

**THE WINSTON CHURCHILL MEMORIAL TRUST OF AUSTRALIA**

Report by - DAVID PATTERSON – 2002/2 Churchill Fellow

THE NORTHERN DISTRICTS EDUCATION CENTRE (SYDNEY) CHURCHILL FELLOWSHIP to study and observe the provision and operation of advanced placement programs in the United States which cater for the needs of gifted and talented students in the senior years of schooling.

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Signed            D W Patterson

Dated: 18 August, 2003

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## **1. Precis and Acknowledgements**

This report details the findings from a 2003 Churchill Fellowship visit to the United States of America to study and observe the provision and operation of advanced placement programs catering for the needs of gifted and talented students in the senior years of schooling. Specific areas of study included:

- the role and importance of the Advanced Placement (AP) program in catering for the special needs of gifted and talented students in US schools;
- the growth of AP and other advanced-level academic programs in schools and other settings;
- the practical operation of gifted programs in schools: the benefits for teachers, students and schools;
- the role and importance of university-based gifted education and talent development centres in assisting students and schools to access advanced study opportunities.

My visit to the United States provided me with invaluable insights into the ways in which the Advanced Placement Program operates in US schools. The opportunities to visit gifted education centres in universities, talk with administrators and teachers offering and teaching the programs, and to hear from the students who have taken the AP and other challenging programs gave me a level of understanding and a range of practical experiences and observations which I could never have gained from other modes of research. I am most grateful to the following organizations and individuals for helping to make my Fellowship visit such a worthwhile, productive and enjoyable one:

- the Northern Districts Education Centre (Sydney) and the Winston Churchill Memorial Trust for providing funding to undertake this research visit;
- the Office of the Board of Studies NSW for granting me study leave to visit the United States as a Churchill Fellow. In particular, my sincere thanks go to Ms Betty Fletcher for her excellent clerical and administrative support;
- Professor Miraca Gross, Professor of Gifted Education and Director, Gifted Education Research, Resource and Information Centre, University of New South Wales for her invaluable support and advice in arranging introductions and providing suggestions on undertaking research in this field;
- the many dedicated researchers, teachers, students and administrators in the universities, colleges and schools of the United States who were so welcoming and supportive, and who went out of their way to assist me by arranging seminars, meetings, observation lessons and social functions.
- my wife Sue for her encouragement, support and patience, and for her very practical common sense in all manner of travel situations.

## 2. Executive Summary

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### **Fellowship objective**

To study and observe the provision and operation of advanced placement programs in the United States which cater for the needs of gifted and talented students in the senior years of schooling.

### **Fellowship highlights**

1. Seminar at the Belin and Blank International Center for Gifted Education and Talent Development (University of Iowa) led by the Director, Professor Nicholas Colangelo, followed by visits to Washington High School, Regina K-12 School and Des Moines Central Academy. Meetings with staff and observations of advanced placement classes.
2. Seminar with the Director Professor Paula Olzewski-Kubilius and staff of Northwestern University's Center for Talent Development (Chicago, Illinois) which provides educational services for academically talented students and their families. As the only university-based gifted center to be accredited as a special function school by the North Central Association of Colleges and Schools, students can receive high school credit for courses taken at the center.
3. Meeting with Emeritus Professor Julian Stanley, Dr Linda Brody and senior staff at the Center for Talented Youth, Johns Hopkins University (Baltimore, Maryland). Professor Stanley is the pre-eminent scholar in his field, and is credited with introducing the first talent search program designed to identify, challenge and reward academically able young people.
4. Visit to the College of William and Mary Center for Gifted Education (Williamsburg, Virginia) and discussions with the Executive Director, Dr Joyce Van Tassel-Baska, who is one of the world's leading researchers in the field of gifted education. The Center is renowned for its professional development programs and curriculum resources.

5. Visit and seminar arranged by Dr Richard Sinclair, Director of the Texas Academy of Mathematics and Science, a fully residential facility on the campus of the University of North Texas, which allows talented high school students to complete their first two years of college while earning a high school diploma.
6. Seminar with Professor Kathleen Noble and Professor Nancy Robinson at the Robinson Center for Young Scholars, University of Washington, Seattle. The Center offers a Transition School and Early Entrance Programs to gifted and talented middle school students, enabling them to pursue university level studies in their areas of exceptional achievement.
7. Meetings with staff and visits to classes at K-8 middle schools in the Saratoga, California school district accompanied by Dr. Marilyn Lane, Regional President of the California Association for the Gifted.

### **Findings**

My Fellowship visit to the United States to study and observe educational programs which cater for the needs of gifted and talented students, especially those in the senior years of schooling revealed:

- the provision of advanced learning opportunities in mainstream schools in the US states visited raises significantly the standard of student achievement across a whole school. This applies at each level of schooling – elementary (K-Grade 5), middle schooling (6-8) and the senior years (9-12);
- advanced study programs, especially the Advanced Placement (AP) program developed by the College Entrance Examination Board, are providing gifted and talented students with opportunities to commence university-level studies for which they can receive advanced standing and credit transfer into university courses. In some cases students are able to enter university degree courses while still completing high school graduation requirements;
- a relatively small number of well-established, university-based gifted education and talent development centres in the US provide leadership and best practice in identification and support services for gifted and talented students.

### **Seminars**

Invited presentations outlining the key findings of the Fellowship visit and their potential application to the education of gifted and talented students in Australia will be made at:

- September 9 meeting of the Board of Studies NSW;
- Seminar to be arranged by the Executive Director, Catholic Education Commission NSW;
- Next meeting of the Gifted Education Research, Resource and Information Centre (GERRIC) Advisory Committee, University of New South Wales.

### **Publications**

- Feature article in the Board Bulletin, issued to all government and non-government schools in NSW, based upon the presentation to the Board meeting in September.
- Articles for publication in gifted education journals such as “Gifted”.
- Article for publication in “Inform”, journal of the NSW Department of Education and Training.

## **Research**

The information gained on this Fellowship through seminars, interviews, discussions and visits to schools, universities and other educational institutions will provide valuable input to current research projects being undertaken in New South Wales by the Office of the Board of Studies NSW and the NSW Department of Education and Training. These projects aim to establish better articulation between senior secondary studies and first year university courses and to provide enhanced opportunities for gifted and talented students to access tertiary-level courses while completing their high school studies. Provision for exceptionally gifted students who have accelerated through their high school studies to undertake early entry programs at university should also be established.

### 3. Program

**Cedar Rapids, Iowa)**

**Iowa City, Iowa )**

**Des Moines, Iowa )**

**14 April – 18 April**

- Belin and Blank International Center for Gifted Education and Talent Development
- Washington High School, Cedar Rapids
- Regina K-12 School, Iowa City
- Central Academy, Des Moines

**Evanston, Chicago, Illinois**

**19 April – 23 April**

- Northwestern University
- Center for Talent Development

**Washington, D.C. )**

**Baltimore, Maryland )**

**Williamsburg, Virginia)**

**28 April – 16 May**

- George Washington University
- Library of Congress
- Johns Hopkins University
- Center for Talented Youth, JHU
- College of William and Mary
- Center for Gifted Education, CWM

**Denton, Texas**

**19 May – 23 May**

- University of North Texas
- Texas Academy of Mathematics and Science

**Seattle, Washington**

**26 May – 30 May**

- Robinson Center for Young Scholars
- University of Washington

**San Jose, California**

**2 June – 5 June**

- Saratoga Union School District
- Redwood Middle School, Saratoga
- Nueva K-8 School, Hillsborough
- University of Santa Clara.

## 4. Introduction

### Background

#### (i) Flexible progression

Until 1990 when a new Education Act was introduced in New South Wales, school students were not able to move ahead of their cohort to undertake more advanced studies and present for secondary school examinations early. In some instances, especially gifted students who were already in the post-compulsory years of their schooling opted out of the Leaving Certificate or the Higher School Certificate (as it was called from 1967) in order to further their studies elsewhere and later seek entry to university through matriculation examinations. However, the great majority of gifted and talented students had no option but to remain with their cohort and undertake the highest levels available in the secondary curriculum in their area or areas of special ability. Often they worked ahead achieving standards well beyond the limits set by the subject syllabuses and the examinations. The extent of their achievements were thus never fully recognized in the credentialling they received, and it was not until they entered tertiary studies that they had the opportunity to demonstrate their real abilities. These students, at great cost to themselves and the community, were in an academic sense held back.

From the early 1990s school syllabuses began to be based upon outcomes. The former practice of specifying mandatory hours for courses of study was replaced by more flexible indicative time requirements which allowed students to progress to the next stage of schooling if they had achieved the outcomes of a course or courses in less than the time expected.

Flexible progression provisions made it possible for students to progress through the stages of schooling at a pace determined by their achievements and in line with their abilities. The old lock-step progression as it was generally labelled gave way to this new approach which aimed to cater for the needs of the individual student. It was designed to benefit all students, not only those who were expected to move ahead more rapidly. Those students who needed more time to achieve the outcomes of a course might progress more slowly.

One form of flexible progression – acceleration - allowed gifted and talented students to progress at a rapid rate through their courses and to present for the Higher School Certificate in some or all of their subjects ahead of their age cohort. The principles of flexible progression applied, however, not just to the secondary years but to all stages of schooling so that ability demonstrated through achievement of outcomes became the determining consideration for progression rather than the student's chronological age.

Under acceleration provisions, students in New South Wales schools are able to complete examination requirements in a chosen subject or subjects and move on to study Distinction Courses. These are specially developed university-level courses in Cosmology, Comparative Literature and Philosophy which are delivered by universities through distance education. More recently universities in conjunction with schools have developed courses to cater for the particular needs of high ability students in their final years of secondary school. These courses and Distinction Courses attract some credit or advanced standing in first-year university courses.

## **(ii) Missing links**

There is no doubt that the policy of flexible progression, and in particular the opportunities for acceleration which it provided, has had enormous benefits for gifted and talented students. Yet there are significant problems, which, after more than a decade of implementation of the flexible progression policies need to be solved:

- for many gifted and talented students, especially those in the senior years, the school curriculum does not provide a sufficiently broad range of challenging courses to meet their needs;
- the Higher School Certificate examination upon which selection for university entry is based continues to act as a barrier for those students who have accelerated in one area of strength but who need high results in all their subjects to gain entry to the faculty of their choice. Such students tend to postpone further work in their area of special ability in order to concentrate on their other studies;
- while school-university links are growing at a rapid rate, improving articulation between senior school studies and first-year university courses must be a priority. For gifted and talented students acceleration provisions in schools need to connect with university studies through clear and planned pathways;
- education systems and schools have not had well-developed links with support services for gifted and talented students (and their parents and carers). Students need advice, support and challenging opportunities to show and extend their gifts and talents. Talent search programs and talent development centres play a crucial role in this process;
- The key objective of this Fellowship was to explore ways of improving these linkages by examining school-university programs for gifted and talented students operating in the United States.

## 5. Observations and Findings

### (i) The Advanced Placement Program

In the United States many able school students access high level, challenging courses through participation in The College Board's Advanced Placement Program (AP). The program has operated since the 1950s and currently offers 35 courses covering 19 subject disciplines. The courses are developed by committees composed of academics and practising teachers who have had experience in the teaching of AP courses. National examinations are held annually in May at the end of a year-long course of study and provide students with an opportunity to demonstrate the knowledge, skills and concepts they have acquired.

Participation in the Advanced Placement Program provides students with particular benefits. They have access to rigorous university-level courses covering many disciplines. Students who successfully complete the AP examination have an opportunity to receive credit or advanced standing into college and university courses. More than 90 percent of the universities and colleges in the United States and Canada, as well as universities and colleges in 20 other countries have a policy granting incoming students credit, placement, or both, for qualifying AP examination grades. Transition from high school to tertiary studies is much smoother for AP students due to the advanced knowledge and skills and the academic confidence they gained through participation in the program.

In 2003 more than a million students in 14,000 high schools across the United States took 1,750,000 AP examinations, a 10 per cent increase on the 2002 figures. The number of AP tests taken has doubled since 1996.

Increasingly the AP tests are being seen as a better predictor of success at university than the Scholastic Aptitude Tests (SAT). Having AP studies listed on a student transcript is seen as a very positive indicator by universities processing student entry applications.

Staff at schools visited on the Fellowship itinerary, for example Washington High School and Central Academy (both in Iowa in the mid west), commented on the very positive influence that the AP program had upon the whole school. Standards across the school had risen, student enthusiasm increased and teachers voluntarily undertook further training and development. The courses were seen as benefiting not only the gifted and talented students but all students. Special classes were operating at Central Academy to prepare those students who lacked the stronger academic skills needed to participate in AP courses. These were often students from disadvantaged and minority backgrounds. Once enrolled in the AP courses, these students made outstanding progress and many went on to success in tertiary courses. The AP figures reveal that in the period 1998-2002 participation by minority students increased by over 75% while participation by students from low socio-economic background doubled.

The College Board has recognized that more students could reap the benefits of participation in AP courses if they were introduced earlier to the academic skills necessary for success in the Advanced Placement Program. To facilitate this process, the Board has provided resource materials to assist schools in forming subject vertical teams. These AP vertical teams are groups of teachers from different grade levels in a particular discipline who work cooperatively to develop and implement a vertically aligned program aimed at helping students acquire these academic skills.

This is not to say that AP programs are not without their critics. Certainly there are those who see them as the cause of a serious narrowing of the curriculum as teachers focus too much on examinations and on chasing the elusive “5” scores (the highest level of achievement on the 1 – 5 AP scale). AP classes are also often an organizational and timetabling headache for school administrators, with smaller schools facing particular difficulties. However, this problem commonly occurs in small schools trying to provide for groups or individual students who have special needs.

## **(ii) School-university link programs**

Although AP programs are a well-established and growing method of providing opportunities for able students to undertake challenging high-level courses while completing their school graduation requirements, there are comparatively few opportunities for gifted and talented students to actually complete university courses in their senior school years. One very successful program which has sought to bridge the divide between school and university studies is conducted by the Texas Academy of Mathematics and Science at the University of North Texas in Denton, Texas.

In 1987 the Texas Legislature and the University of North Texas established a unique partnership called the Texas Academy of Mathematics and Science (TAMS). The Academy was designed to accelerate the education of Texas high school students gifted in the areas of Mathematics and Science and to allow them to complete their first two years of university while earning their high school diploma. TAMS is a residential program located on the campus of the University of North Texas at Denton about 50 kms north-west of Dallas. The program serves students who wish to pursue careers which require high achievement in Mathematics, Science and Engineering. Following 4 semesters (2 years) at the Academy, students are able to graduate with a high school diploma and about 60 college credits into university studies.

The Academy admits up to 200 Grade 10 students per year from public and private schools across Texas. Selection criteria include academic grades achieved in Grades 7-10, personal interviews, diagnostic tests, an application essay and evaluations by teachers, school counsellor and principal. TAMS pays for students’ tuition, books and other academic fees. The student’s family must meet the cost of room and board and personal spending money. Academic advisers assist students to select courses that are related to their intended university majors. TAMS conducts workshops on study skills, time management and examination preparation and also sponsors many extracurricular activities.

There are now approximately a dozen residential early-entrance to university programs in the United States, plus a number of non-residential ones. Notable among the latter are Professor Nancy Robinson’s highly successful pioneering work at the University of Washington.

This outstanding program which links the senior high school years with university studies is conducted at the Robinson Center for Young Scholars within the University of Washington at Seattle. The Academy for Young Scholars provides gifted students who are entering 10<sup>th</sup> Grade with the opportunity of spending their next two years in a transition and early entrance program at the University of Washington. Instead of students accelerating into higher grades at school, or pursuing independent studies at community colleges, selected students spend one highly concentrated year of university preparation with other very able students in the Transition School and then, as part of the Early Entrance Program, they enter the University of Washington.

The Transition School provides classes in Mathematics, Literature, History, Science, Ethics and essay writing. Special emphasis is given to developing university study techniques, time management and research skills. Following the Transition School year, students enter the Early Entrance Program as a first-year university student. Students are encouraged to take responsibility for monitoring their academic progress but the Center provides effective support services including mentors and academic advisers. Students are selected from Washington high schools on the basis of American College Testing (ACT) examinations, high school achievement record, teacher recommendations, and two special essays submitted to the Academy. While the Robinson Center program is fairly small in student numbers (about 50 in 2003) it has enjoyed great success in integrating gifted young students into university life.

### **(iii) Centres for Gifted Education and Talent Development**

University-based institutes which specialise in supporting the education of gifted and talented students are well-established in the United States. In New South Wales the Gifted Education Research, Resource and Information Centre (GERRIC) was set up relatively recently, in 1997, within the School of Education in the Faculty of Arts and Social Sciences at the University of New South Wales, but in only six years has become the lighthouse institution for gifted education in this country. Its success has demonstrated the strong demand for and critical importance of support services to students and parents in this area of education. Through their work and achievements, gifted education and talent development centres in the US over several decades have set an enviable example.

Since 1981 the Center for Talent Development (CTD) at Northwestern University at Evanston (Chicago), Illinois has been one of the leading institutes in the education of gifted young people providing information and assisting students to develop their gifts and talents through research, special programs and activities and scholarships. The Center provides opportunities for gifted learners from diverse backgrounds. A flexible admissions policy allows those not able to demonstrate their abilities on widely-used standardised tests and those from home-schooling backgrounds to be admitted to Center programs. Over the last decade a needs-based CTD Scholar Program has helped support students, and special grant-supported projects assist students from low-income and underrepresented minority groups.

The Center regards talent development as a process of providing, supplementing and managing social support systems that enhance the development of talents and the development of the individual student. A key objective of the CTD is to provide appropriate assessment techniques and opportunities for students that act as a basis for selecting and matching educational programs. In line with its flexible admissions policy, the Center creates models of education that specifically address the learning and social-emotional needs of academically gifted and talented children who come from a wide range of socio-economic backgrounds. CTD conducts research on the effectiveness of these models and provides expert information to parents which will assist them in meeting the developmental needs of their children.

The Talent Search Programs at CTD identify academically talented students across Grades 3 to 9 and provide counselling materials to help students understand their scores and plan appropriate programs for the future. The Center's programs which are linked into the school year are designed to supplement the students' school courses or prepare them to take advanced courses early. Extensive Saturday programs and summer academic programs are provided, including an innovative civic education project which combines traditional education and community service projects to promote civic responsibility and help students

develop the knowledge, experience and leadership skills to make a positive contribution to society. CTD arranges conferences and forums for parents and teachers in the field of gifted and talented education and conducts courses throughout the year for educators seeking to increase their effectiveness in working with gifted students.

The Center for Talented Youth (CTY) at Johns Hopkins University, Baltimore, Maryland was established almost 25 years ago. It claims the distinction of undertaking the first academic talent search in a project begun by Professor Julian Stanley in 1972. As well as conducting America's oldest and most extensive university-based talent search for highly able youth, CTY provides summer academic programs involving three-week residential and day courses at over 20 locations across the US. It also offers family academic conferences for talent search participants and their families at colleges, universities and science centres around the country. Academically challenging courses in a range of subject areas (writing, Mathematics, Computer Science, Physics) using on-line and CD formats allow students to take accelerated courses year-round at school or at home.

CTY provides educational assessment, planning and counselling services to students, parents and schools through its Diagnostic and Counselling Center. It also conducts research studies relating to gifted education and the nature of high academic ability. In recent years the Center has established CTY International which provides a forum where educators from around the world consider current issues in the education of gifted and talented students. Since its establishment CTY has assisted more than 800,000 gifted students through its programs and services.

The Center for Gifted Education in the School of Education at the College of William and Mary, Williamsburg, Virginia has become a world leader in curriculum and curriculum support materials since its establishment fifteen years ago. The Center's other key strengths have been in the professional development of teachers and in research and evaluation.

Development of exemplary curriculum frameworks and units of study for classroom use with high ability learners is a Center priority. In fact, it is regarded as the core of the Center's mission. Teams of content specialists and practising educators have written, field-tested and revised curriculum units that are intended to be both challenging and engaging for learners in the classroom. Curriculum development materials in Science, Language Arts and Social Studies are recognized nationally and internationally for their quality and are used in all 50 US states and by 19 overseas education bodies.

The Center has a strong tradition of emphasis on professional development with on-campus and also district and school-based activities designed to promote exemplary practice in gifted education. It offers a number of Summer Institute programs focusing on curriculum for high ability learners. Teachers and administrators are provided with the knowledge and skills to design and utilize high quality curriculum within effective programs for very able students. Emphasis is given to integrating higher-order thinking skills into curriculum and instruction and to developing high-level content applications and interdisciplinary concepts. An Advanced Placement Summer Institute is also conducted to assist current and future AP teachers to plan and implement more effective AP programs in their schools. Teachers cover the curriculum content and teaching methods of AP courses and explore the content, structure and grading of AP examinations. The course provides teachers with the opportunity to discuss issues and concerns relating to the AP courses they will teach. New AP teachers are the main target group for this program although those with some AP experience who wish to engage in additional training can also attend the course.

Like other gifted education centers, the William and Mary Center provides an extensive Saturday and Summer Pre-collegiate gifted learner program across all the years of schooling. All of the Center's activities are based upon a comprehensive program of research and evaluation. The Center's Executive Director, Professor Joyce Van Tassel-Baska is one of the world's foremost scholars in curriculum provision for gifted students and one of the most prolific academic researchers and writers in the field of gifted education.

The gifted education centre which provides perhaps the most comprehensive range of exemplary identification and support services to students, their parents, teachers and schools is the Belin-Blank Center for Gifted Education and Talent Development at the University of Iowa in Iowa City. The Center was established in 1988. It has a strong commitment to professional development of teachers, recognizing that the quality of instruction that students receive is crucial to the outcomes and experiences of their courses of study. The Center conducts an annual training institute to prepare teachers and curriculum coordinators to plan and deliver Advanced Placement courses. As well as summer courses and workshops in gifted education for teachers, there is a special teacher training fellowship program through which selected teachers attend an intensive one-week training session. Teachers learn how to provide for gifted students in their classrooms and how to encourage their students to use their talents to best advantage, including in socially responsible ways. The program envisages that teachers who complete the fellowship course will take on a leadership role in their school districts to improve gifted education provision.

The Belin-Blank Center's emphasis on promoting leadership and best practice in gifted education is reflected in its Iowa Leadership Institute which was created to establish a network of gifted education advocates, policy-makers and administrators to discuss and address issues affecting this field of education within the state and beyond.

A wide range of student programs initiated by the Belin-Blank Center cater for the needs of gifted and talented students across Grades 3 to 12 who are taught in daily attendance or in residential settings for courses which can vary from one to six weeks in duration. Some of the programs, such as the Iowa Talent Project and Project Achieve, are aimed specifically at socio-economically disadvantaged and minority background students who can receive a scholarship to attend the courses. There are also special programs to address the needs of rural and isolated students who would otherwise have little opportunity to access gifted programs and interact with other students of similar ability.

In 2001 the Belin-Blank Center began delivering an Online Advanced Placement Academy program to give students an opportunity to take Advanced Placement courses that are not available at the school site. The focus of the program is rural and isolated schools but the Online Academy can also assist students to access courses in a school where only a few students are interested in undertaking an AP course. The Center has recently received a grant extension to continue and expand the program over the next three years.

Clinical and assessment services are also available to help schools, teachers and parents recognise, understand and motivate gifted and talented students. The Center has a family counselling program which offers student assessment and evaluation and parenting workshops to assist parents to understand and deal with the social and emotional needs of gifted children.

In the 1990s the Belin-Blank Center established two talent searches which are open to students across the US: the Belin Elementary Student Talent Search (BESTS) (Grades 3-6) and the Middle School Talent Search (MSTS). There is also a National Recognition Program for High School Scholars open to 10<sup>th</sup> Grade students who demonstrate high aptitude in English, Mathematics, reading or Science reasoning. Each search aims to identify, through above-level testing, students who need more challenging educational programs than those usually available in their classrooms. Eligible students are able to participate in special summer gifted and talented programs and many also undertake AP programs in their own schools.

In 1998 the Center extended its elementary talent search to Australia through the Australian Primary Talent Search (APTS) which is offered by the Gifted Education Research, Resource and Information Centre (GERRIC) at the University of New South Wales. In 2004 GERRIC will introduce a secondary student talent search. The Belin-Blank Center maintains a database of the characteristics, educational needs and learning styles of students identified through its testing, and the information is used in research and in developing programs offered by the Center.

Talent searches, which are generally a key component of the services provided by gifted education centres, have many benefits for students who participate in them. They offer an accurate measure of ability and thereby facilitate a close matching of curriculum to the needs of the individual student. Talent searches also lead to a range of challenging learning opportunities for students through acceleration, advanced placement classes, enrichment programs and summer schools. Students are better informed about their own academic strengths and potential and are therefore better prepared to make appropriate choices for their future studies and career pathways; and importantly, they have opportunities to meet, study and interact with others of similar ability and interests.

Evaluations of talent search programs have shown that although intellectually gifted students as a group achieve academically at a high level, they do not achieve as highly if deprived of a developmentally appropriate education. Studies have confirmed that the talent search model effectively identifies profoundly talented youth who later demonstrate truly exceptional adult achievements. Gifted and talented students clearly benefit from academic experiences that are tailored to their needs. Moreover, the opportunities provided by talent search programs play a crucial role in students' future success at school and beyond.

## 6. Conclusion and Recommendations

Advanced study programs available in US schools, especially the Advanced Placement Program, are providing gifted and talented students with opportunities to undertake challenging, high-level studies which help prepare them for university work and allow them to gain advanced standing and credit transfer into their university courses.

The schools delivering gifted education programs which were visited on this Fellowship covered a broad range of school types: rural; low socio-economic drawing area; very ethnically diverse; and academically selective, including a residential university-based school. Whatever the social context, the most common observation made by parents, teachers, students and school administrators about the introduction of a gifted education program to the school was that it:

- raised standards of student achievement across the whole school;
- gave the school, teachers, parents and students a very significant and observable boost in terms of school morale;
- encouraged teachers to undertake professional development and training programs. It was found that by providing further training opportunities for staff to learn how to work more effectively with gifted and talented students in their classrooms, all the children in the class and across the school benefited;
- led to more positive attitudes to learning among all the students at the school;
- extended significantly the opportunities for the more able students who previously only had access at the school to enrichment activities.

Gifted and talented students, their parents/carers and schools receive outstanding support from gifted education and talent development centres which have been established over the past 15-20 years in a number of US states, generally linked to education faculties of universities. The quality of the gifted programs delivered in schools and the academic success of the students undertaking the programs are directly linked to the support services provided to students, schools, teachers and parents through these centres and their academic and professional staff.

To better cater for the needs of gifted and talented students in our schools, it is recommended that:

- \* the school curriculum should contain a range of challenging university-level courses which prepare students for university studies and attract advanced standing/credit transfer into tertiary courses;
- \* a pilot program should be initiated which provides opportunities for high ability students to undertake first-year university courses while completing senior secondary education credentialling requirements;
- \* to enhance access and equity for gifted and talented students, schools should provide programs which specifically aim to prepare students to enter high-level courses by teaching the underpinning skills required to succeed in the courses, skills such as problem-solving, research methods and academic writing skills;
- \* researchers in the field of gifted education should evaluate the impact gifted programs have on student achievement levels across the whole school population in order to encourage more schools to offer gifted education programs;
- \* universities should establish gifted education and talent development centres within education faculties to develop support services for gifted and talented students, their parents/carers, teachers and schools.

## 7. Select Bibliography

There are a very large number of specialist books, articles and more general information relevant to the issues explored as part of this Fellowship. The following provides a small number of reference works and other titles which will direct those interested to a more complete reading list.

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