

The Center for Talented Youth talent search and academic programs

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Through annual talent searches based on the model developed by Julian Stanley, the Johns Hopkins Center for Talented Youth (CTY) seeks to identify, assess and recognize students with advanced academic abilities. CTY has also developed extensive programs and services to meet the needs of these students. Having grown steadily in response to students' needs since its inception, CTY now serves approximately 80,000 students each year through its talent search and various academic offerings. This article presents an overview of these programs and services.

Introduction

The Johns Hopkins University Center for Talented Youth (CTY) was established in 1979 to identify and serve students with outstanding academic talent. Based on an identification model introduced by Julian Stanley in 1972 (Stanley, 1977; Stanley *et al.*, 1974; Stanley, 2005), students take an above grade level aptitude test through an annual talent search. Students who score well compared with older students are encouraged to seek advanced educational opportunities in their schools and communities and are invited to participate in academic programs offered by CTY. These programs include family academic conferences, academic summer programs and distance learning opportunities. For a description of CTY distance education, see Wallace (2005). What follows is a description of CTY's talent search and other academic programs.

Talent search

Just as September brings a new school year in the USA, the official opening of the Johns Hopkins talent search also begins in September. Schools that serve students in Grades 2–8 in the region of the USA served by CTY receive an official notification of the talent search and are encouraged to inform eligible students about this

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opportunity. In essence, schools participate in the talent search by conducting the first screening, as they look for students who score at or above the 97th percentile on an in-grade standardized achievement test. Approximately 15,000 schools have worked with CTY to inform strong candidates about the talent search. For students without standardized test scores a test waiver form is available through the schools for parents to sign.

Parents and students who receive information about the CTY talent search from their schools then decide whether to participate in the talent search itself, which requires taking an above grade level aptitude test. Above level testing among students who all score well on in-grade tests results in a wide dispersion of scores. The ceiling effect is thus removed and the academic potential of these students can be more accurately discerned.

CTY's talent search efforts reach out to schools located primarily in the following states: Alaska, Arizona, California, Connecticut, Delaware, Hawaii, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Virginia, Vermont, Washington, West Virginia and the District of Columbia. In addition, a national talent search seeks students who score 700–800 on SAT-M or SAT-V before age 13 (see Brody, 2005, for more information about services for these high scorers).

CTY also conducts an international talent search. Students living anywhere in the world are welcome to participate by taking any of the talent search tests in English. To date, students from over 70 countries have participated in the talent search and/or attended CTY programs. Many of these participants are Americans living abroad, though the CTY international talent search is not restricted to this population. Independent schools are highly represented among the schools the international students attend. Specifically, in one survey, 84% of the international students reported attending independent schools, compared with 17% of talent search participants in the USA who attend independent schools (Barnett *et al.*, 2002).

Talent search tests

CTY conducts three talent searches and uses a different test for each one. Overall, CTY has assessed approximately 1.5 million students since its first talent search was held in 1980. The oldest and largest of the three searches is the 'Talent search: Grades 7–8'. Prior to 1998 this search primarily served Grade 7. In 1998 an official search was launched that included Grade 8. Students in these grades take the SAT I, a test that was developed by Educational Testing Service (ETS) to predict achievement in college among high-school seniors.

Table 1 shows the mean scores of Grade 7 and 8 students who participated in the CTY talent search from 1980 to 2004. They are remarkably stable and a gain of approximately 50 points from Grade 7 to 8 appears to be a consistent pattern since 1998 when the Grade 8 search was introduced. It is important to remember that re-centering of SAT I resulted in higher mean scores from that time until the present. Table 2 shows the percentage of CTY talent search participants who scored

Table 1. Mean talent search SAT scores 1980–2004

Year	Grade 7		Grade 8	
	SAT-V	SAT-M	SAT-V	SAT-M
1980	375.0	405.7		
1981	365.5	405.0		
1982	360.8	395.0		
1983	357.9	389.8		
1984	353.5	390.7		
1985	358.3	400.1		
1986	355.1	397.8		
1987	356.3	402.4		
1988	350.5	397.7		
1989	353.8	390.4		
1990	352.3	406.2		
1991	357.0	396.3		
1992	350.9	410.7		
1993	356.0	405.1		
1994	353.7	412.0		
1995	361.4	413.1		
1996	438.2	449.1		
1997	452.7	461.5		
1998	452.8	465.2	501.4	516.3
1999	446.5	468.2	496.4	520.3
2000	452.2	465.5	501.1	519.9
2001	450.5	475.8	498.8	525.2
2002	455.7	471.0	502.4	527.1
2003	453.1	468.9	501.4	519.5
2004	456.9	480.4	506.1	527.5

above the mean of college-bound seniors by gender. The slight gender difference that exists among college-bound seniors is also reflected among talent search participants.

CTY's 'Talent search: Grades 5–6' was established in 1992 using the Secondary School Admissions Test (SSAT) for students in these grades (Mills & Barnett, 1992). Since then CTY has worked with ETS to develop PLUS, the assessment currently used for this talent search. Normed on Grade 8 and 9 students, this multiple choice test is similar to SAT I in that it assesses above level verbal and mathematical reasoning abilities. Table 3 shows the mean scores of students who took PLUS through CTY's talent search from 1994 to 2004. Again, the stability of scores over time is remarkable.

The 'Elementary talent search' for Grades 2–4 utilizes the School and College Ability Test (SCAT), a test of verbal and mathematical reasoning abilities. This test has been used to determine program eligibility for elementary school students since 1985. As with the SAT and PLUS scores, SCAT scores have remained very stable over time. (For more information on the history and stability of SCAT scores see

Table 2. Percentage of talent search students scoring above mean of college-bound seniors

Year	Grade 7				Grade 8			
	SAT-V		SAT-M		SAT-V		SAT-M	
	Males	Females	Males	Females	Males	Females	Males	Females
1980	24	24	20	21				
1981	21	18	20	23				
1982	19	19	15	20				
1983	19	17	16	16				
1984	19	16	17	17				
1985	19	15	19	17				
1986	19	17	19	19				
1987	18	17	19	17				
1988	15	12	19	16				
1989	19	18	14	13				
1990	16	15	23	22				
1991	18	19	14	16				
1992	18	22	22	24				
1993	19	22	18	21				
1994	18	19	21	25				
1995	20	22	19	24				
1996	20	22	19	25				
1997	24	27	24	27				
1998	25	26	25	29	47	49	49	56
1999	22	24	23	29	44	49	47	56
2000	23	24	22	26	43	47	48	54
2001	22	24	27	32	45	47	50	59
2002	25	27	26	28	46	49	52	57
2003	24	26	26	28	45	50	48	53
2004	23	29	28	30	44	54	50	52

Fernandez-Fein, 1997; Fernandez-Fein *et al.*, 1999; Baxley & Johnson, 2004.) Developed by ETS and now owned by CTY, this test is administered by computer, through testing centers nationwide. CTY continues to develop new test items that are included as experimental questions on each test administration. Once tested for their psychometric properties, acceptable items are integrated into new versions of the test. This process allows CTY to ensure the security of the test. There are currently four new and different versions of the test available for use in the elementary talent search. The process of revising and refreshing SCAT is ongoing. (See Touron, 2005, for more discussion of the properties of this test and his translation into Spanish.)

Talent search participants in Grades 5–8 also have an additional testing option, the Spatial Test Battery (STB). Developed by CTY researcher Heinrich Stumpf, the STB measures the ability to understand spatial relationships between objects, to manipulate images and to visualize how parts interconnect in complex systems. The

Table 3. Mean talent search PLUS scores 1994–2004

Year	Grade 5		Grade 6	
	PLUS V	PLUS M	PLUS V	PLUS M
1994	343.5	343.3	354.2	352.5
1995	346.7	341.6	358.3	353.3
1996	344.0	343.1	354.9	354.4
1997	345.2	344.1	355.5	356.3
1998	347.6	345.3	357.8	357.3
1999	347.5	345.8	357.7	357.6
2000	348.4	347.4	358.8	358.6
2001	347.9	347.8	358.2	359.6
2002	349.3	349.6	360.1	361.5
2003	348.7	348.9	358.2	360.0
2004	348.1	348.6	358.1	360.1

STB contains four subtests: (1) visual memory; (2) block rotation; (3) surface development; (4) perspective. CTY's research findings on the STB indicate that the subtests have a high degree of internal reliability. Spatial ability has been found to be particularly useful in mathematics and science related fields and the STB has been found to predict strong performance on CTY mathematics and science courses (Stumpf, 2000). CTY allows students with high STB scores to qualify for CTY mathematics and science courses with slightly lower scores on SAT I or PLUS than are normally required.

Administration of talent search tests

The testing is largely carried out by independent agencies outside CTY. Educational Testing Service delivers the SAT I and PLUS tests in a paper and pencil format at local test centers, usually schools. Grade 7 and 8 students who take SAT I take it along with Grade 11 and 12 students in these schools. The young testers often have others of their own age group testing at the same time, since most talent search students participate in either the December or January test administrations.

PLUS is also administered by ETS at special centers set up only for this population, in groups on a weekend. SCAT is delivered by Prometric, a computerized testing organization. Students schedule individual appointments to take this test at a Prometric center near their home at their convenience.

Since some of the students who come to CTY through the urban outreach programs face special issues getting to test centers, these students are sometimes given a special assessment by CTY staff using ETS's 'Institutional testing program'. In addition, the CTY Diagnostic and Counseling Center, which provides fee-based psycho-educational and other assessments for individual students and families, arranges testing for students nationally or internationally who do not have access to a talent search testing site. Students from over 25 countries have been assessed for CTY programs through this service.

Outreach

CTY talent search coordinators work extensively with schools to find students who are likely to benefit from the above level assessment and CTY programs. These efforts are supplemented by an informal parent outreach network that volunteers to answer questions posed by other parents in their state. Historically, CTY has complemented these efforts with special initiatives aimed at traditionally under-represented students (see, for example, Barnett *et al.*, 1996), beginning in 1988 with scholarships for economically disadvantaged students through the Jerome H. Holland Scholarships and special programs to develop the academic abilities of economically disadvantaged and under-represented minority students (Lynch & Mills, 1990; Mills & Barnett, 1992).

Under the leadership of CTY's executive director Lea Ybarra, CTY has intensified its efforts to identify highly able students from economically under-privileged backgrounds and to provide them with opportunities to participate in talent search testing and, if eligible, in CTY's academic programs. Outreach coordinators work closely with schools and help students navigate the talent search application and testing process. They are also available to help guide and support students through the process of enrolling in and successfully completing summer programs. The outreach coordinators serve as recruiters and academic counselors to encourage and reassure students and their families throughout the year. Generous grants from foundations and donors are funding special efforts targeting school districts in Baltimore, Newark, New York City, Philadelphia, the District of Columbia, Boston, Richmond, Los Angeles and the San Francisco Bay area.

While much remains to be done, the results thus far are very promising. CTY's outreach activities have heightened awareness of its programs in these communities, resulting in an impressive increase in the participation of students from traditionally under-represented groups. (See Ybarra, 2005, for a discussion of this accomplishment.)

Recognition of students

One of the purposes of the talent search is the public recognition of students through newspaper articles and award ceremonies. It is hoped that by recognizing academic achievements students will be motivated to continue to achieve at a high level. Furthermore, public recognition is intended to encourage schools to respond to the students' advanced academic needs by rewarding academic excellence and providing more challenging coursework.

All talent search participants receive a certificate of participation suitable for framing. They also receive interpretive information about their scores in relation to other participants' scores, counseling packets, a recommended reading list, a web-based newsletter and issues of *Imagine*, CTY's award winning magazine. Their schools are notified about their performance on the above level test in an effort to encourage schools to respond with appropriate educational interventions.

Grade 5–8 students whose scores place them in the approximately top 25% of talent search participants are invited to attend special awards ceremonies in their home state. In the spring of 2004 CTY invited over 15,000 students to attend 65 recognition ceremonies held at 39 sites. Parents, grandparents and school staff often attend with the student. A special state level certificate honoring their achievement on the test is awarded at the ceremony. Special awards for very top students are presented. The names of the students and their schools are included in the program. Each student is given a press release that they can take to their local papers. Many educators also recognize students who participate in the talent search testing and those who are awarded a distinction in local school ceremonies.

Colleges and universities also honor top scoring Grade 7 and 8 students in their area by awarding a scholarship to take a course at their institution. In 2004, for example, over 145 colleges and universities donated more than 1192 scholarships to talent search participants.

Challenges in testing

The challenges of running a talent search based on standardized tests are constantly present. In particular, many of the tests CTY has relied upon for initial selection of students over the years are being discontinued and replaced with state criteria referenced tests. CTY is addressing the issue of trying to equate categories such as ‘advanced proficiency’ with percentile ranks that have proven effective in the past.

In addition, over the course of 25 years the SAT has changed twice and is now undergoing a third revision. CTY has adapted to previous changes in content and currently is participating in a correlation study with other talent searches in the USA to adapt to the new changes. With PLUS and SCAT the challenge is to keep them updated and relevant, as well as accessible, to students who live throughout a broad geographic region, as well as in other countries.

Family academic conferences

All students who participate in the CTY talent searches, regardless of score, are invited to participate in a variety of programs that include 1 day symposia, weekend conferences and week-long thematic explorations. The 1 day and weekend programs are held at universities and museums in major American cities on the east and west coasts, while several week-long programs are held at interesting sites around the world. Students attend with their families and special events are held for parents. Programs are geared to the age levels of the invited students.

One day programs

The longest standing conference is a 1 day ‘career symposium’. Speakers representing a variety of careers share their experiences with attendees. Also very popular is a ‘college colloquium’, which acquaints students and parents with the college selection and application process. Other 1 day programs focus on exciting

and timely topics in science and the humanities for different age groups. For example, in autumn 2004 a program on explorations in nanoscale science and engineering was held for Grade 8 and 9 students and their families.

Weekend programs

For the weekend programs families stay overnight in a museum or at another interesting site and sleep among the exhibits. Among the sites used have been the Spy Museum in Washington, DC, the Peabody Museum of Natural History at Yale University and the Aquarium of the Pacific in California. Although the topics vary depending on the site, all involve hands-on learning for students and their families.

Week-long explorations

The week-long programs involve more intensive study of a discipline. Examples of programs for Grade 5 and 6 students and their families include marine biology, held in Scotland, and paleontology held in Colorado. Programs for Grade 7–9 students and their families include the Wonders of Costa Rica and exploring the Yucatan in Mexico. New programs for high-school aged students are being planned, including a safari in Tanzania for the summer of 2005. Parents who have participated in all of these programs have valued the opportunity to share learning adventures with their children and to bond with other parents raising gifted children.

Academic summer programs

Building on the successful fast paced courses conducted by Julian Stanley at Johns Hopkins University throughout the 1970s (Benbow & Stanley, 1983), CTY held its first residential programs in 1980, serving 112 students. Over the last 25 years numerous additional programs have been added, serving a broader range of ages and abilities. Today, over 9000 students attend the following CTY programs each summer: ‘CTY 7th grade and above’ (residential, ages 12–16); ‘CTY young students’ (commuter, Grades 2–6, ages 7–12; residential, Grades 5–6, ages 10–12); ‘CAA 7th grade and above’ (residential, ages 12–16); ‘Civic leadership’ (residential, ages 15–18).

These summer programs offer rigorous academic courses designed to meet the unique needs of academically talented youth. Students study one subject intensively for 3 weeks, spending as much as 7 hours a day in class and study hall. In some courses students study standard school content at an accelerated pace, while in others they learn content not usually available to students their age. All courses are fast paced and challenging.

Courses are offered in a range of liberal arts disciplines, as well as engineering and computer science. Students who demonstrate strong mathematical reasoning ability choose from developmentally appropriate coursework in mathematics, science, engineering and computer science. Students who show strong verbal reasoning ability choose from challenging courses in writing and the humanities. Students who

show exceptional ability in both mathematical and verbal reasoning can choose from the entire range of courses.

Whatever the course, the most important goal of the program is to attend to the individual student. To facilitate attention to each student's individual needs and progress, the teacher:student ratio is kept low. There are only 12–18 students in a class, with both an instructor and a teaching assistant. Rather than assigning letter grades, which encourage comparison with others and collapse the range of a student's work into a single measure, instructors complete detailed, written evaluations of the students' performance. The evaluations are meant to help students understand what they did well and what they should continue to work on in the future.

CTY instructors are a talented and varied group of individuals brought together by their commitment to the education of highly able students. The recruiting process draws outstanding teachers from public and private schools and universities, graduate students, exceptional undergraduate students and working professionals. They are well versed in their academic fields and have the curricular and pedagogical resources of CTY at their disposal.

These programs provide students with the opportunity to learn and socialize with peers who share their high abilities and love of learning. While CTY offers some commuter programs, especially for younger students, most of the academic summer programs are residential. Not only does this allow students who live throughout the country (and world) to attend, but the bonding among students is intensified by round-the-clock contact. The daily schedule is quite structured, with a mix of academic, recreational and social time, and students are well supervised. The recreational activities also serve to bring students together around common interests. For students who feel social isolation at school or who feel they must hide their abilities to fit in, this newly found sense of belonging is a powerful part of the summer program experience.

Friendships often continue long past the summer. Students correspond with each other and even organize get-togethers in their homes. E-mail and instant messaging have made it easier than ever for students to maintain friendships and offer each other support after the program is over. In addition to informal networks initiated and maintained solely by the students, CTY now sponsors an Alumni Association and includes a student forum in its 'MyCTY' web site feature.

CTY provides families with guidance on working with their schools following a summer course. CTY does not have the authority to compel schools to recognize a student's work in the program. However, when students talk with their schools before the program and follow up with appropriate documentation of what they have learned afterward they are often successful in receiving an adjustment of their school program. This can include advanced placement in the school curriculum or permission to work on a distance education course or complete an independent study during school time. Some students receive school credit for their CTY coursework.

In 2004 9766 students participated in the summer programs. These students came from 46 states in the USA and 34 countries. Surveys showed that 69% of them

attended public schools, 24% attended independent schools, 5% attended parochial schools and 2% were home schooled or attended other educational programs. A total 117,043 students have participated in summer programs since their inception in 1980.

'CTY 7th grade and above' program

This program is aimed at students who earn scores on SAT I at or above the mean of college-bound seniors, however, Grade 8 students are required to score higher than Grade 7 students because research has shown a relationship between schooling and gain in SAT scores (Burton, 1988; Brody & Benbow, 1990). Table 1 which shows a difference of approximately 50 points between Grade 7 and 8 talent search participants each year since 1998, a difference that has contributed to CTY's decisions about program eligibility requirements.

Thus, to qualify for the 'CTY 7th grade and above' program in mathematics or science, Grade 7 students must score 530 on SAT-M plus 1040 combined mathematics plus verbal, while Grade 8 students must score 580 on SAT-M plus 1140 combined. For courses in the humanities, Grade 7 students must score 510 on SAT-V, while Grade 8 students must score 560. In 2003 36% of the testers in Grades 7 and 8 qualified for this program.

An example of a CTY course that covers traditional school content is the individually paced mathematics sequence, which continues Julian Stanley's pioneering approach to teaching mathematics to gifted students (see, for example, Stanley, 1991). Following a diagnostic pre-test at the start of the session, students work only on material they do not already know, individually or in small groups, with help from the instructor when needed. Students must demonstrate mastery of a topic before moving on to the next. Most students complete a year of high-school mathematics in 3 weeks. Other summer courses designed to allow students to accelerate through a standard curriculum include fast paced high-school biology, fast paced high-school physics, fast paced high-school chemistry, Latin and ancient Greek.

This program also provides high level rigorous instruction in subjects that are rarely offered to middle- and high-school students. For example, courses in number theory, cryptology and the theory of computation are popular choices among CTY's most mathematically talented students. Humanities offerings also include courses outside the typical school curriculum, such as art history, international politics and American studies. CTY's writing courses, inspired by the approach of Johns Hopkins University's strong Writing Seminars Department are unique, not only for their strong focus on composition and the use of the writing workshop, but also because they offer the creative writing genres (poetry, fiction and playwriting) as the capstone rather than introductory courses. In 2004 a total of 53 different courses were offered in the 'CTY 7th grade and above' program.

'CAA 7th grade and above' programmes

The CAA programs began in the summer of 1996. With just over one-third of the students qualifying for the CTY summer programs, there were thousands of bright

children in the talent search who were not being served by CTY's academic programs. CAA, the Center for Academic Advancement, was developed to provide summer program opportunities to these students.

Eligibility requirements for the CAA program are not as stringent as for the CTY program. For this program Grade 7 students must score 430 or above on SAT-M to qualify for a mathematics or science course or 410 or above on SAT-V to qualify for a humanities course. Grade 8 students must score 480 on SAT-M for mathematics or science or 460 on SAT-V for a humanities course. In 2003 85% of the testers in Grades 7 and 8 qualified for either the CTY or CAA programs, while 49% qualified for CAA only.

The 'CAA 7th grade and above' program is closely modeled on the 'CTY 7th grade and above' program in that students study one topic for 3 weeks and social events continue to be an important part of this program. Courses in the CAA program are designed for academic enrichment, not for acceleration. For example, algebra and its applications exposes students to algebraic skills and concepts, but does not cover the breadth of material found in a year-long algebra course. Some CAA courses offer a broader sweep of a topic, where CTY courses offer greater depth. For example, CAA offers general philosophy and psychology courses, where CTY offers specialized courses in ethics, existentialism, philosophy of mind and cognitive psychology. The CAA courses mathematical modeling and introduction to logic are quite similar to CTY courses, but the pace and level of instruction are adapted to the needs of CAA students. In 2004 28 courses were offered in the CAA program.

'CTY young students' program

CTY began offering courses for younger students in 1985, in response to demand from parents and educators seeking opportunities like those provided to Grade 7 students for younger children. Today the 'CTY young students' program offers day courses for students in Grades 2–6 and residential courses for Grade 5 and 6 students.

Eligibility for young students programs is determined by the SCAT test for students in Grades 2–4 and by the PLUS test for students in Grades 5 and 6 (see Table 4 for a list of eligibility requirements for this program).

Of the students who tested on PLUS in Grades 5 and 6 in 2003 51% qualified for the 'CTY young students' programs. Of the Grade 2–4 students who took SCAT

Table 4. Minimum eligibility by grade for CTY young students programmes

Grade	Test	Writing/humanities	Mathematics/science
2	SCAT	430	435
3	SCAT	435	440
4	SCAT	440	450
5	PLUS	353	353
6	PLUS	370	365

71% qualified for the CTY program. Although a higher percentage of students taking SCAT qualify for programs when compared with those taking PLUS, there is no indication that the SCAT qualifying scores are any less stringent than those for PLUS and SAT. Of SCAT qualifiers, 92% go on to qualify for programs with PLUS and 97% qualify when they take the SAT as a Grade 7 or 8 student. In this younger age range it may be that parents are reluctant to seek above level testing for their child unless the child's advanced abilities are highly apparent and the school is not responding appropriately. Thus, the higher percentage of qualifiers in the 7–9-year-old group may be the result of a parent selection bias.

The 'CTY young students' program is also modeled on the 'CTY 7th grade and above' program, where students study one topic for 3 weeks. The day is slightly shorter; students are in class for 4½ hours a day as opposed to 5 hours for the older students. Students at the residential sites also attend a 90 minute study session either just before or just after dinner. Students in the day programs are expected to complete 45 to 90 minutes of homework each evening at home. Social and recreational activities are built into the day for both commuter and residential students.

The individually paced mathematics sequence, which overlaps the school curriculum, is offered to students in Grade 5 or 6, but most young students courses cover special topics not typically available in school. Popular courses include inductive and deductive reasoning, examining the evidence, through the microscope, crystals and polymers, flight science and the ancient world. A recent addition that was developed especially for CTY is introduction to robotics, a course that emphasizes computer programming. Writing workshops are also available at several levels. A total of 31 different courses were offered in the young students programs in 2004.

Civic Leadership Institute

The Civic Leadership Institute is CTY's newest residential summer program. It serves a slightly older group of students than CTY's other residential programs. Designed for students aged 15–18, as opposed to aged 12–16, the Institute is open to all talent search participants regardless of SAT scores. Developed in collaboration with the Civic Education Project at Northwestern University's Center for Talent, this program immerses students in the study of civic engagement and social responsibility. The program blends hands-on volunteer service with traditional academic course work, interactions with community agencies and visits from guest practitioners. The number of contact hours for students in this program is the same as in the CTY and CAA programs.

Program evaluation

Members of CTY's year-round administrative staff spend a significant amount of time on site each summer, visiting classes and participating in daily life at the site. At the end of each summer they evaluate the relative success of each year's program based on data from a variety of sources. These sources include: supervisor reports,

such as classroom observation reports completed by academic deans; curriculum evaluations completed by the instructors; program evaluations completed by the students; pre/post-assessment results; customer satisfaction surveys completed by a random sampling of parents.

The student program evaluations ask students to comment on the strengths and weaknesses of the instructors and teaching assistants, to suggest ways that their course could be improved and to indicate whether or not they would recommend the course to someone else. The curriculum evaluations completed by instructors solicit information on what parts of the course worked most and least effectively with the students' interests, skills and ability levels. All of this information helps CTY staff to ensure the quality of the summer program staff and to refine program offerings.

CTY research and evaluation staff are routinely involved in evaluating the effectiveness of the summer programs through consultation with program staff to develop multi-year evaluation plans and pre/post-course achievement testing of students in courses on a rolling year basis (Ablard, 2003).

Conclusion

When the first talent search was held at Johns Hopkins in 1972 under the direction of Julian Stanley, 450 middle school students participated and the only program offered was a fast paced mathematics class (see Stanley, 2005, for a more detailed history of talent search). Today, CTY's talent search reaches approximately 80,000 students in Grades 2–8 each year and over 10,000 students are served through a variety of academic programs. The model has been replicated at other universities and institutions around the world, many of whom are represented in this volume. CTY has reached a size and scope that its founders might not have imagined and the impact of CTY services on hundreds of thousands of gifted students has been huge.

The fact that CTY's efforts have always been research based and its programs carefully evaluated has added credibility to the Johns Hopkins talent search model. The practice of utilizing above level testing to identify students with advanced abilities has been well validated, as has the use of accelerative educational strategies to serve gifted students (see, for example, Stanley, 1977; Stanley & Stanley, 1986; Barnett & Durden, 1993; see also Brody & Mills, 2005, on CTY research).

As CTY looks to the future, challenges lie ahead with regard to changes in testing. However, the organization remains committed to utilizing above grade level tests through talent searches as a way to inform students about their unique cognitive abilities and potential. Among those who score well on these tests the results help validate their exceptional abilities and determine the need for advanced academic work. CTY will also continue to explore ways to meet the educational needs of the students they serve.

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