

“ موهبة ... حيث تنتمي ”

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دراسة

برامج رعاية الموهوبين في التعليم العالي

“ موهبة ... حيث تنتمي ”

ادارة البحوث و السياسات

“ موهبة ... حيث تنتمي ”

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مؤسسة الملك عبدالعزيز ورجاله للموهبة والإبداع
King Abdulaziz & his Companions Foundation for Giftedness & Creativity



موهبة

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Executive Summary

Mawhiba was established with a mandate to identify and develop talented individuals within society to direct and enable the better utilization of such leadership and talents in driving the Kingdom to the knowledge position it aspires to reach. Since its establishment Mawhiba has engaged in a varied range of creative activities and programs targeting the Kingdom's talented youth. The development of those programs involved, at its core, looking at the most reputed and most successful programs run internationally with an aim to introduce only the very best and latest into the Kingdom.

Amongst the latest list of programs identified by Mawhiba as key to introduce and roll out, had been that of higher education programs targeting talented and gifted undergraduate students studying at the Kingdom's Universities. Similar to the approach followed in the design and roll out of its other programs, i.e. that of reviewing best practices from around the world, Mawhiba appointed the Altaaat Leadership Development Institute to reach out to the world's 50 top ranking Universities to learn about programs for gifted and talented students which they had introduced. The research is meant to shed light on different programs and their characteristics, including the benefits and value derived through these, and furthermore, assess suitability of possibly replicating some or aspects of such programs into the Kingdom's Universities.

The following report highlights the research methodology followed, the key findings from the research, and provides a roadmap for the introduction of similar programs within the Kingdom's higher education institutions.

Mawhiba's Vision 1444 H. – 2022 A.D.

«To be a creative society with a critical mass of gifted and talented young leaders who are innovative, highly- educated and well trained to support the sustained growth and prosperity of the Kingdom .»

About Altaaat Leadership Development Institute

The Altaaat Leadership Development Institute started out of Abu Dhabi and is currently serving public and private entities in the Gulf Region. Altaaat's service offerings include the formulating of leadership development strategies, the delivery of bespoke individual and group leadership development programs and the publishing of local current and historical leadership case studies; all targeting the GCC region's governments, public entities, businesses in the various sectors, and local educational bodies.



Altaaat works with an internationally educated and highly experienced local team of leadership development educators and trainers, executive coaches and mentors, researchers including organization and people development consultants. Members of the team are graduates of some of the world's top ranking Universities, have worked with leading international consulting houses, advised local governments, public entities and businesses, and coached reputed and talented leaders, emerging leaders, entrepreneurs, and managers from this region.

What Does Altaaat Mean?

The Arabic word "Altaaat" is a term we invented as a way by which to construct methodologies for achieving a particular goal and that by outlining the steps required for achieving that goal through the use of verbs that start with the Arabic letter "ta" and which "Altaaat" implies the plural of.

The beauty of the Altaaat methodology lies in the fact that it simplifies the task of achieving any goal by dividing the task up into simple and achievable steps that can then be easily remembered.

Special Reading Note

Throughout the report, the term ‘Honors’ has been used synonymously with the terms ‘Gifted and Talented’. For more information, please refer to the glossary on page 100 of the report.

History and Evolution of Honors Programs in Higher Education Institutions

The first version of modern Honours program was established at Oxford University in 1800s.



Nowadays, Honours programs could be found in community, state, and private schools. And these programs range from two-year to four-year schools (NCHC, 2011).

1800

Oxford created separate pass and honors degrees, where the latter requiring a program of study that was both quantitatively and qualitatively more substantial than that pursued by the average student in a pass degree.

1873

A version of Oxford's pass-honors programs were then adopted at Harvard in 1873, then at University of Michigan in 1882.

1882

Nowadays



2012

The aim: First Honours Program rolled out at Saudi HE Institutions in 2013



Embracing gifted students into a carefully designed process is becoming an educational phenomenon globally

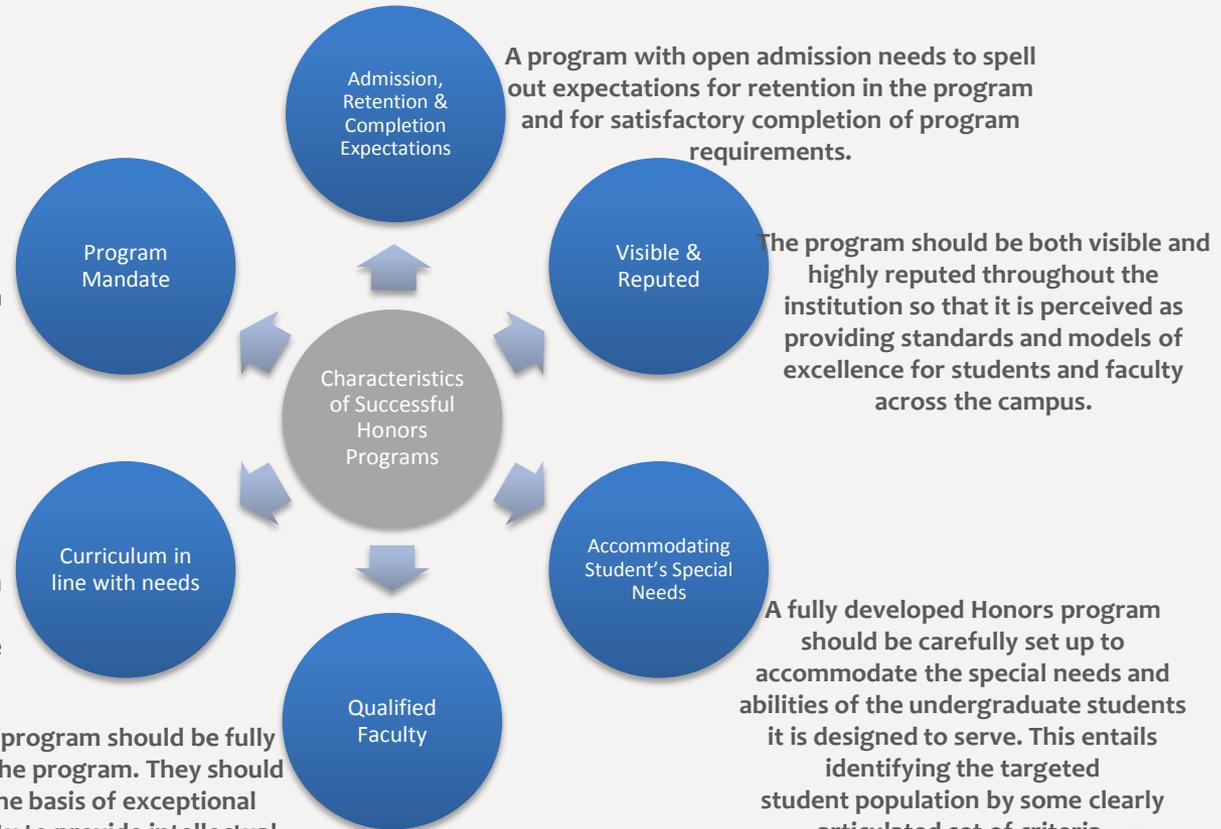
Then the system was adopted in Princeton, Columbia and other top US universities (Rinn, 2006)

Characteristics of Successful Honors Programs

The program should have a clear mandate from the institutional administration ideally in the form of a mission statement clearly stating the objectives and responsibilities of the program and defining its place in both the administrative and academic structure of the institution.

There should be an Honors curriculum featuring special courses, seminars, colloquia, and independent study established in harmony with the mission statement and in response to the needs of the program.

Faculty participating in the program should be fully identified with the aims of the program. They should be carefully selected on the basis of exceptional teaching skills and the ability to provide intellectual leadership to able students.



Although no one model of an Honors program can be superimposed on all types of institutions, there are however characteristics that are common to successful, fully developed Honors programs.

Source: NHCH

Research Objectives

The research project sets out to comprehensively explore gifted and talented programs offered at the ‘Top 50’ ranked international higher education institutions and to utilize this data to offer *Mawhiba* both up-to-date and detailed information and credible, workable recommendations for the rollout and expansion of similar programs across the Kingdom’s higher education institutions.

It is understood that *Mawhiba* is specifically interested in information that could illuminate studies and programs in the Science, Mathematics and Technology fields.

Guiding Research Question

What programs do top universities around the world offer gifted and talented high-school and undergraduate students?

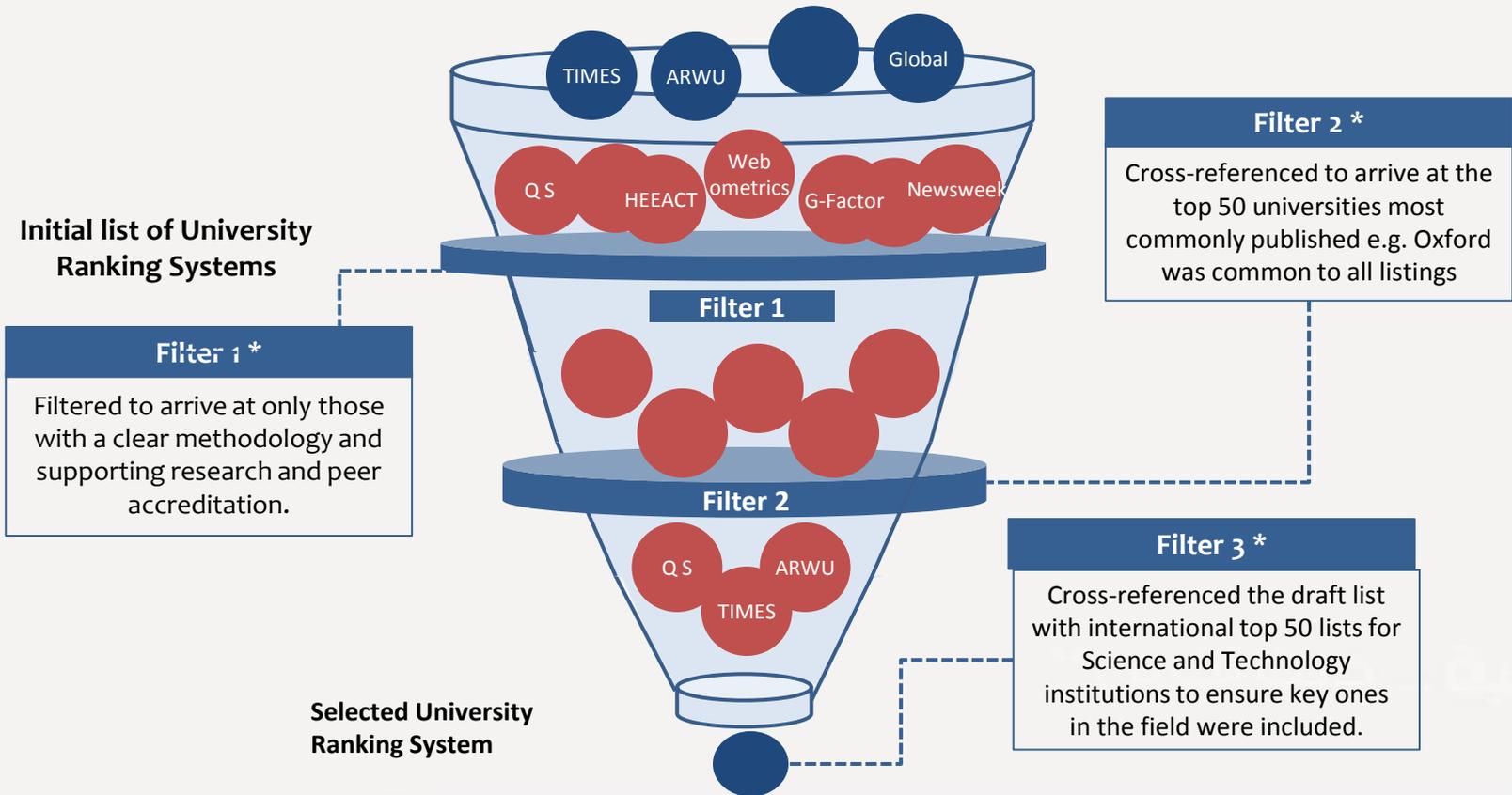
A key observation during the research was that many of the programs universities offered targeted talented and gifted students as early as high school. As such, it became important to have these included in the research.

Outcomes of this project are intended to expand current gifted and talented educational provision in the Kingdom of Saudi Arabia and to inspire a deeper level of leadership and mentorship activity between industry and higher education.

Research Methodology Applied

	Planning	Researching	Evaluating	Recommending	Reporting
Scope of Study	<ul style="list-style-type: none"> Mobilize the teams from both Altaaat and Mawhiba Conduct the Project Kick-off Meeting Agree with client proposed universities ranking methodology Select list of top 50 universities based on agreed ranking methodology. Agree definition of “honors” and redefine research question. Design survey questionnaire for data collection on talented programs of the top 50 universities. Prepare the information collection database. 	<ul style="list-style-type: none"> Initiate pilot research to clear approach with client. Review selected list of universities websites for program information. Contact selected list of universities, and schedule interviews with program representatives. Conduct scheduled interviews. Compile and input data collected from websites and surveys into the information collection database. Compile contact details of program representatives into the program contacts information database. 	<ul style="list-style-type: none"> Analyze collected data for insights, patterns and observations. Conduct literature reviews on honours programs coming in support of research findings. Subject matter team to evaluate the various programs against their applicability, practicality, and suitability for the local environment in KSA Seek inputs from stakeholders, such as major Saudi universities, public sector entities including private sector corporations. on programs they see beneficial to roll out in Saudi 	<ul style="list-style-type: none"> Based on insights gathered from international universities, including insights and observations gathered on the Kingdom’s universities, formulate a set of recommendations criteria to build recommendations on. Recommendations to come both in support of establishing a strong foundation for the introduction of programs including suggestions around these early programs. Provide Mawhiba with a final report outline to pre-approve. 	<ul style="list-style-type: none"> Prepare the final report which includes the following: <ul style="list-style-type: none"> Literature review Description of programs offered in the world’s top 50 universities Summary of the evaluation and assessment done Recommendations around the introduction and implementation of these programs into Saudi Universities Appendices
Deliverables	<ul style="list-style-type: none"> Project Plan Ranking Methodology Defined research question Information collection database 	<ul style="list-style-type: none"> List of university programs researched and details around programs and entry criteria. Database of program representatives contact details. 	<ul style="list-style-type: none"> Analysis & evaluation report Literature Review Stakeholders & SME input report 	<ul style="list-style-type: none"> Recommendation guidelines and direction. Final Report Outline 	<ul style="list-style-type: none"> Final Report Final Presentation

Universities Selection Criteria Adopted



The Final List of Top 55 International Universities Included in the Research

Rank	Name	Rank	Name	Rank	Name
1	Harvard	19	Duke	37	New York U.
2	M.I.T.	20	U. of Toyko	38	University of Manchester
3	Cambridge	21	U. Of Edinburgh	39	University of North Carolina
4	Caltech	22	U. Of British Columbia	40	Peking University
5	Stanford	23	Australian National University	41	Karolinska Institute
6	Oxford	24	Northwestern U.	42	King's College London
7	Princeton	25	University of Hong Kong	43	University of Melbourne
8	Imperial College London	26	Kyoto University	44	Delft U. of Technology Netherlands
9	Uni. of Chicago	27	University of Illinois at Urbana-C.	45	Tsinghua University in China
10	Yale	28	University of Washington	46	Ludwig-Maximilians Universität Munchen
11	Columbia	29	University of Michigan	47	University of Sydney
12	University of California	30	National University of Singapore	48	McMaster University, Canada
13	Johns Hopkins	31	École Polytechnique Fédérale de Lausanne	49	Tohoku University, Japan
14	Cornell	32	Brown University	50	Mayo Medical School
15	U. Of Pennsylvania	33	University of Texas	51	Seoul National University
16	University College London	34	McGill	52	Purdue University – West Lafayette
17	ETH Zurich	35	University of Southern California	53	Georgia Institute of Technology
18	University of Toronto	36	Carnegie-Mellon	54	U. of Pittsburgh
				55	U. of Canterbury, NZ.

Universities included in the research covered eleven countries

Australia
Canada
China
Germany
Japan
Korea
Netherlands
New Zealand
Switzerland
United Kingdom
United States of America

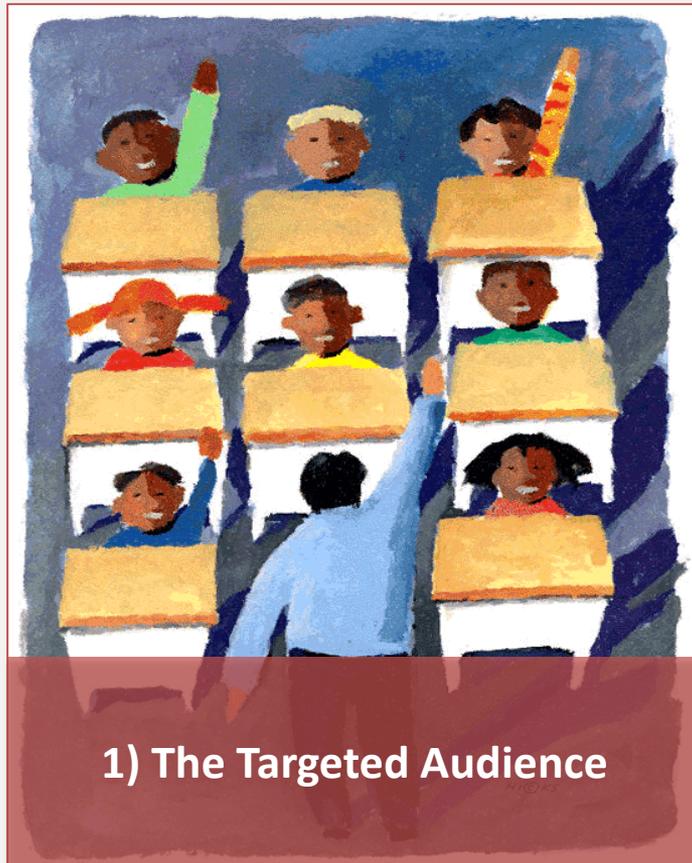


Statistics on the final number of Universities and Programs Successfully Researched

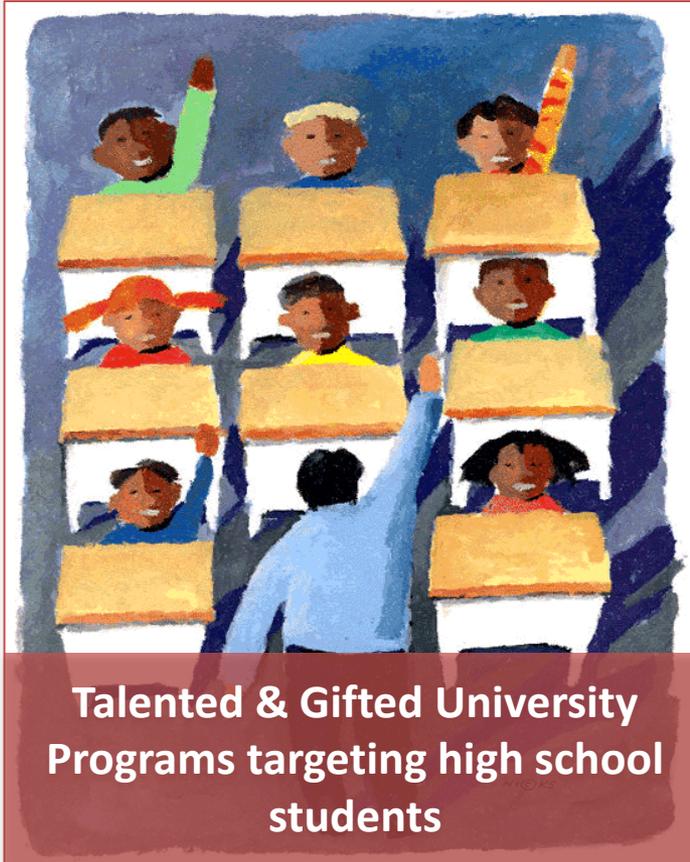


*Out of the 55 Universities shortlisted 50 were successfully included in the research. Out of the 55, there were 4 universities that were excluded entirely - 3 because of language problems and 1 because of site problems that were not addressed via email enquiries. This led to 51 being reported with the exception that Ecole Polytechnique's programs in two areas could not be determined.

Two trends around target audience and program types surfaced strongly throughout the research project



The first being that the majority of universities had program offerings targeting talented and gifted high school students

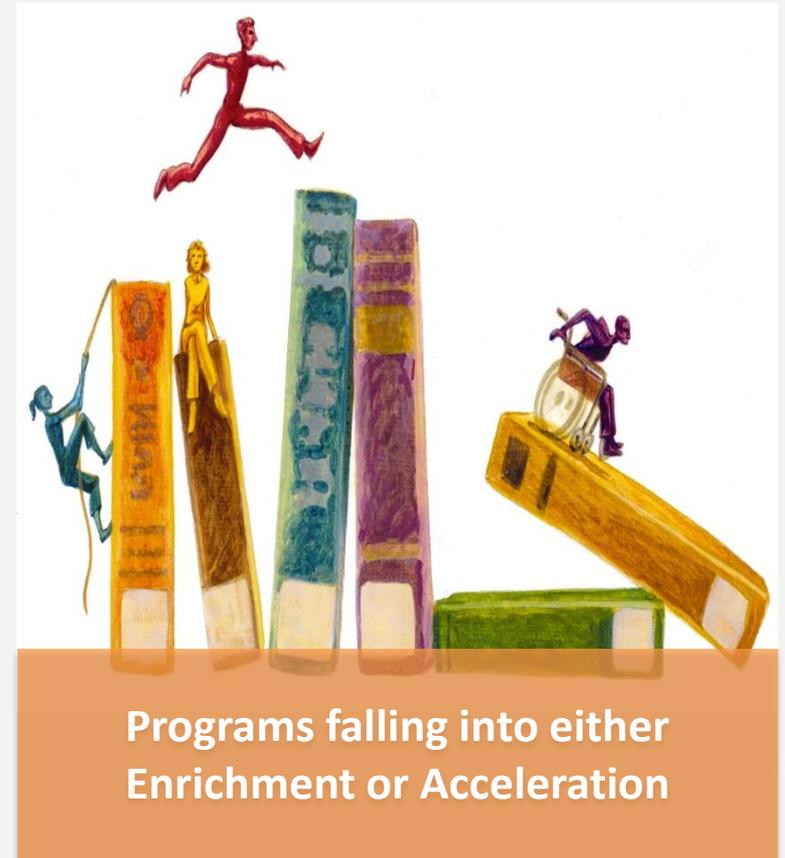


More than 90% of all universities researched had programs targeting gifted and talented high school students.

This finding evolved the research question of this project to include these programs targeting high school students in the research.

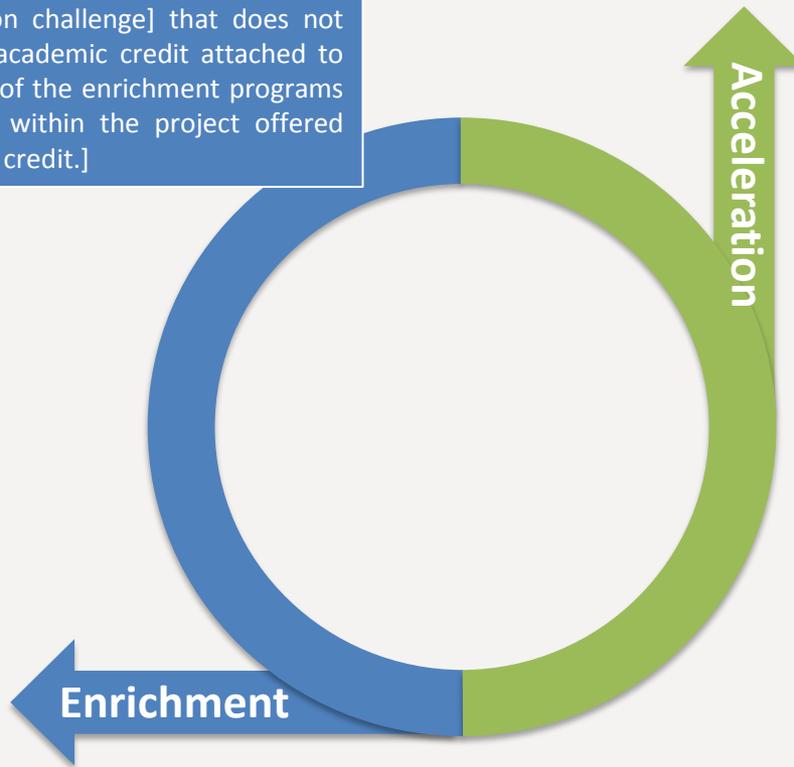
Another clear trend observed was that programs fell into either enrichment or acceleration type of programs

As such the research analyzed programs on that split basis, taking into consideration emphasis and differences that can guide research recommendations.



The Academic Difference Between Enrichment & Acceleration

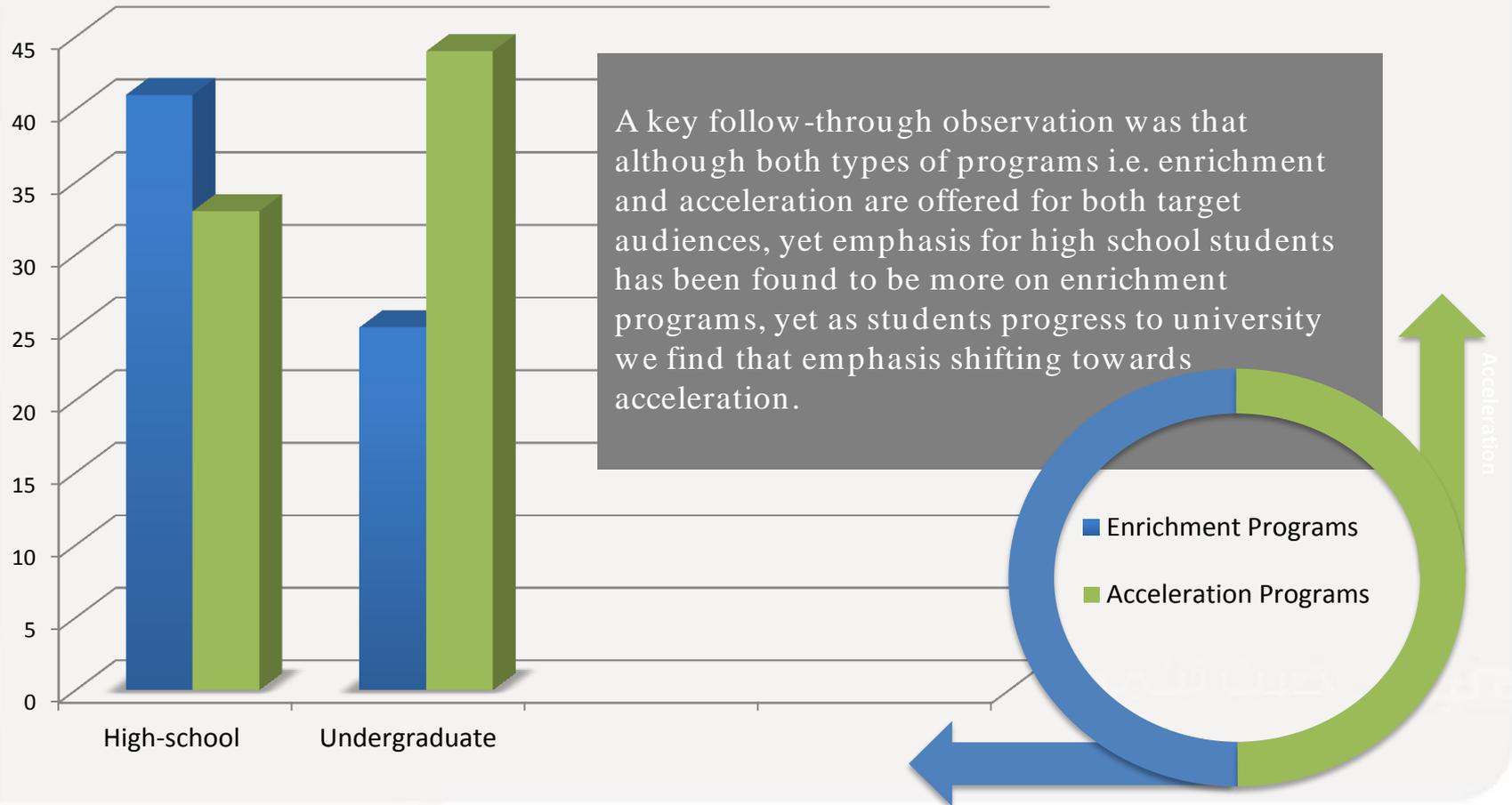
A program of stimulation [and stimulation challenge] that does not have an academic credit attached to it. [None of the enrichment programs reviewed within the project offered academic credit.]



In the educational setting, acceleration has the following meanings:

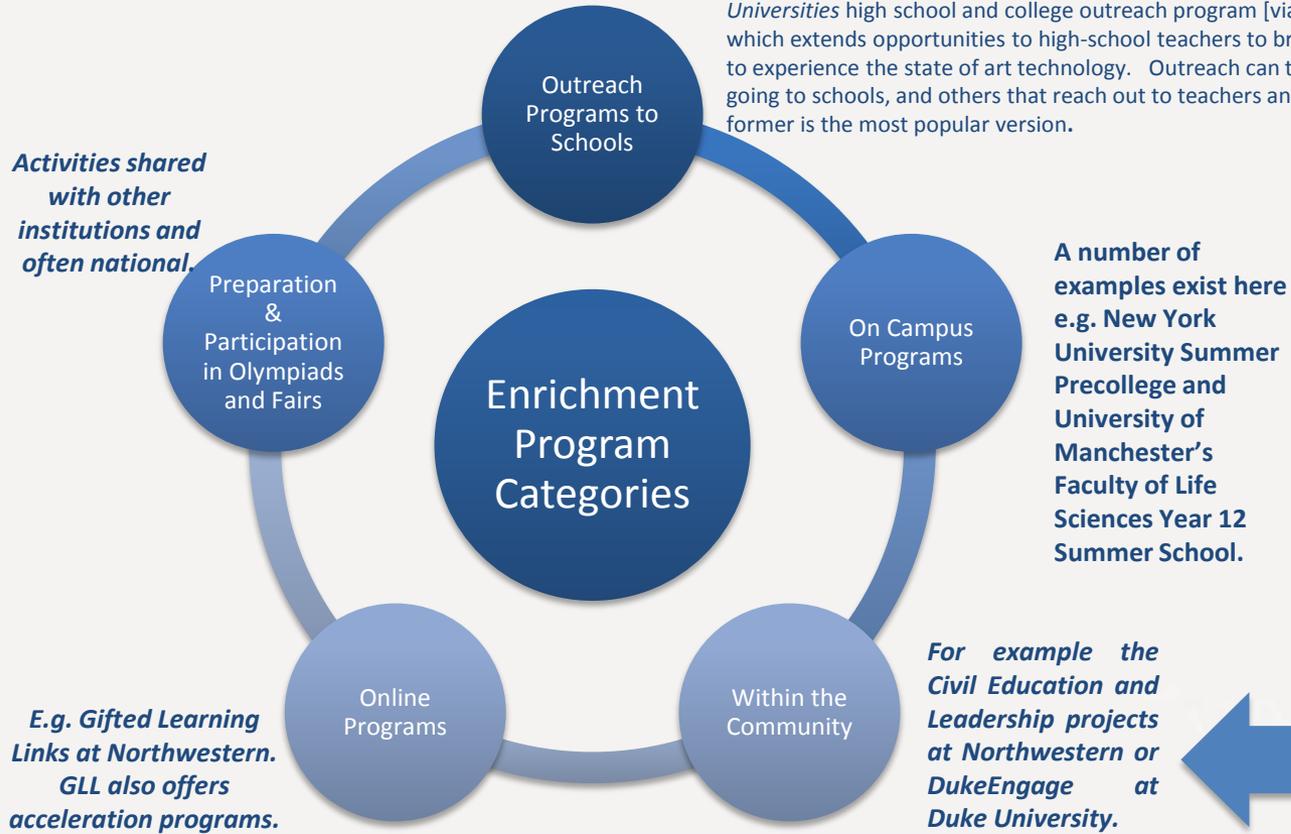
- A student progressing through a course more rapidly than his or her peers (And the time frame that the original course is designed to be completed in). For example, it may be usual that a course is completed in 4 years. A gifted student might complete the course in 3 or an exceptionally gifted student in 2.
- A student, jumping, program levels entirely. This generally applies to genius students who might move from elementary school to college or university
- Enabling a student to take more advanced courses while enrolled at a lower level. This most frequently applies to students who are enrolled in high school and who are taking individual AP (advanced placement) university undergraduate units. Most gifted students take AP courses in two or three academic fields only.

Changing program emphasis for gifted and talented high school vs. university students which stood out in the research



In the administrative sense, there are five broad categories of enrichment programs for both high-school and university students

E.g. visits and university student talent search schemes. The *National University of Singapore*, the *University of Texas* and *Columbia* are example universities with such programs. There are, however, other interpretations to the term 'outreach', for example, the *Australian National Universities* high school and college outreach program [via the *Centre for Advanced Microscopy*] which extends opportunities to high-school teachers to bring students to the university campus to experience the state of art technology. Outreach can therefore mean two things – programs going to schools, and others that reach out to teachers and students and invite them in. The former is the most popular version.

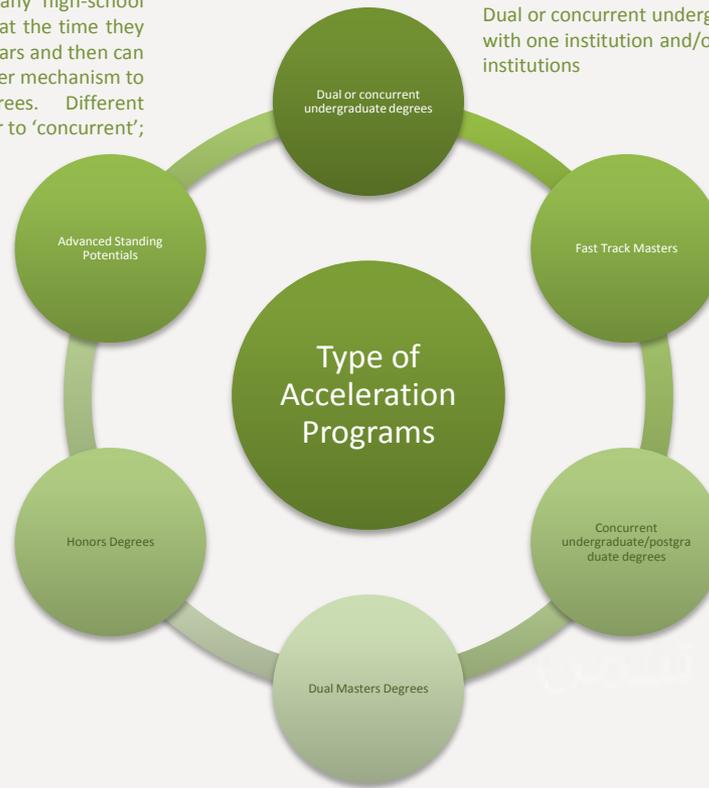


Undergraduate acceleration programs are related to flexibility in degree structure, and in some cases, working with a second university; overall six broad acceleration categories stood out

Harvard offers its undergraduates who plan to graduate in three years the option to complete the A.B./A.M.* program in four years. This is a choice made at the end of two years of study at Harvard. In this case students do not immediately apply for any high-school advanced placement credits they may have accrued at the time they enter the university. They wait until the end of two years and then can elect to activate those credits. The A.B./A.M. is another mechanism to offer concurrent undergraduate/postgraduate degrees. Different universities apply different nomenclature. Some refer to 'concurrent'; Harvard in this case, Advanced Standing.



Enable graduating students to progress onto a PhD



Dual or concurrent undergraduate degrees can be with one institution and/or dual degrees across two institutions

Used to describe rapid achievement of a program.

The student gains two degrees at the time of graduation. For example a Bachelor of Science and a Bachelor of Information Technology. Individual dual-degree programs are cross-institution (one degree gained from one university and the second from the other). Dual degree programs are not necessarily 'marketed' as programs for gifted students but high academic achievement requirements from applicants can ensure cohorts are high achievers.

A literature review was conducted to assess what the research had to say on enrichment vs. acceleration



The following excerpts highlight common arguments found in the literature on the subject

Scholarly arguments about the value and success rates of acceleration programs is relatively low. As suggested by Edgecombe (2011, p.35)
“Available evidence on the effectiveness of accelerating students through developmental education is promising, though not plentiful.”

The Australian NSW Department of Education and Training has a specific GAT (Gifted and Talented) unit. Regarding acceleration GAT opines: Acceleration is just one of the many strategies which schools may employ to respond to the needs of gifted and talented students. This document does not assume that all gifted and talented students would benefit from accelerated progression. .. Research reviews indicate that appropriate and carefully planned programs for accelerated progression are effective in improving the academic progress of gifted and talented students and in the great majority of cases do not result in social-emotional maladjustment (Christie, 1994; Kulik & Kulik, 1984; Southern & Jones, 1991). Indeed, the social-emotional dangers of holding back gifted and talented students on the basis of age have not been adequately recognised (Feldhusen, Proctor & Black, 1986).

NSW The Board of Studies Guidelines for accelerated progression (2000) provides the following Statewide indicators when considering students for accelerated progression: ...it is probable that only one in 200 (0.5%) students would be capable of acceleration in all subjects...it is probable that the most capable 5% of students could be appropriate for acceleration in one subject of special interest and expertise (p. 21).

In terms of levels of giftedness, François Gagné a key academic in the field of gifted and talented education, has the following to say on levels of giftedness: Within the top 10% of “mildly” gifted or talented persons, the DMGT [Gagné’s Differentiated Model of Giftedness and Talent] recognizes four progressively more selective subgroups. They are labeled “moderately” (top 1%), “highly” (top 1:1,000), “exceptionally” (top 1:10,00), and “extremely” (top 1:100,000). As in other fields of special education, the nature of the intervention program that a school develops for gifted or talented students should be influenced by the level of the student’s giftedness or talent as well as the domains or fields in which it is sited. (2000)

After assessing various information sources, principally scholarly articles, government education sites and subject experts, three views on acceleration became evident

Anti – Acceleration

Some argue that acceleration is a poor teaching/learning strategy because it cuts across the notion of learning being sequential and students needing drill and practice in order to acquire all skills at each learning stage, correctly.

Pro – Acceleration

The counter view asserts that individual students do not need the same rote and drill practice learning as non-gifted students do; that they can adopt knowledge and skill sets more rapidly. This of course does not imply that the student should or could accelerate across all school/academic subject. It also does not imply that certain skills learnt at level A (for example) and not repeatedly practiced even if the student moves on to Level C. Note taking and sorting facts are examples here.

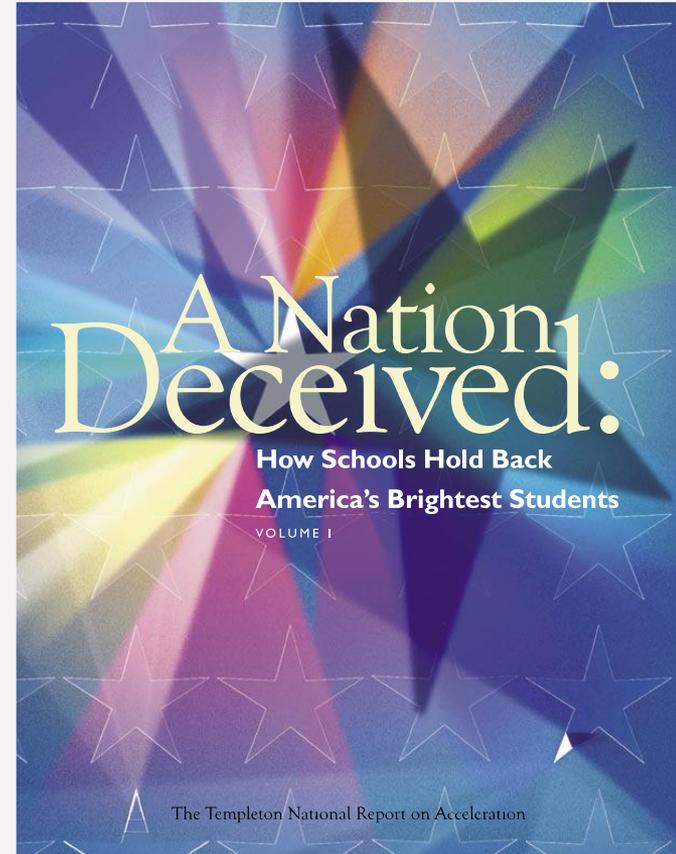
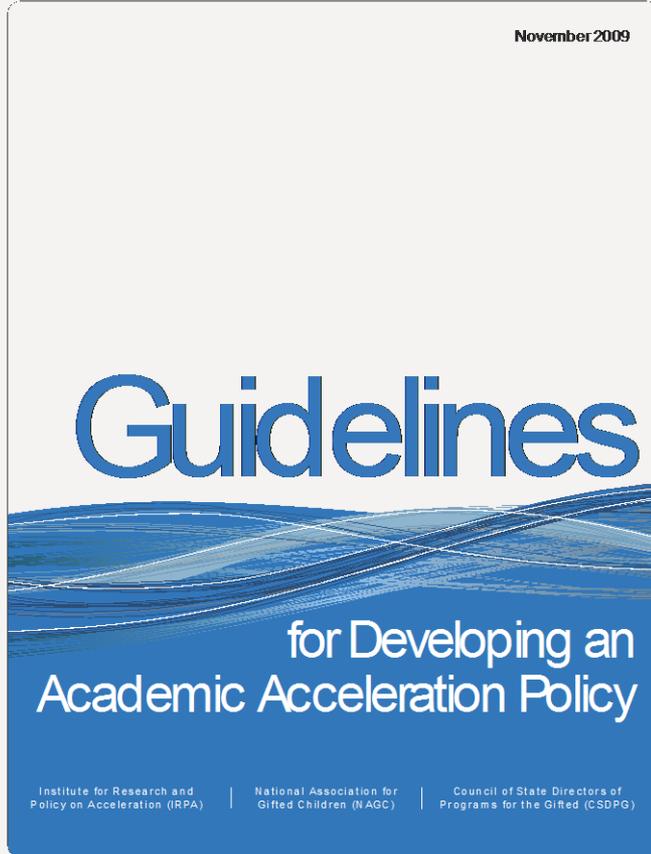
Pro - Acceleration

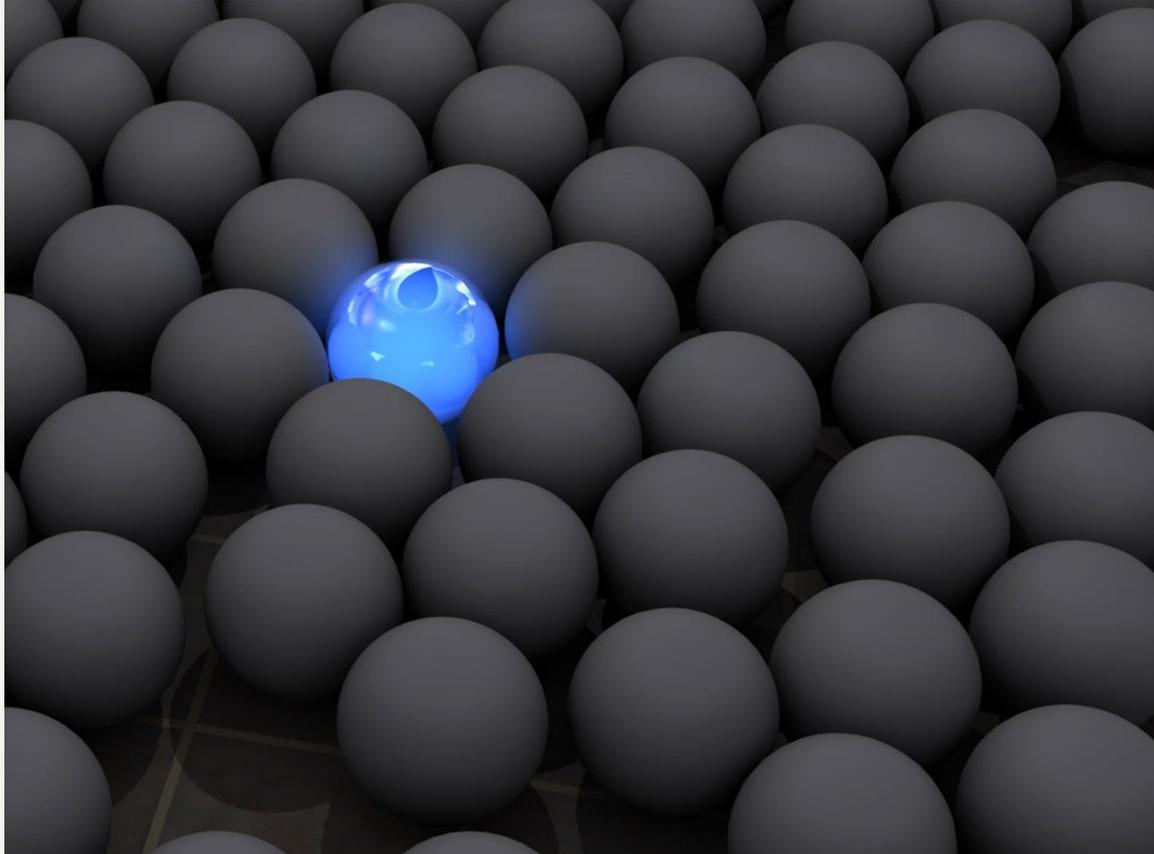
Many institutions consider acceleration as important a strategy as any other for gifted and talented students and believe selected programs should be offered accordingly. Certainly acceleration offers sustained stimulation and challenge which is vital for the well-being of exceptionally talented students.

Recommendation regarding
Enrichment and Acceleration

It is recommended that the Kingdom looks to following 50% of the universities reviewed in this project and look to offering a balance of quality enrichment programs as well as acceleration programs that serve multiple kingdom needs as well as serving the well-being of exceptional students.

Included with the report have been some useful resources on acceleration for further reference





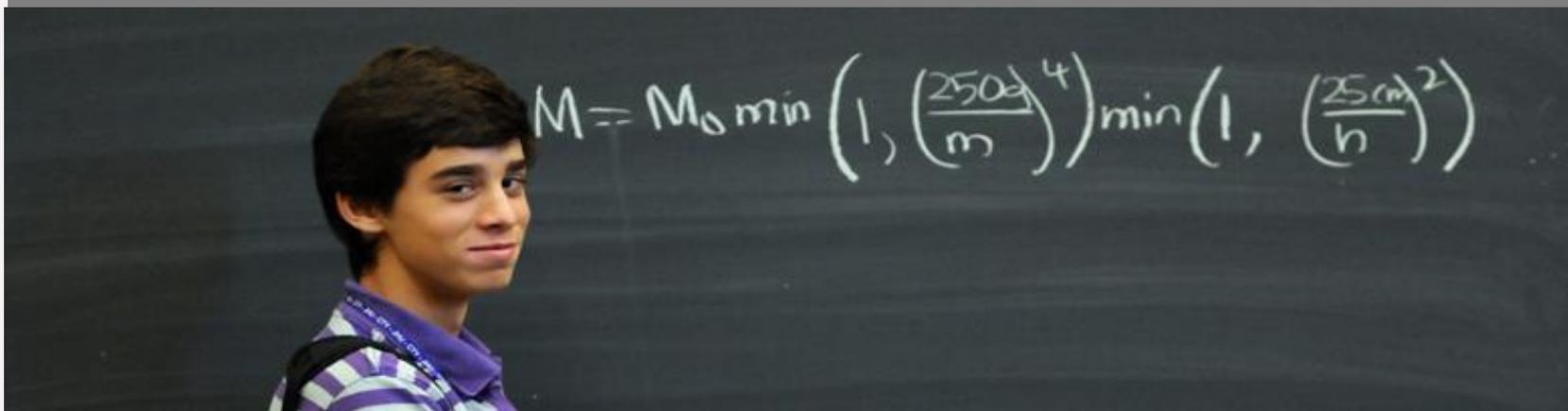
SOME OF THE MOST OUTSTANDING ENRICHMENT PROGRAMS REVIEWED

Johns Hopkins Center for Talented Youth (CTY)



CTY is the Center where young talent thrives.

A former CTY student started Facebook. Another co-founded Google.
Self-described 'CTYers' routinely compete in the ranks of top national academic competitions such as the Intel Science competition and Rhodes Scholar awards.



Johns Hopkins CTY

Gifted Education for 9 – 12 Graders

Since 1979 CTY has identified young people of great academic promise through its annual Talent Search, then nurtured their intellects and personal growth through Summer Programs, CTYOnline courses, and other services and resources.

CTY's broader mission is to be a national voice that supports and encourages academic talent and achievement; to help in locating and nurturing talent from all neighborhoods and nations; and to engage in, and communicate, meaningful research to advance the understanding of teaching the world's most capable young people.

HOW CTY WORKS

CTY is a multi-tiered program, and participation in some courses is based on qualifying score results on the college SAT, ACT, or on the School and College Abilities Test (SCAT). Students who test and receive qualifying scores can take their academics to the next level.

CTYOnline offers a number of different math, high school science, Intro to Forensics, foreign language (Arabic, Chinese, and Spanish), computer science and technology, Mastering the Fundamentals of Music, writing, grammar (From Structure to Style), visual fluency (Visual Literacy) and Advanced Placement courses to high school students with qualifying scores.

CTY also offers hundreds of courses through ITS Summer Programs for qualifying students up to 10th grade. Two special options are offered to high school juniors and seniors: The Civic Leadership Institute is in Baltimore, Maryland, and Berkeley, California; and Global Issues in the 21st Century at Princeton University.

Students who test through CTY automatically qualify for CTY's Family Academic Programs--one-day or weekend courses tailored for older high school students thinking about college and career paths.

Video on CTY: http://www.youtube.com/watch?v=Z89QyiVhRYQ&feature=player_embedded

CTY Success Story

Jack Andraka Takes Top Prize At Intel ISEF 2012

When Crownsville, MD student Jack Andraka spent his summer between third and fourth grade taking a course on "Inventions" at Johns Hopkins Center for Talented Youth, Intel's International Science and Engineering Fair (Intel ISEF) may have been the furthest thing from his mind.

But when a relative's illness turned for the worse, Jack took that early spirit of curiosity and steered it toward research on a new, earlier way to detect pancreatic cancer.

Now 15, Jack saw this inquisitiveness pay off this last week as he took top honors with the Gordon E. Moore Award and a \$75,000 prize at Intel's 2012 Intel ISEF ceremony. Using an approach similar to that of diabetic test strips, Jack created a simple dip-stick sensor to test the level of mesothelin, a pancreatic cancer biomarker, in blood or urine, to determine whether or not a patient has early-stage pancreatic cancer.

It's an amazing step forward, and definitely fits the criteria for "awesome"!

Watch success story video: http://www.youtube.com/watch?v=pmVzs3-GNBc&feature=player_embedded

More information on the CTY can be found on pg. 60 of Appendix 1

John Hopkins CTY Civic Leadership Institute

News media and popular culture surround us with stories of violence, poverty, and urban decay. Political leaders exchange ideas about education, the economy, health care, and welfare reform. But what are all of these issues really about? What is life like for someone who is homeless or on welfare? Where have these problems come from? Most importantly, what can we do about them, as individual citizens and as a society?

CTY Civic Leadership Institute students, through an introductory course in *Civic Engagement & Contemporary Social Issues*, explore the complex challenges that affect our communities today, and are introduced to tools and strategies for community development and positive social change. This innovative service-learning program integrates engaging and interactive academic work with meaningful field experiences. Several times each week, during class time, students travel to dynamic urban neighborhoods to engage in hands-on service projects with respected local community organizations.

In addition to the core curriculum, students have the opportunity to engage in focused explorations of social issues of their choosing, through a Special Topic Seminar series. Students also participate in Evening Colloquia featuring outstanding guest speakers from a variety of fields, including political theorists, business leaders, local activists, and other people who are making an impact on their communities.

Watch video: <http://www.youtube.com/watch?v=OFVQ8shiDS0>

Stanford EPGY Education Program for Gifted Youth



STANFORD UNIVERSITY
Education Program for Gifted Youth



EPGY's Mission

The Education Program for Gifted Youth is an ongoing research project at Stanford University dedicated to developing computer-based multimedia courses in Mathematics, Physics, English, Computer Programming and other subjects, and making these available to students of high ability.

EPGY endeavors to

- Provide students with advanced courses regardless of where they live.
- Do so without requiring them to leave their normal school environment.
- Individualize instruction and accommodate individual differences in student learning.
- Allow students to progress at their own paces and to accelerate their education.

epgy.stanford.edu

Stanford EPGY Education Program for Gifted Youth

The Education Program for Gifted Youth grows out of more than 35 years of research at Stanford University in both gifted education and computer-based distance learning. In 1963, EPGY's predecessor, the Institute for Mathematical Studies in the Social Sciences (IMSSS), began experimenting with the use of computers to present instruction in mathematics and logic to elementary school students. In 1968 work was begun on university-level computer-based courses in Logic and Set Theory. These courses were offered to students at Stanford each quarter from 1972 through 1992.

In 2001, EPGY enrollment exceeded 3,000 students for the first time. The year 2001 also marked the first time that EPGY offered a residential summer program. In 2002, thanks to a generous gift from the John Malone Family Foundation, EPGY began to work with Title I schools to establish programs for gifted students from low socioeconomic status backgrounds.

The EPGY Summer Institutes

During the Summer 2001, from July 7 to July 21, EPGY held its first residential summer program on the Stanford Campus. The Summer Institute in Mathematics and Physics (SIMP) provided students with an opportunity for intensive study in mathematics or physics. Forty students participated in this first program.

In 2005, the EPGY Summer Institutes have further expanded the range of subjects being offered to include courses in Geology and Engineering. Additionally a five-week, extended session has been added to allow students to pursue accelerated, independent study in core concept areas.

Stanford Summer Humanities Institute

STANFORD SUMMER HUMANITIES INSTITUTE

Led by Stanford professors, the Summer Humanities Institute lets rising high school juniors and seniors **explore the big questions at the heart of the humanities**: how and when can ideas transform society? When is the use of force legitimate? How can we define the limits of individual rights?

Students will spend three weeks on the beautiful Stanford campus, living in residence. They will spend the first two weeks intensively studying and researching a topic in history or philosophy, attending daily lectures by the faculty members, and participating in group discussions and activities in the afternoon. There will also be downtime for extra-curricular fun, as well as supervised off-campus excursions to places of cultural and natural interest around the Bay Area.

During their third week, students will work closely with their professors, graduate students, and writing mentors to produce original research projects. These papers present an opportunity for students to use what they have learned at Stanford to develop their own answers to the central questions that are addressed by the humanities. Students will be introduced to research methods, as well as to library and online resources. And they'll have something very impressive to show for it!

University of California

UC Leads

The University of California's Leadership Excellence through Advanced Degrees (UC LEADS) program prepares promising students for advanced education in science, technology, mathematics and engineering (STEM). The program is designed to identify upper-division undergraduate students with the potential to succeed in these disciplines, but who have experienced situations or conditions that have adversely impacted their advancement in their field of study.

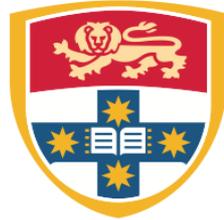
ucop.edu



Once chosen as UC LEADS scholars, the students embark upon a two-year program of scientific research and graduate school preparation guided by individual Faculty Mentors. Scholars are provided with an excellent opportunity to explore their discipline, experience a research environment, and improve their opportunities for future study in their chosen field. The scholar gains valuable educational experience, the University a better prepared and more diverse graduate applicant pool, and the state, well-educated future leaders. Each scholar is mentored by a member of the UC faculty, who assists the student in designing a plan of research and enrichment activities fitted to the individual interests and academic goals of the scholar. This action plan includes:

- Academic year research
- Paid summer research experience
- Participation in the system wide UC LEADS Symposium
- Attendance at professional or scientific society meetings
- Travel to other UC campuses
- Academic enrichment activities, including preparation for the Graduate Record Examination (GRE)

University of Sydney Talented Student Program (TSP)



THE UNIVERSITY OF
SYDNEY

The Talented Student Program is a special program of study intended for Science students of exceptional merit. It enables select students to undertake activity and research in science units or combinations of science units not available in normal enrolments.

sydney.edu.au

The program provides challenging material to exceptional science students to enable them to maximize their intellectual potential and growth. In general the TSP caters to students whose talent is broadly based across more than one science discipline. The major benefit of participation in the Talented Student Program is the opportunity for students to receive individual supervision from academic staff and to study within small cohorts of students with a shared interest and ability in a subject. The program allows a wider and more flexible choice of options for study than those normally permitted to students. It provides each participant with an academic staff member as a mentor to assist in choosing from this large range of academic options.

Watch video: http://www.youtube.com/watch?v=V4naeswRllw&feature=player_embedded&hd=1

University of Sydney TSP Program Customization

As an individually customized program, the TSP will generally be different for each student.

Acceleration

Students might elect to study a broader range of fields than usual and study more than the normal load of 24 credit points per semester. Studying more than the usual load might enable them to complete their Honors degree in less than 4 years full-time. Another pattern of acceleration permits students who have already learnt most of the topics covered in particular first-year units in a discipline (for example, through Olympiad participation) to proceed directly to second year study in that field and possibly related fields.

[Watch video: As an individually customised program, the TSP will generally be different for each student.](#)

More information on the Sydney University TSP program can be found on pg. 241 of Appendix 1

Tsinghua University 1000 Talents Program



清華大學

Tsinghua University is a comprehensive university strong in science and engineering among many other disciplines. It is recognized as one of the important bases for national education, research and development. The mission is to provide advanced education, produce high-level academic achievement and promote China's economic and social development. The motto is "Self-discipline and Social Commitment". With a large number of elites in science and technology graduated from Tsinghua University, it has contributed to China's social modernization and development of science and education since it was founded in 1911.

In December, 2008, the General Office of the Central Committee of the Chinese Communist Party made a decision to have high-level talents from overseas come to work in China. They proposed the "1000-talent Plan". Tsinghua University has benefited from the Plan, with introduction of top scientists, promotion of academic research and education.

Tsinghua University 1000 Talents Program

Building the university's scholar capacity at a teaching level

Eligibility for the "1000-talents Plan"

This plan mainly aims at recruiting two types of people, one type for the long-term research and the other for short-term.

For those applying for the long-term positions, they should be under 55, and with world-class research capabilities. Within the past five years, they should have published important academic articles in core journals in the international academic circles, or have been awarded with distinguished technology awards, or be in good mastery of important experiment skills and key technology. The applicants for long-term positions should either have worked as professors or in equivalent positions in famous international universities or research institutes, or have served in managerial positions as professional and technical personnel in internationally famous companies. They should be in possession of independent intellectual property rights or key technologies, and have independent overseas business experience. They should be familiar with the international industrial rules in relevant circles. Preferably they should be creative talents or business personnel that are most urgently needed in China.

There is a special program under the "1000-talents Plan" for young researchers. They should be under 40 and have obtained a doctorate degree in world-famous universities, and have no less than three years of overseas working experience. The applicants for this program should have worked in official positions in famous international universities or research institutes, or in official positions in world-famous enterprises. On entering this program, they should be full-time researcher in China. The applicants should be the top-notch talents in their research fields, and have the potential to become future leaders in relevant areas. Special admissions are granted to those who have made distinguished research achievements in their doctorate studies or in other areas.

Tsinghua University 100 Talents Program

Building the university's world class teaching & research faculty

100 Top Talents Program

To build Tsinghua into a comprehensive, open, research-oriented world-class university in the 21st century, a world-class teaching and research faculty is needed. Key disciplinary areas are given priority in making the relevant academic disciplines be ranked among the top programs in the world. To serve these strategic purposes, Tsinghua has decided to implement the “100 Top Talents Program”. The program is designed to introduce the best middle-aged and young researchers from both home and abroad, who will be the leaders in the relevant academic fields.

The program will be carried out on the basis of “open recruitment, fair competition, admission of the best, and continuous evaluation”. At the same time, the employed talents will be provided with the best working and living conditions, including the initiating funds, job subsidies and housing.

More information on Tsinghua University Talent Program can be found on pg. 221 of Appendix 1

Ludwig-Maximilians-Universität München (LMU) International Summer Research Program



LUDWIG-
MAXIMILIANS-
UNIVERSITÄT
MÜNCHEN

FROM MOLECULES TO SYSTEMS
**GRADUATE SCHOOL
LIFE SCIENCE MUNICH (LSM)**



The Graduate School Life Science Munich (LSM) is inviting outstanding bachelor (at least 7th semester) or master students with a strong background in natural sciences to join us for eight weeks of compelling and demanding research. Participants are expected to be deeply interested in working in the lab and in being a contributing part of a research group. Willingness to work and extensive efforts will be requested from the students. LMU provides scholarships for the program.

During the program all participants will have the opportunity to get in close contact with LSM graduate students, to get insights in current PhD projects and to get an impression of the challenging LSM graduate program. At the end of their stay all participants will present the results of their work explaining their research project within the Summer School.



Ludwig-Maximilians-Universität München (LSM) International Summer Research Program

Participants in the program collaborate with other international students to

- work on fascinating and demanding topics in Biology, Biochemistry or Chemistry
- operate state of the art scientific equipment
- sharpen their scientific and technical skills
- develop their presentation and scientific writing abilities
- get to know Munich and its environment

Research projects had been offered in the following fields:

Genetics, Plant Sciences, Microbiology, Evolutionary Biology, Cell Biology, Systematic Zoology, Systematic Botany, Pharmacology

Kyoto University

Hakubi Project to Foster & Support Young Researchers



Research activities at universities are driven by researcher's unlimited inspiration, intellectual curiosity and enthusiasm in quest of truth. Promoting research activities therefore entails the development of human resources with extraordinary creativity, originality and challenging spirit, in a wide variety of academic fields.

hakubi.kyoto-u.ac.jp

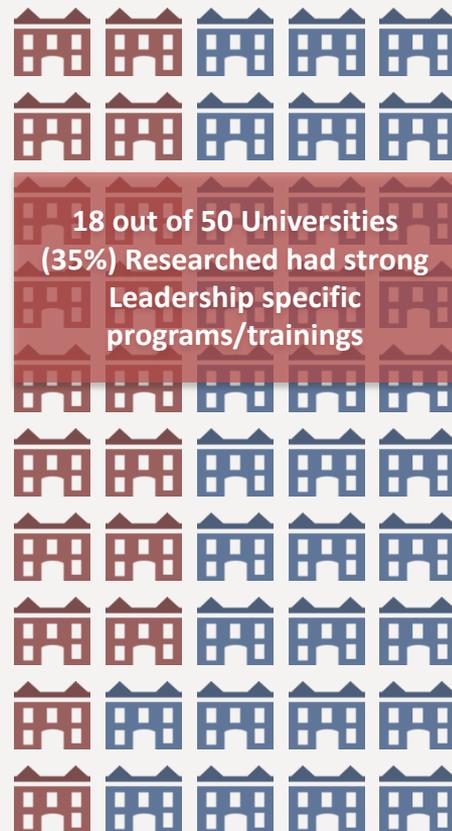
Fostering such human resources has been recognized as essential for Kyoto University. In response to the progress of globalization, it is particularly important to foster human resources with superb creativity, as well as broad perspectives and flexible mindset, all of which are important to be able to pioneer new academic frontiers.

With this view in mind, Kyoto University launched the Hakubi Project to Foster and Support Young Researchers, in addition to augmenting efforts in various existing initiatives taken by individual faculties/ schools. In the Hakubi Project to Foster and Support Young Researchers, the university appoints promising young researchers as program-specific faculty members (associate professor/ assistant with an annual salary) and support their research activities on themes of their own choice.



LEADERSHIP AND MENTORSHIP PROGRAMS COVERED IN THE RESEARCH

Concentration of University Offered Leadership and Mentorship Programs Covered in the Research



Trinity College Young Leaders Winter School



TRINITY COLLEGE
THE UNIVERSITY OF MELBOURNE

The Young Leaders Winter/ Summer School offers a selection of exciting one/ two week programs. Australian and International High school students can attend one week – or combine two programs to create a fantastic two-week experience featuring academic, leadership and extracurricular activities.



trinity.unimelb.edu.au

Young Leaders Winter School Social Justice Week Timetable

University of Michigan

Engineering Global Leadership Honors Program



The Engineering Global Leadership (EGL) specialization is a unique opportunity for students interested in integrating engineering into a global business environment. EGL students continue at U-M beyond the College of Engineering Honors Program to earn a Masters in an engineering discipline.

EGL prepares students to communicate across engineering and business boundaries, thereby breaking down the barriers to global competitiveness. The focus on Global Operations/ Business enhances students' understanding of operations and the corporate environment, including the basics of marketing, accounting, strategy and finance.

The program includes an International Minor for Engineers that exposes students to the language, history and customs of another part of the world. Emphasis is placed on the idea that integration of these disciplines is vital to success in today's global business environment.

University of British Columbia Centre for CEO Leadership



A unique forum for Canada's top business leaders.

The Centre for CEO Leadership is a medium for true peer-to-peer leadership education and knowledge transfer between and among the region's top executives and foremost scholars. The Centre's membership model enables participating CEOs to engage in regular roundtables and develop close peer relationships.

As the only Canadian university center dedicated to supporting the senior most leadership in corporate Canada, it plays an integral role in developing and supporting the current and next generations of business leaders. Offering facilitated peer-to-peer learning and support amongst its member CEOs, the Centre provides access to thought leaders and cutting edge research, leveraging the resources of a world class business school and university.

sauder.ubc.ca

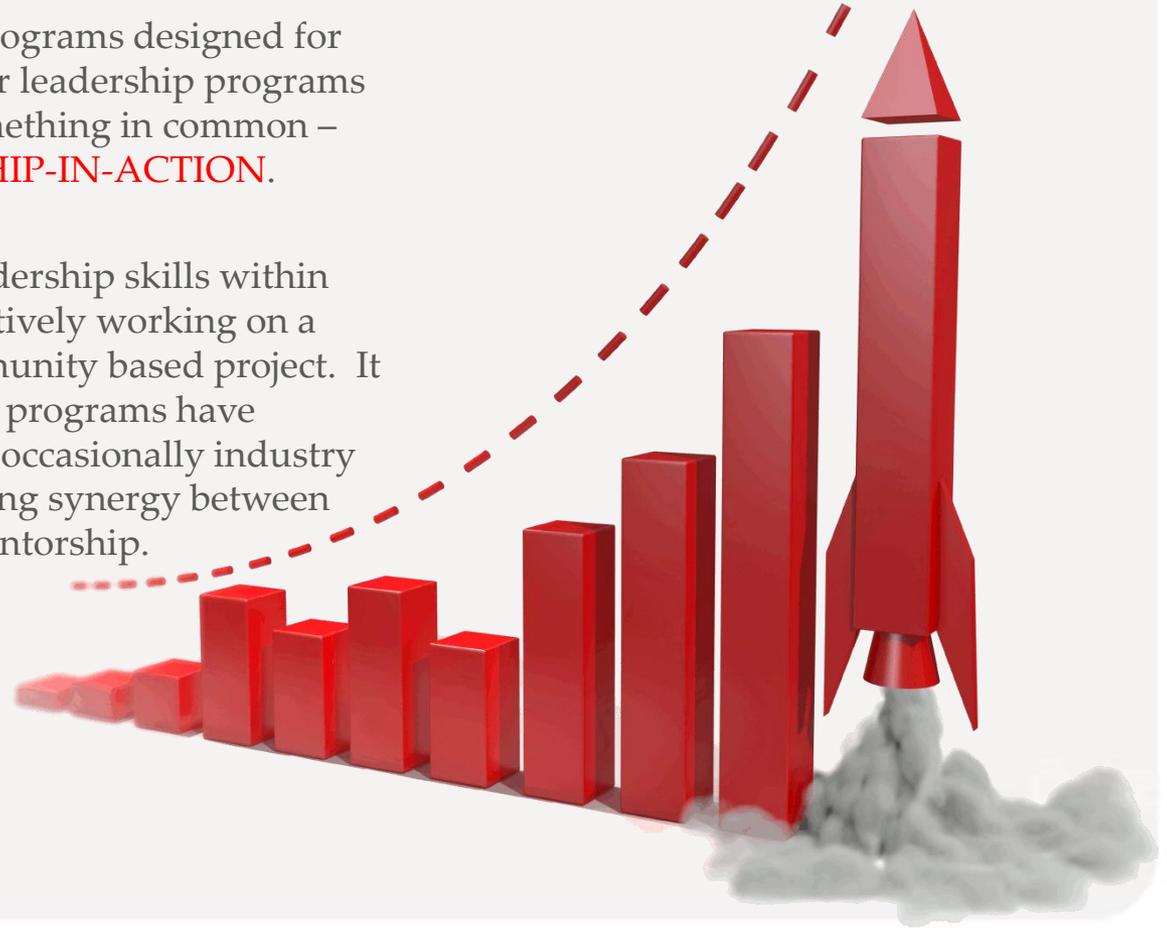
High-profile CEOs, with compelling stories based on hard-earned and proven experience, contribute significantly to the event calendar. The key differentiator between the Centre and other CEO professional development organizations is its access to the world's top management scholars and experts, and to the most current leadership research in business.

The Centre is dedicated to supporting senior leadership, promoting its continued research, and enabling the transfer of knowledge between business leaders and their organizations. The Centre was established following extensive research, where CEOs specified the priorities and themes most important to them. CEO feedback indicated that a membership approach would encourage the creation of strong and trusting relationships within the group, essential to effective knowledge exchange.

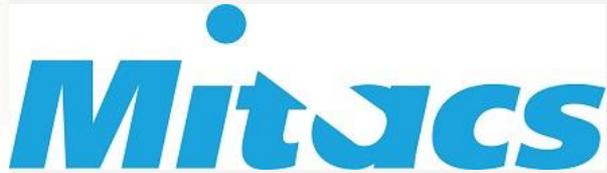
Shared Characteristics Across Reviewed University Leadership Programs

With the exception of the two programs designed for career professionals, all the other leadership programs reviewed in this project had something in common – they all emphasized **LEADERSHIP-IN-ACTION**.

The vast majority addressed leadership skills within the framework of the student actively working on a research, academic and/or community based project. It was noted that students in these programs have regular access to academics and occasionally industry professionals; this enables a strong synergy between leadership development and mentorship.



University of British Columbia MITACS Enterprise Program



Mitacs Enterprise is a competitive 6-month internship and business mentorship program that gives graduates of science, technology, engineering and math (STEM) disciplines an opportunity to work with small to medium-sized companies (SME) operating in a STEM sector throughout Southern Ontario.

mitacs.ca

The focus is to match high-potential participants to small and medium-sized companies (SME) and provide interns with 3 days of business and management training, a peer support network and progress monitoring to encourage skill and knowledge transfer to the SME.

The interns receive experience working with a company that can benefit from their technical and business management training.

The SMEs get access to a highly-talented and trained workforce who can help them meet the demands of their business environment immediately and in the years to come. SMEs will not only find that they have qualified, motivated interns who are eager to make a difference, it will also provide an excellent opportunity to evaluate future potential talent for their business.

University of Tokyo Research Internship Program (UTRIP)

This program was launched by the Graduate School of Science (GSS) of the University of Tokyo (one of the world's leading research-education universities) as part of its campaign begun in June 2010 for promoting the internationalization of the GSS by inviting talented young students from abroad. UTRIP is an intensive summer research program targeted at undergraduates who have a keen interest in pursuing an M.S. or Ph.D. degree in the future.

s.u-tokyo.ac.jp



During the program, participants receive intensive instruction and guidance on conducting research from renowned faculty members belonging to the GSS's six departments of physics, astronomy, chemistry, earth & planetary science, biophysics & biochemistry, and biological sciences.

The program is open to students who are currently enrolled in their junior or senior years at an accredited college or university outside of Japan, and who are majoring in a natural science or related field. Students participating in the program who are highly evaluated by the faculty members will be given priority for receiving scholarships when applying for admission to the GSS the following year. The program also includes an excursion outside of Tokyo as well as a short course on the Japanese language and culture.

UTRIP is a gateway to pursuing an advance degree and experiencing academic life at Today. Take this opportunity to get a head-start for challenging the rigors of graduate study in the natural sciences.

California Institute of Technology

Caltech's MURF Undergraduate Research Fellowship



Caltech

Caltech's MURF program provides support for talented undergraduates to spend a summer working in a research laboratory at Caltech or the Jet Propulsion Laboratory. The MURF program aims to increase the participation of underrepresented students (such as African American, Hispanic, and Native American, females who are underrepresented in their discipline, and first-generation college students) in science and engineering Ph.D. or M.D./ Ph.D. programs and to make Caltech's programs more visible to students not traditionally exposed to Caltech. The program supports Caltech's commitment to training a diverse set of science, technology, engineering, and math leaders.

Applications are encouraged from students who wish to work in a modern academic research laboratory under the guidance of experienced scientists and engineers. The program will expose students to the excitement and opportunities of a research career. This experience provides excellent preparation for students interested in subsequently pursuing a Ph.D.

A detailed Mentor's role description is provided on [the program's website](#).



University of Michigan Studio: Detroit-HS

Studio:DETROIT-HS is an integrated architectural exploration education program designed for highly motivated high school students who have been traditionally under-represented in the field of architecture.



It is a unique opportunity for interested Detroit area high school juniors and seniors to learn about and explore the possibilities of a career as an architect as well as be matched early in their exploration to mentors in the field.

The curriculum takes a practical, hands-on approach to the study of architecture through the integration of studio work, educational field trips, seminars and lectures.

The core elements are a design studio, professional, academic and architectural tours and the establishment of a mentor program.

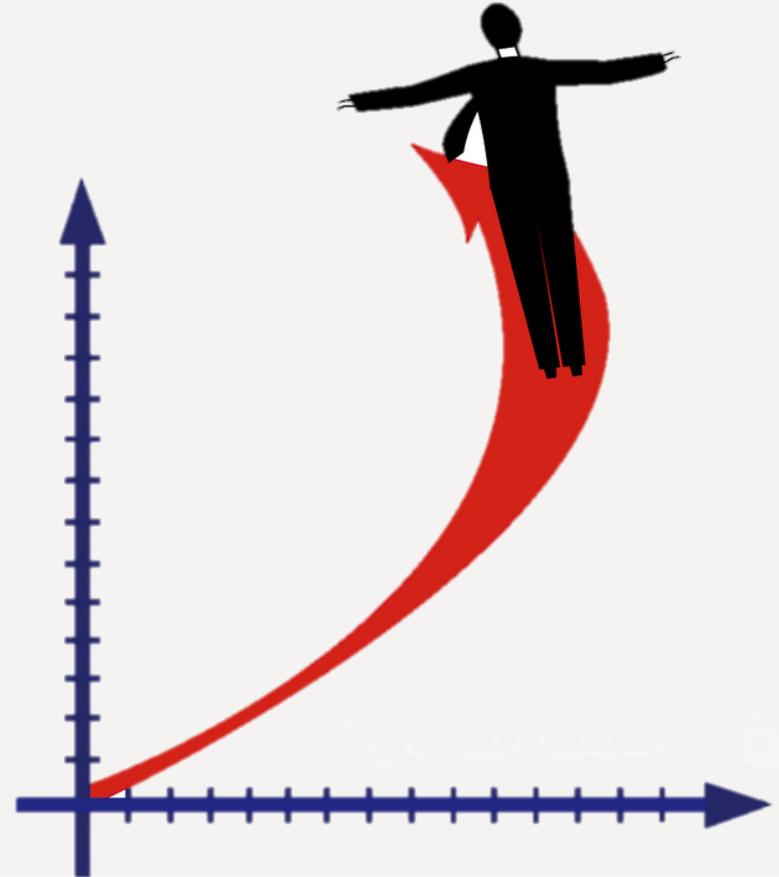
The University helped graduates of the program, secure architectural internships at the Detroit architectural firms of Hamilton-Anderson and Haygood Architects.

Shared Characteristics Across Reviewed University Mentorship Programs

Mentorship involves assisting, supporting and guiding a student through a research and/or workplace project over a specified period of time.

The programs highlighted in the report provided students with regular access to their mentors across that time period. As mentioned previously, there was a strong synergy between mentorship, project or research work, and leadership development (within the student).

There were mentions in the data of programs for undergraduate students to mentor younger students in civic or learning based activities.



Overview of Programs

Assessment/Admission Criteria Applied

Overview of Assessment Criteria Utilized by Top Universities for Enrolment into Enrichment and/or Acceleration Programs

Target Audience	Enrichment Program	Acceleration Program
High School	<ul style="list-style-type: none"> • From under-represented group (for some programs) • Letters of recommendation or referees • Academic record/ test scores • School requests visit or access to program for whole class 	<ul style="list-style-type: none"> • Letters of recommendation or referees • Academic record/ test scores • Entrance examination • From under-represented group related to an industry
Undergraduate	<ul style="list-style-type: none"> • From under-represented group • Letters of recommendation • Essays or short answer style questions • Academic record 	<ul style="list-style-type: none"> • Entrance examinations/ tests • History of high academic achievement and results • Ability to utilize certain international examination results



RECOMMENDATIONS

Basis for Recommendations

The following pages put fourth recommendations around an overarching and well structured plan for establishing a robust and effective platform through which to launch higher education gifted and talented programs across the Kingdom's universities.

Having such a platform in place will be critical to yield the right support, provide the needed qualifications, help form the right and needed programs for the right audiences, and minimize chances of trials and errors, and through that maximize the chances of sustainable impact, end user buy in, and long term success.

Included also have been some early days recommendations around specific enrichment/acceleration programs that could potentially be rolled out once the platform has been established. These however, would at this early stage in the development cycle, reflect more of 'opinions' and 'assumptions', as they would still need to be tested, verified and validated for suitability. Suggestions therefore are for these to be further assessed and developed through a specialized gifted programs development unit in collaboration with all of Mawhiba, higher education students and faculty at the different universities, and be underpinned by a gifted students higher education policy. Such would not only yield the right and needed programs but increase chances of these being accepted and embraced given they have been jointly developed with end users, as is being proposed in the following pages.

Context for Recommendations

In drawing up the recommendations – outlined on the pages to follow – the project team:

- considered administrative ramifications of each and outlined actions *Mawhiba* and the MOHE would need to take if electing to adopt the recommendation
- acknowledged the importance of *Mawhiba* as the key organization for gifted and talented education
- ensured that national goals regarding the building of leadership and mentorship programs are served
- aimed to offer *Mawhiba* international standard best practice and quality program proposals
- provided for religious, moral and ethical educational considerations

The Recommendations Framework



Governance & Structure

1. Governance & Structure

1.1 HIGHER EDUCATION COMMITTEE

1.2 HIGHER EDUCATION GIFTEDNESS POLICY

1.3 UNIVERSITY GIFTEDNESS POLICY

1.4 MOHE GIFTEDNESS UNIT

2. Programs Design & Development

2.1 IDENTIFYING GIFTED STUDENTS

2.2 EDUCATING GIFTED STUDENTS

2.3 PROGRAMS FOR GIFTED HIGH SCHOOL STUDENTS

3. Faculty Development

3.1 FACULTY EDUCATION AND PROFESSIONAL DEVELOPMENT

4. Ongoing Support

4.1 SUPPORTING FACULTY AND UNIVERSITY

4.2 SUPPORTING GIFTED STUDENTS

Governance & Structure

Forming a Higher Education Committee

1.1 HIGHER EDUCATION COMMITTEE

Recommendation 1.1.1: Forming a Higher Education Committee

The first recommendation revolves around the need to establish a higher education committee in charge of facilitating and driving the roll out of talented and gifted programs across the Kingdom's higher education institutions i.e. the roll out of the recommendations in this report.

The Higher Education Committee Structure:

The Higher Education Committee would comprise:

1. Sponsor
2. Selected Mawhiba Trustees
3. The Proctor/Head of each public university or their nominee
4. Few Gifted Higher Education Students
5. A small number (perhaps two) of external trusted advisors/subject experts

Governance & Structure

Developing a Higher Education Giftedness Policy

1.2 HIGHER EDUCATION GIFTEDNESS POLICY

Recommendation 1.2.1: Drafting and Implementing the Kingdom's Higher Education Policy on the Education of Gifted and Talented Students

The MOHE in consultation with all of Mawhiba, higher education students, faculty, and other relevant stakeholders in the Kingdom, develop and implement a policy on the education of gifted and talented undergraduate students. This policy should be founded on the principle that gifted education must be available in every university across the Kingdom and should:

- provide definitions of giftedness and talent
- emphasize the importance of regular review and evaluation of gifted programs and provision
- stipulate that universities have a responsibility to identify their gifted higher education students
- require universities to provide appropriate educational provisions for any student identified as gifted
- emphasize the importance of providing personalized learning for gifted students in all universities
- emphasize the importance of links between faculty and universities
- emphasize the importance of faculty professional learning
- emphasize the importance of addressing the social and emotional needs of gifted undergraduate students
- emphasize the importance of universities celebrating high achievement in all domains.

Such policy to be reviewed by the committee at least every five years.

Governance & Structure

Developing a University Giftedness Policy

1.3 UNIVERSITY GIFTEDNESS POLICY

Recommendation 1.3.1: Encouraging University Policies on the Education of Gifted and Talented Higher Education Students

Encourage all Kingdom-based universities to develop and implement university policies on the education of gifted and talented higher education students.

Recommendation 1.3.2: Model University Policy on the Education of Gifted and Talented Higher Education Students

The MOHE, in consultation with all of Mawhiba, higher education students, faculty and other relevant stakeholders in the Kingdom, develop a model university policy on the education of gifted and talented higher education students.

Governance & Structure

Establishing MOHE Giftedness Unit

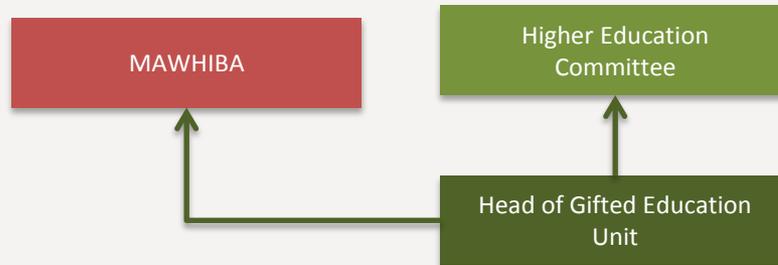
1.4 MOHE GIFTEDNESS UNIT

Recommendation 1.4.1: Establishment of Gifted Higher Education Unit within the MOHE

A designated unit within the MOHE should be established with a clear responsibility for coordinating policy and research, as well as providing information and support on gifted higher education. The functions of the unit would include:

- leading the development of a new policy on the education of gifted and talented higher education students and subsequently reviewing the policy on a regular basis (see recommendation 1.2.1)
- leading the development of a model university policy on the education of gifted and talented higher education students and supporting universities to implement university-level gifted education policies (see recommendation 1.3.2)
- commissioning, coordinating and promoting research and evaluation in relation to gifted education in higher education institution and disseminating research results
- providing information and resources on giftedness and identifying and educating gifted higher education students
- leading the development of guidelines on acceleration and early entry university programs
- leading the development of new approaches to catering for gifted higher education students, including a virtual university and mentoring program
- supporting universities to establish links with community, business and industry partners
- supporting increased links between universities, faculty and gifted higher education students
- providing, promoting and supporting increased learning opportunities on gifted education for faculty and educators

Illustrative MOHE Giftedness Unit Structure



Policy Development	Gifted Students Identification	Programs Design & Development	Leadership & Mentorship Programs	Secondary Schools Programs	Faculty Development
Higher Education Giftedness Policy	Identification Guidelines & Toolkit	Acceleration Guidelines & Programs	Leadership Programs	Early Entry	Professional Development & Training
Universities Giftedness Policy	Identification Support	Enrichment Programs	Mentorship Programs	Outreach Programs	Education, Scholarships and Placements

Partnership & Links	Online Developments	Faculty & Universities Support	Gifted Students Support	Research & Development
Links with other Universities	Online University	Coordinators & Advisors	Information, Connections & Support	Measuring Impact
Community, Industry and Business Links	Online Promotion of Programs	Information, Research and Resources	Educational Campaigns	Promoting Research in the Field

Programs Design & Development



Programs Design & Development

Identifying Gifted Students

2.1 IDENTIFYING GIFTED STUDENTS

Recommendation 2.1.1: Identification Toolkit for Universities and Professors

Develop a toolkit, including checklists and other information, to assist universities and professors/faculty to identify giftedness.

Recommendation 2.1.2: Universities' Responsibility to Identify Gifted Higher Education Students

Through the higher education policy and the model university policy on the education of gifted and talented higher education students, stipulate that universities have a responsibility to identify their gifted higher education students.

Recommendation 2.1.3: Universities Responsibility to Provide for Gifted Higher Education Students

Through the higher education policy and the model university policy on the education of gifted and talented undergraduate students, require universities to provide appropriate educational provisions for any higher education student identified as gifted.

Programs Design & Development

Educating Gifted Students

2.2 EDUCATING GIFTED STUDENTS

Recommendation 2.2.1: Policy Support for Personalized Learning

Through the higher education policy and the model university policy on the education of gifted and talented higher education students, emphasize the importance of providing personalized learning for gifted higher education students in all Kingdom-based higher education institutions.

Recommendation 2.2.2: Information for Faculty and Universities about Strategies for Educating Higher Education Students

That the MOHE provides information and support for faculty and universities about strategies for educating gifted higher education students, including:

- individual learning plans
- curriculum differentiation
- acceleration
- ability grouping, including vertical timetabling
- enrichment and enhancement

Recommendation 2.2.3: Guidelines for Acceleration

The MOHE to develop and promote guidelines for gifted higher education students acceleration.

Recommendation 2.2.4: Virtual University for Gifted Higher Education Students

MOHE to utilize technology to establish a virtual university to provide extended learning opportunities for gifted higher education students throughout the Kingdom.

Programs Design & Development

Cont....Educating Gifted Students

CONT...2.2 EDUCATING GIFTED STUDENTS

Recommendation 2.2.5: Policy Support for Links between Kingdom based Universities

Through the higher education policy and the model university policy on the education of gifted and talented higher education students, emphasize the importance of universities within the Kingdom forming links with each other to enhance provision for gifted higher education students.

Recommendation 2.2.6: Policy Support for Links between Kingdom based Universities and International Universities

Through the higher education policy and the model university policy on the education of gifted and talented higher education students, emphasize the importance of universities within the Kingdom forming links with international universities to enhance provision for gifted higher education students.

Recommendation 2.2.7: Mentoring Program for Gifted Higher Education Students

The MOHE, in consultation with all of Mawhiba, higher education students, faculty, universities, community, business and industry, establish a mentoring program for gifted higher education students.

Recommendation 2.2.8: Increased Collaboration with Community, Business and Industry

That the MOHE facilitate links between universities and community, business and industry to provide opportunities for gifted higher education students.

Recommendation 2.2.9: Improving the Evidence Base

That the MOHE plays a leadership role in promoting research in the field of gifted higher education through collaboration with universities.

Programs Design & Development

Programs for Gifted High School Students

2.3 PROGRAMS FOR GIFTED HIGH SCHOOL STUDENTS

Recommendation 2.3.1: Secondary Schools Outreach Programs

The MOHE, in consultation with all of Mawhiba, secondary school students, parents, teachers and other relevant stakeholders in the Kingdom, encourage universities to establish secondary school outreach programs that provide learning opportunities for gifted secondary schools students, such as exchange programs, holiday programs and mentoring opportunities.

Recommendation 2.3.2: Early Entry to University

That the MOHE works with universities to ensure admission policies facilitate early access to university for gifted students in appropriate cases.

Faculty Education & Professional Development

1. Governance & Structure

1.1 HIGHER EDUCATION COMMITTEE

1.2 HIGHER EDUCATION GIFTEDNESS POLICY

1.3 UNIVERSITY GIFTEDNESS POLICY

1.4 MOHE GIFTEDNESS UNIT

2. Programs Design & Development

2.1 IDENTIFYING GIFTED STUDENTS

2.2 EDUCATING GIFTED STUDENTS

2.3 PROGRAMS FOR GIFTED HIGH SCHOOL STUDENTS

3. Faculty Development

3.1 FACULTY EDUCATION AND PROFESSIONAL DEVELOPMENT

4. Ongoing Support

4.1 SUPPORTING FACULTY AND UNIVERSITY

4.2 SUPPORTING GIFTED STUDENTS

Faculty Development

Faculty Education & Professional Development

3.1 FACULTY EDUCATION AND PROFESSIONAL DEVELOPMENT

Recommendation 3.1.1: Learning on Giftedness Incorporated into Curricula

That the MOHE works with universities to incorporate giftedness into academic educators learning curricula.

Recommendation 3.1.2: Opportunities for Assistant Professors to Work with Gifted Students

That the MOHE works with universities to provide increased opportunities for assistant professors to work with gifted higher education students as part of their teaching placements.

Recommendation 3.1.3: Professional Learning for Professors

That the MOHE develops and implements a professional learning package on giftedness for university faculty.

Recommendation 3.1.4: Increasing Professional Learning Opportunities in Gifted Higher Education

That the MOHE provide and promote increased professional learning opportunities on gifted education, including online, and support faculty to attend.

Recommendation 3.1.5: Policy Support for Professional Learning in Gifted Education

Through the higher education policy and the model university policy on the education of gifted and talented higher education students, emphasize the importance of faculty's professional learning on giftedness.

Recommendation 3.1.6: Scholarship for Postgraduate Study in Gifted Education

That the MOHE provides scholarships for undertaking postgraduate study in gifted education.

Faculty Development

Cont...Faculty Education & Professional Development

Cont...3.1 FACULTY EDUCATION AND PROFESSIONAL DEVELOPMENT

Recommendation 3.1.7: Opportunities for Faculty to Undertake Placements at International Universities Administering Gifted Education Programs

That the MOHE implements a scheme to provide opportunities for university faculty to undertake placements or exchanges in international universities administering gifted education programs.

Recommendation 3.1.8: Policy Support for Greater Faculty Participation in Gifted Education Programs Within Universities

That the MOHE, through the model university policy on the education of gifted higher education students to provide increased opportunities to all faculty to teach as part of gifted education programs within the university.

Recommendation 3.1.9: Education for University Leaders

That the MOHE provide information and education on gifted education to all university leaders.

Ongoing Support

1. Governance & Structure

1.1 HIGHER EDUCATION COMMITTEE

1.2 HIGHER EDUCATION GIFTEDNESS POLICY

1.3 UNIVERSITY GIFTEDNESS POLICY

1.4 MOHE GIFTEDNESS UNIT

2. Programs Design & Development

2.1 IDENTIFYING GIFTED STUDENTS

2.2 EDUCATING GIFTED STUDENTS

2.3 PROGRAMS FOR GIFTED HIGH SCHOOL STUDENTS

3. Faculty Development

3.1 FACULTY EDUCATION AND PROFESSIONAL DEVELOPMENT

4. Ongoing Support

4.1 SUPPORTING FACULTY AND UNIVERSITY

4.2 SUPPORTING GIFTED STUDENTS

Ongoing Support

Supporting Faculty & University

4.1 SUPPORTING FACULTY AND UNIVERSITY

Recommendation 4.1.1: Policy Support for Inter-University Gifted Education Faculty Networks

That the MOHE, through the higher education policy and the model university policy on the education of gifted and talented higher education students, emphasize the importance of faculty networks for gifted education faculty both within and between universities.

Recommendation 4.1.2: Supporting Inter-University Gifted Education Faculty Networks

That the MOHE support the establishment of gifted education faculty networks between universities.

Recommendation 4.1.3: Policy Support for Gifted Education Coordinators in Universities

That the MOHE, through the model university policy on the education of gifted and talented higher education students, emphasize the importance of universities having a gifted education coordinator.

Recommendation 4.1.4: Supporting Gifted Education Coordinators in Universities

That the MOHE support universities to have a gifted education coordinator.

Recommendation 4.1.5: Supporting Professional Learning for Gifted Education Coordinators

That the MOHE support university gifted education coordinators to undertake professional learning and postgraduate study in gifted education.

Recommendations 4.1.6: Gifted Higher Education Advisor

That the MOHE employs a gifted higher education advisor, whose role is to provide expert information, support and advice to faculty and universities about identifying and catering for gifted higher education students.

Recommendations 4.1.7: Access to Information, Research and Resources for Faculty

That the MOHE provides information, research and practical resources on gifted education for faculty.

Ongoing Support

Supporting Gifted Students

4.2 SUPPORTING GIFTED STUDENTS

Recommendation 4.2.1: Policy Support for Supporting Social and Emotional Needs of Gifted Students

That the MOHE, through the higher education policy and the model university policy on the education of gifted and talented higher education students, emphasize the importance of addressing the social and emotional needs of gifted higher education students, including through information, counseling and networks of 'like minds'.

Recommendation 4.2.2: Information about Giftedness for Gifted Higher Education Students

That the MOHE provide information about giftedness for gifted higher education students, including through universities and online.

Recommendations 4.2.3: Providing Opportunities for Gifted Higher Education Students to Connect with Like Minds

That the MOHE work with universities to provide opportunities for gifted higher education students to meet and connect with each other, including online.

Recommendation 4.2.4: Policy Emphasis on Creating University Cultures that Celebrate Achievements in all Domains

That the MOHE, through the higher education policy and the model university policy on the education of gifted and talented higher education students, emphasize the importance of universities celebrating high achievement in all domains.

Recommendation 4.2.5: Education Campaign for Universities about Giftedness

That the MOHE, in consultation with higher education students, faculty, universities and other relevant stakeholders, develop and implement an education campaign for universities about giftedness.

Ongoing Support

Cont...Supporting Gifted Students

Cont...4.2 SUPPORTING GIFTED STUDENTS

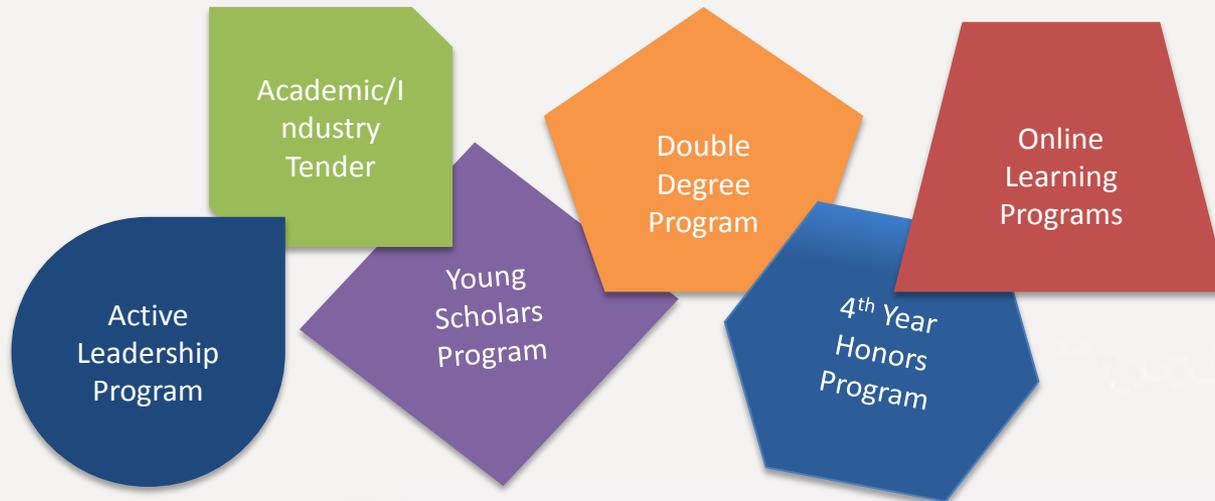
Recommendation 4.2.6: Policy Emphasis on Promoting Understanding of the Aims of Gifted Education Provisions

That the MOHE, through the model university policy on the education of gifted and talented higher education students, emphasize the importance of educating the entire universities community about the aims of any provisions for gifted students.

A Platform Enabling Program Design and Roll Out

The previous pages laid out the framework and steps for building up a strong platform and basis on which to build future programs targeting gifted and talented higher education students in the Kingdom.

Although, early within the development cycle, the next pages provide examples of some powerful programs that could be rolled out, but would need to be further explored and developed once the platform had been established. At this stage however, these are high level recommendations and would still need to be tested, validated and verified for suitability.



Enrichment Programs

The Young Scholars Program



Overview and Reasoning for the Young Scholars Program

15 of the 51 universities (30%) reviewed in this project offered young scholars programs or schemes and these programs were the key method – the only method in the universities reviewed – to offer academically elite students both recognition and additional support suitable for their level of talent and capability.

The majority of Young Scholars programs have the following features:

Connections with an academic program or programs (in this case the dual-degree)

Strong elements of leadership and civic activity

A study/research period in another country

Additional support where required e.g. academic English, mobility support et. al.

Attention to ethics and also, where appropriate, religious instruction.



In sum, Scholars Programs offer academically elite students who demonstrate strong leadership potentials optimal conditions for becoming strong future national leaders in business, research, academe, government – or a combination.

Who Would Be The Young Scholars?

- The Young Scholars would comprise the top 5%-10% academic Saudi achievers.
- They display positive leadership skills and the desire to be involved in national development.
- The Young Scholars need to be disciplined and have a strong work ethic as while they will be offered a number of opportunities, they are also expected to fulfill certain roles and at a high level of commitment.
- As described in the Academic/Industry Tender recommendation on the following pages, the Young Scholars are expected to take on advanced projects and to earn a Saudi/international double degree.

Enrichment Programs

Cont...Young Scholars Program

Additional Support and Expectations

To support their endeavors the Young Scholars are offered one-on-one access to an experienced English-speaking academic tutor and travel and accommodation to study at their 'second' university during the course of their studies.

It is also expected that in the third year after scheme commencement, that the Young Scholars will take over many non-administrative Roundtable roles. While academic and industry professionals will still be present and have the same roles, the Young Scholars should be able to run meetings, distribute minutes and so forth.

In addition, and this was a value add to the current project, *Altaaat* discovered that the Saudi response to Nobel Prize nominations is low. This information came directly from the Nobel organization who informed us that nomination forms are sent to every dean/proctor of a university that teaches medicine (for example). No-one from the Arabic world has, as yet, won a Nobel prize in medicine and of course only until nominated such can be won.

Value Add Regarding the Nobel Prize for Physiology or Medicine

It is proposed that selected Young Scholars are matched to noted Saudi surgeons and medical researchers et al to assist them in the writing of scholarly articles and/to develop options to assist in improving the profile of those senior 'colleagues' and their work. The student's academic tutor could also assist with this enterprise in terms of general guidance and ideas generation. That could include submitting nominations forms on noted Saudi surgeons and medical researches to the Nobel Prize committee.

Enrichment Programs

Academic/Industry Roundtable/ Tender Scheme

Academic/
Industry
Tender

Overview and Reasoning for the Academic/Industry Roundtable

As part of this project, Altaaat conducted some surveys with members of the Saudi business community and was impressed at both the ideas expressed by business leaders and the enthusiasm offered when discussing working with universities in the Kingdom. Interaction is already quite high and thus extending and enhancing programs should be relatively straightforward. In addition, the link observed throughout the research, between science, technology, mathematics programs and industry application was strong across the university reviews. All the universities (100%) provides such linkages in one combination or another.

The stand-out program related to this recommendation was from *Carnegie-Mellon* and is the CIT (Carnegie Institute of Technology) *College of Engineering Honors Program*:

This program was started in 1980 to give talented undergraduates an opportunity to work closely with faculty on research projects much like graduate level research. Each spring, faculty members are asked to identify research topics for honor student participation. These topics are posted by various department (e.g. chemical engineering; materials science and engineering). Juniors who have an accumulated QPA of at least 3.5 receive an invitation to participate in the program.

Altaaat's proposal extends this basic structure by creating a strong academic/industry synergy and allowing industry and national needs to drive project content. If adopted, this scheme could be a world-first and a program that international partners could look at with serious interest.

Enrichment Programs

Cont...Academic/Industry Roundtable/Tender Scheme

The Roundtable Structure – The Roundtable would comprise:

1. Sponsor
2. Selected *Mawhiba* Trustees
3. Higher Education Committee executive or select interest group from the MOHE.
4. Representative CEO's or nominees from major organizations/industries participating in the Tender Scheme
5. Students from the Young Scholars Program
6. A small number (perhaps two) of external trusted advisors/subject experts.

Each 12 months, (this could be extended to biannually as interest grows), the Roundtable will canvas industries and government organizations and compile a list of projects that are available for students and/or their academic supervisor/teachers to apply to complete or fulfill.

The Young Scholars will be required to work on an advanced project from the tender scheme and will earn the new international based double-degree as a result. Other undergraduate or gifted high-school students will earn an honors degree.

As mentioned, the tender will generally offer two levels of projects; one advanced group for the Young Scholars and one for other students as indicated. Students outside the Young Scholars group could petition the Roundtable for permission to complete an advanced project.

Example projects are offered on the following page to follow and principally come from ideas posed by the project's business participants.

Enrichment Programs

Cont...Academic/Industry Roundtable/Tender Scheme

Industry Area	Tender Requests/Description
*FMCG (Sales, distribution, logistic and supply chain management).	IT application Development. A start list would be: <ul style="list-style-type: none"> • Vehicle Tracking Warehouse • Inventory systems
*Conglomerate which has Operating Companies in various diversified sectors e.g. Construction, Information Technology etc.	<ul style="list-style-type: none"> • We are looking at developing content for in-house Competence Acquisition Programs for critical roles in our Group. • Work Flow – a study of some processes to explore rationalisation • Developing an Orientation video which can be standardised and used across the businesses and updated on a periodic basis
Perceived national need.	Given the problematic issues of translation between Arabic and English and the fact that systems such as Google Translate have not been able to develop a successful translation system between English and Arabic, this could be an advanced project for a exceptionally talented Youth Scholar or perhaps a small team of Scholars.
Mawhiba/Higher Education Committee	For the new online learning system Mawhiba and the Higher Education Committee are seeking a set of learning e-books for 5-7 year old children that deal with topics in the areas of geography, weather, marine life, desert life and science more broadly. An example template would be offered with the tender.

* The first two listings were offered by two business survey respondents. These tenders could be offered as soon as feasible.

Enrichment Programs

Online Learning Programs

Online
Learning
Programs

The principle recommendation here is an online learning program supported by online and 'in-person' workshops.

Early recommendations are that the online system would eventually offer university administered learning programs from pre-school to end of high-school but could commence with four areas designed specifically for gifted high-school students:

Preparatory (for university study) - Study units

Science and Technology - A 'Science Explorer Lab' with study units, exciting interactive and the potential for students to engage with field experts

Mathematics - 'Pi R Squared' (working title) is an area to explore algebra, geometry, mathematical theories et.al., to respond to interesting challenges and competitions

Reading (including logic and debate) - Students join a Saudi National book club. Each quarter they are sent books (some may be e-books) to read. At the end of each quarter, students meet for a major debate on the issues discussed/offered in the books. Debating teams are chosen via random 'lottery' from those attending.

Enrichment Programs

Cont.. Online Learning Programs

Overview and Reasoning for the Online Learning Program

The Organization for Economic Co-operation and Development (OECD) 2005 has suggested that, “E-learning is becoming increasingly prominent in tertiary education, with universities increasing provision and more students signing up.”

Within our project, 16 of the 51 universities (31%) offered online programs and 28 (55%) required online submission of degree and scholarship applications et. al.

The positives for online program provision are numerous:

Students can access learning units or courses at any time from any location (where they can access the internet of course)

Females do not need special rooms or areas in learning institutions and can study at home

Learning can be self-paced meaning motivated or gifted students can work through units at a more rapid pace

Learning to interact positively online prepares future workers for the high-level technology often used in contemporary workplaces and also the need to communicate effectively with colleagues at distance locations

Online programs can be more cost-effective, however as technology and online teaching/learning provision has increased, so too the range of tools that can be utilized. Carnegie-Mellon for example uses cognitive tutors, virtual laboratories, group experiments and simulations. Other institutions use virtual blackboards and/or discussion forums.

Online programs also offer a mechanism for Saudi students studying overseas to remain connected with the Kingdom by undertaking leadership, ethics and other units ‘at home’ – and potentially earning an Active Leadership [or similar] Certificate.

Enrichment Programs

Cont.. Online Learning Programs

The Vision for the Online Program

The ultimate goal would be to create a program K-12 that students would enter via a *program* portal. Learning programs would be categorized into major subject or topic heading e.g. Mathematics, English, Leadership, Science and then to potential sub-headings such as Chemistry or Biology.

Students would log-in and continue from the point in the teaching/learning program they were addressing when last using the system.

The approaches or modalities used would be varied from video lectures to interactive and investigative mechanisms to working directly with tutors.

Although this has not been included in the Tender Scheme example projects, it is feasible that Young Scholars studying education, and interested in developing the framework for the online learning program as well as earning a double-degree in both education and information technology, could build the important foundations of this recommendation.

Enrichment Programs

Cont.. Online Learning Programs

The First Proposed Programs

Preparatory (for university study) - Sequential study units for gifted high-school students intending to move into university study and also for new undergraduate students or gifted undergraduate students wanting to move into postgraduate studies.

Science and Technology - A 'Science Explorer Lab' with study units, exciting interactive and the potential for students to engage with international field experts. The lab would initially target high-school students and elementary aged students deemed gifted and talented in the sciences.

Mathematics - 'Pi R Squared' (working title) is an area to explore algebra, geometry, mathematical theories et.al., and to respond to interesting challenges and competitions. Once again this would be aimed at high-school students with gifted elementary students able to work through individual study units.

Reading (including logic and debate) - Students join a *Book Club*. Each quarter they are sent books (some may be e-books) to read. At the end of each quarter, students meet for a major debate on the issues discussed/offered in the books.

Enrichment Programs

Certificate in Active Leadership

Active
Leadership
Program

Overview and Reasoning for the National Certificate in Active Leadership

Saudi has strong interests in leadership and mentorship and *Mawhiba* has stressed the importance of these.

A **National Certificate in Active Leadership** would both reward those already highly active in leadership development and training and/or community projects and encourage those who are yet to contribute to the nation more broadly, to become active.

How the Certificate Might Operate:

In developing the Certificate and the activities required of both students and professionals to achieve the same, *Mawhiba* might consider a points system and activities that can contribute and accrue towards that number. The points should be accrued in any 12 month period.

For example if the Certificate requires 100 points, a professional might accrue this from any combination of the following (suggestions only):

Evidence of participation in nationally sponsored research projects – 10 points

Participation in a leadership course – 10 points

Running a course (pro bono) for other professionals or student groups – 30 points

Contributing an article to a peer-referenced leadership journal – 20 points

Participation (pro bono) in any form of national innovation or advisory group, roundtable or similar – 30 points

Mentoring a student or student group (working closely with them and having regular access meetings) – 40 points

Acceleration Programs

Double Degree Program



Overview and Reasoning for the Double-Degree Program

A 2011 research project conducted by the Institute of International Education surveyed 254 universities. The following are selected major findings from that project:

The majority (76 percent) of participating institutions report joint and double degree programs with student enrollment of 25 or fewer. [In terms of the Mawhiba project, 46 of the 51 universities (90%) offered double-degree programs.]

The top five cited partner countries for programs reported in this survey are: France, China, Germany, Spain, and the U.S.

The most frequently cited academic disciplines for current and future degree programs are business and management and engineering. Social sciences, mathematics and computer sciences, and physical and life sciences are also popular academic disciplines. Most institutions that plan to develop more joint or double degree programs at the doctoral level plan do so in engineering.

The majority of the reported joint or double degree programs are at the master's level; however, the majority of programs reported by Australian institutions are at the doctoral level, and the majority of programs reported by U.S. institutions are at the undergraduate level. Most participating institutions indicated that they plan to develop more programs at the master's level.

The majority of responding institutions indicated that they set up their first joint or double degree programs between 2001 and 2009. However, survey participants from France, Germany, and Italy began the majority of their programs earlier (1991-2000), while Australian and UK institutions were most likely to have developed their programs more recently.

Almost all responding institutions have plans to develop more programs. While the majority of institutions had plans to develop both joint degree and double degree programs, most German and U.S. institutions plan to develop only more double degree programs.

Acceleration Programs Cont.. Double Degree Program

The top desired partner countries for future collaborative programs are China, the U.S., France, India, and Germany. China ranks first among participating institutions from Australia, the UK, and the U.S.; the U.S. is favored by France, Germany, and Italy. The majority would like to partner with institutions in these top countries at the master's level

The top motivations for developing joint or double degree programs are broadening educational offerings, strengthening research collaboration, advancing internationalization, and raising international visibility/prestige. Notably, increasing revenue was major motivating factor only for respondents from the UK.

Overview and Reasoning for the Double-Degree Program continued

An undergraduate program would most likely be an appropriate entry into this type of degree structure for the Kingdom and that once the program is well established, Saudi universities could then look to offering postgraduate double-degree Master's to graduates of the undergraduate program.

The Double-Degree Structure

A Saudi university would offer one degree and the other would come from an international university.

The student would generally be identified as gifted and talented and would have been successful at their application to complete one of the Academic/Industry Tender projects.

Depending upon the nature of the project, students will generally spend a year at the international university. They will have an academic supervisor from each institution.

The degree is four years in length although it may be possible for exceptional students to complete in a shorter period. Those elements would need to be decided by the Higher Education Committee.

A short list of potential international partners are listed on page 97 of this report.

Acceleration Programs

Fourth Year Honors Degree



Overview and Reasoning for the Honors Program

Fourth year honors programs – the type being proposed in this recommendation – is a typical structure for Canada, the United Kingdom, Australia, New Zealand and a scattering of other international universities. In the main, the U.S. offers honors as a form of ‘pass’ assessment for an undergraduate degree and the U.K. offers this also. In this system, first class and second class honors and similar patterning is commonly found.

A fourth year honors degree is suggested for the Kingdom because it offers an incentive for many gifted and talented Saudi students to complete this and, if academically successful, to be able to move straight into a PhD program.

Statement from the University of Sydney website:

Completing a science degree with an Honours year opens the door to many opportunities, particularly in the field of scientific research. Honours students have the opportunity to undertake exciting, original research under the supervision of internationally recognised scientists, and some end up publishing one or more scientific papers based on their Honours projects. Honours also enhances your career prospects. Graduate Destination Surveys consistently reveal that students who have completed an Honours year are significantly more likely to gain employment in an area related to their field of study, compared to students who have completed a 3-year science degree.

An honors program does indeed enable a significant research project to be undertaken in the additional fourth year, and, once again, if students take on a project from the tender scheme, they are actively working to support the development of the nation and in a way that strengthens and deepens their personal skills base.

Acceleration Programs

Cont...Fourth Year Honors Degree

Who Would Participate?

Honors students will be in the top 25% of the cohort academically

They will have demonstrated strong interest in research and the capacity to conduct a research project with relative independence

They need to be self-starters and motivated to work without constant supervision

The university in which they are enrolled supports their application to move into the honors program

Additional Aspect

Honors students would potentially spend time in an industry or commercial enterprise. Because of the higher academic expectation placed upon Honors students and because that will roll over into time spent in the private sector, students are expected to deport themselves ethically and professionally and to contribute more broader to the commercial organization where they can (with the approval of both their academic supervisor and the business).

Potential Program Contacts

Recommended Program	Potential Useful Contacts. NB: Page numbers after listings refer to Appendix 1 contact details
Academic/Industry Roundtable	<ul style="list-style-type: none"> • <i>Carnegie-Mellon CIT (Carnegie Institute of Technology) College of Engineering Honors Program.</i> (Page 99) • <i>National University of Singapore - The Undergraduate Research Opportunity Programme (UROP)</i> gives students an opportunity to conduct research under the supervision of faculty members in their respective fields of study. (Page 86)
Saudi/International Double-Degree	<ul style="list-style-type: none"> • <i>Georgia Institute of Technologies – international double degree BS Program in Computer Engineering – GT & Korea Advanced Institute of Science and Technology.</i> Students may pursue the BSEE degree from the Korea Advanced Institute of Science and Technology (KAIST) as they earn the BSEE or BSCmpE from Georgia Tech. (Page 137) • As an additional note, <i>the National University of Singapore</i> appeared quite open to potential contact and discussion of study options.
Comprehensive Online Learning Programs	<ul style="list-style-type: none"> • <i>Stanford - EPGY EDUCATION PROGRAM FOR GIFTED YOUTH</i> (elementary through to university courses) (Page 24) • <i>Johns Hopkins Center For Talented Youth CTY Online</i> – Mawhiba has established contacts here (Page 33) • <i>Duke University eStudies and eSeminars</i> (grades 4-12) (Page 44) • <i>Northwestern Universities</i> range of programs such as <i>Gifted Learning Links</i> online (Page 63)
Young Scholar Scheme	<ul style="list-style-type: none"> • <i>Duke’s University Scholars Program</i> (Page 45) • <i>University of Pennsylvania</i> runs a <i>Young Scholars Program</i> for high-school students doing AP courses (Page 40) • <i>James Scholars at the University Of Illinois at Urbana-Champaign</i> (Page 76) • <i>Robinson Center for Young Scholars at University of Washington</i> (Page 78)

Concluding Statement

The reported research project worked through a significant amount of program information collected from the top 55 international universities and offered core insights arising from that data as well as recommendations intended to propel and advance Saudi's gifted and talented higher educational platform.

The project reported on significant trends in acceleration and enrichment programs as well as those specifically attending to leadership and mentorship. Due attention was given to programs from the fields of mathematics and the broader sciences as per the research brief.

The recommendations arising from the project provide an overarching and well structured plan of sequenced action steps for the strong and orchestrated roll out of programs for gifted and talented students across the Kingdom's universities.

As a final comment, it is clear that the role *Mawhiba* takes within our recommendations underscores how important this key Saudi educational organizational is to the advancement of Saudi's finest young talent.

Bibliography

Brodsky, Simeon (June, 2012) Email communication regarding assessment procedures at Center for Talented Youth, Johns Hopkins.

Colangelo, N., Assouline, S., & Gross, M. U. M. (2004). *A nation deceived: How schools hold back America's brightest students* (Vols. 1-2). Iowa City: University of Iowa, e Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development. (Visit <http://www.nationdeceived.org> for a free download of *A Nation Deceived*.)

Edgecombe, Nikki (2011) *Accelerating the Academic Achievement of Students Referred to Developmental Education*. CCRC Working Paper No. 30. February.

Gagné, François. (2000) *A Differentiated Model of Giftedness and Talent* (DMGT) (François Gagné, Ph. D. - Professor of Psychology, Université du Québec à Montréal, Canada.

Institute of International Education (2011) *Joint and Double Degree Programs in the Global Context Report on an International Survey*

Available Online: <http://www.iie.org/en/Research-and-Publications/Publications-and-Reports/IIE-Bookstore/Joint-Degree-Survey-Report-2011>

Munro, John. (2008) Teaching gifted and talented students : a learning approach to differentiation. *Presentation and Paper* (Dr. John Munro - Head of Exceptional Learning and Gifted Education, Faculty of Education, University of Melbourne)

NSW Department of Education and Training, 2007 - *Accelerated progression of academically gifted students K-6* GAT Unit Curriculum Support K-12 © State of New South Wales

OECD (The Organisation for Economic Co-operation and Development) (2008) *Tertiary Education for the Knowledge Society: VOLUME 1 : Special features: Governance, Funding, Quality - VOLUME 2: Special features: Equity, Innovation, Labour Market, Internationalisation* [Executive summary]

OECD (The Organisation for Economic Co-operation and Development) (December 2005) Policy Brief *E-learning in Tertiary Education*

Scott, Rick (April, 2012). *Email communication regarding views of acceleration*. (Dr. Rick Scott - Dean of the Honors College University of Central Arkansas).

Glossary

Term	Definition
Acceleration	In the educational setting, acceleration has the following meanings: <ol style="list-style-type: none"> A student progressing through a course more rapidly than his or her peers (And the time frame that the original course is designed to be completed in). For example, it may be usual that a course is completed in 4 years. A gifted student might complete the course in 3 or an exceptionally gifted student in 2. A student, jumping, program levels entirely. This generally applies to genius students who might move from elementary school to college or university Enabling a student to take more advanced courses while enrolled at a lower level. This most frequently applies to students who are enrolled in high school and who are taking individual AP (advanced placement) university undergraduate units. Most gifted students take AP courses in two or three academic fields only.
Concurrent	A term used to describe any two programs being studied at the same time.
Dual degree	The student gains two degrees at the time of graduation. For example a Bachelor of Science and a Bachelor of Information Technology. Individual dual-degree programs are cross-institution (one degree gained from one university and the second from the other). Dual degree programs are not necessarily 'marketed' as programs for gifted students but high academic achievement requirements from applicants can ensure cohorts are high achievers.
Enrichment	A program of stimulation [and stimulation challenge] that does not have an academic credit attached to it. [None of the enrichment programs reviewed within the project offered academic credit.]
Fast-track	Similar to acceleration and generally used to describe rapid achievement of a program such as a MBA where the student is completing an undergraduate degree but takes on additional project work at an MBA level.

Glossary

Term	Definition
Gifted and Talented	<p>This project did not set out to establish or define the nature of gifted and talented but rather to apply or use those terms when considering programs. This said, the following principles have guided those considerations:</p> <ol style="list-style-type: none">Not all universities refer to gifted and talented. Harvard for example stresses that it's high admission requirements mean that all their students are very high achievers.Where universities do not use the term, but referred to their high admission requirement levels or that students would need very high academic achievement, those programs were included in the review. Some programs simply lend themselves to application of high entrance levels e.g. scholars programs.The use of "exceptional" students in this document refers to the top 5% (approx.) of achievers in any given academic area [and leadership].
High-school	<p>High-school is usually the third educational stage for most children in the western world. The progression is: pre-school, primary or elementary school, and then high-school. The average age span for high-school students internationally is 12 to 18. Some cities or areas have both junior and senior high-schools.</p>
Honors/Honours	<p>There are two distinct definitions and these are generally related to the American and British [based] education systems.</p> <ol style="list-style-type: none">In the former and principally applied in the U.S. are the honors colleges and programs that award an honors pass to successful degree completion if the student has graduated with high academic achievementIn many UK, Australian and New Zealand institutions, honours (note spelling change) is a fourth year added to an undergraduate degree that enables a successful student to bypass the Master's degree and move to a PhD.

Glossary

Term	Definition
Pilot	A pilot is an important first step in the research process and acts as a type of 'test' for both the research method and the type of information that will be revealed. It is usual that small changes to either the research objective, or the method, will be made after conducting the pilot research.
Undergraduate degree	Generally the first degree (exceptions may be associate degrees) undertaken at a university or tertiary (sometimes referred to as post-secondary) level. A bachelor's degree taking three or four years of study is the principle undergraduate academic award.
Under-represented	Within this document, this term refers to groups of people – generally ethnic in the case of U.S. institutions – assessed as being under-represented within various fields – particularly the sciences. The programs are usually for U.S. citizens only. An example is Harvard's Undergraduate Research Program (refer Appendix 1, p. 23).