Future Problem Solving
How to Engage
Our Most Able Boys

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Definitions

- Gifted students:
  - are those who are identified in the top 10% of the population.
  - Gagné defines giftedness as the possession of natural abilities or aptitudes at levels significantly beyond what might be expected for one’s age, in any domain of human ability.

  In simple terms = outstanding ability or potential.

- Talented students:
  - While giftedness equates with high ability, talent equates with high achievement.
  - Gagné defines talent as achievement or performance at a level significantly beyond what might be expected at a given age.

  In simple terms = outstanding achievement

Identification

- Psychometric
- Aptitude Testing
- Standardised Achievement Testing
- Teacher-made Testing
- Off-Level Testing
- Parent Nominations
- Teacher Nominations

Provisions and Strategies

- Pre-testing
- Compacting
- Tiered Assignments
- Accelerated Pace
- Ability Grouping
- Independent Research Tasks
- Negotiated Learning Contracts
- Learning Centres

Gagné’s Differentiated Model of Giftedness and Talent (DMGT)

CATALYSTS
DEVELOPMENT PROCESS (D)
Informal / formal learning & practicing

PHYSICAL / MENTAL CHARACTERISTICS
(APpearance, handicaps, health)
(Temperament, personality traits, well-being)

SELF-MANAGEMENT
(Maturity)

AWARENESS OF SELF / OTHERS
(Strengths & weaknesses, emotions)

MOTIVATION/VOLITION
(Needs, interests, passions, values)
(Resource allocation, adaptive strategies, effort)

Positive/negative impacts

CHANCE (C)

NATURAL ABILITIES (NAT)

DOMAINS (G)
(Examples of sub-domains)
-INTELLECTUAL (Gi)
-Fluid, crystallized reasoning
-Verbal, numerical, spatial
-Memory, sense of observation

-CREATIVE (Gc)
-Inventiveness (problem-solving)
-Imagination, originality (arts), retrieval fluency

-SOCIAL (Gs)
-Communications (tact, perceptiveness, eloquence)
-Influence (leadership, persuasion)

-PHYSICAL (Gp)
-Sensory (visual, auditory, affective, etc.)
-Motor (power, endurance, balance, coordination, etc.)

GIFTEDNESS (G)
= top 10%

MILEAU
-Physical, cultural, social, familial, etc.

PERSONS
-Parents, teachers, peers, mentors, etc.

PROVISIONS
-Programs, activities, services, etc.

EVENTS
-Encounters, awards, accidents, etc.

ENVIRONMENTAL (E)
Positive/negative impacts

TALENT (T)
= top 10%

SYSTEMATICALLY DEVELOPED COMPETENCIES (SYSDEV)

FIELDS (T)
(Examples relevant to school-age youths)
-ACADEMICS
-Language, science, humanities, etc.

-ARTS
-Visual, drama, music, etc.

-BUSINESS
-Sales, entrepreneurship, management, etc.

-LEISURE
-Chess, video games, puzzles, etc.

-SOCIAL ACTION
-Media, public office, etc.

-SPORTS
-Individual & team

-TECHNOLOGY
-Trades & crafts, electronics, computers, etc.
Differentiation

• Definition

Differentiated curriculum addresses the different learning styles and rates of learning of students in both mixed ability and self-contained gifted classrooms.

(B MacLeod, 2004)

Models of Differentiation

• Bloom’s Taxonomy
• Kaplan Model
• Williams’ Model
• Maker Model

Maker Model

• Content Modification
• Process Modification
• Product Modification
• Learning Environment Modification

(Maker, 1982)

True Gifted Program

• Would everyone be able to do it?
• Could everyone participate?
• Should all students succeed?

– (Harry Passow, 1988)

Challenging Your Thinking

• US Study showed that 50% of curriculum could be removed for gifted students (K Rogers, 2001)
• All children are not gifted
• There are up to six year levels in a typical Year 7 class (F Gagne, 2006)
• Not all teachers are able to teach gifted students

Challenging Your Thinking

• It is not elitist to cater for gifted students
• Gifted students cannot do it all by themselves
• Learning rates differ dramatically
• Grouping is an effective provision and is backed up by a massive amount of research (M Gross, 2007 & K Rogers, 2006)
Levels of Giftedness

- Profoundly 1/1000000 IQ180+
- Extremely 1/100000 IQ165
- Exceptionally 1/10000 IQ155
- Highly 1/1000 IQ145
- Moderately 1/100 IQ135
- Mildly 1/10 IQ125

HOTS not MOTS

- How do you make sure that students are working in what Vygotsky called the zone of proximal development?

Future Problem Solving Program

Opening the Doors

It isn’t that they can’t see the solution.
It’s that they can’t see the problem.

G.K. Chesterton

FPS in Australia

- In existence internationally since 1974
- The first non-US affiliate in 1988
- Largely volunteer national committee of full-time, practising educators
- FPS reaches approximately 6000 students nationally and over 250,000 internationally

History of Future Problem Solving

- 1953: Alex Osborn (Applied Imagination)
- 1967: Sidney Parnes (Creative Problem Solving)
- 1974: E. Paul Torrance (Future Problem Solving)
- 1979 – 85: Expansion to most states of USA
- 1985: International Conference established
- 1988: Australian affiliate program begins (inc New Zealand)
- 1994: New Zealand becomes affiliate in own right
- 1998: Teams from Singapore & Hong Kong first participate in Australian Program
- 1999: Teams from Malaysia compete in FPS Australia
- 2001: Malaysia becomes first country in SE Asia to compete at International Conference
- 2002: Korea accepted as affiliate program in own right
- 2004: Best team from Hong Kong competes in Australian Final
- 2005: Teams from Singapore, Hong Kong and Malaysia compete in Australian Final
- 2006: Teams from Singapore, Hong Kong and Malaysia all participate in International Conference
- 2007: South Africa joins Australian Program (N Cassinader, 2007)
The Goals of Future Problem Solving

- Extension and challenge for gifted & talented students
- Life skills
- Academic goals

Life Skills from Future Problem Solving
Helping young people develop the skills necessary to live with confidence in a changing world

- Thinking Clearly
- Thinking Creatively
- Thinking for the Future
- Using Research Effectively
- Working in Teams
- Developing Communication Skills
- Working with Self-direction
- Coping with Ambiguity

Academic Goals of Future Problem Solving
Enhancing Students’ Learning in:

- Higher order thinking
- Problem-based learning
- Reflection and thought
- Self and Group Organisation
- Reading & writing accurately and efficiently
- Non-verbal communication
- Intellectual rigour
- Developing initiative & enterprise
- Adaptability
- Coping with change

Essence of the FPS Thinking Process

Research Applied Creative Strength
Futuristic Thinking

The Future Problem Solving Thinking Process

1. Generate Problems & Challenges
2. Select an Underlying Problem
3. Generate Solution Ideas
4. Select Criteria to Evaluate Solutions
5. Apply Criteria to Evaluate Solutions
6. Develop a Plan of Action based on best solution

Components of the Future Problem Solving Program

1. Regular Booklet Program
   a. groups of four (4)
   b. individual participation
   c. non-competitive
   d. non-school based
2. Scenario Writing
3. Community Problem Solving
   a. team
   b. individual
4. Curricular Division
   a. booklet
   b. Action-based Problem Solving (AbPS)
5. School Curriculum

Western Australian figures
red: competitive
white: non-competitive
green: curriculum-based
Topics in FPS

• Set internationally after global input
• Humanities, sciences, business and sociological issues
• Five topics per year

Past Topics

• Cultural Prejudice
• Homelessness
• Environmental Law
• Prejudice
• Privacy
• Water
• Mental Health
• Nanotechnology
• Immigrants
• Terrorism / Security
• United Nations
• Natural Disasters
• Freedom
• Women in the Workplace
• Climate Change
• Oceanic Species
• DNA Identification
• Antarctica
• Robotics

Topics for 2009 Booklet Program

• Olympic Games (Practice: 3 steps)
• Cyber Conflict (Practice: 6 steps)
• Space Junk (Qualifying Problem)
• Counterfeit Economy (Australian Final)
• Pandemic (International Final)

How it can be Delivered

• Extra curricula, e.g. Club
• In class – differentiated unit
• Pull Out Program – ‘Instead of’ Idea
• Elective – subject in its own right

Positives for Talented Boys

• Think more creatively
• Active interest in future
• Improve oral and written skills
• Solve problems with a structured six-step process
• Work co-operatively with like minded learners
• Learn about complex societal issues
• Develop research skills & think analytically

Questions and Discussion
BEGINNER COURSE
Community Problem Solving, Scenario Writing and Action Based Problem Solving
Thursday 5th March
8.15am – Registrations - 4.30pm
Tomkpins on Swan, Cnr Canning Hwy and Dunkley Ave, ALFRED COVE

AISWA/ATP Members: $0
CEO Members: $75
Non Members: $150

Please click on this link www.fps.org.au , participants can go to ‘Program Options’ to read more about each of the programs.

A training workshop for teachers designed to strengthen students writing and problem solving skills in relation to future global issues. This workshop will enable teachers to deliver the FPS program in the classroom or as a co-curricular elective.

Valerie Volk holds a Master of Education from the University of Melbourne and a PhD from the University of New South Wales in the field of Gifted Education. She has taught in high schools in Geelong and later at Luther College, Croydon, and was formerly a lecturer in Comparative Education and Sociology of Education in a number of tertiary institutions in Victoria and Queensland. Valerie’s interest in gifted education drew her to the Future Problem Solving Program, which she describes as the most challenging activity she knows for extending able students. Since 2000 she has been one of the Australian directors of the program, and heavily involved in conducting coach training workshops in South East Asia, especially Singapore, and has been a key member of the International Board of Trustees.

Please register by 3rd March 2009

ADVANCED COURSE
Advanced Coaching & Evaluation
Friday 6th March
8.15am Registrations – 4.30pm
Tomkpins on Swan, Cnr Canning Hwy and Dunkley Ave, ALFRED COVE

Please Note: Registrations for all AISWA PL events are submitted on-line via the AISWA website www.ais.wa.edu.au

Not an AISWA member?
Click on Non Members click here tab
Select the month of PL event
Locate the event by scrolling through the list and click the Register tab (please be aware pop-up screens need to be active and not blocked).

Like to Register for AISWA’s Website?
Click ‘Login’ (found on left hand side of screen).
Select ‘Teacher Login’, then click on ‘Not yet registered?’
Follow prompts.
Once approved by your school, your password will be sent via email.
Only staff of AISWA member schools can apply for LOGIN

Already AISWA registered?
Click on “Login”
Choose your “Account” (Head of School/Teacher/Authorised user)
Enter your email address & password
Click PL Calendar on right-hand side menu then choose month of your PL and scroll through list.
You will receive an email confirmation if you have registered correctly.

PLEASE SIGN THE ATTENDANCE SHEET
We rely on your signature to be able to credit you with PL hours, and failure to sign in may result in you being billed for non-attendance.
Please retain your email confirmation as both your schools invoice and your personal WACOT PD record. Certificates not given

CANCELLATION POLICY
Should you need to CANCEL please do so 48 hours before the event. Email thogan@ais.wa.edu.au to cancel.
Failure to do so will incur a charge for you or your school.