

The Gifted and Talented Education Program

A Sunset Review

Office of the Legislative Analyst
April 1988

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Introduction

Introduction

This report, submitted pursuant to the "sunset" review provisions of Chapter 1270, Statutes of 1983 (Senate Bill 1155), contains our findings and recommendations regarding the Gifted and Talented Education (GATE) program.

Chapter 1270 provided for the termination of GATE on June 30, 1987. Chapter 1318, Statutes of 1984 (Senate Bill 1858), extended the sunset date to June 30, 1988.

As part of the sunset process, Chapter 1270 requires the State Department of Education (SDE) to review the GATE program and submit its findings to the Legislature. Chapter 1270 also requires the Legislative Analyst to review the department's report and submit findings, comments, and recommendations regarding the program to the Legislature.

Specifically, SDE and the Legislative Analyst are required to address as many of the following issues as possible:

- (1) The appropriateness of identification formulas used in the program.
- (2) The appropriateness of formulas used to allocate funds and the adequacy of funding levels for the program.
- (3) The effectiveness of the program.
- (4) The appropriateness of local control.
- (5) The appropriateness of involvement by the state in monitoring, reviewing, and audit-

ing to assure that funds are being used efficiently, economically, and legally.

(6) The appropriateness of amounts spent to administer the program.

(7) The appropriateness of having SDE administer the program.

(8) The interrelationships among state and federal categorical programs providing this type of assistance.

(9) The characteristics of the target population being served by the program.

(10) The need for the program.

(11) The purpose and intent of the program.

The law also requires SDE's report to include, but not be limited to, all of the following topics:

(1) A description of the program, including a description of how the program is administered at the state and local level.

(2) The history of the program and previous legislative action.

(3) Relevant statistical data.

(4) Related federal programs.

(5) Whether there is an unmet need for the intended purposes of the program and, if any, an estimated cost of serving the unmet need.

(6) Findings regarding the program, including any comments on whether any identified problems are implementation issues, or issues

that require revision of law or regulations.

(7) Recommendations on ways to improve the program while maintaining its basic purposes.

Chapter I of this report provides background information on GATE. Chapter II presents our separate findings and recommendations regarding the program. Chapter III contains our response to the recommendations made by SDE.

This report, as specified by law, is based largely on our review of the SDE report. Some

information that is provided in the SDE report is not repeated here. We suggest, therefore, that this report be read in conjunction with the SDE report in order to obtain a more complete understanding of the program and of our comments on SDE's findings and recommendations.

This report was prepared by Rick Pratt and Chuck Lieberman under the supervision of Jarvio Grevious. Secretarial services were provided by Maria Ponce, and the report was formatted for publication by Suki O'Kane. ♦

Executive Summary

Executive Summary

Program Overview

- The Gifted and Talented Education (GATE) program was established in 1979 to replace the Mentally Gifted Minor program. The statutory purpose of the program is "to improve the quality of existing programs for gifted and talented pupils and to provide for experimentation in the delivery of the programs, including a variety of programmatic approaches and cost levels."
- The GATE provides supplemental state funding to participating districts to identify and provide enhanced learning opportunities to pupils who have "demonstrated or potential abilities that give evidence of high performance capability."
- In 1986-87, \$21.2 million was appropriated for GATE. In that year, the program served approximately 220,000 pupils in 428 districts.
- Approximately 6 percent of all pupils in participating districts and 5 percent of all pupils statewide are GATE participants.
- Participating districts identify their pupils who meet local criteria for GATE identification, and many have expanded their identification criteria in order to identify gifted pupils who may not score well on traditional measures of academic ability.
- Evaluations of gifted programs provide little information on the marginal impact of such programs on participating pupils.

Legislative Analyst's Recommendations

- *Continue the program at its current funding level.* Although we have identified areas of needed improvement (and make recommendations for improvement), we believe that the program demonstrates sufficient success to warrant continuation at its current level of funding.
- *Phase out the current funding formula and replace it with a competitive grant system for allocating program funds.* Our analysis indicates that determining local funding needs on a case-by-case basis, via a competitive grant process, would result in a more cost-effective allo-

cation of resources and help ensure a higher level of program quality than the current formula-based approach to funding.

- ***Authorize SDE to develop specific program regulations and criteria for evaluating district proposals.*** Program regulations and proposal review criteria would need to be refined in order to assist districts to compete effectively in the grant application process. We believe that SDE could use its own staff or draw from professionals in the field the necessary expertise to produce the needed regulations and criteria. These documents should reflect legislative priorities and advance pedagogical principles related to the education of the gifted.
- ***Require GATE programs to be vertically and horizontally articulated with the regular district curriculum.*** Our review indicates that both GATE programs and the regular curriculum benefit from vertical (between consecutive grade levels) and horizontal (within the same grade level) articulation by providing—

through GATE—enhanced learning opportunities that extend understanding of the core curriculum and by providing for a progressive sequence of learning opportunities from one grade to the next.

- ***Encourage school districts to submit proposals for innovative GATE programs that test alternative models for gifted education and require SDE to give priority to proposals that do so.*** Legislation governing GATE specifies a single approach that focuses on (1) pupil identification (using specified criteria) and (2) specified program elements. There is little room, within these specifications, for program innovation and experimentation. We believe that a distinct advantage of a competitive grant program is the opportunity it affords for developing innovative programs in order to extend the state's knowledge and dissemination of viable approaches to gifted education. This opportunity should be cultivated by giving preference to proposals that offer such innovation. ♦

Chapter I

Chapter I

Program Overview

Program Purpose

The Gifted and Talented Education (GATE) program was established by AB 1040 (Chapter 774, Statutes of 1979) as the successor to the Mentally Gifted Minor (MGM) program. Current law provides that the purpose of GATE is "to improve the quality of existing programs for gifted and talented pupils and to provide for experimentation in the delivery of the programs, including a variety of programmatic approaches and cost levels." Gifted and talented pupils are defined as pupils who possess "demonstrated or potential abilities that give evidence of high performance capability." The law specifies that GATE programs include:

- Differentiated opportunities for learning commensurate with the individual's particular abilities and talents;
- Alternative learning environments that foster the acquisition of skills and under-

standing at advanced ideological and creative levels;

- Elements to develop sensitivity and responsibility to others;
- Elements to develop a commitment to constructive ethical standards;
- Elements to develop problem-solving abilities and to expand each pupil's awareness of choices for satisfying contributions in his or her environment; and
- Elements to develop realistic, healthy self concepts.

The law also states legislative intent that the programs make special efforts to ensure that pupils from economically disadvantaged and varying cultural backgrounds participate fully in the program.

Program Operation

To promote the purposes of the program, the state allocates funds to participating districts for (1) the identification of gifted and talented pupils and (2) the operation of special instructional programs for those pupils.

Identification. The identification of pupils for GATE, through individual and group assessment, is a major component of the program. Current law permits participating school districts to define the criteria they use

to identify gifted and talented pupils in accordance with regulations established by the State Board of Education (SBE). The SBE regulations require that the identification criteria ensure the identification of pupils who possess a capacity for excellence that is far beyond that of their chronological peers. In addition, each district's identification method is required to (1) seek out and identify eligible pupils, particularly pupils from varying linguistic, economic, and cultural backgrounds; (2) examine information regarding each pupil's capabilities; and (3) provide an equal opportunity to be identified in the categories served.

Current law also requires districts to use at least one of the following identification categories:

- Intellectual, creative, specific academic, or leadership ability;
- High achievement;
- Performing and visual arts talent; or
- Any other criteria that meet the standards set forth in the SBE regulations.

Instructional Programs. The law permits participating districts to establish programs that consist of special day classes, part-time grouping, enrichment activities, cluster grouping, independent study, grade acceleration, postsecondary education opportunities, or other programs that are consistent with SBE guidelines. Participating districts are required to provide, at a minimum, 200 minutes per week for 30 weeks of GATE program activities annually.

Special day classes consist of one or more classes, each of which covers a minimum school day. The classes must be composed of GATE pupils and be designed to provide enriched or advanced instruction that is differentiated from other classes in the same subjects in the school. Special day class teachers must have specific preparation, experience, personal attributes, and competencies in the teaching of gifted children.

Part-time grouping refers to attendance in classes or seminars composed of GATE pupils that provide advanced or enriched subject matter for a part of the school day.

Enrichment activities are provided in the regular classrooms as supplemental educational activities planned to augment the regular educational program of GATE pupils. In these activities, the pupils use advanced materials and/or receive special opportunities for learning from persons other than the regular classroom teacher.

Cluster grouping involves grouping GATE pupils within a regular classroom setting to engage in differentiated instruction with the regular classroom teacher.

Independent study provides GATE pupils with additional instructional opportunities through either special tutors or mentors, or through enrollment in specified correspondence courses. These opportunities are supervised by a certificated person employed by the school district.

Grade Acceleration involves the placement of GATE pupils in grades or classes that are more advanced than those of their chronological age group. Accelerated pupils receive special counseling and/or instruction outside of the regular classroom in order to facilitate their advanced work.

Postsecondary education opportunities provide high school GATE pupils with the opportunity to attend classes conducted by colleges or community colleges or to participate in College Entrance Examination Board Advanced Placement programs.

Other programs include services for GATE pupils whose achievement is below grade level and for GATE pupils from linguistically and culturally diverse and/or economically disadvantaged backgrounds.

Legislation prohibits districts from using state GATE funds for educational field trips, unless a waiver is obtained from the Superintendent of Public Instruction.

District Eligibility. Current law gives priority for participation in GATE to districts that provided a mentally gifted minor program in 1978-79, and to districts that currently operate a GATE program. The law grants SBE the authority to provide GATE funding for new districts only if currently eligible districts elect not to participate.

The law requires all participating districts annually to submit applications for funds. The

application must include a program plan and budgetary information, including separate data on identification of GATE pupils and program costs. In practice, SBE and the State Department of Education require districts to provide a budget, but do not require them to include separate data on identification and program costs.

Program Funding and Enrollments

The current GATE funding formula attempts to resolve problems that were partially caused by the MGM funding formula. Because knowledge of the MGM funding formula is helpful in order to gain an understanding of the GATE formula, we begin with a description of the former.

MGM Funding Formula. School districts that participated in the MGM program received state funds on the basis of the number of students who participated in the program. In the last year of MGM (1979-80), this amounted to about \$97 per MGM student. Under the formula, districts that identified a large number of students as mentally gifted received a larger state allocation per districtwide average daily attendance (ADA) than districts that identified a smaller number of students. This led to wide discrepancies in the amount of funding received in relation to district size. Specifically, in the last year of funding under the MGM formula, the amount that participating districts received per districtwide ADA ranged from \$0.63 to \$34.49.

There were two major problems associated with the MGM allocation formula. First, the cost of operating a gifted program is not solely a function of the number of participating students. A major cost of the program model that was used under MGM (and continues to be used under GATE) is the effort that goes into identifying gifted and talented students for

program participation. The screening process always involves more students than are eventually selected for program participation—the disparity being greater in some districts than others—yet the MGM formula did not reflect these costs.

The second problem is that identification criteria for MGM placed primary emphasis on academic achievement. This contributed to an underrepresentation of minority and disadvantaged students, who often do not score well on traditional measures of academic achievement. The interaction of the identification criteria—which favored the identification of middle- and upper-SES (socio-economic status) majority group students—with the funding formula that was based on the number of participating students, directly influenced the funding pattern among districts. Specifically, those districts that identified relatively small percentages of their total enrollments as gifted (and therefore received a small amount per ADA) tended to be those that were either predominately minority, low wealth, or both. The new GATE funding formula was devised in order to improve the representation of economically disadvantaged and minority students in gifted programs, and to reduce the disparities in funding among districts.

The GATE Funding Formula. Since 1980-81, GATE funds have been allocated on the basis

of total district ADA, rather than on the number of participating students, as was the case under the MGM program. The state average funding rate established in the first year of GATE funding was \$4.67 per ADA. As indicated above, however, the funding received by many districts was well below that level, while other districts received a much higher amount. Accordingly, the new formula contains a "squeeze" provision that gradually equalizes funding per ADA by (1) reducing the allocation of districts that receive an above-average amount per ADA and (2) increasing the allocation of districts that receive a below-average amount per ADA. The squeeze formula divides districts into three categories: (1) reduced-funding districts—those well above the state average level of funding per ADA; (2) little-change districts—those at or near the state average; and (3) increased-funding districts—those below the state average.

The squeeze formula has successfully increased allocations of nearly all increased-funding districts to at least the statewide average—\$6.21 in 1986-87. Specifically, among districts with 51 or more GATE participants, the proportion of districts entitled to increased funding has declined from 47 percent to 9 percent. Meanwhile, the percentage of the decreased-funding districts has declined from 28 percent to 15 percent, and the percentage of the little-change districts has increased from 25 percent to 82 percent. Our analysis indicates, therefore, that the equalization goal established by the squeeze formula has been substantially achieved.

Districts with 50 or Fewer GATE Pupils. Current law makes special funding allowances for districts with fewer than 50 partici-

pating GATE students. Specifically, those districts are funded according to the following schedule:

<i>Number of GATE Students</i>	<i>Annual Amount per Pupil (1986-87)</i>
1-10	\$214
11-25	196
26-50	166

Current law requires that these funding rates be increased by 6 percent annually. These are the *only* GATE funding rates which are subject to a statutory annual cost-of-living adjustment.

This special funding allowance produces a higher level of funding than the ADA-based formula would yield for virtually all districts with 50 or fewer identified GATE students. In fact, state funding for many of these districts would *decrease* if they identified more than 50 students and became subject to the regular allocation formula. Consequently, the formula provides an incentive for some districts to limit their GATE programs to 50 or fewer students in order to maximize state funding.

Available data suggest that some small districts are responding to the financial incentive to limit GATE identification to 50 or fewer students. Table 1 shows that, of the 37 districts with between 40 and 50 identified GATE students, all but four would lose funding if they identified 51 or more students. Eighteen of these districts have identified exactly 50 students.

If what the data suggest is true, we are concerned that school districts are excluding some deserving students from GATE for fiscal reasons. In Chapter II, we discuss this policy problem and our recommendation for a new funding system that would resolve it.

Table 1
Comparison of Statutory GATE Funding with Formula Funding for Districts with 40 to 50 GATE Pupils
1985-86

District	Number of GATE Pupils ^a	District ADA	Percent GATE	Statutory Funding	Formula Funding	Gain (Loss)
Woodside Elementary	50	225	22.2%	\$8,300	\$1,319	(\$6,982)
Jacoby Creek Elementary	50	320	15.6	8,300	1,875	(6,425)
Oak Park Unified	50	1,029	4.9	8,300	6,030	(2,270)
Winters Joint Union	50	1,072	4.7	8,300	6,282	(2,018)
Del Paso Heights	50	1,143	4.4	8,300	6,698	(1,602)
Chowchilla Elementary	50	1,164	4.3	8,300	6,821	(1,479)
McKinleyville	50	1,187	4.2	8,300	6,956	(1,344)
Murrieta Elementary	50	443	11.3	8,300	2,596	(5,704)
Bishop Union Elementary	50	1,298	3.9	8,300	7,606	(694)
Galt Joint Union	50	1,356	3.7	8,300	7,946	(354)
Windsor Union	50	954	5.2	8,300	5,590	(2,710)
Vallecito Union	50	847	5.9	8,300	4,963	(3,337)
Biggs Unified	50	640	7.8	8,300	3,750	(4,550)
Pacific Union	50	515	9.7	8,300	3,018	(5,282)
Arcata Elementary	50	860	5.8	8,300	5,040	(3,260)
Twin Hills Union	50	831	6.0	8,300	4,870	(3,430)
Ocean View Elementary	50	2,153	2.3	8,300	12,617	4,317
Victor Elementary	50	3,099	1.6	8,300	18,160	9,860
Calistoga Joint	49.5	663	7.5	8,217	3,885	(4,332)
Placerville Union	49	1,106	4.4	8,134	6,481	(1,653)
Mark West Union	49	456	10.7	8,134	2,672	(5,462)
Cardiff Elementary	49	688	7.1	8,134	4,032	(4,102)
Fairfax Elementary	49	956	5.1	8,134	5,602	(2,532)
Pacheco Union	48.5	632	7.7	8,051	3,704	(4,347)
Greenfield Union	48	1,232	3.9	7,968	7,220	(748)
Delano Joint Union	48	1,773	2.7	7,968	10,390	2,422
Mother Lode Union	47	1,298	3.6	7,802	7,606	(196)
Earlimart Elementary	47	1,331	3.5	7,802	7,800	(2)
Kings River Union	46	430	10.7	7,636	2,520	(5,116)
Piner-Olivet Union	46	726	6.3	7,636	4,254	(3,382)
Kings River	45	200	22.5	7,470	1,172	(6,298)
Larkspur Elementary	44.5	603	7.4	7,387	3,534	(3,853)
Holtville Unified	44	1,726	2.5	7,304	10,114	2,810
Durham Unified	41	843	4.9	6,806	4,940	(1,866)
Gold Trail Union	41	523	7.8	6,806	3,065	(3,741)
Etiwanda Elementary	40.5	824	4.9	6,723	4,829	(1,894)
Laytonville Union	40	526	7.6	6,640	3,082	(3,558)

^a Fractions reflect participation for one semester only (one-half year).

Per Pupil Spending Limit. Current law requires all districts to limit GATE expenditures to \$399 per identified student in 1987-88. This funding level is characterized by some as a *target* amount—that is, a funding level that the Legislature envisions as a goal. A literal inter-

pretation of the applicable code section, however, indicates that this provision is simply intended to prevent districts from spending large sums of money on small groups of students. Accordingly, the funding level is a cap, not a target.

Participation

Table 2 shows the funding and enrollment history for GATE from 1980-81 to 1986-87. As indicated in the table, state local assistance funding increased from \$15.7 million in 1980-81 to \$21.2 million in 1986-87, an increase of 36 percent. During this period, the number of participating pupils increased at a similar rate.

Table 2
GATE Funding and Participation
1980-81 through 1986-87

Year	State Funding (Local Assistance)	Number of GATE Pupils	Number of Participating Districts	Total ADA in Participating Districts	State Funding	
					Per GATE Pupil	Per District ADA
1980-81	\$15,660,170	162,607	312	3,353,626	\$96.31	\$4.67
1981-82	16,838,280	177,203	406	3,260,738	95.02	5.16
1982-83	16,838,000	193,057	439	3,268,551	87.22	5.15
1983-84	18,154,280	193,845	436	3,287,375	93.65	5.52
1984-85	18,864,016	205,916	429	3,303,773	91.61	5.71
1985-86	20,013,758	219,073	431	3,346,344	91.36	5.98
1986-87	21,235,149	221,830	428	3,420,964	95.73	6.21
<i>Percent Change</i> 1980-81 to 1986-87	35.6%	36.4%	37.2%	2.0%	-0.6%	32.9%

While the number of GATE pupils increased by 36 percent, the total ADA of participating districts increased by only 2 percent. This indicates that districts are identifying larger percentages of their pupils for the program. In fact, our analysis indicates that, in 1980-81, participating districts identified 4.8 percent of their ADA for GATE, while in 1986-87, they identified 6.5 percent. This increase may be

due, in part, to the fact that the identification criteria for GATE are broader than the criteria that were used for MGM. Because participating districts have increased the percentage of their ADA, the level of funding per identified pupil—approximately \$96—has not increased, even though state funding per districtwide ADA has increased by 33 percent, from \$4.67 to \$6.21. ♦

Chapter II

Chapter II

Findings and Recommendations of the Legislative Analyst

This chapter contains our findings and recommendations based on (1) the State Department of Education's (SDE) sunset report, (2)

other evaluations, and (3) our own observations of local GATE programs.

Findings on GATE Student Performance

CAP Scores

In its sunset report, the SDE reports higher scores by GATE pupils on the California Assessment Program (CAP) tests in the areas of reading, written expression, and mathematics in grades 3, 6, and 8 in 1984-85. The CAP results in those grades are reported on a scale on which most schools score between 100 and 400, with an average of 250. Although individual scores are not computed, the scores of all GATE pupils were aggregated in order to provide a statewide score for that group. The GATE scores were then compared with the state average scores for all pupils in each respective grade. The GATE pupils scored from 37 percent to 70 percent higher than all students, depending on the grade and subject area.

LAO Comments. The SDE interprets these data as a "noteworthy measure of [GATE] efficacy." This conclusion implies that participation in GATE produces high test scores but, in fact, high test scores are (in nearly all cases) a requirement for program participation. In other words, pupils participate in GATE be-

cause they are high achievers—they are not necessarily high achievers because they participate in GATE. We know of only one study that has attempted to measure the marginal, or "value added," performance resulting from GATE participation. This is described below in our discussion of the RMC study.

Talent Search Program Findings

A Talent Search program was conducted at California State University, Sacramento (CSUS) in the summer of 1985. This program enrolled 114 fifth to tenth grade pupils in a six-week course that focused on first- and second-year high school algebra, trigonometry, and independent studies. Participants were selected on the basis of Scholastic Aptitude Test (SAT) scores, and were not necessarily GATE pupils. The SDE reports that participating pupils achieved, on the average, the equivalent of 1.1 years of academic growth during the six week period, and concludes that this "illustrates the enormous potential of gifted and talented pupils and the achievement they attain when challenged by a rigorous curriculum."

LAO Comments. An alternative interpretation is that the Talent Search results illustrate the effects of an approach that provides several hours (instead of the usual one hour) of daily instruction in a concentrated, narrowly-focused curriculum. While gifted pupils are able to learn at a faster rate than others, we believe that many pupils could learn at an accelerated rate, if exposed to an approach like Talent Search. In other words, the intensive instruction that was provided may be more important than the type of students in accounting for the results that were observed. If so, then the Talent Search results argue for a more rigorous and challenging curriculum for a broad range of pupils, not just for the gifted.

RMC Study

The RMC Research Corporation conducted a three-year statewide evaluation of GATE under contract to SDE. The final report of the evaluation was released in December 1983. The evaluation was primarily descriptive, and dealt more with questions relating to the implementation approaches and administration of the program, rather than with student performance outcomes. It focused on three questions: (1) What is the nature of the program? (2) What are the effects of AB 1040 (the authorizing legislation)? and (3) What are the implications for future program policy?

A few studies, including the RMC evaluation, evaluate the relative effectiveness of different approaches to gifted and talented education. The different approaches usually are compared on the basis of implementation issues such as administrative ease, instructional delivery, or confluence with the identified needs of participants or with the core curriculum, and not on the basis of marginal impact on student learning.

The RMC report states that the approach that has the least likelihood of meeting the program objectives is cluster grouping, in which the regular classroom teacher provides specialized instruction to GATE pupils within the regular classroom. The report indicates

that "the cluster grouping approach can be used effectively but the nature of the approach lends itself to a higher probability of compliance problems than the others." Specifically, the RMC researchers suspect that the instruction that is received via cluster grouping would have been received even if there had been no GATE program.

While the evaluation states that an analysis of the statewide impact of the program was beyond its scope, it does include the results of a small-scale, experimental study to demonstrate the efficacy of a particular methodology—a norm-referenced evaluation design—that was used to measure the effects of GATE participation on 6 fifth-grade and 36 sixth-grade pupils. The results indicate that the gains posted in pre-test/post-test administrations of a standardized test in reading and language arts exceeded the gains that would have been expected if the pupils had not participated in GATE.

LAO Comments. The RMC report does not indicate whether the improvements in test scores are statistically significant. We suspect, however, that, because of the small sample size, they are not. This is the only example that we have seen of an attempt to measure the marginal impact of GATE participation.

LAO's Site Visit Findings

In our visits to participating districts, we observed three of the GATE approaches described earlier: (1) part-time grouping, (2) special day classes, and (3) pull-out programs. We found that special day classes and part-time grouping are advantageous in that they enable gifted pupils to be grouped together for accelerated or enriched instruction that builds on their regular coursework. Pull-out programs, on the other hand, can be disruptive of the regular program by removing pupils from their regular classroom for extended periods.

For example, in one program we observed, elementary school pupils were removed from their classrooms and provided laboratory

instruction in science (in this case, the activities involved hands-on experiments with electro-magnetism). Because of scheduling constraints, pupils were unavoidably removed from a variety of classes, including history, mathematics, and language arts, in order to receive the special science instruction. (Pupils were required to make up the coursework they missed during their absence.) Moreover, there was no attempt to relate the pull-out program with the regular science program. Accordingly, the program not only disrupted nonscience instruction, but failed to enhance the regular science program of the district. We noted, as well, that the experiments conducted by the GATE pupils, while differentiated from the district's regular instruction, were not advanced, even for elementary school students, and could have been included in the district's regular science curriculum.

Although some of the problems in the pull-out program we observed are due to the unique manner in which it was implemented by the district, the disruption of the regular courses of instruction that is caused by this approach is nearly unavoidable. Accordingly, we believe that pull-out programs should be discouraged.

The program we have described contains another undesirable element that we have seen in other programs as well. Specifically, all pupils who are assigned to the pull-out program engage in science projects, even if they were identified as gifted in an area other than science. Some pupils, for example, were identified on the basis of verbal ability, but did not receive—as part of the GATE program—advanced instruction in that area. On the basis of our site visits and other discussions with GATE personnel, we suspect that this mismatch between the basis for identification and the instructional program occurs frequently, and we believe that it seriously reduces the effectiveness and credibility of the program.

Summary

Our review finds evidence that advanced or enhanced instruction (such as that typically provided by GATE) generally contributes to a higher level of student achievement. Moreover, participating districts successfully identify their pupils who meet their criteria for the program, and many have succeeded in expanding their identification criteria in order to identify gifted pupils who may not score well on traditional measures of academic ability.

Some questions remain, however. There is little information, for example, on the marginal impact of GATE on participating pupils. In other words, what do students achieve that they would not have achieved in the absence of GATE? We also question whether, in many programs, the content and skill level of the program warrant the strict criteria that are used to identify pupils for participation. The identification criteria constitute a screen that both admits and, just as importantly, excludes pupils from the program. Because a gifted child is often defined as one whose level of ability is in the top 5 percent to 6 percent of the population, many districts set their admission criteria to include only the top 5 percent or 6 percent of their pupils. Accordingly, 94 percent or 95 percent of their pupils are excluded. This implies an assumption that only these few pupils can benefit from the program and, concomitantly, the "bottom" 94 percent to 95 percent could not. In fact, we have not observed any programs that justify such an assumption. To the contrary, in many cases, it is likely that the number of pupils who are excluded from a program—and who could benefit from it—exceeds the number of pupils who are allowed to participate.

If we are correct, then either (1) the program content should be upgraded in order to equal the selection standards that are currently used, or (2) the existing programs should be available to more pupils. We discuss this issue in more depth later in this chapter and in Appendix A, which describes a program that appears to serve both of these objectives at the same time.

Recommendations

Program Continuation—We recommend that the Legislature continue the GATE program at its current level of support.

While we have found several areas of needed improvement (these will be addressed by subsequent recommendations), our analysis indicates that GATE is being implemented in accordance with legislative intent and is accomplishing its objective of providing enriched learning opportunities for a select group of pupils at a level that warrants its continuation. Accordingly, we recommend that it be continued at its current level of support. This recommendation requires statutory authorization to implement.

Allocation of Funds—We recommend that the Legislature gradually replace the current GATE allocation formula with a competitive grant system for allocating program funds.

Our review of the GATE program indicates that determining local funding needs on a case-by-case basis via a competitive grant process would result in a more cost-effective allocation of resources and promote a higher level of program quality than the current formula-based approach to funding.

The SDE's report simply recommends increasing the level of funding per ADA for the GATE program. This is basically a status quo recommendation. As we mention later in this report in our response to that recommendation, SDE offers no analytical justification for either the increased level (or any specific level) of program funding. Similarly, we have been unable to identify an "appropriate" funding level.

We have identified four program areas that require funding: (1) administration, (2) pupil identification, (3) planning and development (including staff development), and (4) instruction. We have observed that districts spend widely varying amounts for each of these functions.

While we can compute an average of what districts spend in each of these areas, weighted by district or program size, we are reluctant to characterize these averages as appropriate funding levels for each district. The primary reason for this is that the amount that districts spend on each of the GATE program elements is a function of (1) the total level of state program funding received, (2) local resource availability, and (3) the set of competing demands for local resources.

Because no two districts have an identical level of local resource availability or set of competing demands, the amounts allocated to GATE reflect characteristics (preferences, resource availability, etc.) that are unique to each individual district. Accordingly, an arithmetic average would not be an appropriate level for all districts for either (1) estimating an appropriate level of program funding or (2) identifying an appropriate pattern of resource allocation within local programs.

Moreover, the likelihood of different funding needs casts doubt on the efficacy of the formula-based funding system for GATE, to the extent that the formula presupposes knowledge of an appropriate funding level and allocation of resources within participating districts. Alternatively, local resource needs may be determined on a case-by-case basis via an approach that requires districts to demonstrate what they need and can effectively utilize—specifically, a competitive grant system.

The GATE program provides an excellent opportunity for the Legislature to implement this strategy. A competitive grant system would have the following advantages:

- It would require districts to develop a specific plan for a GATE program and to document the need for a specific funding level;

- It would promote a stricter level of compliance with legislatively- or administratively-required guidelines for program content and quality;
- It would target funds and funding levels to the most effective and needy programs;
- It would help ensure a high level of program quality through SDE's review of proposals, monitoring of program implementation, and provision of technical assistance; and
- It would resolve the problems (that we described earlier) associated with the differential funding formula for districts with 50 or fewer GATE pupils.

A competitive grant funding system would not necessarily reduce the number of state-funded districts. In fact, if some districts were not able to document the need for the full amount of their current funding levels, additional funds would become available to increase the total number of participating districts, at no increase in total state costs.

The new funding system should be gradually phased in, in order to allow currently funded districts to adjust to the new approach. While all funds eventually should be allocated strictly on a competitive basis, current GATE districts should be allowed time to make programmatic changes that may be needed in order to comply with new standards and practices.

Accordingly, we recommend that the Legislature authorize the phase-in of a grant system, under which districts would submit proposals and funding requests to SDE, which would review each proposal and allocate funds (within the constraints of the total amount available) on a competitive basis.

Program Requirements—We recommend that reauthorizing legislation for GATE be less specific than current law governing student identification and program content, and that the State Department of Education (SDE)

be authorized to develop more specific guidelines, regulations, and criteria for evaluating district proposals within broad statutory requirements. We also recommend that the Legislature direct the department to analyze its staffing needs for proposal review and program monitoring.

If a competitive grant system is approved, the Legislature also should consider (1) the adoption of program requirements, (2) the latitude it wishes to give to the SDE in interpreting and implementing the legislative requirements, and (3) the need to provide staff for proposal review and program monitoring. Because positions may be shifted from other units into the department's GATE unit, the need for staff should be evaluated in the context of the department's overall staffing patterns and requirements.

In some cases, we find that current statutory requirements are too restrictive and produce unintended consequences. For example, current law requires that GATE programs be differentiated from the regular district curriculum. The intent of this requirement is to ensure that the instruction pupils receive is enriched relative to the regular instruction offered. While we support the intent, the effect of the requirement may unnecessarily result in the denial of opportunities to nonGATE pupils.

One district, for example, used GATE funds to develop an extensive guide to community resources, such as museums, parks, businesses, and other local resources that are available to schools for educational purposes. The guide is organized by subject area and includes information on how to contact key persons in order to arrange for field trips, guest lecturers, and other activities. This guide is available only to the GATE program in the district and may not be used for the regular district program, even though regular pupils could benefit from nearly all of the opportunities that it describes.

The reason for this restriction is the requirement that the GATE program be differentiated. The district believes that by making the opportunities described in the guide available to all of the district's pupils, they would no longer be in compliance with GATE regulations. In this and other ways, interpretation of the differentiation requirement unnecessarily restricts opportunities for nonGATE pupils. In general, we believe that curricula, materials, and programs that are developed on behalf of GATE, but that are also appropriate to other pupils, should be available to those other pupils, rather than kept from them. This can—and should—be accomplished without compromising the integrity of GATE funding or diminishing the quality of GATE programs.

The requirement for differentiation also may be a disservice to GATE pupils as well, by leading to programs that are so differentiated as to be unrelated to the rest of the educational program. This outcome appears to be the case with the science pull-out program that was described earlier.

In general, program experience to date implies that legislation should not be overly-specific regarding program differentiation, identification procedures, and program content, in order to avoid unintended consequences such as that described above. Instead, we recommend that legislation specifically address only the need for a culturally fair GATE identification process and appropriately enriched learning opportunities.

SDE Authority. We recommend that the GATE authorizing legislation contain only general guidelines, as described above, and that SDE be authorized to develop specific guidelines and regulations within these broad statutory requirements. We believe that SDE staff and professionals in the field have the necessary professional expertise to produce guidelines and regulations that reflect both legislative priorities and would advance pedagogical principles related to the education of the gifted.

Staffing Needs. We recognize that reviewing program proposals from more than 400 school districts is labor-intensive. It need not result in large costs, however, if SDE follows the model it uses for developing model curricula, adopting textbooks, and performing similar functions. Specifically, SDE recruits professionals from the field to volunteer their time and expertise for these activities. This strategy does not eliminate expenses, but it does minimize them. In addition, SDE already has staff to review local programs to ensure compliance with statutory standards. Since proposal review would, in part, replace compliance review, existing staff could be used for this process.

In addition, proposals could be approved for a period of two to three years. This would eliminate the need for an annual review of each district's proposal and enable SDE to stagger proposal due-dates, thereby reducing the number of proposals that need to be reviewed each year. This also would provide stable funding for participating districts during the period of the approved program.

We also recommend that SDE prepare a plan to monitor school district performance under the approved plans. The plan should include an analysis of staffing needs for this function. As we mention elsewhere in this report, the department's need for staff in this area should be evaluated in the context of its overall staffing patterns and priorities.

Program Articulation—*We recommend that the reauthorizing legislation include a requirement that GATE programs be vertically and horizontally articulated with the regular district program.*

Program articulation involves the planning of educational programs to ensure that programs from one grade level to the next, and programs within a grade level, are coordinated. Vertical articulation refers specifically to the coordination of similar programs (for example, science) between grade levels, and horizontal articulation refers to the coordina-

tion of different programs within a grade level.

Our review indicates that GATE programs are often not well articulated. An example of the absence of program articulation may be found in the pull-out program that we described earlier. In that program, the district made no attempt to coordinate the science instruction received through GATE with the science instruction that GATE pupils also receive through the regular district curriculum.

Our review indicates that GATE programs could benefit significantly from articulation with the core curriculum. Articulation would benefit GATE by building it into, rather than adding it onto, the regular school program, thereby making it a more permanent and integral part of the total program. The regular school program could also benefit to the extent that local efforts to improve GATE articulation would lead to improved articulation in the general curriculum as well. Accordingly, we recommend that the legislation to reauthorize GATE include a requirement that GATE programs be vertically and horizontally articulated with the regular district program.

Program Innovation—We recommend that reauthorizing legislation (1) encourage school districts to submit proposals for innovative GATE programs that test alternative models for gifted education and (2) require the State Department of Education (SDE) to give priority to such proposals.

Identification. The basic configuration of the GATE program has not changed since it was first implemented as the Mentally Gifted Minor (MGM) program in 1961. Specifically, the program contains two major components—identification and instruction. As described earlier, the proportion of program resources allocated to each component varies greatly among districts.

Identification involves the assessment of pupils as gifted or talented. Districts select the

manifestations of these attributes (such as leadership ability, creativity, or academic achievement or ability) that they wish to identify, and then select the instruments to be used to measure their presence in individual pupils. Although identification strategies differ among districts, most involve a multi-step process that requires each identified pupil to pass through progressively more restrictive screens. A first step, for example, may be an analysis of pupil grades or standardized test scores. Those who show a requisite level of promise on the basis of these indicators may then be given group I.Q. or competency tests. Next, those who score at a high enough level on these measures may be given an individually-administered test or, perhaps, be interviewed by a school psychologist. Those who pass through each screen are ultimately selected for the program.

The only significant change to this process since the inception of MGM has been the legislative requirement to expand identification criteria and measures in order to minimize cultural and language ability bias in the identification of pupils. Essentially, however, the identification process remains unchanged and continues to be a dominant element of the GATE program.

Our analysis indicates that this model, as implemented in many districts is flawed. In some districts, the cost of identification absorbs one-half or more of the district's GATE funds, leaving little for the actual program. This is sometimes justified by the argument that a primary benefit of the program is the identification itself, because it increases the self-confidence and self-esteem of identified pupils, awakens teacher awareness of their pupils' abilities, and enables districts to group pupils with their intellectual and creative peers. Although these arguments have some merit, they are not strong enough to support the contention that identification is, itself, a fundamental benefit of the program. On the contrary, the purpose of GATE is to provide gifted and talented pupils with an enriched

educational experience in order to help them realize their extraordinary potential. To the extent that identification costs consume a disproportionate share of total GATE, they diminish the ability of districts to fulfill instructional objectives.

Instruction. The GATE identification process constitutes a screen that works in two ways: (1) it permits a small number of pupils (an average of 6 percent) to pass through and participate in the program and (2) it excludes the vast majority of pupils from participation. Given the nature of this process, we have questioned whether the opportunities that are available to identified pupils are of sufficient rigor and intensity that only the top 6 percent of the pupil population could benefit from them. In other words, is there a valid reason, in terms of program content, to exclude large numbers of pupils from the program? Our review of GATE programs and of the literature on gifted education leads us to conclude that—far from being forbiddingly elite—most GATE programs are easily within the ability range of most above-average pupils. Evidence suggests that gifted programs could be broadened in order to accommodate a larger number of pupils with existing resources.

This gives rise to an additional question: Should the rigor of GATE programs be strengthened in order to obtain a tighter match between the ability of GATE pupils and the demands of the program, or should entrance to the existing program be broadened, in order to allow more pupils the opportunity to avail themselves of its benefits? Fortunately, the answer to this question does not need to be an “either-or” solution.

Specifically, it is possible to both (1) expand participation in the program and (2) provide even more challenging opportunities for the highest-achieving pupils. Moreover, it may be possible to address these objectives with no net increase in program cost, by redirecting funds that currently are used for identification to program development and implementa-

tion. Accordingly, we recommend that the legislation to reauthorize GATE also authorize districts to propose experimental gifted programs that attempt to accomplish these objectives. One example of such a program—the pyramid system—is addressed in Appendix A. In addition, we recommend that the SDE be required to grant priority to proposals that offer to establish experimental programs.

COLA—*We recommend that the Legislature in the annual Budget Act provide the same cost-of-living adjustment (COLA) to GATE as it provides to other education programs that do not have statutory COLAs. We further recommend that the legislation to reauthorize GATE not include a statutory COLA.*

The Legislature in the Budget Act has annually provided a 6 percent COLA to GATE on the assumption that it is required by statute. Our review of the law, however, indicates that a 6 percent COLA is required only for programs in those few districts that identify 50 or fewer pupils. The law does not require a COLA for other GATE programs.

Apart from this legal issue, we also find that there is no analytical basis for giving a 6 percent COLA to GATE. Other education programs that receive a COLA do so on the basis of either (1) a prescribed index such as the GNP deflator for state and local government purchases or (2) legislative discretion. Accordingly, we recommend that the Legislature in the annual Budget Act provide the same COLA for GATE as it does for other education programs that are subject to discretionary COLAs.

Moreover, as a matter of fiscal policy, we have consistently recommended against the establishment of *statutory* COLAs, because they tend to restrict the Legislature’s flexibility to reorder priorities. For this reason, we recommend that the Legislature not reestablish a statutory COLA for those GATE programs having 50 or fewer pupils. ♦

Chapter III

Chapter III

Legislative Analyst's Response to the Department of Education's Recommendations

In this chapter, we provide our response to the recommendations of the State Department of Education (SDE). In general, we find that the department does not offer sufficient evi-

dence to support its recommendations. Our specific comments on each recommendation follows.

Base Funding

SDE Recommendation. "Increase funding for the basic program implementation from the current \$5.72 per district a.d.a. [sic] to \$15 per district a.d.a. [sic]. This increase will provide money to strengthen program services, improve teacher in-service opportunities, provide appropriate materials and resources, fund adequate GATE coordinator/administrator time, and fund guidance and counseling services."

LAO Response. The department's report does not provide an analytical basis for funding the Gifted and Talented Education (GATE) program at any specific level. The report cites the 1983 study conducted by the RMC Corporation as evidence that GATE program funding should be increased. Our review of the RMC Corporation report, however, indicates that it did not recommend a program augmentation but, instead, recommended two alternative sets of programmatic changes—one based on the current level of funding, and one based on a higher level of funding.

The department's report also states that the program's authorizing legislation "envisioned supplemental funding [beginning in 1980-81] at \$250 per identified pupil, with a yearly increment of 6 percent." We do not agree with the department's interpretation of statute. Education Code Section 52209 states:

"No district may exceed expenditure of state funds of two-hundred fifty dollars (\$250) per pupil for program services pursuant to this chapter except in extraordinary circumstances and with the specific approval of the Superintendent of Public Instruction. This amount shall increase at the rate of 6 percent per year."

A literal reading of this statute indicates that the amount referenced is a funding *cap* applied to individual *district* expenditures of state GATE funds. We find no basis for interpreting this as an expression of intent that the program be funded at that particular level.

Funding Formula

SDE Recommendation. "Delete the current 'gain-loss' formula [which we describe in Chapter I as the "squeeze" formula] and establish a new funding formula for allocation of GATE monies to districts."

LAO Response. The "gain-loss" funding formula was designed to achieve equalization of GATE funding, on a per ADA basis, among participating districts. The department's report does not explain why the existing provision should be abandoned, nor does it suggest an alternative. Our review indicates, however, that nearly all districts are funded at a

level that is at or above (rather than below) the state average. Accordingly, the major impact of replacing the squeeze formula with a formula that funds all districts at the state average would be a sudden drop in the funding level for a few districts, with relatively little gain to the remaining districts. For this reason, and because the squeeze formula is so close to achieving its objective, we see no reason to replace it with another formula. (We recommended in Chapter II, however, that the current formula be replaced with a competitive grant funding system.)

Open Access to GATE Programs

SDE Recommendation. "Delete EC [Education Code] Section 52211 and substitute language and funding to provide services to all school districts. Ninety-eight districts with approximately 16,000 gifted and talented pupils have submitted applications for GATE program participation and services. These districts are on a waiting list that dates back to 1982."

LAO Response. The expansion of GATE to all remaining school districts, as recommended by SDE, would cost an additional \$6.2 million annually, based on 1986-87 funding levels. Because of the uncertainty regarding the marginal effect of GATE on participat-

ing pupils, we do not believe that this additional cost is currently justified. In addition, we believe that a competitive grant funding system should be implemented and the resulting funding needs evaluated before additional funds are provided. Statewide funding and programmatic needs can be identified only after proposals from all interested districts have been submitted and reviewed. (As described in Chapter II, however, a competitive grant system could lead to the funding of additional school districts at no additional cost through the redirection of existing funds from the extensive identification process.)

Identification

SDE Recommendation. "Provide funding for competitive grants to districts to design pilot projects and models for identification and services for the gifted in low-achieving areas, to the economically disadvantaged, and to pupils from varying cultural backgrounds."

LAO Response. The department's report does not indicate why it is necessary to develop new identification models. Districts participating in the GATE program currently employ a variety of techniques for identifying gifted and talented minority pupils. The RMC study, for example, noted that "districts are

reviewing instruments that adequately identify giftedness without cultural penalties," and cited one district that is piloting a new method of identifying gifted pupils among racial and ethnic minorities.

We recommend that the department survey the districts, identify those procedures deemed successful by program administrators, and disseminate them to all participating districts.

Monitor and Review

SDE Recommendation. "Provide special funding for full participation in the coordinated compliance review process [CCR]. The three-year CCR cycle has proven extremely productive. Gifted education specialists welcome the reviews. The GATE personnel are needed to conduct the reviews; adequate funding to the Department's GATE Unit is required to ensure full participation in the CCR process."

LAO Response. The department's periodical review of local GATE programs for com-

pliance with statutory requirements is referred to as the coordinated compliance review (CCR) process. Its report does not document the need to augment funding for this purpose. Furthermore, while we agree to the need for an effective compliance review process, we recommend that additional support for staffing and resource needs be proposed in the annual budget so that it can be evaluated in the context of SDE's overall staffing patterns and priorities.

Counseling and Guidance Services

SDE Recommendation. "Include among the program elements listed in EC [Education Code] 52200(c) [legislative finding and intent regarding GATE] a requirement for counseling and guidance services to gifted pupils."

LAO Response. The SDE report does not discuss counseling and guidance services for

GATE pupils. While such services, in general, are likely to be beneficial, we find no evidence that GATE pupils need them to a greater extent than other pupils. Consequently, we do not concur with the department's proposal to enact a categorical requirement that would apply only to the GATE program.

Staffing

SDE Recommendation. "Fund adequate department staffing to provide CCR services and oversee special grants used to develop identification models and pilot programs for the economically disadvantaged, the handicapped, and non- or limited-English-speaking pupils."

LAO Response. This proposal is related to the recommendations on identification crite-

ria and staffing for the compliance review process. As noted above, the department's report does not substantiate the need to receive additional funding for its GATE oversight activities. If the department believes that additional support for these activities is warranted, it should request funding in the annual budget for evaluation in the context of SDE's overall staffing patterns and priorities.

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Appendix

Appendix

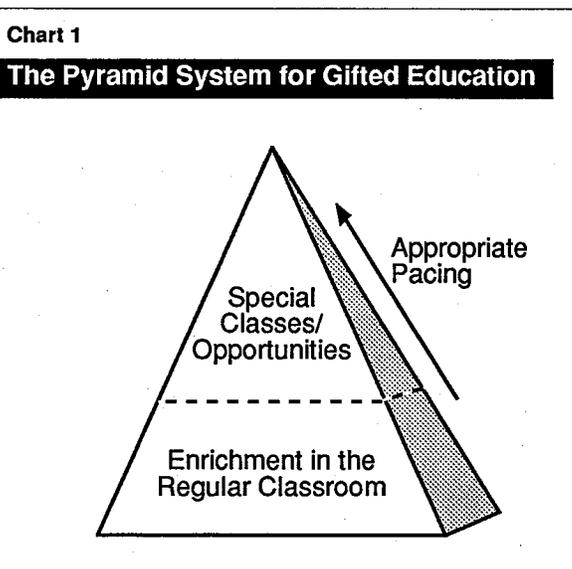
The Pyramid System

A program to achieve the dual objectives of (1) increasing the number of pupils who participate in gifted programs and (2) providing greater enrichment for the most advanced pupils has already been tested in several locations around the country, but primarily in Texas, where pilot projects have had substantial private foundation support. As Chart 1 shows, the model derives its name from the conceptual shape of the program. The program is broad-based, in order to allow entrance to a large number of pupils. It also permits participants to master content and progress at their own rates. Only a few pupils will be able to take full advantage of the range of opportunities available and move to the top of the pyramid. Those who remain at the base

or middle of the pyramid, however, also benefit from the enriched opportunities provided to them—opportunities that would not have been available if participation in the program were based on commonly-used participant identification criteria and processes.

The pyramid constitutes its own selection screen by permitting differential opportunities for advancement. To the extent that opportunities at the base stimulate latent interest and result in advanced achievement, participants have a better chance to demonstrate their abilities through program mastery than through performance on standardized assessment instruments. In other words, pupils who have not had the opportunity or interest to develop their giftedness in ways that are measurable by tests would not be identified for participation. Those same pupils, however, if given enrichment opportunities and encouragement, may be able to uncover and demonstrate, through program mastery, their previously-hidden abilities. This is a powerful argument for a program that stresses inclusion over exclusion.

Unless a program is broad enough to include in its base either the entire school population or the entire population of interested pupils within a school, some means of selecting pupils for participation will be required. Hence, the issue of identification is not erased by the pyramid model. Identification, however, does become substantially less critical.



Pupils may be divided into three groups: (1) those who are clearly able to benefit from the program, (2) those who are clearly unable to benefit from the program, and (3) those whose abilities are in question (i.e., they may or may not be able to benefit from the program). The more restrictive the entrance requirements of a program, the more difficult it is to distinguish between pupils in the first two groups. This is because assessment instruments are poor discriminators of ability or achievement at the highest end of the distribution. Specifically, because tests are designed primarily to discriminate among the large group of medium-ability pupils, scores above the 90 percentile are more likely to reflect the effect of random error than scores below the 90 percentile. In fact, some commercially-available tests are unable to discriminate at all among the top 10 percent. Accordingly, one cannot be certain whether the "true" score of a pupil who scores at the 96 percentile is really at that level, or at a higher or lower level. Nevertheless, some districts enforce a strict cut-off point of around the 95 percentile for identification. A pupil in such a district who scores at the 95 percentile would be admitted to the program, while another pupil who scores at the 94 percentile would not, despite the likelihood of error in these scores, and the possibility that both—or neither—of these pupils is "truly" in the top 5 percent of the distribution.

Fortunately, most districts use such indicators as only one element in their overall identification process. They recognize the inherent unreliability of standardized test scores in differentiating between ability and achievement at the highest levels. It is largely because of this unreliability that identification procedures are so elaborate and expensive.

This leads to two points. First, because standardized tests (by design) are more reliable discriminators of ability at the middle two-thirds of the distribution than at either end, it is easier and less costly to differentiate between pupils who could or could not benefit from the program if the cut-off point is closer to the middle of the distribution than to the

top. A broadly based program would have its cut-off point closer to the middle of the distribution, where standardized tests can more accurately and reliably discriminate between pupils in the first two groups. This would reduce the need for additional, expensive identification procedures. In fact, schools have engaged in this practice for years for ability grouping, without extraordinary cost.

Second, in some schools, the base of the program could be large enough to permit entrance, on a provisional basis, to the third group of pupils whose abilities are in question. This would also serve to reduce the importance of the role of identification by assessment, and hence its cost.

In summary, the pyramid system has the following potential advantages:

- It reduces heavy reliance on elaborate and costly identification procedures;
- It allows the redirection of resources from identification to program development and implementation;
- It extends enrichment opportunities to a greater number of pupils;
- It permits a larger number of pupils to discover and develop latent gifts and talents; and
- It allows a larger number of pupils to maximize their own potentials.

While this approach has much merit, we recognize that it is still experimental and that there are unanswered questions regarding its implementation. Specifically, we lack information on costs and on how broad the pyramid should be at its base (that is, how many pupils should be admitted for participation). In addition, other programs may be equally promising. For these reasons, we do not recommend that the pyramid system be adopted as a state-required model. It has sufficient promise, however, to recommend it as an alternative for serious consideration by the Department of Education and participating districts in designing innovative gifted education programs. ♦