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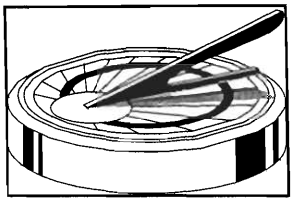

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The number and range of summer enrichment programs has grown enormously during the last twenty years, particularly in the science and mathematics areas. It would be helpful for parents to complement these programs with more traditional home-based enrichment experiences that reflect back to less complex times, devoid of excessive television viewing and video-games. I am mainly talking about the periods following World War II, the 1950s and the early 1960s. Particularly during the summer vacation months of the 1950s, children seemed to be more preoccupied with basic activities such as reading interesting books, working on crafts projects, playing board games and sports with friends, imaginative play, and perfecting talents and hobbies. Parents should encourage activities in these and other basic areas to increase their gifted children's enjoyment of learning in an exploratory and low-pressure environment. Here are two fundamental activities recommended for the summer months.

• **Reading** – Great works of English and American literature can help to stimulate interest in different eras and societies. Clearly the number of good books are far beyond what can be read during a summer vacation, but a few starting points would be books by Dickens (The Pickwick Papers, David Copperfield), Jane Austen (Sense and Sensibility, Emma), and Mark Twain (Tom Sawyer, Life on the Mississippi, Huckleberry Finn). Another area that would appeal to many gifted children is nature/environmental writing by authors such as Henry David Thoreau, Aldo Leopold and Edward Abbey. They can develop a better appreciation of the natural environment by reading the works of these authors on the American landscape, and its flora and fauna. In addition, by learning about some of these pioneering nature writers, gifted children will have a better perspective for understanding current environmental and global warming issues.

• **Animal Studies** – Field observations of birds and other animals can also help gifted children to spend their summer months in an enjoyable and productive manner. The "old fashioned" zoo trek might even provide the necessary momentum for developing their observational skills and expanding interest in nature studies and the biological sciences. Happy summer vacation!

The first article by Donna Ford and Gilman Whiting of Vanderbilt University is an important "Call to Arms" for improving the participation of African-American students in AP courses such as those in mathematics and the sciences. This problem needs to be resolved for the betterment of these students and our society. The second article by Hanna David of Ben Gurion University discusses how advanced mathematics programs in Israel help to identify and educate gifted students. Her description of special populations has some bearing upon the concerns expressed by Ford and Whiting for improving the AP representation of African-American students. The next two articles use the Renzulli Enrichment Triad as their foundation: (1) Elizabeth A. Romey of the University of South Alabama explains three important factors related to gifted students' productivity – the role of external support, multiple areas of interest, and a strong belief in one's ideas; and (2) Jason Helfer and Stephen Schroth of Knox College present strategies for improving gifted students' appreciation of the fine arts (Part 2 of their article on aesthetic percipience). In the last two essays, Michael Walters discusses Jane Austen's life and books, and R. E. Myers provides suggestions for stimulating creative thinking.

Maurice D. Fisher, Ph.D., Publisher

AP Classes: Advanced Placement or Advancing the Privileged?

Donna Y. Ford Gilman W. Whiting
Vanderbilt University

For more than a decade, Ford has focused almost exclusively on the under-representation of minority students in gifted education, especially African-American students. As with gifted education, African-American students are greatly under-represented in AP classes. Intentionally, I devoted less attention to their under-representation in Advanced Placement (AP) classes because I was aware that these classes are supposed to be open to interested students, not just those identified as gifted. Likewise, Whiting has concentrated extensively on Black male underachievement in school settings. Having read the most recent report of the College Board (2008), The 4th Annual AP Report to the Nation, we have a newfound sense of urgency to tackle Black students' under-representation in AP classes. In this article, we will present data from the Report, highlight areas of concern, and make recommendations for change. An underlying premise of the article is that, as currently implemented in schools nationally, AP classes are advancing groups already privileged by race (White and Asian) and class (higher income) and label (gifted). This premise is guided by the reality that, while education professionals have worked to increase opportunities for racially and culturally different students, Black students continue to show the lowest access to gifted and AP classes when compared to Hispanic, American Indian, and Asian students. Our intent is *not* to pit groups against each other, but to argue that, if we can make progress with other diverse groups, we can and must make progress with Black students.

Participation in AP Classes: Access Denied

The College Board examined 2007 data by comparing the percentage of graduating seniors by race in public schools to their participation in AP examinations (Figure 1). Black students are the most severely under-represented as AP examinees – by almost 50%. This percentage mirrors their under-representation in gifted education nationally (Ford et al., 2008a). American Indians also show large under-presentation.

Figure 1: The Class of 2007: Race/Ethnicity of AP Examinees vs. Graduating Seniors in U.S. Public Schools

Race/Ethnicity	Graduating Seniors	AP Examinees
White	64.0%	61.7%
Hispanic or Latino	14.6%	14.0%
Black or African American	14.0%	7.4%
Asian, Asian American or Pacific Islander	5.5%	10.4%
American Indian or Alaska Native	1.1%	0.6%

Source: Adapted from College Board (2008), p. 9.

The Report shares two other pieces of data that are quite disturbing. The first relates to what is referred to as "equity and excellence gaps" throughout the report. "An equity and excellence gap appears whenever the percentage of underserved students achieving access and success on AP exams is less that the percentage of underserved students in the entire class of 2007" (p. 7). As of 2007, only one state – Hawaii – has eliminated its equity and excellence gap for Black students. However, 15 states have closed this gap for Hispanic students, and 17 have done so for American Indian students (see page 10).

The College Board also shared trends in changes in the equity and excellence gaps. In 2002 and 2006, three states had eliminated this gap for Black students – we are moving in the wrong direction! The College Board concluded that "... often these students are not receiving adequate preparation for the rigors of college-level work" (p. 7).

The second disturbing piece of data is the breakdown of participation in all 37 AP classes by race/ethnicity. Excluding the foreign languages, many of which show what might be considered expected participation rates (such as highest Asian enrollment in both AP Chinese and Japanese Language and Culture, and highest enrollment of Hispanic students in AP Spanish Literature), Black under-presentation in the remaining AP exams ranges from a low of 1.7% (AP Electricity and Magnetism) to a 'high' of 9.7% (AP Human Geography). Overall, patterns do emerge – for Black students, AP under-representation is greatest in the STEM areas – science,

technology, engineering and math; and lowest in such classes as English Language and Composition and English Literature and Composition (7.1% and 7.4%, respectively).

While not discussed in the Report, it is worth considering the extent to which under-representation exists due to the: (a) lack of AP courses in minority and low income schools; (b) the lower number of AP course offerings in minority and low income settings; and (c) fewer types of AP courses being offered in minority and low income settings (e.g., Are English and history courses more common than STEMs courses? Are certain types of AP math and science courses offered – physics B rather than mechanics, or electricity and magnetism?).

An important question is: How do students gain access to AP classes? In an earlier report, the College Board (2002) revealed that AP participation is based primarily on teacher referral (58.8%), followed by participation in prerequisite courses[1] (53.3%), course grades (49%), and exams (PSAT and National Merit Scholarship Qualifying Test –7%)(p. 19). Unfortunately, as with Black students' under-representation in gifted education, intentionally or unintentionally, teachers/counselors are often the gatekeepers because they frequently under-refer Black students for screening and identification (see Ford et al., 2008a, for an extensive review of literature and related studies on under-referral). Given this current state of affairs, whose history is a long one, what can we do to increase access to AP classes for Black students?

Recommendation 1: Open Doors and Opportunities

> "Major initiatives are needed to ensure adequate preparation of students in middle school and ninth and tenth grades so that under-represented students will have an equitable chance at success when they take AP courses and exams" (College Board, 2008, p. 7).

There is no question that this recommendation must be recognized or acknowledged and then followed; however, we must develop these initiatives prior to middle school, and we must start while Black students are in elementary school. Fulfilling this recommendation requires that educators become more aggressive and proactive in identifying gifts and talents in Black students early on. We can and must decrease the 50% under-representation problem in both gifted education and AP classes. Stated another way, in examining the numbers of Black students in the general school population (16.88%) versus their representation in gifted education (8.99%), some 153,000 additional Black students *should be* in gifted education classes! Therefore, those of us in gifted education must also, borrowing from the College Board, work diligently to close the equity and excellence gap in gifted education. The notions of early intervention, potential, and of developing talent are appropriate here, and are encouraged by the U.S. Department of Education in its 1993 federal definition of giftedness:

> "Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capacity in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor" (p. 3).

Recommendation 2: Changing Educators' Dispositions, Knowledge, and Skills

As already noted, under-representation in gifted and AP classes is influenced significantly by educators – their dispositions, knowledge and skills. Both professional development workshops and college and university courses are needed to prepare all school personnel to understand and work effectively with at least three populations: (1) gifted and talented students; (2) culturally and linguistically different students; and (3) economically disadvantaged students. Such topics need to begin by first and foremost examining expectations, biases and stereotypes about each group. This foundational focus should be followed by information, theory, research and resources on identification and characteristics, testing issues, culture and diversity, poverty and class, social and emotional needs and development, working with families and communities, and designing appropriate *and* respectful curriculum and learning environments. With such education and preparation, educators may become more effective at recruiting and retaining racial/ethnic groups and low income groups in gifted education and AP classes.

[1] It should be noted that participation in prerequisite courses is heavily dependent on the advice and recommendations of teachers and other school personnel.

Recommendation 3: Data Collection – Numbers Tell of Where We Are and Are Not

Earlier, we noted that certain trends in under-representation are evident across the 37 AP classes. School professionals, including classroom teachers, must study these patterns so that they can be addressed. Initially, this entails examining why under-representation exists, and then going deeper by exploring why under-representation is greater in certain areas such as STEM classes. It is also important to study patterns by race, gender, and class (e.g., participation of Black males and females who are high income compared to Black males and females who are low income; teacher referral by these combined or disaggregated demographics, exam scores and participation by these combined demographics, etc.). As we have argued and written many times, our research cannot be colorblind or gender blind or class/income blind (Ford et al., 2008b). And educators and other professionals must use the findings to advocate for students to make changes.

Recommendation 4: Mentoring Programs and Support – Seeing is Believing

For the most part, the previous recommendations focus on what school professionals can do to help students. We also need initiatives that help Black students to develop and advocate for themselves. As Ford (1996) has recommended elsewhere, counseling and mentoring can go a long way in helping Black students to increase their confidence and self-efficacy in school or academic settings. We must involve them in opportunities to see minorities who are gifted and talented and successful, and who can share their experiences and strategies for being a strong student – one who is motivated to participate in gifted education and AP classes. As Whiting (2006) has noted, we must help Black students, especially Black males, to see themselves as 'scholars.'

A Final Word

This short article by no means presents a comprehensive analysis of Black students' under-representation in AP classes. It is basically an overview of the newest AP report by the College Board, along with a few limited but necessary recommendations. The focus on Black students is intentional and without apology – the equity and excellence gap has not been closed for this group, and little progress seems forthcoming should current trends continue that were presented earlier. We urge readers to study the 2008 College Board report, to look at patterns and, with all deliberate speed and diligence, to make changes on behalf of Black students.

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Mathematical Giftedness: Acceleration Mathematics Program (AMP) at Tel Aviv University

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Mathematics has been one of the three domains in which children have reached adult achievements before adolescence: music and chess have been the other two. However, as both chess and performing music are not academic fields, mathematics remains the only domain in which a straight line can be drawn between excellent performance during childhood and excellent quality of adult achievements. This is the main reason why so many educators and decision-makers have expressed their interest in children with high mathematical potential.

However, not all precocious children can fulfill their potential in mathematics. More boys than girls bridge the gap between their high potential and low achievements during high school (Ziv, 1998). Nevertheless, not all of them (including many mathematically gifted children) do. Programs such as the Acceleration Mathematics Program at Tel Aviv University (TAU) help to turn potential into achievement, namely to materialize giftedness.

Why Mathematics?

Children who perform above their age-group are still performing as children: when an eight-year-old boy demonstrates a reading ability of a boy 4 years his senior, he still reads like a child. A ten-year-old girl who is an excellent painter cannot be compared to any adult painter. However, we all know computer freaks, young children who solve computers' problems; we have all heard about school children who do college mathematics and many of us have read about university lecturers in mathematics who have not reached their 20th birthday yet (see, for example, David, 1997a). This phenomenon is extremely intriguing for everybody who meets such people on professional grounds, as well as for parents of these young children. These parents have to meet the needs of their children no matter if the educational system offers only (if any) minimal help (David, 1997b). Parents who lack mathematical, psychological, and educational knowledge about mathematical giftedness, and parents who do not receive any social support in bringing up their exceptional children need to get such help. Only if they do, will they benefit as much as their children who participate in programs for highly gifted children.

Being mathematically gifted does not necessarily mean being a model student – sometimes it means the opposite. While the bright student studies fast and gets A's, mathematically gifted youngsters seem quite often not to study at all, unless they work at their own pace. In most cases each of them is the only mathematically gifted student in the class; many times the only one in the entire school as well. For such students acceleration programs are a must.

Acceleration Programs in Mathematics: Research Literature

The literature on acceleration programs for mathematically gifted children is quite wide, beginning with the reports on the Study of Mathematically Precocious Youth (SMPY) and the Center for Talented Youth (CTY) participants (Stanley, 1977, 1978, 1986, 1988, 1990, 1991; Stanley & Benbow, 1986; Stanley, Huang, & Zu, 1986; Stanley, Keating & Fox, 1974), followed by research reports from the US, Canada, East- and West-Germany, former USSR, Great Britain and Czechoslovakia in the eighties (e.g. Bauersfeld, 1988; David & Hersh, 1981; Davis & Forthingham, 1985; Heid, 1988; Kaufman & Rising, 1983; Kiesswetter, 1988, 1992; Kolmogorov, Valinov & Tropin, 1985; Majoram & Nelson, 1985; Mueller & Sielaff, 1988; Tammadage & Crank, 1983; Wagner & Zimmermann, 1986; Zeeman & Stewart, 1985), and hundreds of comparative works that have been published in the 1990s (e.g. mathematically gifted vs. "regular" gifted/highly gifted/non-gifted; male vs. female mathematically-gifted, etc.); case-studies; studies concentrating on physiological components (e.g. left-handedness, high level of allergies, etc.); psychological variances, familial traits and many more topics (e.g. Campbell & Mandel, 1990; Laznibatova, 1991; Li & Adamson, 1992; Cramer & Oshima, 1992; Kolitch & Brody, 1992; Zadorina, 1991; Lupkowski & Schumacher, 1991; Luplowski-Shoplik & Assouline, 1993; Benbow, 1992; Zorman, 1996).

Examples of Mathematics Programs for the Gifted

The Study of Mathematically Precocious Youth (SMPY) program started at the Johns Hopkins University in September 1971 (Wai, 2003). The sole criterion for participation in the program has been a high score on the SAT-M examination taken before age 13. The program offers courses such as 12 weeks of Saturday morning Algebra I, Algebra II, trigonometry, and plane- and analytic geometry. The brighter children, namely, those scoring 700+ on the SAT-M, are recommended for participation in university mathematics courses. Over 300 studies have been written about the program.

The Acceleration Program in Mathematics at the Bar Ilan University was founded in the early eighties. The aim of the program has been to encourage 14-year-old mathematically talented pupils to prepare themselves for the beginning of their studies both in mathematics and mathematics-related subjects at the Bar Ilan University. The preparation course is four-semesters long; the students meet twice a week for a whole afternoon. All of them are to master the entire material of high school mathematics after two years in the program, by age 16. Many of them choose to start their academic studies while still in high school.

The Acceleration Mathematics Program at Tel Aviv University (TAU)

Why Is It Needed?

This program is currently the only Israeli solution for children who cannot learn mathematics at school, simply because they had always been ahead of their peers, quite often of their teachers as well. The program might give a partial solution to the social needs of these children: many of them meet, for the first time in their lives, peers with whom they can share their passion to mathematics. Some children in the program find school more tolerable when there is a compensation for the boring, long hours of routine work. They actually live waiting for the afternoon meetings with the interesting teachers, the enthusiastic peers, and the highly stimulating mathematical materials.

The Target Students

It is aimed at turning the most mathematically talented children in Israel into mathematicians at the earliest possible age (Personal communication with Dr. Beno Arbel, the ex-manager of the program, 1998).

A Short History and Description of the Acceleration Mathematics Program

The program was founded in 1970 by Professor Amnon Yakimovski from the Department of Mathematics (that has become the "School of Mathematics") at Tel Aviv University (Arbel, 1997). The selection of students for the AMP was based on teacher nominations: mathematically precocious 13 to 15 year-old students in Tel Aviv and its adjoining cities were advised by their teachers to take the examinations for the program, which included special mathematics courses (e.g., Set Theory, Basic Calculus) at Tel Aviv University during two school-years.

These high-school youngsters started their mathematical education as first-year university students while still in high-school; some skipped a class (in a few cases – for the second time) and took a first year course in algebra and/or calculus simultaneously. Many of these students received their BSc – some even their MSc – before their 19th birthday – which enabled them to start their compulsory 3-year military service while holding a well respected degree from a highly rated academic institution.

A substantial change in the filtering process regarding the entrance requirements to the acceleration program took place in 1987. The unit for advancement of youth at TAU, which offers 12 to 17 year-olds yearly afternoon courses in various (mainly scientific) subjects, added to its curriculum a one semester condensed course: "Mathematics for Excellent Students." Self-nominated students have been invited to take the entrance examination – the "A" Examination which is a 2.5 hours "open" test containing 6 to 7 questions. Answering them requires only grade-school formal knowledge, in addition to an extraordinarily high level of mathematical thinking, creativity, originality, understanding of mathematical concepts such as probability and induction, and personal traits such as persistence, concentration and risk-taking. At the end of the course, which emphasizes mainly number theory, Euclidian geometry and basics of algebra, an examination in the style of the entrance examination is given – the "B" Examination. The students who pass it start the "Mathematics for Excellent Students No. 2" course in the next semester, which takes place at the TAU School of Mathematics. This course is extremely difficult – its participants are expected within one semester to master high-school mathematics: algebra, geometry, basic calculus, analytic geometry, trigonometry, space-geometry, basic set theory and combinatory. The students who pass the examination given at the end of the one-semester course – the "C" Examination – may start first year mathematics. Many of them do.

Characteristics of Acceleration Mathematics Program (AMP)

Nomination. The students are mostly self-nominated. Though a letter is sent to all school headmasters in the Tel Aviv neighbourhood regarding this program, most of the children arrive at the examination without any preparation by the school or even psychological support of an educator or counselor.
Aim. The Acceleration Mathematics Program is aimed at turning the ablest children in Israel in the field of mathematics into mathematicians at the earliest possible age (Personal communication, 1998).

Entrance Examination. The Entrance Examination is based on mathematical competence as defined by Arbe (1997). The candidates are expected to use high cognitive abilities and insights to solve the problems rather then previous formal knowledge. Examples of questions from examination "A" are as follows:
1. If the area of the inside square is 1, what is the area of the bigger – outside one? (There is no need for any calculations for the right answer!)
2. What is the value of _____?
3. The numbers 1, 2, 3, … 10 are written randomly around a circle. Prove there are 3 neighboring numbers with a sum of at least 17.

Duration and Degree of Difficulty. The "Mathematics for Excellent Students" course is a combination of 2 one-semester, 4 academic hours per week courses. At the end of each semester the students have to pass an examination containing only new questions based on the new material learned. Here are some examples of questions from the examination given at the end of the second course, which is an entrance examination to the departments of mathematics at TAU:
1. If **a** and **b** are positive integers, for every odd **n**

is an integer.
Use this result (or any other way) to prove that in

There are at least 3986 zeros after the decimal point.

2. X1 and X2 are the roots of the equation.
Without solving the given equation,
Find a second degree equation, with integer coefficients, with one root equal to:

Target Population. The AMP is for anyone who feels qualified to participate in it; therefore students from Tel Aviv – as well as from other cities within a radius of a few tens of kilometers – can participate.

Participation of Girls

Girls are a minority in any group of the gifted entitled to any kind of special education in Israel (David, 1998; Zorman & David, 2000). Due to gender gaps in mathematics achievement (David, 2001), the participation of girls in mathematics special programs is lower than in any other programs for the gifted. No wonder the participation of girls in the Acceleration Mathematics Program at TAU is extremely low. In fact, if not for the immigrants from the former USSR, the average number of girls in each of the courses offered by TAU would be about 1. When dealing with such numbers, all statistics looks more like anecdotes. I will hereby tell two of them:

- In the year 1997 the student who had the best achievement in the advanced "Mathematics for Excellent Students" course was a girl. She was the only female both in that course and in the first one she had taken (Arbel, 1998, private communication).
- Religious girls who learn in Israel in single-sex classes tend to achieve higher in mathematics than girls who learn in mixed classes (David & Zorman, 1999). In the early 1990s, an ambitious, good, and experienced teacher of a religious all-girl-school sent all of his 10^{th} grade students participating in his science class to the "A" examination. Unfortunately, not even one of the girls passed the examination. Since then the teacher, who perceived the failure of his students as a personal insult, has not even once responded to the "call for students" sent by Dr. Arbel to all high schools in Tel Aviv and its neighborhoods.

Participation of Immigrants from the Former USSR

Since the year 1990 more than one million Jews have immigrated to Israel from the new republics of the former Soviet Union. These Jews have contributed enormously to all scientific and many technological areas. In addition, the average level of the new immigrant pupil, regarding knowledge and achievements in these areas, has been far above that of the Israeli. Thus, the new immigration has contributed a reservoir of new students to the Acceleration Mathematics Program at TAU.

By looking at the list of names and addresses of the program participants starting in the 1990, the main sources of former Russian participants have been: (1) Students living in Tel Aviv and learning in regular Israeli schools; and (2) Students living south of Tel Aviv, and learning either in the *Shevach-Mofet* school in Tel Aviv or in *Gimnasia Realit* in Rishon Le'Zion.

Gimnasia Realit is considered both the best and the biggest school in the city whose population scores third in Israel. Rishon Le'Zion is populated by many former Russian Jews who worked as academics and scientists before immigrating to Israel, a substantial number of which work as science and mathematics teachers. If we take into account the tradition of the former Eastern European and the Soviet societies regarding the nurturing gifted students, it is quite understandable why since 1990 at least 2 to 3 Russian immigrant students from *Gimnasia Realit* have participated in the Acceleration Mathematics Program yearly. The *Shevach-Mofet* school in Tel Aviv – whose population is mostly children of Russian immigrant Jews – constantly supports students who participate at the AMP. Since 1990 the participation rate of the *Shevach-Mofet* students has been higher than that of any other school.

From the "A Examination" to Starting the First Course – A Case Study

In October 1994, thirteen 12 to 16 year-old children participated in the first course of the AMP at Tel Aviv University. These youngsters were chosen during two separate occasions: the first 6 were selected after taking the October 1993 "A" examination. Not even one of the 7 junior high school boys from the special gifted class in Tel Aviv who took the examination passed it, but the youngest boy who took it did pass – he was just 12 years and 1 month at the time of the exam. The one-semester course could not commence, as the number of potentially successful students who were entitled to register for it did not exceed 10. Another "A" examination was set for February 1994, so a few tens of new students took it after the "call for students" was sent to all relevant schools. Six of these students passed the "A" examination, and started studying for the "B" examination in March 1994, joining the 7 who had passed the examination 6 months before. All 13 were thus ready for the first course in October 1994.

Summary

The Acceleration Mathematics Program that started in 1970 has already enrolled more than 400 graduates. Many of them are now becoming the academic staff of all the universities in Israel, Ivy-League universities in the US, and some of the most prestigious higher education institutes in other parts of the world. Other graduates of these programs have developed professional careers, and have become successful businessmen and creative artists. Yet, some others – blessed with more or less the same mathematical potential – have not accomplished as highly.

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A Tripod for a Triad: Providing Affective Support for Students' Type III Projects in the Enrichment Triad Model

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Passion, project, presentation: these ultimately are the three goals of the Enrichment Triad Model (Reis and Renzulli, 1985; Renzulli, 1978). In this model, the culmination of a student's educational experience in a domain is the development of a passion about a topic that leads to the creation of a project for presentation to a real-world audience. This last area is especially important; Renzulli has stated that receiving critiques from legitimate real-world audiences is vital for students to progress in a domain. While the importance of learning to take criticism and put it to good use cannot be underestimated, providing a support system for students in which they can learn to persevere in the face of criticism, as well as learning when *not* to take criticism, is also crucial to this process (Mendaglio, n.d.), as the following examples from the lives of creative-productive individuals suggest.

Gifted students in particular are likely to be highly sensitive to critique, owing to issues such as perfectionism (Schuler, 2000; Speirs-Neumeister, 2004; Speirs-Neumeister and Finch, 2006) and overexcitability (Piechowski, 2006). One area, which may fall within overexcitability but which has not been explored in research other than anecdotally is the extent to which some gifted students, and

gifted adults, identify strongly with their work. An example of this in popular culture comes from the TV show *House*, in which the title character states, "I am my mind." (Kaplow and Shore, 2006). This identification with one's work rings true for many gifted students, and makes the acceptance of criticism especially difficult, particularly in subjective fields such as art, literature, and music, in which individual aesthetic tastes, as well as norms within a domain at a given time, may play a strong role in the acceptance of one's work. For example, the highly successful singer and songwriter Tori Amos was dismissed from the Peabody Conservatory as a teenager because her works did not fit within their framework. On the other hand, she immediately began playing professionally despite her youth (Rogers, 1996).

The stress of having one's ideas invalidated can be compounded by larger cultural values and concerns as well. The issue of peer rejection and bullying of gifted students by average-ability peers is common knowledge within the field. If a gifted student, rejected by peers, has sought acceptance by another community through the creation of an original product and is then rejected, this is likely to compound the feeling of isolation. Indeed, for a gifted student whose identity is strongly linked to an area of interest or a passion *and* who has suffered peer rejection, the rejection of that student's work by others who share the interest has the potential to drive the student right out of the field, or away from their true interest within a field. Tori Amos, for example, went through a period at the beginning of her career when she abandoned the piano work that later became her signature and instead fronted a Madonna-esque rock band, Y Kant Tori Read, because her impression of the zeitgeist in the music industry was that her preferred mode would not be well received (Rogers, 1996).

The first two issues apply whether or not a given critique of a student's work is justified. However, another and perhaps even more challenging circumstance applies when a student's product is rejected unfairly, whether because of a specific audience member's biases and beliefs, misinformation on the part of the audience, or a disconnect between the domain's zeitgeist and the student's work. For example, on first reading the equilibrium theory which eventually won John Nash a Nobel Prize, eminent mathematician John von Neumann is said to have dismissed it with the comment, "That's just a fixed-point theorem" (Nasar, 1998). Had Nash, then a graduate student, heeded the senior theorist's critique and abandoned the idea, the world would have lost a theory with applications in fields ranging from international relations to evolutionary biology. Thus, emotional damage done to students by misplaced or inaccurate criticism is especially harmful – and most likely to occur precisely when a student has done something original.

How then can we provide students with the emotional support that allows them to continue in the face of critique, absorbing the useful suggestions without being derailed by constructive and non-constructive criticism alike? The answer may lie in a "tripod" support system, outlined below.

First, students need external support, from a person or person who believes, not just in them, but in their ideas. Having someone who "will love you anyway" is certainly valuable, but when the goal is to encourage the student to continue in the face of critique, a mentor or support person who says, "This is worth pursuing," is vital. For example, during a period in which her musical career was failing, Tori Amos relied on the support of a number of friends, even staying at a friend's house while she regrouped (Rogers, 1996). Likewise, friends of John Nash lent support at different points during his battle with mental illness, not simply out of charity but because of their belief in the value of his intellectual contributions (Nasar, 1998). This "leg" of the tripod comes first because external support is sometimes required to allow students to develop the other two legs of the tripod, both over the long term and in the immediate aftermath of a negative reception.

The second leg of the tripod is "multiplicity": having, as suggested by Reis (2005) and Gruber (1986), multiple areas of interest. In the aftermath of a negative reception of one idea, a natural response is to want to withdraw from that idea and possibly from that domain altogether. Having multiple projects across domains can ensure that the student remains productive in some area during the "recovery" period. This approach has been suggested to young authors (Card, 1990): when submitting a story to a publisher, always have at least one other project going during this phase, so that as often happens, the story is rejected, there is another work in which to invest emotional energy. Likewise, Josh Waitzkin is an example of a gifted young man whose diversified interests supported him through his early chess career (Waitzkin, 1988).

The first two legs of the tripod have a strong external component. Obviously, the first leg requires the involvement of an individual or individuals who can serve as a support system. The role of support in the second leg is more subtle, but very crucial, especially with young children. Parents and teachers alike often want a child with a talent of a given domain to focus exclusively on work in that area, and may discourage the development of other interests that can serve as a support system in the event of a negative reception within a student's primary domain of productivity.

The last leg of the support system is more purely internal: students need to develop a strong sense of belief in the value of their ideas, such that constructive criticism is simply taken as a means to refine the idea and come back from a stronger position, and non-constructive criticism, stemming either from individual bias or prevailing attitudes within a domain, is refuted or rejected. Interestingly enough, given that this tripod focuses specifically on supporting Type III projects within the Renzulli Enrichment Triad

Model, Joseph Renzulli himself provides a perfect example of an individual who persevered in the face of opposition from his chosen domain. The initial reception of his work on the Three-Ring Conception of Giftedness within the field of gifted education was chilly, and the seminal article on the SEM, which is among the most-cited articles in the field today, was first published, not in a gifted-education journal, but in the *Phi Delta Kappan.* Renzulli has spoken of eating alone at gifted education conferences in the early years of the theory because no one would be seen with him, owing to the objections raised to his broadened conception of giftedness (Joseph S. Renzulli, personal communication, 2003).

What purpose does the tripod serve? As indicated above, it provides students with the ability to retain interest in an idea or domain in the face of critique; to be able to make use of valid criticisms of their work as a means of improving it; to continue to produce during a process of recovering from rejection of a specific idea; and to reject criticisms which do not serve the valid purpose of improving the idea. Examples of prominent individuals who have employed one or more aspects of the tripod as a means of furthering their continued productivity and success in their fields serve to support the importance of all three legs of the tripod. Research on the tripod, especially into the role that the legs of the tripod play for different types of individuals, is encouraged.

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Aesthetic Percipience Part 2: Instructional Strategies that Support Gifted Students' Appreciation of and Affinity for the Fine Arts

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Familiarity with and appreciation of great works of art must be distinct, distinguishable, and demonstrable goals of schooling. Fine arts instruction thus should be available to *all* gifted children, not just those with identified ability as a performer or creator. Aesthetic percipience's unique perspective provides an important entry point into considering how ideas may serve as the bedrock of practice. Deep, extended, and expansive experience with art allows gifted children to cultivate their sensitivity toward a variety of artistic exemplars. This experience assists the novice in *learning about* art. Such experience also, and more importantly, imparts the benefits of aesthetic engagement for lifelong fulfillment. Aesthetic percipience affords gifted children entry points into the fine arts that do not require performance ability or skills at composing or creating artworks. Previously, the importance of exploring aesthetic percipience with gifted children was examined (Helfer & Schroth, 2008). In what follows, the ideas provided in the previous article will serve to develop instructional strategies and methods that allow aesthetic percipience to be incorporated within the classroom.

Building Capacity and Cultivation through Practice

A paucity of research exists regarding giftedness and the capacity for deep aesthetic engagement. Mirroring the typical public school curriculum, the research concerning giftedness in fine arts concentrates on performance and creation. The following suggestions, therefore, derive from consideration of how capacity *may* affect the cultivation and practice of aesthetic percipience. In order to get a sense of how parents and teachers can provide opportunities for the development of aesthetic percipience, it is necessary to clarify how Osborne (1970) defined *cultivation* and *practice* and how these could be operationalized. Cultivation and practice assume regular and prolonged experiences with exemplar artworks. The stages that follow provide suggestions for both the frame of experience and how the teacher and novice can shape that experience. They are not age dependent; rather the movement between stages is contingent upon the variety of experiences with differing genres.

STAGE ONE

Novices learn how to look or listen, initially, without specific guidance as to external qualities of the work (e.g., "Do you like/dislike this piece of music/painting/sculpture?" or "What does this make you imagine?"). Rather, these initial experiences are grounded through questions asking novices to focus upon the sound and/or color, not how they are organized. At this stage novices should look and listen to a variety of artworks. This variety allows novices opportunities to accentuate differences between compositions, especially in terms of how medium and materials serve to create a unified artwork. Conversations about what was heard or seen must focus upon the total artwork. While a color or melodic strain may catch the eye or ear of the novice, at this point it is more important that the novice ponder how the color or melody impacts the total artwork. As Osborne (1970) suggests, discussion should not focus upon how a piece made one feel or other self-indulgent meanderings. Rather, comments must be descriptive. The discussion may substantially benefit from encouraging the novice to describe his or her thoughts using simple terminology from disparate artistic disciplines. For example, a teacher may prompt a student to describe the *color* he or she *hears* in musical composition or the *sound* he or she *sees* in a painting. This synesthesia provides space for expressing holistic ideas while not basing responses on domain specific knowledge (which a novice would not be assumed to know). Thus, this first stage emphasizes providing novices numerous opportunities to focus on different artworks. This is done in order to teach them the skill of focused listening and looking. The ideas culled from these experiences are shared with others through simple terminology.

STAGE TWO

In the first stage, Novices initially learn to listen and look through engagement with multiple artworks. Stage Two introduces limited formal terminology and extensive looking and listening to a select number of works. It concentrates on expanding the novice's conceptual framework by which artworks are appreciated. The teacher's task is to guide the novice in investigating how a creator uses and combines materials to construct an artistic whole. This can be challenging. The novice must be willing to invest time and energy listening to and looking at artworks. Emotions or feelings the subject matter evokes, or other utilitarian functions of art, must be resisted. Teachers can guide the novice using suggesting prompts that continually focus the novice's attention *on* the artwork. Exemplars selected should focus upon a particular genre or a specific creator. In no way is this to limit the wealth of excellent art to a few individuals. During the second stage novices must have frequent and deep opportunities to develop a sense of style or practice within a genre. Listening to and looking at numerous artworks by the same creator provides the novice with some stability – all creators continually show some development through each work. Such a focus also allows the novice to concentrate on subtle changes within the artworks. The essential purpose of this is *not* to develop a sort of musical or visual arts literacy so the novice can have declarative knowledge about an individual concerto or painting. Instead, it is to continue to refine and expand the focus of attention necessary when engaging in aesthetic percipience. Any formal terminology is introduced to support the focused attention necessary for thoughtful looking and listening. Like the focus on genre or composer, formal language is introduced so the novice has an increased vocabulary by which to share his or her reflections regarding the percipient experience.

Use of such terminology has different significance in different situations. It is one thing, for example, for a novice to reference melodic contour (e.g., "Did you notice how the melodic contour ascended in the winds?"). It is quite another to mention melodic contour as a device in a holistic statement about a composition (e.g., "The melodic contour ascended slowly in the winds, and this was even further accentuated by the descending chromatic line in the strings, making the section have a sense of growth."). Having and reflecting upon a percipient experience appropriately may center upon how the manipulated materials create a particular effect. It is not appropriate, however, to make statements concerning how a work made one feel. This subtle but important difference confounds many educators. Osborne appears willing to grant the utility of talking about artworks, but only when the conversations are, in fact, about the artworks! The formal terminology introduced, as well as the complexity of the artworks used, should be decided upon using the novice's interests and demonstrated capacity. Stage Two's important elements permeate the necessity of the guided investigations that the novice and teacher experience in tandem. To be sure, the teacher assists the student by prompting with questions, the introduction of terminology and the like, but the novice must also share his or her ideas with others. Stage Two may be repeated for different composers and genres.

STAGE THREE

Stage Three provides novices with numerous opportunities to select and reflect upon artworks of their choice. At this stage, novices are able to look and listen for extended periods of time, have been introduced to a variety of concepts and terminology used to describe artworks in various mediums and genres, and understand that critical judgments are not useful when engaging in percipient experiences. Novices are tutored in the skill sets necessary for aesthetic percipience to provide them with the tools necessary to engage in this activity throughout their lifetime. Instruction in these skills, however, also makes necessary a time when novices are allowed to venture forth and use these skills. Using these skills allows them to make meaning from what they have already learned. Put differently, although Osborne questions the idea of understanding, this act of practicing allows a novice access to the experiences, supports, and opportunities necessary to understand what he or she is seeing or hearing. To be sure, this is a different sort of understanding from being able to identify artist, genre, time period, and the like. Rather, understanding results from focused perception premised upon a broad conceptual foundation. This growth and development takes time. Indeed, it is difficult to suggest a particular curricular scope in which this could occur, as this development may require a lifetime of work. As previously mentioned, critical judgments are not necessary within percipient experiences. Critical judgments that focus on the good/bad or rightness/wrongness of an artwork emphasize the artwork in comparison to another artwork. If one states that artwork *x* is bad, then there must be a foundation from which he or she is comparing. This comparison is antithetical to aesthetic percipience insofar as the focus of the percipient experience is a singular artwork placed upon a pedestal, as it were. By this point, the novice should have a wide range of knowledge about different genres and artists. Stage Three work, then, is initiated by the novice with little urging from a teacher. The sorts of sharing that occur are, hopefully, the result of engaging in like experiences with other individuals. The visual and performing arts are powerful, yet their full force is felt when the understandings gleaned from percipient experiences are shared with others.

Capacity and Differentiation

Difficulties in defining giftedness, much less artistic capacity, have bedeviled the field since its inception (Callahan & Miller, 2005; Renzulli, 2005; Sternberg, 2003; Terman, 1925; Tomlinson, Gould, Schroth & Jarvis, 2006). Attempts have been made to resolve this conundrum. For example, Renzulli (2005) has long argued that a distinction exists between academic giftedness and creative-productive giftedness. *Academic giftedness*, on the one hand, focuses on those skills and abilities historically associated with traditional school success: test-taking proficiency, lesson-learning aptitude, and strong academic performance (Renzulli, 2005). *Creative-productive giftedness*, on the other hand, describes those behaviors that result in the creation of original material and products that are specifically designed to impact one or several specific audiences (Renzulli, 2005). Although others have used different language, many have accepted Renzulli's position that creative or artistic giftedness differs in some ways from the talents schools traditionally value (see, e.g., Callahan & Miller, 2005; Gardner, 1994; Sternberg, 2002). While slight differences exist between various conceptions of artistic talent and creative giftedness, one thing is certain. Traditional approaches used to select academically gifted students are inadequate to identify and serve artistically talented and creatively gifted students (Renzulli, 2005; Sternberg, 2003). Teachers demonstrate the ability to recognize students who possess advanced skills in art, music, dance, or theatre (Schroth, 2007a; Schroth & Helfer, in press). Instruction must be crafted that allows gifted students to enhance their abilities in the arts.

Instruction must force artistically talented and creatively gifted children to grapple with ideas and questions, using both critical and creative thinking skills (Renzulli, Leppein & Hays, 2000; Schroth, 2007b; Tomlinson et al., 2002; Ward, 1980). Certainly a precise facility with artistic or musical tasks is necessary, but equally important is the capacity for high levels of interest in, involvement with, and investigation of key problems (Renzulli, 2005; Schroth, 2007b; Tomlinson et al., 2002). Gifted students need to investigate real-world problems that interest, intrigue, and excite them (Schroth, 2007b). Coupling investigations calling for open-ended solutions with teacher guidance, facilitation, and support allow gifted students to maximize learning and excel at high performance levels (Schroth, 2007b). Guided investigations would certainly vary depending upon the student's stage. Gifted students in Stage One, for example, might concentrate on listening to a musical composition and documenting the sounds they hear. In Stage Two, they might work on a teacher-prepared WebQuest devoted to a particular artist. Finally, in Stage Three, they could produce an iMovie that makes meaning of Henry Moore's work. Investigations at any of the stages can and should be differentiated according to individual student needs (Tomlinson, 1999, 2001, 2003).

Differentiation is an educational philosophy that asks teachers to focus on the essentials (Tomlinson, 1999, 2001, 2003). Using ongoing and diagnostic assessment, teachers attend to student differences by differentiating curriculum and instruction to best meet student needs (Tomlinson, 1999, 2001, 2003). Teachers in differentiated classrooms work to assess student traits such as *readiness, interest, learning profile,* and *affect* (Tomlinson, 1999, 2001, 2003). When teachers have a learner with special needs regarding one or more of these traits, such as the child who is artistically or musically gifted, they will modify curricular and instructional *content*, *process*, *product*, or *learning environment* (or a combination thereof) to best meet that child's needs (Tomlinson, 1999, 2001, 2003). In the differentiated classroom, the student seeks and the teacher responds (Tomlinson, 1999, 2001, 2003). Differentiation of aesthetic percipience instruction can provide the artistically talented or creatively gifted child with the necessary rigor and richness essential to develop fully.

Conclusion

Developing a gifted child's aesthetic percipience is one way parents and classroom teachers can support that child's development and learning. Even those with few artistic skills can guide gifted children through investigations that allow exploration and eventual mastery of the stages of aesthetic percipience. Those working with gifted students must keep in mind that children with an unusual capacity for artistic talent or creative giftedness may not be easily identified using traditional instruments. Care must be taken so that all gifted children receive an appropriate level of service. Guided investigations that are structured in a manner to direct students through the three stages are an ideal way to develop aesthetic percipience. Guided investigations may be differentiated so that each gifted child receives an appropriate level of challenge. Classroom teachers who are graced with children with exceptional capacity may differentiate the curriculum and instruction to best serve those students.

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Jane Austen (1775-1817) and the Sensibility of Giftedness

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Recently, the Public Broadcasting System (PBS) presented the entire literary work of Jane Austen through film. She was an early nineteenth century English writer who died at age forty-two. Yet in her brief life she produced some of the finest novels in the English language, e.g., **Sense and Sensibility** (1811), **Pride and Prejudice** (1813) and **Emma** (1815). Many bookstores have been displaying Austen's novels since the PBS broadcasts. Educators have been urging their students to discover her genius, and have especially noticed that Austen, despite her nineteenth century social world, is perceived by students from different social backgrounds as being relevant to their lives. This is indeed an indicator of giftedeness – that a female author writing about rural nineteenth century England, can create a sense of personal meaning for teenagers in the United States. To understand why this is so, reveals aspects of giftedness important for educators to know, especially those who teach the gifted. Jane Austen had very little formal education. Her father was a rural minister who had a vast personal library at home, and she had full access to this library. Her entire family – parents and siblings – encouraged her literary endeavors. She read all of her manuscripts to her family. After her untimely death, her brother Henry was the literary executor.

She was able to endow her provincial characters with universal traits, needs and psychological conflicts which transcend their time and place. The struggles and issues these characters deal with are still major concerns. She expressed problems that women today are still struggling with – particularly the conflict between personal development and the need for social connection. The major protagonists of her novels are gifted women who are talented in the arts, music, painting and writing. They do not seek to be near objects of sexual or social arrangements, but to achieve a sense of participation in their own personal and social lives. However, Austen is not writing mere feminist tracts; instead she places the dilemmas of her female characters into a larger humanistic context. There are no villains, only misguided and confused individuals.

She was described by critics as being an early Realist, but the better term is Humanist. In **Sense and Sensibility** and **Emma**, her characters go through processes of self-realization. Even the male cads realized that their schemes were not as productive as they originally appeared and they almost sought redemptive experiences. Austen's ability to create human characters is what makes her so enduring. Readers can understand why these characters act the way they do. In the beginning of **Sense and Sensibility** a mother and her daughters are evicted from their home because of the nastiness of a stepson/half-brother and his wife. Upon the death of the mother's husband, the estate belongs to the stepson according to English law. His wife is afraid to share the estate and convinces him that his duty is to her and their son. She is portrayed as a pathetic, mean soul. Austen allows us to see how this individual was a creation of the social system; we dislike her but understand her human flaws. In **Emma** one of the families is called the Bates. The father had been a minister, but upon his death, the family could only survive due to the charity of the local gentry. Miss Bates, the daughter, is described as a gossiper and a bumbler. Yet the reader learns to care about her as a human being. One comprehends that we could all become a Bates.

The most amazing characteristic was her literary style because it clearly demonstrates the concepts of sensibility and giftedness. How could an individual who resided in such a narrow world be able to capture the pain and agony of the human condition? It can only be described as giftedness. Her prose has the lucidity of a fresh spring brook and her insights into the human personality have a religious quality. There is a spiritual aspect to Jane Austen's giftedness.

Challenging Gifted Children to Use Both Hemispheres of the Brain

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Where is never?[1] When is the sky?[2] Do marshmallows grow in the summer?[3] Is a month a mile? When was tomorrow?

Do any of the questions above bother you? Actually, they bother most adults, but many young people find them interesting and not too strange. We older people tend to be affronted because of the apparent illogical nature of a question such as "When was tomorrow?" "Tomorrow" is always in the future and so the verb can't be in the past tense, we say. But children sometimes find ways to reply to this kind of question, often without missing a beat. They can see meanings we may miss, and they are not constrained by rules of grammar and logic. For example, a youngster might respond to "When was tomorrow?" with "Today, when it was yesterday." Such a response is really quite logical, and, in fact, many children respond in just that way. Other responses can be both legitimate and

delightful: "When it isn't today, already." "When I can't find time to do it today." "Tomorrow was when my brother promised I could be first on the computer, but tomorrow never came."

For parents, asking questions such as these is turning the tables on their children, who regularly ask such hard-to-answer questions such as "Why is the sky blue?" and "Why can't I see God?"

There are also young people to whom any and all such off-the-wall questions are irritating. Like many people past 20, they get frustrated because they don't see any sense in anyone asking, "Is a month a mile?" The idea of equating time and distance in that way offends them. (Yet, a month may be equivalent to a mile to a snail.) It is this type of youngster who probably needs to be challenged to use the right hemisphere of his or her brain more often.

E. Paul Torrance (1973, 1999) has demonstrated that children can improve their creative thinking skills with practice. As he has pointed out, individuals tend to modify their thinking in accordance with the rewards they get. If getting the correct answer—whether in the book or in the teacher's head—is what will gain approval and good grades, most children will try to respond with what they hope is a correct answer. If, on the other hand, a child is asked to write a short story about "an old sea captain with a chronic case of motion sickness," the pupil may or may not be able to come up with an original and entertaining tale. The consequences of having such a combination of characteristics may not seem feasible to a child whose thinking is rigid, partly because he or she hasn't had practice in exploring the potentialities of various ideas, objects, and happenings. We have to let young people know that it is often quite legitimate to think divergently.

Since most of the questions asked in school stimulate the left hemisphere of the brain, it is a good idea for teachers and parents to ask questions occasionally that will cause the child to use the other hemisphere.[4] There are advantages to being a creative thinker in nearly every activity in life, from athletics to homemaking. We should challenge young people to use their creative thinking skills so that they will lead fuller and more productive lives.

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[1]One answer: "Lurking besides 'always.'"

[2]A possible answer: "When I'm outside and look up."

[3]"Yes, if they are on the end of sticks over a campfire."

[4]For similar brain-stretching exercises, see Mind Stretchers (Prufrock, 2001). [Myers, R. E. Mind Stretchers. Waco, TX: Prufrock Press, 2001]

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