

The Irish Centre for Talented Youth

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Conducting potency tests on penicillin, discussing rocket technology with a NASA astronaut, analysing animal bone fragments from medieval times, these are just some of the activities which occupy the time of students at The Irish Centre for Talented Youth. The Centre identifies young students with exceptional academic ability and then provides services for them, their parents and teachers. This paper highlights the work of the Centre, particularly in relation to nurturing and developing interest in the sciences at an early age.

Background

The Irish Centre for Talented Youth (CTYI) was established in 1992 at Dublin City University in close cooperation with the Center for Talented Youth at Johns Hopkins University, Baltimore, Maryland. Its main activities include:

- talent identification for students aged 6–16 years;
- specialist Saturday classes from October to April in Dublin and six other regional centres;
- summer residential programmes in Dublin and non-residential regional summer classes;
- all year round correspondence courses;
- teacher training;
- support for parents;
- research.

In addition, the Centre also operates and manages the ‘Pfizer science bus’. This is a mobile laboratory which travels around primary schools bringing interactive science to over 11,000 children annually. This particular project, while not specifically directed towards exceptionally able children, uses the same teaching approaches as with the rest of the CTYI projects of having every student work to their individual highest possible level.

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Estimates of the number of exceptionally able children in Ireland vary depending on the exact definition used. However, taking the Irish Department of Education's figure that children at the 97th percentile level are considered to be gifted, this suggests a figure of around 23,000 children within the current school population. CTYI works with around 3000 children each year.

It is not uncommon for such students to go unrecognized in school. Some students deliberately hide their ability in an effort to 'fit in', while others learn in unconventional ways which are not always appreciated by their teachers. There is also a sizeable group who are very bored at school and literally switch off during school hours. Such frustration can lead to considerable emotional and behavioural problems, with students becoming exceptionally unmotivated. CTYI's system of talent identification frequently highlights children who had not previously been noted for exceptional ability.

CTYI aims to provide a highly stimulating academic experience in an atmosphere supportive of both social and emotional needs. For many students CTYI provides the first opportunity to meet others who are like themselves and who share common interests. Such support can help give students confidence in themselves, which is of enormous value on returning to their usual environment. It also aims to introduce students to academic areas which would not normally be available to them at a young age. This is particularly valuable in relation to the sciences, given the declining numbers of students taking physical sciences at university level.

Assessments

Students establish their eligibility for the CTYI programme by first taking assessment tests in the areas of mathematical, verbal and abstract reasoning with the Centre and achieving certain age-dependent scores. Each year the Centre carries out an annual talent search, which is a systemic trawl for high ability students in the country with details being sent to all primary and secondary schools in Ireland, all teachers' centres and libraries, etc. Numbers taking assessments at the Centre are shown in Figure 1. Since CTYI's inception in 1993 over 14,600 students have taken

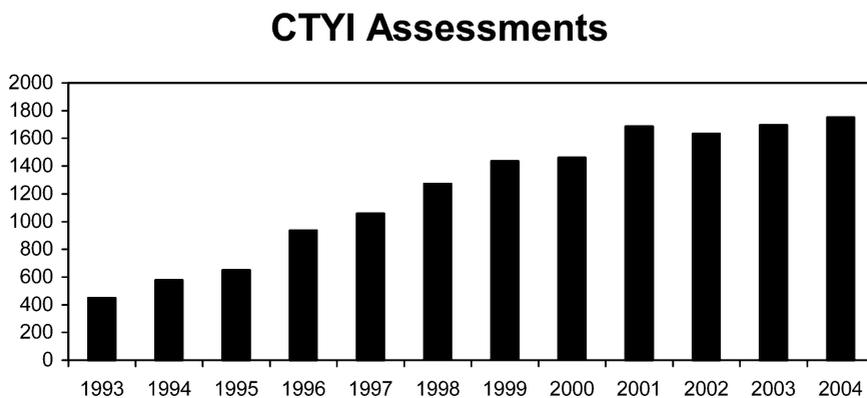


Figure 1. Number of students taking assessments at CTYI between 1993 and 2004

part in assessments at the Centre, with approximately 80% of all secondary schools having at least one student on the programme. It is interesting to note that for many of the most exceptional students on the programme their initial identification through the talent search was the first formal recognition of their ability. This includes students aged 14 and over who had already been in education for 9 years.

As a guide to the standard of the programme, 13-year-old students work at first year university level. All courses are designed to allow the students to work at the pace and depth most appropriate to their ability.

CTYI eligibility criteria

CTYI uses a system of ‘out of level’ testing. In this students take a test which would more usually be taken by students older than them, e.g. 13-year-olds take the US college entry test which is taken by 17–18-year-olds (‘Scholastic aptitude test’). This model has been successfully implemented in Ireland (Boliek, Barnett & Gilheany 1996). To qualify for the programme they are required to achieve the average score of the older age group. Stocking and Goldstein (1992) have shown that the SAT has been of great value in identifying talented adolescents. In relation to their own age group this qualifying standard is as follows: 6–12-year-olds, demonstrate ability at or above the 95th percentile level; 13–16-year-olds, demonstrate ability at or above the 99th percentile level.

The assessment results annually show a very consistent pattern, with the average score of participants aged 13–14 years being comparable with the average score of 17–18-year-olds on the same test. This is the minimum standard required for qualification for CTYI course. However, the assessment results annually also show a small number of students reaching exceptionally high scores, e.g. 13-year-old students scoring over 700 points in the ‘Scholastic aptitude test’ (SAT I) in both the mathematics and verbal sections (see Figure 2). Such scores are only achieved by approximately 1% of college-bound seniors, thus demonstrating the usefulness of

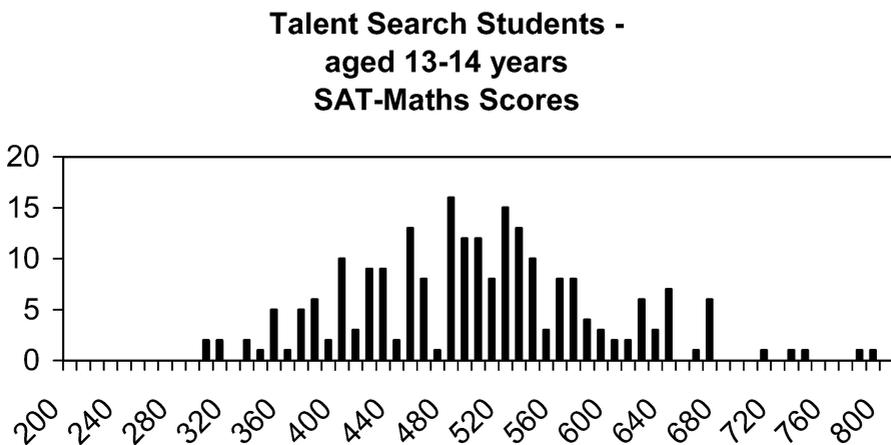


Figure 2. SAT scores achieved by 13–14-year-old students in 2004

SAT as a means of identifying talent of a quite extraordinary nature in 13-year-old Irish students. SAT scores have been shown to be comparable between Irish and American students (Gilheany, 1994).

At primary level around 70% of students taking assessments will qualify for academic programmes, while at secondary level approximately 40% of students will reach the required standard. These figures reflect the large degree of self-selection for such programmes. All secondary students who participate in assessments regardless of the outcome are invited to a number of events, such as 'Discovery days', as an acknowledgement of their ability and desire to seek additional challenge. Goldstein and Wagner (1993) believe that these ceremonies represent the first and possibly only opportunity for public recognition many of these exceptional youngsters will receive.

Academic programme numbers

At present over 3000 students annually take part in CTYI courses, as illustrated in Figure 3. Saturday classes are given in Dublin, Cork, Limerick, Letterkenny, Athlone, Waterford and Galway, with around 700 children each week taking a course. There is considerable demand from parents to extend the regional provision of courses to other areas. The need for such services is very apparent when it is noted that children are travelling from locations over 100 km from the regional centres on a weekly basis. Residential summer courses for 12–16-year-olds are given in Dublin, while correspondence courses are also available in a range of subject areas throughout the year. It is also interesting to note that students tend to return to the programme repeatedly. Generally, on any given course 80% of the students have

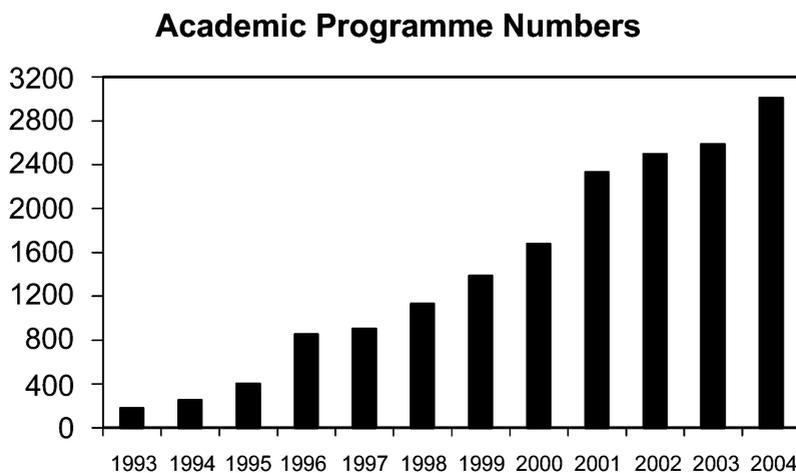


Figure 3. Numbers of students taking part in academic courses at CTYI between 1993 and 2004

previously taken a class with the Centre and return either to take a similar course being offered at a higher level or to try something completely new.

Academic courses

Residential and commuter summer courses, Saturday classes, intensive study weekends, ‘Discovery days’ and correspondence courses all form part of CTYI’s work with young people aged 6–16 years. Saturday classes run over 9 week terms with students studying one subject per term for 2.5 hours per week. Courses are designed and delivered by experts in the particular fields, with subjects ranging from archaeology to zoology available to students (listed in Table 1). Such courses normally cover material outside the usual school curriculum. Typically, 13-year-olds work at first year university level. However, it is not unusual to have students work at even higher levels, including postgraduate type research.

Summer programmes are perhaps the highlight of the Centre’s activities. During June and July students aged 12–16 years stay in residence for a 3week period, taking classes for 7 hours per day, which run alongside a highly structured social

Table 1. Courses

Advertising	Global economics
Aeronautical engineering	International relations
Anatomy	Japanese language and culture
Ancient civilisations	Journalism
Archaeology	Legal studies
Architecture	Linguistics
Art	Literature and drama
Art design	Marine biology
Art history	Marketing
Astronomy	Mathematical magic
Atomic and nuclear physics	Media studies
Biology	Medical technology
Biotechnology	Meteorology
Business studies	Neuroscience
Celtic studies	Number theory
Chaos theory	Pharmacology
Chemistry	Philosophy
Chinese language and culture	Probability
Classics	Psychology
Computational linguistics	Russian language and culture
Computer applications	Science communication
Corporate business	Screen writing
Creative writing	Sports law
Electronics	Sports psychology
Engineering	Theoretical physics
Forensic science	World geopolitics
Genetics	Zoology

programme designed to support the students' social and emotional needs. Summer programmes have been found to be positive experiences for gifted students, offering them opportunities to interact with other equally able students and to further develop their intellectual ability (Van Tassel-Baska *et al.*, 1985). Strop (1985) and Ross and Parker (1980) noted that academically talented adolescents generally feel competent in academic areas, but much less so in social areas. The social component is a very important aspect of the summer programme at CTYI and, as Feldhusen (1991) pointed out, the opportunity to share a common viewpoint or discuss a topic deeply and passionately is not typically available in a 40 minute classroom period.

Such programmes have a very high student:staff ratio of 6:1. The intense nature of the programme means that students are required to put in a very high level of work during the period and for many students this is perhaps the first time that they have ever really been challenged academically. This can be quite a shock to them, but it is usually the case that when they get over the initial surprise they very much enjoy the satisfaction of working at their full capacity.

It is also interesting to note that by far the most popular courses on offer to students are laboratory-based science courses. This is particularly the case with students at primary level (6–12 years), with courses tending to be heavily oversubscribed, and is in sharp contrast to the declining interest in taking science at secondary school and university level in Ireland. Experience with the students suggests that the highly practical nature of the material being offered is most attractive to them, as is the opportunity to work in areas of cutting edge research.

Schools outreach

CTYI has a large outreach programme with schools which covers both teacher training in the area of highlighting the needs of high ability children and also school curriculum support. One of the largest of these projects is the 'Pfizer science bus'. This is a fully equipped mobile laboratory which travels to primary schools around Ireland. Children come on board the bus and carry out a range of experiments designed to enhance their interest and enthusiasm for science. The project also acts as a support to teachers in relation to the recently introduced science at primary level curriculum. Since its launch in March 2000 this project has met with enormous interest and enthusiasm from both schools and the wider public, with over 44,000 children having been on board. Although not specifically targeted at exceptionally able children, it uses the same teaching principles as CTYI that encourage all children to work at the level that is appropriate for them.

Since the launch of the bus there has been overwhelming interest in the project, with schools typically seeking to rebook the bus immediately. All schools are asked to complete an evaluation form. The results from this evaluation process indicate an exceptionally positive reaction to the bus, with 100% of respondents being highly satisfied with a visit and seeking to have the bus return to the school. The most typical comment from children is: 'I want to be a scientist when I grow up!'.

Research and evaluation

Detailed evaluation studies have formed a part of CTYI's work since its first programme. At the talent search stage all participants are invited to complete a detailed questionnaire which examines areas such as their attitude towards their ability, school, particular subject areas, career ambitions and perceptions of others towards them. After every course detailed evaluation studies are carried out with all students, the information from which is used when planning further courses. Lastly, a medium-term follow-up study is being conducted with students from the first 3 years of the programme. This examines college choices, career paths and perceptions of the impact of the programme on them to date.

A brief summary of some of the data collected (O'Reilly, 1998) to date suggests that:

- 82% of students felt more comfortable with their ability after the CTYI course;
- 95% of students were very satisfied with the academic challenge of CTYI;
- 99% of students wished to return for further courses;
- CTYI experience influenced 80% in their choice of college course.

This last factor was frequently cited by students when taking a course with CTYI. In other words, although the students could not obtain course credits for the CTYI programmes, they were keen to study a wide range of courses in order to help them to decide what path to follow at college. Academically they were challenged by the courses and as a result felt more inclined to put in greater effort with their regular schoolwork, as well as wanting to seek out additional challenges. This was particularly the case in relation to science subjects, with students citing the benefits of having been exposed to research standard laboratories and introduced to the techniques of high level science. Follow-up research with students several years after their participation indicated that these positive benefits were still in place.

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