individualisation

<table>
<thead>
<tr>
<th>Individualisation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual educational plan</td>
<td>a written plan for managing and delivering the curriculum for an exceptional child</td>
</tr>
<tr>
<td>Talent development</td>
<td>provision of opportunities for a high-ability or talented student, either through individual work or work in a like-ability group</td>
</tr>
<tr>
<td>Individual mentoring or tutoring</td>
<td>an opportunity to engage intellectually in an area of deep interest with an expert</td>
</tr>
<tr>
<td>Independent study</td>
<td>structured projects that enable a student to individually investigate an area of interest</td>
</tr>
<tr>
<td>Non-graded/continuous progress classes</td>
<td>placement of students in a class independent of age or grade, enabling progression through the curriculum at an appropriate pace</td>
</tr>
<tr>
<td>Multi-grade or multi-age classes</td>
<td>combining two or three grade levels into one classroom and placing the brightest children as the youngest children in the classroom</td>
</tr>
</tbody>
</table>

(Rogers, 2002)
A second form of instructional management refers to grouping by ability or achievement levels so that an appropriate curriculum can be provided for each group.

**Table 4: Examples of instructional management: grouping**

<table>
<thead>
<tr>
<th>Grouping by ability or achievement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time ability grouping</td>
<td>Students are placed in selective schools or full-time selected, extension classes.</td>
</tr>
<tr>
<td>Multi-age classroom</td>
<td>Students are grouped by their achievement level in a subject, rather than by grade or age level.</td>
</tr>
<tr>
<td>Regrouping by achievement for subject instruction</td>
<td>Students are sorted according to their subject ability or achievement into different classes; flexible sorting of students within the school to match curriculum with student level.</td>
</tr>
<tr>
<td>A cluster-grouped class</td>
<td>The top 5–8 high ability students are placed in the same class, where they can access a differentiated curriculum.</td>
</tr>
<tr>
<td>Within-class performance grouping</td>
<td>Students are sorted by topic or subject to provide differentiated learning for each group.</td>
</tr>
<tr>
<td>Co-operative grouping with like-ability learners</td>
<td>Groups of learners are organised in three-to-four member teams and the group task is adjusted accordingly.</td>
</tr>
<tr>
<td>A pull-out (withdrawal) program for children gifted in a specific subject area</td>
<td>Students are withdrawn from class on a regular basis.</td>
</tr>
</tbody>
</table>

(Rogers, 2002)

Gifted students should spend the majority of their learning time in the academic core areas with others of like abilities. Rogers (2002) suggests that students enrolled in full-time classes for the gifted make substantial gains in learning because of the interaction of richer and more complex content with greater degrees of learning potential, their greater interest in study and their willingness to learn while in a classroom with other interested, high-ability students. Other forms of grouping should be used when full-time ability grouping is impractical, as these options can be beneficial when the curriculum is differentiated.

An advantage of ability grouping is that it can allow the strategy of acceleration in the form of curriculum compacting or curriculum telescoping to be effective (see Table 5). As a general rule, at least one-third of a year's extra progress can be expected when gifted students are grouped together full-time (Rogers, 2002).

Strategies such as withdrawal programs cannot be the whole program of service because this option does not allow for the systematic organisation of the curriculum, or for it to be delivered at the appropriate pace and level of complexity to cater for the cognitive and affective needs of gifted children (Borland, 1989; Gross, 1994). Withdrawal programs that extend the curriculum in specific academic areas are more...
educationally sound than programs that simply focus on thinking skills (Rogers, 2002).

Acceleration

*Acceleration is also a form of instructional management.*

Acceleration includes a variety of administrative strategies for highly able students. Accelerated progression in single subjects or whole years is available for students with exceptional abilities. Gifted students whose social development would benefit by being with age-peers can also access learning opportunities designed for students in higher years. Highly able students are given opportunities to achieve syllabus outcomes prescribed for older students, if appropriate.


Table 5: Examples of instructional management: acceleration

<table>
<thead>
<tr>
<th>Acceleration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year or Stage advancement</td>
<td>The student is moved ahead of normal Year or Stage placement.</td>
</tr>
<tr>
<td>Continuous placement</td>
<td>The student is given material deemed appropriate for current achievement as the student becomes ready.</td>
</tr>
<tr>
<td>Self-paced instruction</td>
<td>The student is given materials that allow progression at self-selected pace (online learning).</td>
</tr>
<tr>
<td>Subject-matter acceleration</td>
<td>The student is placed for part of the day with students at more advanced levels.</td>
</tr>
<tr>
<td>Combined classes</td>
<td>The student is placed in classes where two or more grade levels are combined to allow younger children to interact academically and socially with older children.</td>
</tr>
<tr>
<td>Curriculum compacting</td>
<td>The curriculum is streamlined to enable student access to enrichment, accelerated content and independent study. This requires assessment or pre-testing of students to find where they are in terms of achievement of outcomes.</td>
</tr>
<tr>
<td>Curriculum telescoping</td>
<td>The student spends less time than usual in a course of study e.g. completes secondary schooling in five years.</td>
</tr>
</tbody>
</table>

(Rogers, 2002)

In programs for gifted students, grouping and accelerative practices are interdependent and strongly supported by research as central to maximising learning outcomes for gifted students. However, the key ingredient to the success of any gifted programs is the provision of a developmentally appropriate curriculum (Van Tassel-Baska, 2000).
Differentiation of the curriculum

What is curriculum differentiation?

Differentiation ranges from slight to major modifications of the curriculum through adjustments to content, processes and skills. It provides a planned, documented and challenging curriculum that matches the ability of gifted students to:

- learn at faster rates
- find, solve and act on problems more readily
- manipulate abstract ideas and make connections to an advanced degree.

“Extension programs” should include enrichment and extension activities. Enrichment refers to the broadening of the curriculum to develop knowledge, application, thinking skills and attitudes to a degree of complexity appropriate to the students’ developmental level (Braggett, 1997). Enrichment activities are often found only in extra-curricular provisions and need to be written into programs to ensure all students have access. Extension activities involve the deepening of students’ knowledge, understanding and skills.

The following example illustrates the distinction between enrichment and extension activities. Consider the Science 7–10 syllabus and Outcome 4.8: a student describes features of living things. This essential content requires students to learn about cell theory and to:

- identify that living things are made of cells
- identify and describe the functions of the nucleus, cytoplasm, cell membrane, cell wall, chloroplast
- identify that substances move in and out of cells
- distinguish between unicellular and multicellular organisms.

A further, optional activity, that requires students to identify substances needed by living cells and to explain why each is needed, is an example of enrichment. Students undertaking this option develop their knowledge and research skills at the same level of difficulty as the essential content. An extension opportunity enables students to study related concepts and manipulate them to develop a deeper understanding of cell theory. An illustration of this would be where students investigate the nature of cell membranes and hypothesise about their structural characteristics.

A differentiated curriculum is a program of activities that offers a variety of entry points for students who differ in abilities and pace of learning. In a differentiated curriculum teachers offer different approaches to what students learn (content), how students learn (process) and how students demonstrate what they have learned (product). A list of possible goals for extension programs is in Appendix E.
Table 7: Differentiated Programming

<table>
<thead>
<tr>
<th>Differentiated programming is</th>
<th>Differentiated programming isn’t</th>
</tr>
</thead>
<tbody>
<tr>
<td>• having high expectations for each student</td>
<td>• individualised instruction – it is not a different lesson plan for each student each day</td>
</tr>
<tr>
<td>• permitting students to demonstrate</td>
<td>• assigning more work at the same level to high-achieving students</td>
</tr>
<tr>
<td>mastery of material they already know and to progress at their own pace through new material</td>
<td>• all the time – often it is important for students to work as a whole class</td>
</tr>
<tr>
<td>• providing different avenues to acquiring content, to processing or making sense of ideas, and to developing products</td>
<td>• using only the differences in student responses to the same class assignment to provide differentiation</td>
</tr>
<tr>
<td>• providing multiple assignments within each unit, tailored for students with differing levels of achievement</td>
<td>• giving a normal assignment to most students and a different one to advanced learners</td>
</tr>
<tr>
<td>• allowing students to choose, with the teacher’s guidance, ways to learn and how to demonstrate what they have learned</td>
<td>• limited to subject acceleration – teachers are encouraged to use a variety of strategies</td>
</tr>
<tr>
<td>• flexible: teachers move students in and out of groups, based on students’ instructional needs</td>
<td>• assigning more work at the same level to high-achieving students</td>
</tr>
</tbody>
</table>

(Tomlinson & Allan, 2000)

These curriculum ideas are consistent with those described in the NSW model of pedagogy described in Quality teaching in NSW public schools: Discussion paper (NSW Department of Education and Training, 2003). The connections between the NSW model of pedagogy and recommended practices in gifted education will be further examined in the support materials about differentiating the curriculum available on the Gifted and Talented web pages at: http://www.curriculumsupport.nsw.edu.au/gats/index.cfm

Curriculum models

Numerous models of curriculum differentiation can be applied creatively to produce programs that provide flexibility and choice, to cater for the range of individual differences in the classroom. These models show how content, teaching, learning processes and products can be fine-tuned to meet the needs of gifted students. The ideas presented are in accord with the practices recommended in the discussion paper, Quality teaching in NSW public schools (2003).

The critical issue, as identified in the 2001 Senate Report and the recent policy revision, is the need for professional development to enable teachers to devise differentiated curricula.

Scenarios

The following school scenarios illustrate some of the ways in which grouping, acceleration and curriculum opportunities can be implemented for gifted students. Each school is involved in ongoing evaluation to improve its identification programs.
School one

Acacia High School is in the inner city and has an enrolment of 350 students. It is a K to 12 campus. It has a very high proportion of students from Aboriginal and low socio-economic backgrounds. Extension programs have been established across Years 4 and 5, Years 6 and 7 and Years 8 and 9.

The objectives of the programs are to raise the expectations of teachers and students and to put time into potentially high academic achievers. By enhancing the performance of high achievers it is expected to raise the performance of the middle and lower end. The central objectives are to involve parents and community members in a more positive relationship with the school and to increase their expectations of students.

The identification process for the extension programs is developing. Presently it relies on teacher nomination and consultation with support staff and parents. The identification process will be expanded in 2004 to include nomination of students using checklists for parent, teacher, peer and self-referral. The application of the dynamic testing model (Chaffey, 2003) using Raven’s Progressive Matrices is a promising development that the school intends to use.

Extension opportunities are provided in the core areas of English, Mathematics, Science and Human Society and Its Environment (HSIE). Students are timetabled together for core subjects only. The same teacher is allocated to Years 6 and 7 and Years 8 and 9 to teach with the aim of providing acceleration to the learning outcomes of the next stage. A major developmental focus is the construction of learning opportunities that will engage high-ability students. The developing curriculum is theme-based, cross-curriculum and is differentiated in terms of content, process, product and learning environment. The following models of curriculum differentiation are being used: Bloom (1956), Maker (1982), Kaplan (1993) and Williams (1993).

Students who are not succeeding in the program are interviewed and parents are consulted about what is best for their child. A case management approach is being considered to support students through the learning support team. The extension programs are part of the management plan and student progress is assessed by performance and surveys. Progress reports are provided to the staff, parents and community and also to the wider population through the annual school report.

School two

Bottle Brush High School is an established girls’ school in an area of medium to high socio-economic status. It has a strong focus on academic excellence, high expectations and an emphasis on quality teaching and learning in the classroom. There are usually five or six Year 7 classes each year and a full-time extension class.

The extension class students are identified by the use of a UNSW placement test that examines ability in writing, English literature, maths and science. The school advertises the extension class and the opportunity to sit the entrance test, which is held for the majority of students on a Saturday morning. There is a small charge to sit the test, and students receive feedback about their performance. Information about the candidates’ suitability for the program is collected from the primary school and is used to cross-reference and track children who do not apply or qualify for the program.

What are the options?
Successful students who have also qualified for general enrolment are offered a Year 7 place that is subject to review. A couple of spaces are left in the extension class to accommodate students who would benefit from the program, as revealed from diagnostic testing conducted at the beginning of Year 7.

The class is timetabled for all subjects during the first year. Students in general have access to a richer and more challenging curriculum. The class is provided with more opportunities for creativity and independent work. As a result of curriculum compacting the group can move through the maths syllabus more quickly; however, in English there has been more opportunity for enrichment.

All staff have been in-serviced in the “pedagogy model” and have attended a district program focused on gifted and talented education. In programming, there is an emphasis on intellectual quality, significance and quality learning environment. The long-term approach includes the provision of QTP funding for the development of units of work in science and faculty projects related to the development of quality differentiated programs. School monies will be allocated to support teams, including payment of staff to develop these projects outside school hours.

Apart from tracking students in terms of achievement of syllabus outcomes, the school evaluated programs by utilising a teaching and learning school map. Surveys of students were conducted on their views about their school programs. A comparison of the views of the extension class was made with Year 7, and the rest of the school. Follow-up focus group interviews were conducted with extension group students in Year 8 to probe their responses in more depth. Students discussed those features that make lessons engaging. This information was fed to teachers on a staff development day for their reflection.

In Year 8, extension classes are offered in English, Mathematics and Science, and this pattern is continued into Years 9 and 10. The composition of these classes varies, but generally all students from the Year 7 extension class are accommodated in at least one of them. Students have to earn their place in these classes from year to year, and this is clearly communicated to parents at the outset.

School three
Kangaroo Paw High School is situated in the country. It has 450 students, mainly from farming backgrounds, with some the children of power station workers. In 2002 it offered a program at Year 7 level to students of high academic potential. The school developed a battery of tests that included writing, reading and comprehension, reasoning and mathematics assessments. The school advertised its testing program through the local feeder primary schools and local newspaper. Parents and teachers in the local primary schools also provided information about the suitability of students for the program.

Students were allocated to the class by a school committee on the basis of their performance in the tests and the information provided by parents and teachers. Twenty-four students are allocated to the Year 7 class. Spaces are left for gifted students who may have been overlooked or for new enrolments.

The program is provided in the areas of Mathematics, Science, HSIE and English, and students are mixed up for the other subject areas. The curriculum is being modified to develop a more thematic and multidisciplinary approach. The staff is developing skills within the context of the NSW model of teaching and learning.
with the acknowledgment that gifted students can proceed through the curriculum at a faster pace and benefit from an intellectually challenging curriculum. Kangaroo Paw High is developing a five-year plan for its gifted students that is clearly stated in its management plan and implemented by its executive and gifted and talented co-ordinator.

Students proceed into Year 8, where they are reshuffled to make top classes in Mathematics, Science, Human Society and Its Environment (HSIE) and English. Discussions about how to articulate the program into Year 9 are ensuing.

The school has been able to obtain community sponsorship for its programs. It has provided enrichment opportunities for its gifted and talented students and for those from feeder primary schools. For example, teams of gifted students were involved in an open-ended, problem-based research task to produce a presentation for the school community. Further opportunities included challenge days to provide extension beyond course work.

The program is gaining favourable community support and will continue to be refined under the guidance of the school’s gifted and talented committee. For example, the test results are analysed to see how well various items discriminate between students of varying ability. This will help improve the test battery to be used in subsequent years.

Case study

A more detailed case study outlining the process of institutionalising an extension class of selected students into a comprehensive technology high school can be accessed at:

The case study illustrates the role that research played in the introduction of a full-time gifted class into a comprehensive technology high school in 1997. The perceived need for a program, as distinct from provisions within this context, included the difficulty associated with developing appropriate curricula and a supportive school framework for gifted students within existing educational arrangements. A comprehensive, sequential system was developed to implement the program, initially for gifted students in Year 7. Institutionalisation of this program was a complex process that involved parents, teachers, school counsellors and educational administrators. Despite some pitfalls on the way, the final program was popular and valued by the school community.

It may be helpful for staff to consider the discussion questions about the development of an extension program in Appendix F. These questions can be the focus of an executive or staff meeting to enable discussion about what arrangements for extension programs are already in place. The purpose of these questions is also to stimulate discussion about important issues related to the establishment or improvement of extension programs.
School support and organisation

School level

An initial step is the development of school-based policies. Developing policies is valuable because it enables an audit to occur of the opportunities that are currently provided for gifted and talented learners. It also provides a focus for future developments. Policies should be revised and the intention to review them regularly should be incorporated into the policy.

What should be included in a school policy?

- Policy rationale and aims
- Definitions of giftedness and talent
- Principles and procedures for identification
- Staff development program
- Provision
  - Within-class programs and strategies:
    - differentiated curriculum
    - teaching/learning activities
    - grouping practices
    - contracts/independent projects
    - role of assessment – formative and summative
  - Activities beyond the classroom:
    - specialist activities
    - mentor activities
    - collaboration with outside agencies
- Accelerated progression
- Organisational issues:
  - management of gifted and talented programs in the school
  - composition of school committee
  - gifted and talented co-ordinator
  - KLA responsibilities
  - role of learning support team
  - other?
- Transition and transfer
- Resources
- Monitoring and evaluation

Key learning area (KLA) level

KLA policies should be developed to complement the school-level policy and should reflect the Department’s approach to teaching and learning. KLA policies outline the identification process and the opportunities that are provided for gifted students in their subject area.
Establishing gifted programs at Year 7 level requires the development or continued maintenance of close relationships with feeder primary schools. Sharing information about students and programs is important for effective identification and provision for gifted students. Structures need to be in place to collect and process information for the placement of gifted students. Training of staff is also critical and needs to be addressed through the development of a professional program that is set out in the school management plan.

Support from Regional and State offices

The newly revised *Policy and implementation strategies for the education of gifted and talented students* (revised 2004) will provide guidelines for the implementation of gifted programs into comprehensive high schools. Support for schools will be provided through a tiered approach to professional development. Training in gifted education will be developed for executive staff, gifted and talented co-ordinators, teachers and school counsellors.


Information relating to the following will be continually updated to support schools in 2004:

- Policy development and sample policies
- Definitions
- Needs and characteristics of gifted students
- Identification procedures and tools
- Curriculum development
- Teaching strategies and ideas
- Professional development opportunities
- Useful links and resources
- Parent information.
References


What are the options?


Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACER</td>
<td>Australian Council for Educational Research</td>
</tr>
<tr>
<td>DET</td>
<td>Department of Education and Training</td>
</tr>
<tr>
<td>DMGT</td>
<td>Differentiated Model of Giftedness and Talent</td>
</tr>
<tr>
<td>ETC</td>
<td>Educational Testing Centre, now Educational Assessment Australia</td>
</tr>
<tr>
<td>HSIE</td>
<td>Human Society and Its Environment</td>
</tr>
<tr>
<td>ITSA</td>
<td>Independent Testing Service of Australia</td>
</tr>
<tr>
<td>IQ</td>
<td>Intelligence Quotient</td>
</tr>
<tr>
<td>K</td>
<td>Kindergarten</td>
</tr>
<tr>
<td>KLA</td>
<td>Key Learning Area</td>
</tr>
<tr>
<td>NSW</td>
<td>New South Wales</td>
</tr>
<tr>
<td>OBOS</td>
<td>Office of the Board of Studies</td>
</tr>
<tr>
<td>AGQTP</td>
<td>Australian Government Quality Teacher Program</td>
</tr>
<tr>
<td>UNSW</td>
<td>University of New South Wales</td>
</tr>
</tbody>
</table>
Appendices

Appendix A: Major findings of the revision of the 1991 NSW Policy for the education of gifted and talented students

The advice and information received through the policy revision process align with the findings and recommendations of the AAEGT National Position Paper (1996), the MACQT Report (1999) and the Senate Report (2001).

The main findings are:

1. A lack of understanding of the terms gifted and talented often leads to poor identification and provision for gifted students. Incorporation of Gagné’s (2002) Differentiated Model of Giftedness and Talent (DMGT) into the revised policy would provide a research-based, clearly expressed definition of these terms.

2. Identification programs using multiple criteria are not widely used. Identification tools suitable for use with the variety of individuals within the gifted population need to be provided, along with training in this area.

3. The value of closer, collaborative partnerships between home and school was emphasised to enable early identification and avoid underachievement in gifted students.

4. School communities require support to determine when and how accelerative strategies should be used. Support materials are required for this purpose.

5. Skills in applying recommended gifted educational practices, including differentiation of the curriculum and grouping strategies, need to be developed by teachers. Specialised teacher training was seen to be crucial to improving conditions for gifted students.

6. Gifted and talented co-ordinators with appropriate time allocations are needed at school and regional levels to expand and improve the range of opportunities for gifted students. Consideration of how to provide flexibility in staffing for a variety of school contexts needs to be undertaken. Provision for gifted students and teachers in isolated or rural areas may require a different response.

7. The role of school counsellors in identifying and providing for gifted students needs to be communicated more clearly to teachers and parents.

8. Accreditation of gifted education requirements for pre-service education and in-service training for service in NSW government schools should be determined. These matters should be referred to the recently established NSW Institute of Teachers.

9. Closer links between DET, OBOS and the universities should be encouraged in order to maximise opportunities for gifted students.

Reflection on the process of policy revision in NSW has brought into focus the need to be sensitive to recent research findings on the diversity and characteristics of the gifted population. This would continue the approach established in the 1991 policy, which was advanced in being based on research findings to that time. The implementation of the policy requires a clear articulation of the roles and responsibilities of officers at state, regional and school levels. Consideration should be given to monitoring policy implementation. This could be achieved by the institutionalisation of an ongoing reference group or committee.
Appendix B: Intellectual and personality characteristics of gifted students

<table>
<thead>
<tr>
<th>Intellectual characteristics</th>
<th>Personality</th>
</tr>
</thead>
<tbody>
<tr>
<td>exceptional reasoning ability</td>
<td>insightful</td>
</tr>
<tr>
<td>intellectual curiosity</td>
<td>need to understand</td>
</tr>
<tr>
<td>rapid learning rate</td>
<td>need for mental stimulation</td>
</tr>
<tr>
<td>facility for abstraction</td>
<td>perfectionism</td>
</tr>
<tr>
<td>complex thought processes</td>
<td>need for precision/logic</td>
</tr>
<tr>
<td>vivid imagination</td>
<td>excellent sense of humour</td>
</tr>
<tr>
<td>early moral concern</td>
<td>sensitivity/empathy</td>
</tr>
<tr>
<td>passion for learning</td>
<td>intensity</td>
</tr>
<tr>
<td>powers of concentration</td>
<td>perseverance</td>
</tr>
<tr>
<td>analytical thinking</td>
<td>acute self-awareness</td>
</tr>
<tr>
<td>divergent thinking/creativity</td>
<td>nonconformity</td>
</tr>
<tr>
<td>keen sense of justice</td>
<td>questioning rules/authority</td>
</tr>
<tr>
<td>capacity for reflection</td>
<td>tendency to introversion</td>
</tr>
</tbody>
</table>

(Silverman, 1993)
Appendix C: Contact details for screening tests

Tests for screening students are available from the sources listed below. Schools need to determine what screening tools are appropriate for their school population.

It is important to be aware that assessment tools may disadvantage some students. These may include students from low socio-economic, rural, Aboriginal or non-English speaking backgrounds.

- University of New South Wales Educational Assessment Australia
  http://www.etc.unsw.edu.au/

- ACER Testing Services

- ITSA (Independent Testing Service of Australia)
Appendix D: Methods of identification of gifted and talented students

<table>
<thead>
<tr>
<th>Method</th>
<th>Information</th>
</tr>
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<tbody>
<tr>
<td>Teacher observation</td>
<td>Teachers may miss underachievers—those with motivational or emotional problems and/or negative attitudes to school. Testing is recommended if there is suspicion of underachievement. Teachers use Whitmore's (1980) checklist of underachievement and observe the student to determine whether such testing is necessary. Need to be sensitive to how giftedness may manifest itself in other groups and be inclusive in terms of ethnicity, culture, socio-economic status, disability and geographic isolation.</td>
</tr>
<tr>
<td>Parent checklists</td>
<td>Parents are generally reliable sources of information. However, some parents may downgrade their ratings, whereas others may overestimate their children's ability.</td>
</tr>
<tr>
<td>Peer nomination</td>
<td>Can be used successfully in later childhood or adolescence. Children in Year 3 or younger have difficulty in making judgements about the abilities of their classmates. Younger children may be inclined to nominate their friends.</td>
</tr>
<tr>
<td>Self-nomination</td>
<td>Students can give reliable information about themselves, but care needs to be taken in obtaining it. Peer pressure may be a problem affecting the type of information that is volunteered.</td>
</tr>
<tr>
<td>Creativity assessment</td>
<td>May identify the divergent thinker who may be overlooked on IQ assessment.</td>
</tr>
<tr>
<td>Individualised intelligence assessment</td>
<td>Accurate assessment of nature of abilities. Should be used for suspicion of underachievement. Expensive to administer, e.g. WISC (Wechsler Intelligence Scale for Children).</td>
</tr>
<tr>
<td>Group intelligence assessment</td>
<td>Generally good for screening but may have a “ceiling effect”. Problems with assessment include reading, motivational or emotional difficulties. Students can underachieve on an intelligence test but cannot overachieve.</td>
</tr>
<tr>
<td>Achievement assessment batteries</td>
<td>Difficult to identify underachieving gifted and talented students. Similar problems to those for group intelligence assessment e.g. OLSAT (Otis-Lennon School Ability Test).</td>
</tr>
<tr>
<td>Other</td>
<td>School semester reports and portfolios</td>
</tr>
<tr>
<td></td>
<td>Off-level testing using a test or competition paper designed for older students</td>
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<tr>
<td></td>
<td>Interviews and anecdotal records</td>
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<td></td>
<td>Student interest inventories</td>
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<tr>
<td></td>
<td>Translators or interpreters for ESL (English as a Second Language) students.</td>
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</tbody>
</table>
Appendix E: Possible goals of a gifted program

Goals

To provide an educational environment to enable highly able students to develop to full potential

To provide qualitatively not quantitatively different programs that provide for the intellectual, psychological and social needs of gifted children

Objectives of Year 7 gifted program

1. To provide for the mastery of the basic skills of English and mathematics at a pace and depth appropriate to the capacities of able learners
2. To develop high-level written and oral skills
3. To develop and apply sophisticated research skills and methods
4. To provide an environment that encourages divergent thinking. Students will be encouraged in the development of originality, fluency, flexibility and elaboration in their processes
5. To promote a multi-disciplinary approach to studies that more adequately caters for the learning styles of able children
6. To promote critical thinking and reasoning abilities e.g. inference, deductive and inductive reasoning, analogies and evaluation of arguments
7. To provide a social environment which is conducive to the development of compatible relationships and a favourable learning environment
8. To develop self understanding and provide support for able children
9. To provide enrichment which is tailored for the needs of able children and suited to their interests – to expand their knowledge base
10. To provide appropriate opportunities for small-group discussions with students of like ability and independent investigations.
Appendix F: Discussion questions about extension programs

Goals
1. What is your understanding of the term “extension program”?
2. How is “extension” achieved for gifted students in your school?
3. What are the goals and objectives of the program/s?

Identification
1. How are students identified for the program?
   • Describe the administrative procedures that are used for the identification of students (who conducts procedures, when and how, cost involved?)
   • What identification tools are used for nomination and screening?
2. How are students selected for the program? (What weighting is given to the various items of information collected during the identification program? What is the composition of the committee that makes the decisions about the composition of the extension class?)
3. How is student progress monitored?
4. What arrangements are made for students who are not succeeding in the program?

Curriculum
1. Discuss how curriculum is organised for gifted students. What is the nature of the program in terms of teaching and learning?
2. List the models of curriculum differentiation that are used for creating programs for gifted students in your school.
3. Models of curriculum differentiation outline the ways in which content, process, product and the learning environment can be adjusted to create appropriate programs for gifted students. Do you have any comments about how these are modified to suit the curriculum requirements of gifted students in your school?
   • Content
   • Process
   • Product
   • Learning environment
4. How is the program evaluated?

Administration
1. How is the program organised into the timetable?
2. How is the program articulated from Year 7 through to Year 12?
3. How are the teachers selected for the program each year?
4. What professional development is provided for teachers?
5. How is professional development for teachers funded?

Other considerations

What are the options?