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ABSTRACT

A differentiated curriculum can provide the basis for discovering, serving, and nurturing academic talent across California's diverse student population. Differentiation provides tools to vary the curriculum or instruction so that students who have already mastered given material continue to progress and students who have a particular interest in an area can pursue it in greater depth or in a personalized way. Although aimed at gifted and talented youngsters, four principles of differentiation can be used to meet the needs of all students. These include acceleration, complexity, depth, and novelty. The responsibility for differentiation is one which all educators must share, at the classroom level and the school level. Educators must develop a new vision of excellence that depends on a fresh understanding of how the core curriculum can be differentiated to provide advanced learning opportunities. The education of the most able students, as with all students, is best developed in challenging contexts which shift the emphasis from the structure of the program to the quality of the curriculum. The core curriculum currently embodied in California's curriculum frameworks is often described as a "thinking curriculum" because it tries to engage students at all times in the search for meaning. In addition to differentiation at the classroom level, successful differentiation at the school level involves new service models, new roles for educators, shared resources, improved assessment practices, and ongoing staff development. (JDD)





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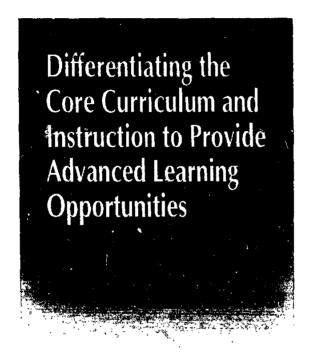
Differentiating the Core Curriculum and Instruction to Provide Advanced Learning Opportunities

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A position paper of the
California Department of Education
and the
California Association for the Gifted







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Contents







alifornia's schools serve the most diverse student population in the nation. With a broad range of cultural, academic, economic, and linguistic characteristics defining that population, students present a rich array of interests and needs. Gifted and talented students mirror the larger society: they may speak no English or several languages fluently in addition to English; they may live in neighborhoods wracked by poverty or marked by affluence; they may excel in every subject or be eligible for special education services and gifted and talented education at the same time. However, they have one common characteristic: the ability to perform significantly above grade level in one or more areas of the curriculum.

There is convincing evidence that many students do not perform at the upper achievement levels because, in part, they don't have the opportunity to participate in a challenging curriculum. Differentiating the Core Curriculum and Instruction to Provide Advanced Learning Opportunities was created to help teachers extend the core curriculum so that all students are appropriately challenged, even when their inter-





ests, abilities, and experiences vary widely in a single classroom. The document was produced jointly by the California Association for the Gifted (CAG) and the California Department of Education (CDE), whose representatives have worked together over the past two years to further the goal of dramatically increasing the number of students who can successfully complete advanced coursework. Related training for teachers is also available through CAG and through the California School Leadership Academy.

All children deserve an education that challenges each one to be the best that he or she can be. Just as underachieving students need supportive intervention, so the most advanced students should receive careful monitoring to ensure that they are provided opportunities to stretch and extend their knowledge and skills. Educators should not set an upper limit on how much or how fast students may learn. Instead, they should seek to raise the overall level of attainment of all students, add to the existing number and variety of advanced and honors classes, and increase the number of students who can be successful in such classes.

This publication is designed to help teachers individualize instruction, when necessary, to better meet the needs of all students. It describes how four constructs can be varied by the teacher to provide additional challenges to students: acceleration, complexity, depth, and novelty. Providing access for all students to the core curriculum does not imply a lock-step approach to teaching. Differentiation provides the teacher with tools to vary the curriculum or instruction so that students who have already mastered the material continue to progress and so that students who have a particular interest in an area can pursue it in greater depth or in a personalized way. Although aimed at gifted and talented youngsters, the four principles of differentiation can be used to meet the needs of all students.

This publication does not address the issue of placement of gifted and talented students. Several options are available to districts as they design programs. Among the choices are special day classes, magnet schools, cluster grouping within the regular classroom, and independent study. All grouping strategies have advantages and disadvantages, and educators must use professional judgment in selecting the





strategies which best meet the needs in their schools and communities. Regardless of program design, this publication can be a valuable tool. Users are invited by CAG and CDE to submit comments on how to improve this document in future printings.

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Addressing the Need: A Differentiated Curriculum

What can California's educators do to ensure that all students—including those whose initial levels of interest, understanding, and performance are remarkably beyond those of their age peers—are sufficiently stimulated to operate at increasingly complex levels of thinking and production? Arriving at methods that would ensure such stimulation is a major challenge for those who seek to discover, nurture, and extend academic interest and talent in the greatest possible number of students. More students must be taught to make increasingly important and complex decisions about their work and must be helped to assume greater responsibility for their own learning. Teachers must realize that when they complement a strong curriculum with an environment that encourages students to be shareholders in their educational stake, excellence occurs. By differentiating the core curriculum to provide advanced learning opportunities, educators take an important step toward helping students attain that excellence.







This paper was prepared jointly by the California Department of Education and the California Association for the Gifted. In it, the terms gifted, gifted and talented, high achievers, and able learners are all used to refer to the group of students performing significantly above grade level. Rather than being a step-by-step, how-to document, the paper sets forth the point of view that a differentiated curriculum, attended by sound instructional practices and strategies, both ensures stimulation for students and defines one means by which educators can gain that stimulation. A differentiated curriculum can be developed in every California classroom; through the efforts of both school and community, such a curriculum can provide a basis for discovering, serving, and nurturing academic talent across a diverse student population. Although instructors in gifted and talented education have traditionally been leaders in the development of differentiated curricula for gifted students, the responsibility for this development is one which all educators must share. Recognition of this responsibility sets the stage for the discussions, decisions, and plans needed to differentiate educational experiences appropriately in response to the needs, interests, and abilities of advanced learners. The suggestions made in this paper for differentiating the curriculum are not exhaustive, nor are they discrete. Teachers are encouraged to add strategies and combinations of strategies to their repertoire of instructional methods.

Shifting the Emphasis from Structure to Quality

In their efforts to provide a rigorous education for all students, educators must develop a new vision of excellence that depends on a fresh understanding of how the core curriculum, enhanced by reforms in both subject matter and methodology, can be differentiated to provide advanced learning opportunities. This paper proposes that the education of the most able students, as with all students, is best developed in challenging contexts which shift the emphasis from the *structure* of the program to the *quality* of the curriculum.

In the past, the standard curriculum available to students in many classrooms was weak, inadequate, repetitive, often remedial in nature, and doggedly skills-based. Students, especially high-ability students, frequently found their educations monotonous, uninspiring, and boring.





Prompted by national and state educational reform movements, California moved to overcome these weaknesses and to provide challenging instruction for all students, including the most able. Schools responded with changes in curriculum or structure.

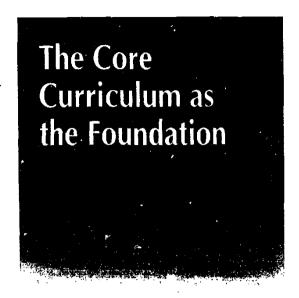
Some of the reform programs that were developed for gifted students in response to weak curricula were and still are outstanding. These programs emphasized critical thinking, meaning-centered curricula, and high standards. Unfortunately, the number of programs for gifted learners that foster these themes is limited, and they meet the needs of only a small fraction of those for whom they are intended. Meanwhile, other schools made substantial changes in their programs that undermined their effectiveness. For instance, some schools substituted a different, but not necessarily better, curriculum for a weak, skills-based regular one. Other schools sought to meet students' needs by modifying the structure of the curriculum-requiring the most capable students to do more of the same (for example, 15 book reports instead of 10) or work at a higher level of that same curriculum (sixth grade science for a fourth or fifth grade student, for instance). At still other schools, programs and approaches were adopted which emphasized thinking skills and higher cognitive processes in isolation, disjointed from substantive content. Such practices were rarely sufficient to meet the sustained needs of the more able leamer. Thinking exercises were shaped as accessories to rather than integral parts of learning.

In most districts, previous practices fell short of providing for the needs of all students with high achievement and encouraging and nurturing academic talent in greater numbers of students. How might educators avoid these shorter nings, and what are the conceptual bases for framing their efforts successfully?

It takes courage and commitment to make the changes needed to provide opportunities for advanced learning for a larger student population. A school with those qualities will do much more than create an exciting, challenging place or time to learn. A differentiated core curriculum in the hands of talented, dedicated teachers can help all students be what they should be—and, in many cases, what they may never have even dreamed they could be. The best of what we have learned about education for the gifted should become the best for everybody.







Focusing on Content

For many years, most instruction in American schools was based on a unitary, linear, skills-based curriculum. In the accompanying theory, learning was thought to occur in small steps that required practice and repetition. Knowledge and learning were each thought to be hierarchical, with achievement dependent on prior acquisition of lower order skills and knowledge. These perceptions led to (1) the evaluation of students' progress from their performance on multiple-choice tests which could readily measure skills learned in discrete steps; (2) the teaching of reading with vocabulary-controlled texts built on readability formulas without attention to the quality of the reading materials; and (3) a focus on "skill and drill" as the only way to meet scope and sequence requirements. Using these approaches, teachers found it difficult to stimulate the imagination of their students or to hold the attention of their more able learners. No wonder teachers despaired about students who "too rapidly" acquired the skills, finished tasks early, ran out of material, or refused to engage in the tasks presented. The earlier cur-





riculum offered a narrow, shallow well from which the high achiever had to draw knowledge and develop intellect. Adjunct or separate programs were set up to meet such students' needs, whereas the weak, basically inadequate core curriculum went unchanged.

By contrast, the core curriculum currently embodied in California's curriculum frameworks is often described as a "thinking curriculum," not because it focuses primarily on the thinking processes, but because it tries to engage students at all times in the search for meaning. Thinking is associated with the centrality of knowledge and the integration of that knowledge with what has been learned before. In each framework the importance of nurruring and cultivating a variety of complex thinking processes in all students is stressed; thinking is, indeed, a unifying factor. This educational approach rests on the assumption that students think and learn best in a curriculum that is content-rich—one that engages them with the concepts, principles, and themes that define each discipline.

Attributes of the Thinking Curriculum

Today the core, or thinking, curriculum can be described by attributes of new and inventive ways to approach learning. These attributes incorporate excellent practices and the observation of and research into exemplary programs over the past several years. In the past, these attributes described a curriculum which was thought suitable only for learners of demonstrated high abilities. Certainly, the following attributes challenge students and nurture excellence:

- Meaning is central. Students construct meaning. They learn new information, strategies, and skills—by connecting their own experience to the curriculum in meaningful ways. This notion implies that students will acquire knowledge to the extent that they make connections, and that the "meaning" students make depends on what they bring to the curriculum as well as on what the curriculum offers to them.
- Knowledge and thinking are interdependent. Thinking requires something to think about, and knowledge makes thought more powerful. Stated differently, it is impossible to think without







- something to think about. In quantitative terms, the more one knows about a given subject, the greater the possibility of advanced thought about that subject. Thinking itself is not a discipline; thought requires content. Students come to understand that the acquisition of knowledge depends on *how* one thinks.
- ◆ Effort is valued. Students learn that intense, extended effort pays off. In the meaning-centered curriculum, learning and knowledge are complex, and the construction of meaning depends on extended effort.
- ◆ Collaboration helps. Students who share an interest, task, or goal learn by testing their ideas with one another—listening, evaluating, and refining their thinking as they pool their expertise. Much learning is of a cooperative nature: making public one's thoughts; developing intellectual skills such as comparing, synthesizing, and evaluating; and acquiring the interpersonal skills of compromising, negotiating, leading, and following. All these abilities attest to the importance of collaboration in learning and thinking.
- ◆ Thinking about thinking is important. Students learn to understand their own thought processes, analyze coherent logic, and use their awareness to guide future thinking. By looking at concepts, skills, and knowledge as they are used within and across disciplines, real-life problems, and different cultural situations, students build more powerful understandings of those concepts and knowledge.
- Thinking takes time. Students are given time to explore topics in depth. Just as effort is valued, students see that meaning is often built over time through related experiences and new interpretations of familiar notions. While quickness to see connections or recall information is valuable, substantive learning and thinking result from sustained effort.
- Multiple solutions are typical. Many problems and tasks have more than one correct solution or more than one path to a correct solution. Students learn that there are many ways to solve most problems, and they learn to think creatively about finding solutions to difficult problems. Understanding the perspective, approach, or





solution offered by someone else serves to enhance understanding of not only one's own thought, but also of the many alternatives not yet selected or imagined.

Many of the curricular attributes cited above have traditionally differentiated the curriculum for gifted learners. Taken together, these attributes suggest a core curriculum that is accessible to all students and that encourages students to integrate their knowledge, experience, and skills across disciplines, topics, and concepts. The core curriculum also provides the cornerstone for differentiation to continually challenge the most advanced learners.

Expanding the Frameworks: The Need for Differentiation

The core curriculum embodied in the curriculum frameworks provides a rigorous and demanding agenda for California's teachers. The frameworks include more than enough rich content for students of all abilities, but these documents are intended to serve only as guidebooks to school districts and school programs in the development of specific curricula and materials. They are largely silent on how the common core curriculum might be differentiated to meet the different needs of different types of learners. The frameworks do support the development of curricula which will challenge and nurture gifted and talented students; this support is directed at the students whose latent talents emerge as a result of challenging learning experiences as well as those whose obvious talents immediately compel their mentors to increase the level of challenge. The task remains to build on the strong foundation that the frameworks provide, basing efforts on the characteristics of the curriculum, on the natural differences that every student brings to the classroom, and on whatever other means are available to create a differentiated curriculum.

Pathways to Differentiation

Differentiation of the curriculum occurs (1) naturally, when the experiences, interests, abilities, and readiness that individual students bring to their schooling interact with the content and characteristics of







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the core curriculum; and (2) by teacher design, as when teachers consciously plan curriculum and learning experiences/activities that may vary in acceleration, in depth, in complexity, or in degree of novelty.

Natural Differentiation

As California's student population expands ethnically, culturally, and linguistically, the range of natural differentiation broadens, and opportunities are created to capitalize on this rich resource of human diversity. Natural differentiation occurs as students become involved separately and together in constructing meaning, solving problems, and struggling with new concepts, ideas, and information. Because students bring to the classroom different backgrounds, beliefs, and experiences, they use their own unique ways to engage in the curriculum, create individual meaning, and augment the curriculum with their particular insights. As a result, the effects of natural differentiation emerge. The characteristics of the thinking curriculum—that meaning is central, that multiple solutions are typical—provide for this natural differentiation to the extent that teachers encourage students to approach learning tasks from a variety of perspectives using a variety of strategies. Furthermore, as teachers structure learning tasks ranging in complexity from simple to sophisticated, students will have greater opportunities to demonstrate their unique understandings and abilities to work at higher levels.

If every teacher understood and appreciated the simple means of differentiation described above—allowing it to occur regularly instead of trying to mold students in a single image—success would be greater in meeting the needs of gifted and talented students in a diverse student population. Natural differentiation produces a synergy that encourages a move toward more deliberately developed avenues of differentiation.

Teacher Design: Four Strategies for Differentiation

Differentiation generally begins with what the learner brings to the curriculum; it is based on responses of the learner to the tasks of the curriculum. However, it is the teacher who actively provides for the differentiation which will challenge students, including those able students whose initial levels of understanding and performance in one or more areas of the curriculum may be well beyond those of peers. The teacher is critical in the effort to enable students to become more like





the "creators and producers of knowledge." Although didactic instruction remains an important practice, the thinking curriculum transforms the role of the teacher from that of a dispenser of knowledge and keeper of right answers to that of an enabler, coach, mentor, or tutor. The activities of the teacher who provides advanced learning opportunities will become like those of a resource teacher who finds, plans, and manages printed and personal resources. Such materials encourage and enable the student to extend his or her learning, perhaps in some instances through a kind of apprenticeship.

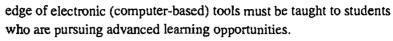
Teachers can work within at least four strategies for differentiation to provide advanced learning opportunities: (1) acceleration/pacing, and planned variations in the (2) depth, (3) complexity, or (4) novelty of curricular tasks. In each case, differentiation implies that students will be working on concepts and tasks that are more difficult or demanding than those of regular assignments. These tasks will relate not only to the core curriculum but also to the unique strengths each student brings to the endeavor. The four strategies are not exhaustive, but using them can ensure that students continue to learn and perform at their own levels of challenge. Each of the strategies for differentiation used to expand the core curriculum can lead students toward further understanding or discovery and satisfy the needs of able and gifted students for a more challenging curriculum. As individuals, teachers can bring their own unique instructional methodologies and pedagogy to these strategies. They can also use many support services to provide the differentiation.

Decisions to Differentiate the Curriculum

Differentiation requires a continuing reexamination of what students learn, how they learn, and who is responsible for the what and how. In many cases, efforts to create differentiation will require the teacher to stretch beyond his or her own field of study, expertise, or knowledge. Thus, successful use of the strategies will depend to some extent on the teacher's skill in planning, finding, and managing resources; allocating time for students to work; providing instructions; setting appropriate standards for work produced; and suggesting resources. Mere availability of resources does not equate to differentiation. In fact, in many situations, qualitative methods such as library search skills and knowl-



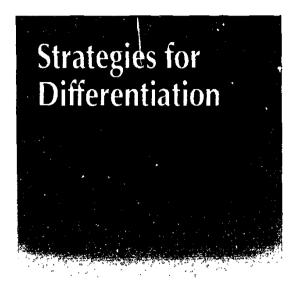




Differentiation generally begins with the student's response to the particular curricular experience. The extent of differentiation ranges from a discrete activity, to a unit of study, to a total course; it is a measure of the student's desire to pursue a unit of study in greater depth, or perhaps to take an advanced level course as a form of acceleration. The extent, as well as the particular strategies for differentiation (acceleration, depth, complexity, novelty, or others), will depend on many factors. These factors include the resources available to the student and teacher, time available, and learning environment. Creating differentiation requires knowledge of the student, selection of the strategy for differentiation, and selection of an appropriate instructional approach. These considerations do not require that everyone set out on a different task. The Odyssey, for example, is an excellent work of literature for everyone in the language arts class. It holds limitless possibilities for differentiation. The range of students' responses to The Odyssey gives clues that help the teacher determine which strategies are needed for differentiation.





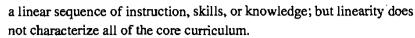


Acceleration/Pacing

Perhaps the most straightforward means of differentiation to meet the needs of students with demonstrated high levels of understanding is to arrange for them to move more rapidly through a particular curricular sequence. Such acceleration can be either self-paced within any learning environment, or in a group setting with the students' participating in a class or course for a higher grade or age. Young students with advanced levels of understanding in mathematics, for example, may be ready for the challenge of algebra or calculus at a point at which the classroom teacher cannot provide that level of challenge. Acceleration into a higher class or self-paced instruction with guidance from another teacher, a mentor, or a tutor might be the most appropriate options available to best serve such students. However, in some cases, acceleration has been used inappropriately. Students in an accelerated curriculum should not be expected to teach themselves. Acceleration works well when there is







Acceleration should be used judiciously, with attention to the nature



of the curriculum and student. Rapid advancement through a curriculum which is weak in content, skills-based, and oriented to produce a single right answer quickly to every question will only lead the capable student and teacher to face the inadequacies of the program sooner. The rich core curriculum, on the other hand, should provide chal-

lenging and appropriate opportunities above and

beyond the usual grade-level content: special projects, seminars, independent study, alternate assignments, and grouping strategies such as clustering. Such opportunities can lead to more efficient, effective pacing.

Depth

Differentiation by increasing the depth to which a student explores a curricular topic begins with the natural differentiation of students. A student who demonstrates an extraordinary knowledge, skill, or interest in a topic or task can pursue the topic in greater detail and to a greater level of understanding than will most other students. Depth refers to approaching or studying something from the concrete to the abstract, from the familiar to the unfamiliar, and from the known to the unknown. Depth requires students to examine topics by determining the facts, concepts, generalizations, principles, and theories related to them. Depth necessitates uncovering more details and new knowledge related to a topic of study. Depth encourages students to recognize new perspectives.

Another way of looking at depth is to mark the difference between a collection of isolated facts and what they become when they are assembled as concepts—the "big" ideas. These ideas are centrally important to learning, and they are the first fruits of pursuing along one line, for example, facts to concepts to principles to theories. Depth, then, is elaboration; it is moving from patterns to trends; it proceeds from rules



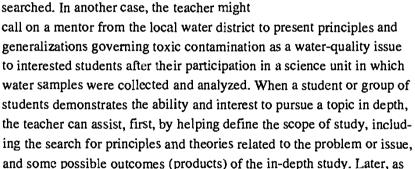
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to structure to ethics, from simple pragmatism to speculation. As depth moves from the simple to the complex, students' understandings are forged from a solid, factual, and conceptual base.

The teacher creates differentiation first by recognizing the student's level of skill, knowledge, or interest, and then by encouraging, planning for, and facilitating the student's progress during in-depth study. As with acceleration, the student may pursue a topic well beyond the teacher's level of knowledge or skill. Whereas in acceleration the teacher may arrange for a tutor or for placement of the student with another teacher, differentiation of the curriculum in depth may require a somewhat different set of experiences. For example, the student may need to acquire research skills in order to use the school's library or resource center, an on-line information retrieval service, or a local college or university library. Or, the student may pursue a topic which requires specialized skills and knowledge available from a community member or another staff member at the school-how to design, administer, analyze, and interpret surveys, for example. For a group of students who demonstrate a strong interest in architecture after studying Egyptian culture, a teacher might provide additional instruction and

ture after studying Egyptian culture, a teache might provide additional instruction and materials to identify the theory for the construction of a pyramid, a set of blocks with which to create a number of alternative buildings, and further instruction in solid geometry to prove the theory they researched. In another case, the teacher might



described in the example above, the teacher can strengthen the study of the topic by developing or utilizing outside resources.



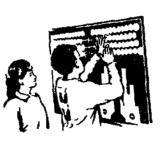




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Complexity

Beyond acceleration and depth a teacher should consider changing the complexity of the subject matter. This change can be accomplished by extending the content to the study of issues, problems, and themes. Complexity involves making relationships between and among ideas, connecting other concepts, and layering—a why/how interdisciplinary approach that connects and bridges to other disciplines, always enhancing the meanings of ideas. As with other means of differentiation, the student may focus or relationships at varying levels within, between,



and among a discipline or topic; on the meaning of a theme throughout a discipline; or on the varying perspectives offered by different parties to an event. For example, students can understand the Puritans not only in terms of their particular time but also as figures in history that help interpret modern-day immigration. Or,

they adopt the roles of historians, anthropologists, artists, mathematicians, or biologists to view the same set of circumstances.

The teacher's challenge is to assist the student in defining a task or problem, identifying the dimensions of the task, and relating a variety of information and skill to complete the task or solve the problem. The teacher may utilize a range of resources: special materials; computer hardware and software; community or higher education library facilities; a mentor from the academic or business community; a resource teacher at the school; other students with similar interests; or a student study group convened by an interested teacher to work on the problem together. For example, a group of students decides, after studying the structure of DNA, to pursue the topic of genetic engineering. Students interview geneticists at a university or medical center, review the original research of Mendel, and work with local agronomists to develop a new strain of tomato.

As with other forms of differentiation, the teacher will take cues from students in deciding how to increase complexity, always relating differential activities back to the core curriculum. The teacher notes the student's level of interest and ability to make connections; to relate concepts and ideas at a more sophisticated level; to see associations



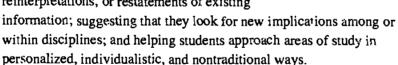


among diverse subjects, topics, or levels; to find multiple solutions to problems; and to analyze and evaluate solutions from several points of view. The teacher will help students to understand and apply standards to their work and to analyze their own performances or understandings regularly. Students working individually or together on relatively complex ideas and relationships should be particularly encouraged to examine their own thinking.

Novelty

It has been shown in the discussion above that acceleration depends largely on teacher-initiated differentiation, and that to varying lesser degrees, depth and complexity, too, are framed by the teacher's design and guidance. Novelty differs primarily from the other forms of differentiation because it is primarily student-initiated. Differentiating the core curriculum through increasing the depth or complexity of understanding should always begin with the students' response to the curriculum.

lum; however, providing advanced learning opportunities through novelty depends entirely on the students' perceptions and responses. Novelty, however, is not the same as originality or creativity. In the context of differentiation, novelty means that the teacher can stimulate students in the following ways: encouraging them to seek original interpretations, reinterpretations, or restatements of existing



Novelty is the power which underlies a student's different approach to making new constructs and ideas. Novelty complements depth and complexity by providing inquiry and exploration into seeming disparate and incongruent patterns of experience which lead to the articulation of entirely new, often original, newly proportioned, and reorganized knowledge. Novelty depends heavily on the student's ability to see irony, paradox, metaphor, and other sophisticated symbolic processes as









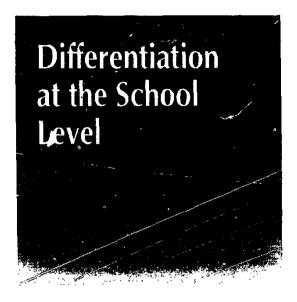
she or he synthesizes pieces of information into unique and novel paradigms of understanding. A literary example which illustrates such a resynthesis occurs in the second chapter of Antoine de Saint Exupéry's *The Little Prince* where the aviator struggles to please the Little Prince with his repeated efforts at drawing sheep. The best the aviator can come up with are sheep that to the Little Prince look sickly, too old, or in some other way deficient. When the aviator finally draws a simple box with holes in it, explaining "the sheep you asked for is inside," the novelty delights his young judge.

The creation of novelty must rest with the student; the teacher can only set the conditions and acknowledge the results. Understanding the elements that allow or even encourage novel insights or responses is not the same as providing the student advanced opportunities through pacing, depth, or complexity. For students to create novelty, the making of personal meaning (invention or interpretation) is required. Students must test their ideas with one another as well as against established interpretations. The process is always student-centered, never teacherdominated, although the teacher must take part in setting the stage. Perhaps the most important part of the teacher's stage-setting role is establishing a learning environment in which students can feel comfortable expressing divergent thinking without fear of ridicule from peers for being different. Teachers must work with all the students in a group until they understand that during a brainstorming phase of a project, for example, no criticisms or judgments of ideas may be stated until after everyone's thoughts have been expressed. Sometimes, the "wackiest" or most "off-the-wall" idea can lead to an unusual but extremely effective solution to a problem. Students can also be taught that expressing criticism is appropriate during an evaluation phase of any project, and that it is most effective when offered in tactful, constructive ways. The encouragement of risk-taking, collaboration, and multiple solutions and an emphasis on taking time to arrive at solutions or explanations—all will maximize the emergence of novel or creative responses. The literature related to encouraging creativity can contribute to strategies for differentiation through novelty as long as the efforts are always content-focused.









Services That Support Advanced Learning Opportunities

Many past efforts to provide advanced learning opportunities for able students have used resources to furnish an alternative curriculum, extra materials, a different setting, or more work. However, few programs have attempted to build on the core curriculum to enhance such students' educational experiences. The teacher sometimes sent students from the classroom for some special activities with a resource teacher, the activities may have been stimulating and well taught, but too often they had little or no connection to the classroom curriculum. In some cases the regular classroom teacher had little knowledge of or responsibility for the students' learning that took place in other contexts or settings. In contrast to such services, however, are those which extend, enrich, or widen the core curriculum and allow teachers to practice differentiation in the ways described above.

In a strong, meaning-centered core curriculum, the teacher may be the first person after the student to realize the need for differentiation.







Careful observation of students' responses and work helps the teacher become aware when a student or group of students needs additional challenge. The teacher then coordinates special services for the student. This special-services model might include substituting a demanding task for a simple one, or setting up a study group for similarly-inclined students. The group could pursue a topic or undertake a project with the assistance of the classroom teacher, another teacher in the school, or any other adult with some expertise in the area of study. On other occasions, the teacher might arrange for a tutor to work with a student whose work signals the need for acceleration and for whom other forms of acceleration are either inappropriate or unavailable. A mentor from the local business, professional, or academic community might assist a student who demonstrates a strong interest and knowledge in a specific topic, helping that student to pursue additional specialized study and research. At the school level, differentiation based on depth or complexity might be accomplished by providing the student with access to a broader range of supplementary materials, including print and electronic media as well as scientific equipment and similar tools of the trade(s).

Making It Happen

No single instructional strategy, method of differentiation, grouping arrangement, or service model will be appropriate to all situations. When the core curriculum is fully implemented, differentiation will be apparent in the depth, complexity, breadth, and novelty among student products and performances. From a common core, students will have been encouraged, through a variety of strategies, to work at the most advanced levels possible. The classroom teacher is charged not only with ensuring that students who request more challenging opportunities are accommodated; the teacher also must provide opportunities for students for whom the need for additional challenge is not as obvious. Differentiation is a shared responsibility: the curriculum becomes more student-centered than teacher-dominated. In other words, students in a differentiated curriculum take advantage of the opportunity to make decisions and direct some of their own learning.

What will it take at the school level for successful differentiation? The areas in which changes must occur are listed below.



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New Service Models

Among the options authorized in 1989 (see Education 'ode Section 52206) to serve gifted and talented students, three basic models have traditionally been used. In the first model, identified students are removed from the regular class. Either they are (1) enrolled in pull-out programs for a few hours each week during which they work together on activities designed by a resource teacher; or (2) placed in special day classes in which they spend the entire day together, pursuing a differentiated curriculum or a regular traditional curriculum taught at a different pace. In the second model, identified students—sometimes in cluster groups of up to one-third of the class-remain in their regular classrooms. There, they may have more work (40 spelling words instead of 20, eight worksheets instead of three), more difficult work (from the next grade), or different work (unrelated to the core curriculum). In the third model, gifted students are in the regular classroom but are not grouped in clusters. Teachers may provide more work, more difficult work, or different work for these students on an individual basis.

When the traditional service models cited are used, resources available for gifted and talented education are spent for additional staff, more or different resources, and/or staff development for teachers. Although such services can be helpful, too often the learning experiences are not coordinated with the core curriculum, coordination with other programs or resources at a particular school site is infrequent, and typically these services are available to only limited numbers of students. The work ahead, given the challenge set forth in this paper, is to expand options for service delivery which can provide high-quality advanced learning opportunities to every student whose work indicates such a need.

New Roles for Educators

New ways of providing services to larger numbers of students will require expanding our notions about the roles of instructional personnel who work with gifted and talented students, as well as those of other resource personnel. In past years, when districts received higher levels of funding for gifted and talented education (GATE), many districts hired staff at the district level to work specifically with gifted and talented students. Current funding levels in most districts no longer support such personnel. Most districts have a GATE director, but this



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person usually wears many hats, serving also, for example, as the school improvement coordinator, the Chapter 1 director, and/or the bilingual education director. Such specialists have no time to work with individual students. Instead, they administer and coordinate programs and organize staff development opportunities for those who do work directly with students.

To maximize community resources for all students, directors or coordinators at the district level should work together to develop a cadre, of school support personnel. Volunteers with special expertise or interests can be invited to form a resource bank and serve as instructors, mentors, or tutors. Such a group can include parents, retired teachers, business personnel, and higher education faculty, for example.

At the school site level, some schools do have a "GATE teacher," an educator who is assigned the responsibility to educate the gifted as a full or partial assignment in a regular classroom, special day class, or specific learning environment or situation. Clearly, the regular classroom teacher with gifted students in his or her classroom is also a GATE teacher, just as a GATE teacher of a special day class of gifted students is also the "regular classroom teacher."

Regardless of the grouping method used or the title the teacher prefers, the primary responsibility of the regular classroom teacher is the same: working with individual advanced students or groups of students to ensure that differentiated instruction is provided, and that it is coordinated with the core curriculum. Specialists or support personnel, if available, may provide additional materials, enable the teacher to cluster a group of students with an adult for special activities, or help coordinate advanced learning opportunities with other activities. Primary accountability for meeting the special nee s of advanced learners rests with the classroom teacher, but the responsibility may be shared with resource personnel where they exist.

Shared Resources

Administrative support for meeting the needs of all students is a crucial element in successful program planning. The programmatic responsibility for providing challenging curriculum for students who demonstrate understanding or performance beyond that of peers must extend beyond gifted and talented education. GATE can provide some



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resources and will continue to serve the gifted. However, if the program works toward inclusion of as many students as can benefit, schools must strengthen their support for excellence. To demonstrate that support, schools must ensure that all program goals and fiscal resource allocations reflect that commitment. Sharing responsibility will require that meeting the needs of the most able is seen as a schoolwide goal and the responsibility of every program and all resources available.

Improved Assessment Practices

Differentiation, as outlined in this paper, stretches and pulls the student into deeper levels of connection and understanding, areas of new learning which are difficult to measure by conventional methods of assessment. No single test can provide a comprehensive, realistic appraisal of the full range of educational excellence talented students can demonstrate.

The improvement of assessment techniques in California schools is integral to the overall reform effort. It is intended to reflect the changes in curriculum from a discrete, hierarchically ordered focus on skills to a meaning-centered focus in which students must construct their understanding, integrate information, and develop and use critical thinking in every area of the curriculum. The emphasis in assessment is shifting from measuring the presence or absence of easily measured skills or knowledge to requiring the demonstration of more complex understanding by more authentic measures—solutions to problems, or the preparation of essays or products, for instance. Such projects require the application and integration of higher level skills and knowledge. In the past, arguments have been raised against teaching to the test. The newer approach to assessment defuses such objections and also more nearly reflects the converse, in which assessment is driven by curriculum.

Assessment is key to the continuing dynamics of curricular differentiation. Assessment practices must not only indicate degrees of achievement but also stimulate further development of the notions of differentiation. Truly comprehensive assessment is characterized by consensus standards of excellence (exemplars of the highest possible score and rubrics which define the standards at various levels,) and standards which are an integral part of the curriculum. Standards that reflect the possibilities of accomplishment through a differentiated curriculum will provide an impetus for students to strive to achieve at higher levels.



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If the essence of acceleration/pacing, depth, complexity, and novelty is an invitation to students to further and more challenging study, differentiation requires the teacher to have a wide repertoire of skills and knowledge to meet the increasing demands of a curriculum that encourages discovery. The enterprising teacher has an appreciation of serendipity, not only allowing the unexpected but also building on it as a kind of umbrella to stimulate even more exploration and discovery. This appreciation calls for a teacher who is at ease with students' responses and recognizes that the core thinking curriculum and its rich content can be an endless resource for ever-increasing levels of complexity. Such a teacher realizes that academically talented students will be challenged to their full potentials in a climate characterized by questioning and thinking within the core curriculum.

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Several staff development opportunities which focus on the content areas of the core curriculum are already in place. The subject matter projects (literature, history, mathematics, writing, science, foreign language, and visual and performing arts) have addressed the importance of a richly integrated core content. These projects, which are offered during summer institutes and throughout the year, have established professional development systems based on the curriculum frameworks. They have also been instrumental in the development and publication of the various model curriculum standards that discuss appropriate techniques with which to deepen the study of the different disciplines.

The staff development necessary to make differentiation a reality must take place alongside the resources cited above. In addition, statewide staff development efforts must occur in two ways to be ultimately successful. First, they must focus on approaches which encourage teachers to share ideas with one another on-site and which can be supported by university coursework and institutes sponsored by districts, the state, and universities. Such approaches involve literature and other publications, as well. All of these resources bring teachers into a network with others who already successfully provide differentiation in their programs. Second, staff development must be linked to institutional change: better programs; support from specialists and other school personnel; access to challenging materials which reflect the





frameworks; more time for in-service training, team meetings, and visits; availability of technology; and ongoing support from within—rather than initial stimulation and encouragement, then nothing. When staff development has both self-educating and institutional modes, its effects will be lasting.

In helping to differentiate the curriculum, staff development programs must work to meet the following goals:

- Promote the recognition and challenge of gifted and talented students. Teachers need to be familiar with giftedness as it is expressed in multiple intelligences and in differing demographic patterns.
- Help participants build techniques and strategies which utilize the attributes of the thinking curriculum. Teachers and resource personnel need to learn and practice techniques which are based on a content-rich curriculum and which demonstrate that rigorous and demanding tasks accompany the attributes naturally.
- Use the findings of current research and the experiences of seasoned practitioners on how to differentiate successfully the content of the core curriculum to meet individual needs among gifted and talented students—that is, using differentiation strategies as discussed in this paper. For example, a teacher could use a staff development setting to share ways in which one student's study of Simon Legree as the prototypical literary villain was used as a differentiation strategy to deepen an understanding of the slavery issue. Teachers need to share their ideas and to model their methods. More than any other curricular strategy, curriculum differentiation requires the teacher to be comfortable with the idea that although no one can know everything, everything worth knowing is the raw material of a challenging classroom. In the context of curricular differentiation, staff development ultimately is a challenge to the teacher to be even more inquisitive and searching than the students.
- ☼ Encourage teachers to share resources, pool ideas, and take responsibility for particular aspects of differentiation. Teachers need to learn where to turn for help and to build collaborative efforts in planning. What are the resources, the agencies, the written materi-







- als? The successful teacher must learn how to manage a variety of goods and services because there will be a broad spectrum of support with which to work.
- Provide training in the use of products to evaluate gifted and talented students. Portfolio assessment is currently undergoing extensive research and holds great promise for evaluating students' work, particularly work which is novel or is performed across several grade levels.

Closing Questions

Appropriately, this paper began with the question intended to challenge teachers to find answers: "What can California's educators do to ensure that all students—including those whose initial levels of interest, understanding, and performance are remarkably beyond those of their peers—are sufficiently stimulated to operate at increasingly complex levels of thinking and production?" In closing, this paper presents a set of questions that are not only challenges but also reflections of the ideas presented here. At the same time, the questions suggest a vision that describes a destination and how that destination can be reached.

It is important to understand that there is an urgent need to recapture excellence for a greater number of our students. Nearly everyone recognizes excellence, knows it when he or she experiences it, judges its merits on the basis of consensus. How to define excellence is not a problem, but how to bring excellence to the classroom is the compelling question that demands an answer:

- ♦ How are tomorrow's leaders to be taught in today's classrooms?
- How can today's students of unique ability be effectively challenged in varied and diverse settings?
- ♦ How can our vision for excellence be shared with all students?
- How can the curriculum be differentiated to capitalize on the reforms set forth in the subject-matter frameworks?
- How can educators develop new models of collaboration and shared responsibility for greatly increasing the numbers of students who achieve at the highest levels?





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