

THE Exchange

The Gifted Education Newsletter

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The DAP Tool: A Protocol to Develop and Assess Products

Julia Link Roberts & Tracy Ford Inman



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Products are used by many professionals in the 21st century. Fortune magazine's top "Global 500" companies rely on presentations, websites, and pamphlets to market their services and products. Architects create models so that clients can visualize their ideas. Filmmakers produce documentaries that chronicle events. Rarely, if ever, do professionals use pen-and-paper, short-answer or multiple-choice products to communicate their ideas or sell products. Schools must embrace authentic, real-world products as assessments in order to prepare students for the 21st century. "Products are vehicles for communicating information and/or demonstrating skills for specific purposes to authentic audiences" (Roberts & Inman, 2009a, p. 2), and, thus, are ideal for use in classrooms as educators prepare students for the real world.

Educators may be hesitant to incorporate multiple products in their assessments because of their lack of expertise or experience with certain products (i.e., how can they create a rubric for a product if they do not know the necessary criteria or the standard that makes the product excellent?). Another barrier to using products is the lack of time — quality rubric development proves time consuming.

Editor's Note

The phrase “a rising tide lifts all boats” is commonly used in an economic context, but it is applicable to the pursuit of optimal pedagogic practices in the GEP which allows a healthy exchange of expertise and resources with the wider community of educators. It is with this theme in mind that *The Exchange* reports on our ever-expanding circle of partners in this quest, and highlights a few powerful tools and strategies which can help bring out the best in our high-ability learners and talented youth.

Our Feature article by Dr Julia L. Roberts and Dr Tracy F. Inman introduces the eminently usable *DAP Tool, a Protocol to Develop and Assess Products* which are authentic and easily differentiated.

We are privileged to have Mr Ng Teng Joo (previously Principal of Henry Park Primary School and currently Principal of White Sands Primary School) and officers previously from the Gifted Branch Branch (GEB) Jared Quek and Benny Lim share how their firsthand experience of the GEP enables them to further the cause of talent development in their current contexts.

In their articles, Lim Siew Yea shares professional tips on how to scaffold creative writing for budding writers at secondary level, and Lim Chong Jie explains how the Mathematics Assessment Project, an online resource, can be adapted for local classrooms. Khong Weng Keong also shares how Field-based Learning for P6 Social Studies, co-facilitated by the Asian Civilisations Museum, has benefited parents and teachers. Colleagues from Nan Hua Primary School share a Professional Learning Circle effort on how Chinese comprehension skills can be improved. The other articles describe how the GEB's programmes such as the E2K Science Programme, the Inter-school Debate Championship and RHB-Straits Times National Spelling Championship have inspired diverse schools to innovate their practices so as to develop their budding talents.

For our section on *Gifted Education Abroad*, Professor Péter Csermely contributes an article outlining Hungary's ambitious approach to providing support networks for Talent Development, an approach he hopes will be a model for Europe.

Continuing our series on former GEP pupils in Education, we turn to three of our very own GEB officers for a special interview to find out how the Programme has influenced them as educators.

We hope this issue inspires all our readers and encourage our partners as we forge ahead together in an evolving educational landscape.

Publications Committee
GE Branch, MOE

However, when educators have a product protocol in place, a system of product development and assessment that simplifies and standardizes the use of products, they tend to expand their product choices for students, utilize products more frequently, and differentiate with products. The Developing and Assessing Product Tool (DAP Tool; Roberts & Inman, 2009a; Roberts & Inman, 2009b) is such a protocol. This protocol guides students in product development, facilitates differentiation, simplifies assessment, and removes the learning ceiling.

The DAP Tool ensures quality product development and assessment since the protocol establishes a structure that guides students as they create products and teachers as they assess them. It also encourages differentiation. First, DAP Tools have been created for dozens of products, so the educator can provide ample student choice. Second, each DAP Tool has multi-tiers of sophistication so that educators can match the tier with the student's readiness or level of experience with the specific product. This article will discuss the DAP Tool, including the three innovations that set it apart from other rubrics, its use in differentiation, possible stumbling blocks to avoid, and benefits of use. Also incorporated in the article is a sample DAP Tool, Speech. Please see Figures 1, 2, and 3.

Innovations

The power of the DAP Tool lies in its innovations. The DAP Tool has four common components regardless of the product: content, presentation, creativity, and reflection. This means that educators will teach the DAP Tool vocabulary once, saving valuable classroom time and continue to emphasize the importance of content, presentation, creativity, and reflection as those same components are central for all products. Students readily understand the expectations of the components and can transfer those expectations to new products and across content areas and grade levels.

Four common components

Content, the first component, is by far the most important. After all, content attainment is the reason students create the products — to demonstrate content and skills they have learned. Regardless of the content itself — whether it be biomes, quadratic equations, the analysis of *Romeo and Juliet*, or immigration — the goal is threefold: accuracy, coherence, and complexity. Is the content correct or accurate? Does it have complexity of thought or been thought about in a way that goes beyond a surface understanding? Is the content put together in such a way that people understand it? Please note on Figures 1, 2, and 3 how all three facets are addressed. The content component has exactly the same wording on every DAP Tool regardless of product because accuracy, coherence, and complexity of thought prove critical to every concept and skill.

The second component, **presentation**, is the only component that changes with each DAP Tool. Presentation defines the product. For example, a pamphlet's presentation includes vocabulary such as *graphics and layout* while a model's presentation section uses words like *representation and construction*. Each product's presentation section is product specific, containing elements directly defining that product. Speech (see Figure 2) lists the elements of *structure, elaboration*

and support, delivery, and style. Therefore, the section is specialized for realistic expectations of the real-world, authentic product.

Creative thinking, one of the most important 21st century skills, is embodied in the third component, **creativity**. Creative approach to the product itself, as well as creative approach to the content, distinguishes one poster of the three states of matter from another poster of the same topic. This component explores the originality of the product and content, so individual insight and spark are assessed.

The last component, **reflection**, also directly addresses 21st century learning. This component asks the student to reflect on his own learning — that includes learning about the actual content or skill as well as learning about himself as a learner. The metacognition in this component cannot be overlooked. Reflection, just like creativity and content, remain constant across all DAP Tools.

Grading scale

The second major innovation of the DAP Tool is the grading scale that removes the learning ceiling. For most gifted or high-ability students, a quick scan to the far right of a rubric confirms that they earned the highest possible score, whether that score is a number, a letter grade, percentile, or some other ranking. This top level tends to be the goal for many learners. However, levels beyond proficiency show the possibilities of excellence — something that typically escapes the gifted learner. Each DAP Tool, then, contains seven levels (See Figure 1) with the lowest being *nonparticipating* (i.e., nothing was turned in) while *proficient* (i.e., reaching the standard) is only the fifth level. Two levels go beyond proficiency: *advanced* and *professional*. The *advanced* level is one that gifted or advanced students can reach. The *professional* level is the innovation because it emphasizes to the learners the importance of continuous progress and hard work; there is always room for improvement to reach the level of professional, and professionals constantly strive to perfect their products. They do not settle for proficient or even a bit beyond that.

Multi-tiers

The last innovation of the DAP Tool encourages differentiation of assessment. Every single DAP Tool has three versions for each product: Tier 1, Tier 2, and Tier 3. Please note on Figures 1, 2, and 3 how the wording becomes more sophisticated and the descriptors more demanding. After all, one would not expect a poster created by a second grader or an older

student designing a poster for the first time to be assessed at the same level as one created by an eighth grader or a senior in high school who is experienced at creating posters. Nor would one expect an essay written by a student gifted in the language arts to be assessed at the same level as a struggling writer — no matter what the age or grade. Appropriately high expectations are critical for continuous progress of all students. The DAP Tool tiers allow the educator to make the match of tier to readiness or ability, grade level, or even experience with the product or content. Preassessment dictates that appropriate match of tier to learner.

Sample DAP Tool: Speech

See Figures 1, 2 and 3.

21st Century Skills

In preparing students for jobs that do not yet exist in a competitive world, 21st century skills (www.p21.org) may prove more pertinent than specific content. Intentional product development taps into those skills — from thinking creatively to communicating clearly, creating media to self-directing learning. When educators use a protocol for assessment that holds children to high standards while encouraging creativity and metacognition, those skills are developed. Twenty-first century skills are both encouraged and honed as students develop products.

Critical and creative thinking skills are required in the development of all quality products. The DAP Tool highlights creativity as one of the four consistent components, and creativity applies both to a fresh look at the content and a creative approach to the presentation of the product. Metacognition is required in the reflection component as students think about their thinking and what they have learned about the content and themselves during the process of developing the product.

Products are used by professionals in the real world, so students realize they have relevance well beyond the classroom. Professionals use products in their careers, and the professional level in the assessment scale establishes a goal to which students can aspire — not a goal that elementary and secondary students are expected to reach.

Products often capture the interest of students, which encourages them to do their best work and to persevere in order to get the quality in the final products that they feel they are capable of producing. Pride in one's work is so important in developing lifelong learners.

Figure 1: SPEECH (ORAL) Tier 1 — DAP TOOL

CONTENT	<ul style="list-style-type: none"> Is the content correct and complete? Has the content been thought about in a way that goes beyond a surface understanding? Is the content put together in such a way that people understand it? 	0 1 2 3 4 5 6 0 1 2 3 4 5 6 0 1 2 3 4 5 6
PRESENTATION		
STRUCTURE	<ul style="list-style-type: none"> Is an effective attention-getting device used? Is the main idea clear from the beginning? Is the speech logical in its organization, naturally flowing from one major idea to another? Does it come to an effective close? 	0 1 2 3 4 5 6
ELABORATION AND SUPPORT	<ul style="list-style-type: none"> Does all information relate to the main idea? Are ideas fully explained and supported? Is there a balance of general ideas with specific details? If quotations or other references are used, have they been used carefully and appropriately? 	0 1 2 3 4 5 6
DELIVERY	<ul style="list-style-type: none"> Is eye contact made? Are appropriate facial expressions and gestures incorporated? Is the speaker's voice clear? Is the speaker poised and comfortable? If notes are used, are they only briefly referred to if at all? 	0 1 2 3 4 5 6
STYLE	<ul style="list-style-type: none"> Is the speech developed for the expected audience and purpose? Are appropriate words used? Are the sentences varied in structure? Is a suitable tone used? Is figurative language used in an effective way? 	0 1 2 3 4 5 6
CREATIVITY	<ul style="list-style-type: none"> Is the content seen in a new way? Is the presentation done in a new way? 	0 1 2 3 4 5 6 0 1 2 3 4 5 6
REFLECTION	<ul style="list-style-type: none"> What did you learn about the content as you completed this product? What did you learn about yourself as a learner by creating this product? 	0 1 2 3 4 5 6 0 1 2 3 4 5 6

Comments

Figure 2: SPEECH (ORAL) Tier 2 — DAP TOOL

CONTENT	<ul style="list-style-type: none"> Content is accurate. Content has depth and complexity of thought. Content is organized. 	0 1 2 3 4 5 6 0 1 2 3 4 5 6 0 1 2 3 4 5 6
PRESENTATION		
STRUCTURE	<ul style="list-style-type: none"> The attention-getting device clearly gains the audience's attention. The main idea is clear and well developed. Strong transitions between main points link to the purpose and any narrative threads. The speech is logical in its organization. The conclusion, pulling together all aspects, comes to a strong closure. 	0 1 2 3 4 5 6
ELABORATION AND SUPPORT	<ul style="list-style-type: none"> Each idea is fully developed and relates to the purpose. A strong balance of general ideas and specific details creates a fluid discussion. Quotations or other references, if used, fully elaborate on or support the main points and are smoothly incorporated. 	0 1 2 3 4 5 6
DELIVERY	<ul style="list-style-type: none"> Eye contact, facial expressions, and other forms of nonverbal communication aid in the audience's understanding and further the purpose. Speaker's voice is strong and clear with appropriate intonations. Speaker exhibits calm yet stirs interest in the audience. Notes are used minimally if at all. 	0 1 2 3 4 5 6
STYLE	<ul style="list-style-type: none"> The purposeful use of varied syntax and precise diction aids in the audience's understanding. Tone is consistent with purpose. Voice clearly stems from diction, syntax, and figurative language. Ethos is strongly realized in the audience. 	0 1 2 3 4 5 6
CREATIVITY	<ul style="list-style-type: none"> Individual insight is expressed in relation to the content. Individual spark is expressed in relation to the presentation. 	0 1 2 3 4 5 6 0 1 2 3 4 5 6
REFLECTION	<ul style="list-style-type: none"> Reflection on the learning of the content through product development is apparent. Reflection on what the student learned about self as a learner is apparent. 	0 1 2 3 4 5 6 0 1 2 3 4 5 6

Comments

Figure 3: SPEECH (ORAL) Tier 3 — DAP TOOL

CONTENT	<ul style="list-style-type: none"> • Content is accurate and thorough in detail. • Product shows complex understanding and manipulation of content. • Product shows deep probing of content. • Organization is best suited to the product. 	<p>0 1 2 3 4 5 6</p> <p>0 1 2 3 4 5 6</p> <p>0 1 2 3 4 5 6</p> <p>0 1 2 3 4 5 6</p>
PRESENTATION	<p>STRUCTURE</p> <ul style="list-style-type: none"> • The attention-getting device cleverly and uniquely gains the audience’s interest and provides a thoughtful transition to the thesis. The original and creative thesis guides the entire speech with a coherent narrative thread. Sophisticated transitions subtly link all aspects together. Secondary arguments fully develop key concepts or ideas critical to the purpose. The speech is ideally organized. Conclusion emphasizes pertinent information. The significance of the conclusion is clear. <p>ELABORATION AND SUPPORT</p> <ul style="list-style-type: none"> • Each idea is thoroughly substantiated through pertinent detail or analyzed support from a variety of sources. Pertinent quotations and other references fully elaborate on or support the idea; their inclusion is seamless. The speech anticipates audience’s possible misunderstandings and handles complex ideas clearly. <p>DELIVERY</p> <ul style="list-style-type: none"> • Purposeful eye contact, facial expressions, and other forms of non-verbal communication enhance the audience’s understanding and emphasize the purpose. Speaker’s voice is strong, clear and effective. Speaker exudes passion for the topic while being in total control of the presentation and audience. No notes are used. <p>STYLE</p> <ul style="list-style-type: none"> • The purposeful use of varied syntax and diction enhances audience’s understanding. Tone clearly stems from diction, syntax, and figurative language. Effective rhetorical devices emphasize thesis. 	<p>0 1 2 3 4 5 6</p> <p>0 1 2 3 4 5 6</p> <p>0 1 2 3 4 5 6</p> <p>0 1 2 3 4 5 6</p>
CREATIVITY	<ul style="list-style-type: none"> • Individual insight is originally expressed in relation to the content. • Individual spark is originally expressed in relation to the presentation. 	<p>0 1 2 3 4 5 6</p> <p>0 1 2 3 4 5 6</p>
REFLECTION	<ul style="list-style-type: none"> • Insightful reflection on the learning of the content through product development is expressed. • Insightful reflection on what the student learned about self as a learner is expressed. 	<p>0 1 2 3 4 5 6</p> <p>0 1 2 3 4 5 6</p>

Comments

Meaning of Performance Scale:

- 6 — PROFESSIONAL LEVEL: level expected from a professional in the content area
- 5 — ADVANCED LEVEL: level exceeds expectations of the standard
- 4 — PROFICIENT LEVEL: level expected for meeting the standard
- 3 — PROGRESSING LEVEL: level demonstrates movement toward the standard
- 2 — NOVICE LEVEL: level demonstrates initial awareness and knowledge of standard
- 1 — NONPERFORMING LEVEL: level indicates no effort made to meet standard
- 0 — NONPARTICIPATING LEVEL: level indicates nothing turned in

Figures 1, 2 & 3. Speech (Oral) Tier 1, Tier 2 & Tier 3. From *Assessing Differentiated Student Products: A Protocol for Development and Evaluation* (p.99-101), by J. L. Roberts and T. F. Inman, 2009, Waco, TX: Prufrock Press.

Difficulties Encountered by Teachers

Although the DAP Tool protocol simplifies product development and assessment, the tool does not currently exist for all possible products. If there is not a DAP Tool for a specific product, however, the teacher can simply use the template and complete the presentation component. The three other components — content, creativity, and reflection — remain the same for all DAP Tools and for each of the three tiers.

A misunderstanding for teachers and students centers on the category of *professional* in the

performance scale. The *professional* category is not one that elementary or secondary students are expected to reach; in fact, a teacher may never in her teaching career have student products that are at the level of the professional who specializes in that product. If students are expecting to be checked off at the top level of all rubrics, they will be disappointed until they realize that the *professional* level is included on the DAP Tool to set a goal for them to aspire to reach, a goal that emphasizes the authenticity of using products as they are important in the work of professionals.

Another question teachers must grapple with is assessing and grading products. How do those tasks differ when the DAP Tool is used? The DAP Tool is used by the student as a guide in the development of the product, and it is valuable to the teacher in the assessment of the product. The four components of the DAP Tool designate the areas in which the teacher will provide formative assessment. Grading is a separate issue, and the teacher may assign a holistic grade or a quantitative grade. The DAP Tool encourages the educator to emphasize critical areas in their instruction. For example, the teacher may double the weight of content or another component if that is what is most important in the assignment. Teachers are the decision-makers in the classroom, and they have latitude on how they decide to assign a grade for a product assignment using a DAP Tool. Of course, students will never be penalized grade-wise for not reaching the professional level.

Benefits of Using the DAP Tool

Teachers often would like to offer a choice of products with an assignment, but they hesitate to do so as that requires developing several rubrics for one assignment. The DAP Tool takes away that need to develop multiple rubrics. The DAP Tool for a model, podcast, or essay is ready and can be used any time a teacher deems it appropriate to offer a choice of product. Being able to offer the choice without developing new rubrics is the advantage of using a protocol such as the DAP Tool. Moreover, DAP Tools can be used with confidence that they are appropriately guiding students in developing products, and teachers in assessing those products, since the presentation component (i.e., that part of the rubric that looks at the product's criteria) has been examined and vetted by experts in technology, art, science, and other areas in which the authors sought experience and expertise to finalize DAP Tools.

Educators can also offer appropriately limited choices in their differentiation of product; for example, a student whose learning preference is kinesthetic may choose a product from a list of kinesthetic choices. DAP Tools are categorized by learning style, so the educator can readily create such options. Offering product choice is one way to differentiate, but the DAP Tool also encourages differentiation of assessment. When preassessment results are matched to a specific tier, the learning becomes more individualized, better meeting the child's interests, needs, or abilities.

If teachers prioritize content, presentation, creativity, and reflection in student learning, the DAP Tool is a perfect fit for them. The consistency of these four components provides a valuable message to students, emphasizing that these components are constants in learning facilitated by product development. It ensures a consistent message to students as to what is important, and it provides continuity in assessment from one product to another in a class or throughout a school.

The DAP Tool opens up the range of products that can be developed in a classroom. Sometimes students are motivated to learn if the product involves art, technology, kinesthetic involvement, or writing. If a choice of product is appropriate for the assignment, the DAP Tool simplifies that process that ultimately motivates students to engage in learning at high levels.

Concluding Remarks

The DAP Tool guides the student in developing the product and the teacher in assessing the product. DAP Tools are ready to use, so teachers should not consider it more work to offer a choice of product, or to differentiate for students using different tiers when some students are more experienced and have more expertise with the product. The DAP Tool is a protocol that can be used across grade levels, kindergarten through graduate school; and it is applicable in all content areas. It can be used with traditional school products like research papers, presentations/speeches, and technical reports, or products that often utilize technology like podcasts, webpages, and movies. Content, presentation, creativity, and reflection are the constants in all DAP Tools. This protocol encourages teachers to offer more products thus developing 21st century skills in their students. It also removes the learning ceiling so that children strive for excellence. Plus, it affords educators simple ways to differentiate in order to better meet the needs, interests, and abilities of their students.

Resources

- Roberts, J. L., & Inman, T. F. (2009a). *Assessing differentiated student products*. Waco, TX: Prufrock Press.
- Roberts, J. L., and Inman, T. F. (2009b). *Strategies for differentiating instruction: Best practices for the classroom*. Waco, TX: Prufrock Press.

Widening Ripples: Views of Principal and Officers from the GE community

As we approach our thirtieth year of the Gifted Education Programme (GEP), we thought it was timely to highlight voices from our extended community. Our community is vaster than we imagine, for many hands are needed on board for a programme for the gifted to work effectively. We need not only the teachers, who have the strongest and closest influence on the pupils in the programme, but also all the rest of the educators who have worked for the common cause of providing a programme that would stretch pupils to aspire towards self-fulfilment and realise their potential. Among these educators, we are glad to have principals and other administrative leaders, school counsellors as well as colleagues from the Gifted Education Branch itself at MOE HQ. For this issue, we have approached Mr Ng Teng Joo, who has seven years of experience as the principal stewarding Henry Park Primary School, one of nine schools that host the Primary GEP. We also bring to you the views of two educators who were previously officers in GE Branch: Mr Jared Quek Jian Zhi, formerly an English Language officer and now Head of Department, English, in Fuhua Secondary; and Mr Benny Lim, formerly a Humanities officer, and now Head of Department, Integrated Programmes, Cedar Girls' Secondary. We have asked these three educators to relate how their exposure to and involvement in the GEP have come to influence their outlook and practice even after they have left the GEP environment.

Mr Ng Teng Joo, Principal, White Sands Primary School, on ...

His beliefs on talent development

Talent development is important because it is part and parcel of an all-rounded education. We tend to believe that one's success is closely associated with a sole indicator — academic results. While this held true to a large extent in the past (when changes in the working environment remained relatively stable), we now see many people who are successful because of their passion and strengths. While ensuring that academic rigour coupled with an effective teaching and learning process is the mainstay of our mission, we should also value other aspects in the all-rounded development of pupils. For example, we can design, develop and deploy more resources to cultivate and recognise different forms of talents.

How talent development can play a role in developing an educational system that offers quality education to all pupils

Talent Development plays an important role in offering quality all-round development of pupils in building confidence (one of the desired outcomes of the 21st century skills development). Talented pupils who develop



aspects beyond academic excellence will benefit much from a quality well-rounded education system. This will stand them in good stead to face the working world of the 21st century.

We have put in place many sound and structured systems and processes in the academic domain (for example, the Gifted Education Programme). Talent development will spur us to think of putting in place further sound systems and processes, such as

1. Definition of talents in our school system
2. Identification of talented pupils
3. Development of talented pupils
4. Recognition and rewarding of talented pupils; and
5. Staff development in terms of ability to hone such talents

On the particular role Talent Development has in the plans he has for White Sands Primary School

We begin by recognising the fact that not all pupils are similarly endowed in terms of giftedness and talents, academic or otherwise. We also recognise that there are many pupils in the mainstream who are academically inclined even though they do not belong to the Gifted Education Programme, and that there are yet others who are talented in sports and games as well as in the aesthetic domains.

Identification of such gifted and talented pupils in the foundation years (Primary 1 to 4) will enable my school to have a four-year development plan which starts from Primary 3. The design will consider their strengths, and resources would be deployed to support the plan. For example, the school is working on differentiated instruction for High-Ability Learners (HALs) which entails the development of differentiated Schemes of Work as well as teaching and learning materials to cater to their learning potential. As part of staff development, I would like my teachers who are passionate about teaching HAL to be identified for appropriate training.

On how his previous experience as the leader of a GEP school (Henry Park Primary School) has influenced how he sees talent development

The Gifted Education Programme first started with the top 0.25% of each cohort. This later expanded to reach out to the top 1.0% of the cohort. There would invariably be, among the top mainstream pupils, those who are as cognitively able as their GEP counterparts. There are many HALs who display great potential in the mainstream. It would be great if we could think of ways to unlock the potential of these pupils.

On how his experience affected his beliefs and convictions, and his subsequent decisions on approaches regarding talent development

My experience has influenced me such that the design and delivery of our talent development

programme to cater to the learning needs of the highly able must be deliberate and well-thought through. The approaches cannot be achieved overnight, but much conversation with the staff, key personnel and stakeholders has to be done — we need to bounce ideas around, receive feedback and obtain greater buying-in among all these stakeholders. We cannot be perceived to be catering to the needs of the HAL only, for we must show that we have also taken into consideration the learning needs of pupils from other classes. Our key personnel are currently working with the officers from the Gifted Education Branch on how the school can design and deliver quality teaching and learning lessons that cater to the learning needs of the HAL.

On specific experiences in his contact with the GEP that informed his thinking about talent and how talent should be nurtured

I am impressed with the GEP officers' passion in working to stretch the potential of the GEP pupils. As a school, we tapped on their expert knowledge and skills and endeavoured to provide the conducive learning environment so as to nurture such pupils (in terms of cognitive as well as of social-emotional aspects) to be the best that they can be.

As espoused by Prof François Gagné, nature and nurture both play an important part in unlocking the potential of HAL. Our school has just embarked on the journey to design and to provide meaningful learning experiences for the HAL.

On what he thinks could lead to a healthy culture of talent development, and the fundamental principles that should guide talent recognition and development in a school

Talent development of HAL will lead to an unhealthy culture if the school values cognitive talents in such a manner that pupils who may not be HAL but are talented in other domains feel inferior. The challenge is to impart the value of respect and recognise each pupil for who he/she is and hone his/her talent and skills accordingly. A healthy culture exists when every pupil feel valued for who he/she is.

Respect for each other, irrespective of the kind of talents, would be a good guide in the recognition and nurturing of talent in the school. (An all-rounder has a greater chance to be more successful than a HAL who spends all his time on academic pursuits.)

On what he considers to be basic structures and conditions required to support a school's talent development programme

The school culture that promotes values such as respect and excellence will support talent development efforts. A whole-school approach is needed for success.

On the broad direction and plans he has to equip his pupils at White Sands Primary with the "roots" and "wings" that will allow them to achieve their full potential

"Roots" represent the school values that we endeavour to imbue in the pupils. The character

development of the pupils is as important, if not more important, than academic achievements. The "roots" provide the anchors when pupils make choices in life.

"Wings" represent the actions and results pupils achieve because of their capabilities. We hope that these will boost their confidence and spur the pupils to scale greater heights.

Our vision speaks of our desire to see confident and caring Whitesandians take flight and "soar" in life and contribute to the country and the world at large. Our HALs will surely soar to greater heights where the sky is the limit in their endeavour to pursue meaningful careers in life.



Mr Jared Quek, Head of Department/English Language, Fuhua Secondary School, also a recipient of the Inspiring Teacher of English Award 2012, shares with us his musings on teaching as shaped by his GEP experience when he was in the English Department in the Gifted Education Branch from 2008 to 2009.

Teaching

I believe a teacher cannot influence his/her students deeply without living out his/her aspirations — we transform others through being who we are. We should embody the values we preach, be passionate about our subject, and continually improve and learn. Most importantly, we need to sincerely care for our student's total development — intellectually, morally, socially and physically.

My belief in holistic development inspires the three main clusters of pedagogical strategies that I deploy in English teaching: the first promotes **extensive reading**, which I believe to be **the** vital behaviour that improves English. Examples of such reading pedagogies in Fuhua Secondary School include the Reading Contract, a weekly agreement between students and me on the amount and type of weekly reading they will do. The Contract facilitates regular target setting, self-directed learning, and the monitoring of reading by teachers and parents. Another example is the daily Reading Conferences, where I speak to

one to three students at a time, encouraging them to read, discussing the books they read, and sharing guidelines on appropriate books to choose for their reading. I will also link their reading to their aspirations and goals. A third example is "Walk-the-Talk", a programme developed by my 2012 Lesson Study Team, consisting of a weekly oral training session based on a unified package of resources revolving around a theme. The chosen themes are usually those that raise interesting ethical questions (e.g. street children, animal abuse or hunger in the world). The weekly resources always include a fictional text (often an extract from a longer text to 'hook' pupils so they will read more), a non-fiction text and a video. Based on the readings, pupils address a range of critical and ethical thinking questions. These strategies have increased the interest of students in reading, raised their reading time, improved reading comprehension, and in the case of "Walk-the-Talk", promoted general knowledge acquisition, oral skills, and ethical and critical thinking. "Walk-the-Talk" was presented at the 2012 Excel Fest.

My second cluster of pedagogical strategies involves the **application of my knowledge of informal logic to the teaching of writing**. This includes teaching students to turn a wordy argument into a clear diagram on paper — a key skill used in informal logic ('put into standard form'). My students carry this out during the planning stages of process and expository writing. The clear distinction made between premises, elaboration and claims, and the greater light shed on the materials and architecture of thought, help students to employ their reasoning abilities more effectively. For fictional writing, I have found it helpful to apply cause-effect graphic organisers

for the construction of logically coherent plots, that is, plots where every major effect has a plausible cause.

My final cluster of strategies involves the **use of Synectics** to enliven the teaching of English. At its simplest, I employ memorable metaphors in direct instruction. An example is my use of a three-layered cake analogy to illustrate the three categories of points in a summary passage. I have also conducted traditional collaborative Synectics activities where pupils use metaphors through a seven-stage process to generate new perspectives and ideas on an issue. Synectics is powerful at promoting creative thinking and generating interest in English.

All three clusters of strategies have been influenced by what I have learnt in the Gifted Education Branch (GEB). Most obviously, the clusters focus on the development of creative and critical thinking skills. Among other things, the influence of Mdm Sim Li See (Senior Specialist, Gifted Education) and Dr Quek Chwee Geok (Principal Specialist, Gifted Education) and the general ethos of the Branch were instrumental in helping me to bring this focus on cognition to the fore. In addition, a number of my teaching strategies were derived directly or indirectly from the research done for my curriculum development projects at the Branch. For instance, I discovered Synectics while developing a P6 HAL narrative writing module. The Reading Contract was derived from the learning contract that was discussed in Dr Carol Ann Tomlinson's works on differentiation*, while Reading Conferences and Book Hooks were a part of the Schoolwide Enrichment Model Reading Framework (SEM-R) reading programme developed by Dr Sally Reis

(Reis et. al.; Project SEM-R, National Research Center on the Talented and Gifted, University of Connecticut).

There are also numerous principles of good teaching and curriculum design which transcend strategies and subjects that I have learnt, from Mdm Sim, Dr Quek and other officers, which have made me a more effective teacher. To state just a few: I have learnt about the importance of focused lesson planning (trying to do too much usually leads to one accomplishing nothing); the need to rigorously tie objectives, learning activities and assessments together; and the need to have a spirit of perfectionist 'craftsmanship' to design excellent lessons. Indeed, now, as a teacher in what is commonly regarded as a "neighborhood school" means that I have found that while specific strategies and resources required adaptation, the sound principles of teaching I have developed or learnt at GEB are practically universal in their application.

I am grateful for my time in GEB, which provided the space and inspiring influences for my teaching style to develop in new and fruitful directions. I do hope that many new officers at the Branch will have similarly enriching experiences!

* Among others of Tomlinson's work:

Tomlinson, C.A. (2004) *Fulfilling the Promise of the Differentiated Classroom*. Alexandria, VA: Association for Supervision & Curriculum Development.

Tomlinson, C.A. (2001) *How to Differentiate Instruction in Mixed-ability Classrooms*. Alexandria, VA: Association for Supervision & Curriculum Development.

Mr Benny Lim was a Humanities Officer in the Gifted Education Branch for two and a half years, from June 2009 to Dec 2011. He is currently Head of Department (Integrated Programme) in Cedar Girls' Secondary School. He shares his insights with us here in an interview.

How has your experience as a GE Officer shaped you as an educator, in terms of your beliefs about talent development?

The most important thing about talent development that I learnt from my Gifted





Education Branch stint is that high-ability learners have their own learning needs. We should not leave them alone with the assumption that they can take care of themselves. The potential that high-ability learners have would not amount to much if it were left undeveloped.

In what ways do you see yourself, in your current position, as an advocate for talented students?

Advocates seek to converse with and educate others about their causes. In my current position, I strive continuously to converse with my School Leaders, fellow Heads of Department, teachers and parents on the learning needs of the students in the Integrated Programme and what we can do to facilitate the fulfilment of the students' potential.

In what ways did your experience in GEB enable you to take on your new responsibilities as Head of IP?

Being in GEB has enabled me to be acquainted with the full slate of issues relating to talent development, from identification to classroom strategies to enrichment. The experience has enabled me to guide and shape the IP programme in my school. I would not have the required competencies for this job if not for my GEB experience!

How has your training and experience as a GE Officer helped you to plan and implement talent development in your school?

The most valuable experiences I gained were from coordinating the P4 Social Studies curriculum, Humanities and Social Sciences Research Programme (HSSRP) and Moot

Parliament Programme (MPP). All three roles required me to work closely with teachers. Although the GEP is a centralised programme, each GEP teacher has to work within the context of his/her school, which may vary from that in other schools. The same applies to the schools involved in HSSRP and MPP. This experience taught me the importance of listening and being willing to incorporate the views of others in the designing of programmes. In my current position, it is crucial for me to listen to my colleagues and for me to convey to them my position — that I am not here to tell them what to do; instead I am here to engage them to jointly create better and stronger ideas and solutions.

How would you describe the first year of the Victoria-Cedar Alliance Integrated Programme (VCA-IP)? Are there key lessons which you would share with our readers?

I would describe the first year as challenging and rewarding. All in all, it is always challenging to start something new. The reward is when you see students benefiting from the work put in by the teachers. It is personally satisfying to know that every piece of work I do will have an impact on the teachers and students.

I would share two points. I would not call them lessons since these two points did not come from my personal experiences of the past year. Instead, they are guiding principles that I personally believe are necessary in starting a new programme.

The first is to be realistic in terms of being attuned to the situation on the ground and to be sensitive to the feedback from fellow teachers. While I may have ideas and goals for the IP curriculum, it is imperative that the teachers' teaching practices and professional development are in sync with the pace of change. After all, the process of building the capacity of teachers to teach IP and modifying teaching practices to a more open and student-initiated approach takes time. There is no point in pushing for immediate change in every aspect.

The second is to sustain conversations among the school management. If you are starting something massive in your school, take the initiative to engage School Leaders and Key Personnel. It is not wise to keep quiet and forge ahead on your own, as this creates confusion from the lack of direction. It is through sustained engagement that you gain clarity, unity and purpose.

Developing Deep Roots for Service

David Kwek and Zhang Huimei, GE Branch

The Ministry's introduction of a new Character and Citizenship Education (CCE) Syllabus and Values in Action (VIA) signals an emphatic shift of educational priorities to promote not only intellectual growth, but also the affective and moral development of our pupils. Youth is a time of idealism, and as educators, we would be wise to capitalise on these open minds and hearts, and fuel the imagination of our children to pursue more selfless goals which they will find meaningful and rewarding. In fact, through our work with the Gifted Education Programme (GEP) schools and secondary schools that offer School-based Gifted Education (SBGE) programmes, we have gleaned some key insights for fostering the moral commitment of our young and bright minds, hopefully developing enduring motivation for service.

Insight 1: Developing Empathy

Pupils do not become change-makers overnight. Many enter their VIA projects with preconceived notions which remain unchallenged if they become preoccupied with project completion. In order for our pupils to develop empathy for fellow Singaporeans, they must have opportunities to learn about the issue, practise empathy and initiate action. Last year, Primary 5 pupils from Nanyang Primary School (NYPS) were involved in a ten-week service-learning project. Adopting the 3Es (Empathy, Education, Enterprise) approach that the National Kidney Foundation (NKF) uses for its educational programmes, the experience helped pupils develop empathy for those they would be serving, and empowered them to draw upon this empathy as they initiated action to make a difference.

First, the pupils needed to gain 'head' knowledge about kidney disease and the unique challenges faced by patients on a day-to-day basis. After a learning journey to NKF's Kidney Discovery Centre, the pupils reflected on how the knowledge gained could be applied in ways to meet the needs of this community. Engaging the hearts of the pupils was the next focus. During a Civics & Moral Education (CME) lesson, pupils read real-life stories of kidney patients and gained insights into the financial burden the disease placed on their families, especially those with limited means. They also began to recognise the resilience demonstrated by kidney

patients who had to undergo regular painful dialysis sessions, as well as by their care-givers who provided unwavering support and love. In another CME lesson, pupils were engaged in an experiential activity where they had to stay seated while one of their arms was taped to the table. They then attempted to spend the next 15 minutes doing an everyday activity such as reading newspapers. It was a simple lesson with a powerful message. The pupils began to understand a little of what kidney patients felt when they underwent dialysis, an inkling of the mental and emotional strain that patients go through.

Under the guidance of their CME teachers, the Primary 5 pupils initiated projects that either promoted awareness of kidney disease and NKF's work, or raised funds for the artificial kidneys that patients required. The culminating activity of their service-learning experience was a celebration of their efforts and learning.

Practising Empathy and Reaching Out (Primary 5 NKF Project, NYPS)

The first step towards empathy is to experience a little of the painful ordeal that kidney patients go through.



The pupils then planned and carried out activities to raise awareness of the plight of kidney patients, and funds for the kidney patients.



Insight 2: Tapping on Pupils' Interests and Talents

To develop our pupils' sense of confidence and purpose, it is important to help them leverage both their interests and talents in service projects. At Rosyth School, GEP pupils demonstrated that there are many service-learning possibilities with *Scratch*, a free and easily downloadable programme created by the Massachusetts Institute of Technology (MIT) Media Laboratory to develop programming skills for those with little or no computer programming experience. Because *Scratch* has a gentle learning curve, the GEP pupils, whose higher cognitive abilities have been found to be associated with the ability to handle conditional commands in programming functions, are drawn to the playful experience it offers.

For their Primary 5 VIA project last year, a team of four pupils, Amanda Auyong Sze Yen, Chloe Teo Wei En, Lu Shao Qin and Sun I, decided to teach their younger schoolmates about key landmarks and historic sites in Singapore. Recognising fun as an essential element for younger children with a 'shorter attention span', the team developed original *Scratch* games to harness the excitement that their learners have for IT. At the school educational fair, their game drew an overwhelming response. When it became apparent, though, that one of the games was too challenging (participants were unable to click on the options available as those were presented too quickly on the screen), the team gamely recalibrated and re-programmed it on the spot, based on feedback from their audience.

Such is the potential that technology like *Scratch* offers to pupils who are adept at translating their ideas to useful applications to respond to the needs of a customised group. Recognising this, Rosyth School is now teaching *Scratch* as one of the milestone modules for Primary 5 GEP pupils in the 2013 Computer Enrichment Programme. To follow up after this training, the pupils will be working in teams to develop media applications that reflect the theme of "Rejecting Apathy, Embracing Kindness". Here are some of the possibilities currently being explored by the extremely excited and enthusiastic teams:

- Developing a game to raise awareness about online safety issues and encourage cyber-graciousness
- Teaching lower primary pupils, through a series of learning scenarios, about animal welfare and responsible pet ownership

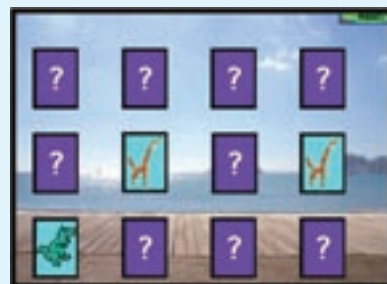
- Simulating situations to demonstrate the effects of littering and careless handling of waste, with the aim to improve community appearance and quality of life in Singapore

Engaging the Silver Generation with *Scratch*

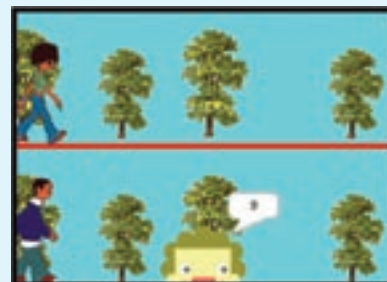
Inspired by the needs of their own grandparents, another Rosyth School team (Ryan Ong, Johanna Ong and Callista Lim) developed games for the elderly which won the top prize in the Junior Category of the "code:: XtremeApps:: competition" organised by iDA Singapore.



The "Nutrition Game" emphasises the importance of healthy eating and helps to improve the dexterity of the elderly, by allowing them to practise clicking on the right food options jumping rapidly across the screen.



The "Memory Game" features a flashcard game to give the seniors' short-term memory a good developmental workout, to help them stay mentally sharp and focused.



The "Intergenerational Bonding Game" encourages the child to play and interact with his or her grandparent, thus engaging in a more natural form of intergenerational bonding through play.

Insight 3: Strengthening the Belief that “What I do Matters”

It is a principle of human development that, over time, one becomes what one does. The new CCE syllabus emphasises the three big ideas of “Identity”, “Relationship” and “Choice”, which are interconnected because a person’s actions and social relationships create a personal history that shapes his or her outlook and habits. Our schools should therefore be the most productive starting place for the young to immerse themselves in positive service experiences and strengthen their belief that what they do matters.

At the primary level, the community selected for service projects will depend on the pupils’ age and abilities, and the logistical considerations associated with work that would take them beyond the confines of the school. At Raffles Girls’ Primary School (RGPS), the VIA plan features different themes for each level to suit the developmental needs of the pupils while ensuring synergistic outcomes for both the school and community partners. In the school’s “Buddy Reading Programme”, Primary 5 GEP pupils are assigned buddies from Chaoyang School¹. Over three weeks, they learn to be sensitive to the needs of others and use that consciousness to develop lesson resources for their buddies to learn at a level and pace that suit them best. After her first visit to the school, Nichole Taylor (Class 5P, 2012) reflected in her journal entry, “My group and I have to prepare more materials to suit the pupils’ needs. For Jennifer, we have to up the challenge [level] to stretch her. She could read all the words, even difficult words like ‘hippopotamus’. For Joshua, we have to prepare easier words and go through

them with him step-by-step.” Over the course of this project, the pupils’ self-efficacy — the measure of one’s own ability to complete tasks and reach goals — is strengthened as they learn to make their own decisions and gain confidence in meeting and serving the needs of others. Just as importantly, partners also come to see them as worthy and capable contributors of services to the community.

To develop the potential of our pupils for higher moral responsibilities, we move them in that direction by gradually removing the scaffolds as they become increasingly competent. As an extension to the *Actitude* camp, a leadership enrichment programme organised by the Gifted Education Branch, with the support of the Outdoor Education section of the Physical and Sports Education Branch, for selected GEP pupils and High-Ability Learners (HAL) from the nine GEP schools, participants plan and implement a school project that allows them to seize the opportunities within the school context to take action and seed change.

Take, for instance, the 2012 *Actitude* participants in Nanyang Primary, who worked with their school counsellor, Mr Oh Chee Siong, to develop a video on the theme of “Gaining Independence”. The team impressed Mr Oh with the motivation

Emphasising the Value of Independence



After experiencing the power of *Actitude*, one Nanyang Primary School team produced a video to raise awareness about independence and resilience in Primary 3 and 4 pupils.

VIA Plan for GEP Pupils (RGPS)		
Primary 4	Animal Welfare (SPCA)	<ul style="list-style-type: none"> • Pupils are introduced to animal welfare issues during lessons and a visit to the Society for the Prevention of Cruelty to Animals (SPCA). • Project activities include fund-raising for SPCA and other animal welfare groups.
Primary 5	Buddy Reading Programme (Chaoyang School)	<ul style="list-style-type: none"> • Pupils are assigned buddies at Chaoyang School. • Pupils develop materials to teach their buddies during one-hour reading sessions (three times per week over three weeks). • After the reading programme, pupils plan an outing for their Chaoyang buddies.
Primary 6	Environmental Issues (pupil-initiated projects)	<ul style="list-style-type: none"> • Pupils are introduced to environmental issues during lessons and a visit to a nature reserve. • Pupils initiate their own project to raise the level of their Primary 1 junior’s awareness of environmental issues.

¹ Chaoyang School caters for children (aged 7 – 12 years) with mild intellectual disability. The school provides its pupils with core skills of literacy and numeracy, and prepares them for further education and vocational training.

they showed and the fact that they needed little guidance: they reached out to other classmates and convinced them to contribute to the video production. The team's conviction that they needed to act to spread the message on the value of independence and the development of coping skills, given the prevalence of well-intentioned but over-protective parenting, has resulted in an end product that will be shown to the Primary 3 and Primary 4 cohorts in Semester 2 this year, to educate them on valuable life skills.

Through projects such as these, we have seen our GEP and HAL *Actitude* participants grow in

maturity as they develop the resourcefulness necessary to predict how they can increase their chances of success in their journey towards independence. In handling these projects, they also had to resist distractions, cope with fatigue, persevere, and develop strategies to reach their service goals.

Repeated positive experiences of success help our pupils move from being dependent on others to trusting their own judgement. That is why we must aim to offer pupils the opportunity to develop competence as they engage in service projects, and thus grow in confidence.

Pupils Taking Action

GEP CIP Carnival Anglo-Chinese School (Primary)

A fund-raising effort by the P5 GEP pupils for Community Outreach Services-Immanuel Children's Village (COSI), a school in Cambodia.



Speak Good English! Tao Nan School

Pupils from Class P5JK Yellow, 2012, promoted the use of good English and highlighted the importance of being intelligible in communication.



Boxes of Blessings St. Hilda's Primary School

"I think that the project is a very meaningful one as we have the chance to bless the less fortunate... I understood that when we bless others, we will double the joy because not only will the receiver be happy, the giver would also be happy."



– Angeline Lai (Class 4/10, 2012), who helped to fill 'boxes of blessings' (recycled shoeboxes, wrapped and decorated) with gifts such as household items and donations in kind for beneficiaries at the Daybreak Family Centre.

"Budding Artist" Project at St Luke's Hospital

Henry Park Primary School

"When we first walked in, we saw some sad and gloomy faces among the elderly patients. It felt wonderful that we were able to put smiles on their faces when they saw us decorating the walls.

An elderly man approached our group as we were working and asked us to sing him a song. The man looked rather sad, so despite our shyness, we sang a little song for him. It was then that I realised how lonely it could be for some of the patients at the hospital. I was glad that I could bring some cheer to the patients."



– Rohan Sundaram (P5 Respect 2, 2012)

Raising Awareness about Water Conservation at Bishan Park Secondary School

Catholic High School (Primary)

"We learnt the importance of sharing and the importance of showing gratitude. We learnt not to take everything for granted, including saving our precious resource, water which was not readily available in the disaster-stricken countries."



– Windsor Koh (P6 Faith, 2012)

Adopt a Rental Block Nan Hua Primary School

"It was a wonderful feeling to see that rapport has been built between us and the residents in our community. When we passed the bags of food and daily necessities to the residents, we could see gratefulness and happiness in their eyes. I am deeply touched that a simple gesture of ours could mean so much to them."



– Lim Yi Hui (5T2, 2012)

The panel on “Pupils Taking Action” on the previous page illustrates other projects undertaken by pupils in the GEP schools: They demonstrate that when pupils engage in meaningful VIA projects, they are more likely to view service as their moral responsibility and will be more motivated to continue making a difference to the community.

Insight 4: Empowering the Youth to Lead with Purpose

Young people today find themselves being challenged to strive and achieve, but many are asking: To what purpose? For them, it means starting to answer questions like: What do I hope to accomplish through all my effort? What are the higher goals that give meaning to these efforts? What matters to me, and why should that matter? At the secondary level, students in SBGE programmes in IP schools are addressing these questions by exploring the powerful link between the pursuit of positive purpose and satisfaction: Purpose leads to personal satisfaction by getting people to look beyond themselves, towards civic, voluntary and altruistic goals, and immerse in activities which are deeply meaningful.

As Edgar Foo reflected after his experience of participating in a food drive for four Chinese Development Assistance Council (CDAC) Centres with Hwa Chong Institution’s *iCouncil*, “In the *New York Times*’ Bestseller *The Happiness Project* by Gretchen Rubin, the author notes that “Prosperity allows us to turn our attention to more transcendent matters — to yearn for lives not just of material comfort but of balance, meaning and joy. Where we are, we have everything we need to live a comfortable life. How might we add value to our numbered days?” Like him, students involved in the project were able to draw connections and derive deeper



meaning when they witnessed the impact of their actions, mundane though food distribution may be, can have on others. These experiences lead them to think about how they might go about pursuing satisfaction and purpose — and how their talents can afford them satisfaction through pursuits that serve others. In fact, they often discover powers that they never knew they had: reservoirs of untapped energies and a surge of excitement to lead and serve with purpose.

Leading and Serving with Purpose

Authentic Learning in Singapore (ALIS) Programme

As part of the ALIS programme at Nanyang Girls’ High School (NYGH), a joint excursion for NYGH students and students from Madrasah Aljunied Al-



Islamiah to the Kallang Waterways was initiated this year. NYGH students planned a line-up of games and activities to engage their Madrasah friends.

Chiang Yan Qi (Class 213) reflected on the experience, “As a Malay (Special Programme)² student, this interaction with the girls from the Madrasah made me realise that “Malay” is not just a Third Language subject within the four walls of a classroom: Instead, Bahasa Melayu also encompasses Malay customs and traditions. I managed to converse with the girls from the Madrasah in simple conversational Malay, and they were pleasantly surprised that I could speak their mother tongue. This trip was an enriching cross-cultural experience that enabled me to understand the Malay culture beyond my Third Language lessons. There is a Malay proverb that goes: “jauh perjalanan, luas pandangan” which means “the further one travels, the more knowledge one would gain”. Indeed this is so!”

Students appreciate such cross-cultural experiences as being vital to developing inter-cultural harmony and to extending the limits of their world. This also paves the way for them to better understand the needs of others different from themselves, so that they are likely to be more effective in engaging with the community in future.

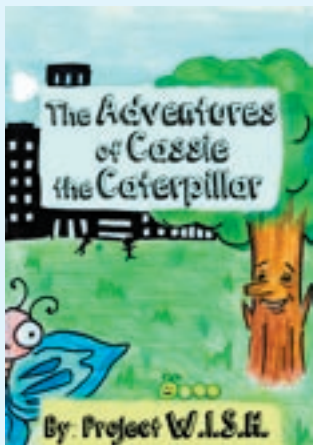
² Malay (Special Programme) is offered as a third language in NYGH. Students apply to offer the language at Secondary One and approval is given by MOE.

Leading and Serving with Purpose

Project W.I.S.H. (Wings In Singapore Heartland)

Project W.I.S.H., made up of eight students from Raffles Girls' School (RGS), identified urban nature deficit as a key problem in today's society — in particular the lack of meaningful interaction between children and nature, caused by rising trends of urbanisation. To encourage the public to increase involvement with nature, the group adopted the Butterfly Trail@Orchard, and worked with the Nature Society Singapore (NSS) to collect data to better understand the relationships between different species of butterfly and their affinity for different nectar plants in the butterfly gardens in the Orchard Road vicinity. To inculcate a sense of stewardship towards urban nature, the group also chose to reach out to those younger than themselves to form a basis for future lifestyles.

"The heartening responses toward our workshops, sharing sessions, collaborations with



various schools and organisations, outreach events and publicity campaigns, fundraisers and the self-created children's book (The Adventures of Cassie the Caterpillar) have greatly encouraged us in our endeavours to inculcate a sense of stewardship towards urban nature in children and families."

– Project W.I.S.H.

Music Makers @ Sunlove Dementia Daycare Centre

Driven by the hope to slow down the rate of deterioration of dementia patients' mental health through music therapy, a team of



five students from Raffles Institution did extensive research on the condition and visited the elderly at Sunlove Dementia Daycare Centre. Over six sessions, they sang to the patients and got them to dance to old songs they were familiar with. Ascertaining the impact of music as an intervention for dementia proved to be more of a challenge, for it has been a long-debated topic in the medical field. Notwithstanding, the team deeply relished the experience and interaction:

"We had anticipated unresponsiveness and rejection... When we approached them, however, they turned around and noticed our faces — our uneasy, uncomfortable expressions — and [gave us] smiles and peals of laughter [in return]. We felt very much relieved, and welcomed."

– Post-Session 1 Team Reflections

"It (our final visit) was a tear-jerking moment for many of the elderly at the centre whom we had forged bonds with. They were aware of their condition, and we could tell that they were unwilling to let go of such memories. It all seemed "come-and-go", but we knew that we had left our prints in a little corner of their fading minds, just a sweet memory of something that had happened. We knew that they would forget us somehow, due to their unfortunate... condition, but we were undoubtedly glad to be in their company, for they had given us the chance to serve them and learn from them."

– Final Team Reflections, Session 6

Every society has high expectations of its young and brightest. They are expected to acquire a sense of a purpose beyond self, assume higher moral responsibilities, and commit time and energy to enhance community life and resolve problems around them. Over the years, we have seen pupils, some of whom are featured in this article, who are truly commendable for the strength of commitment to service they display and the extent to which they have already served. Whether they are raising money for charitable causes, exhibiting social entrepreneurship or

working to advance noble causes, there is much to learn from their early successes. As educators, we should offer pupils possibilities that fire their imagination, guidance and support that encourage their highest aspirations, and a cultural climate that inspires them towards elevated life goals. By helping pupils find purpose and meaning, besides satisfying their own needs and aspirations that go beyond academic and material success, we can hopefully nurture humane and giving individuals to serve their generation and generations to come.

Scaffolding Creative Writing

Miss Lim Siew Yea, GE Branch

The 21st Century Competencies Framework, established in 2010 by the Ministry of Education, Singapore, places a premium on creative thinking. This has encouraged many educators in our country to rediscover the value of creative writing and critically appreciate how it serves to build students' confidence in innovative meaning-making and autonomy in reshaping language. While there is no doubt about the value of creative writing today among educators, there is little awareness about the scaffolding needed in the creative writing process to enable deep understanding of the craft and meaningful inculcation of desirable intellectual and affective dispositions. For educators who are in a quandary about how to provide guidance to fledgling writers under their charge, here are some suggestions for your consideration.

1. Establish clear criteria for evaluation

To lower the anxiety of beginners to the creative writing craft, we could start a discussion on the merits of good creative writing with the help of existing literary texts used in class. We can further encourage our budding writers to collaborate with us to establish the criteria for evaluating creative writing, which involves determining key dimensions associated with proficiency in creative writing, and indicators for mature performance. (See **Table 1** for an example of a set of criteria for creative writing.) This very act of knowledge-construction is empowering as it not only leverages on their prior knowledge about creative writing but also encourages them to take ownership in establishing a mental schema for themselves. With a clear understanding of what an optimal performance is, our young writers are more likely to be motivated to realise it.

Table 1: Creative Writing Criteria

Dimension of Proficiency	Indicators for Mature Performance
1. Sense of form <i>(Form: shape and structure, manner in which it is made, style)</i>	<ul style="list-style-type: none"> • consistently strong control over form/genre • remarkable ability to manipulate features to achieve intended effect • obviously enhances the central ideas • consistently and highly mature style that impresses the reader
2. Precision with language <i>(Language: dialogue, tone of voice, sensory details)</i>	<ul style="list-style-type: none"> • remarkable ability to use precise and appropriate vocabulary to express intensity of feeling or action • sophisticated and confident use of language and other literary features such as elements of irony, humour, etc. • clearly shows a creative flair, with interesting turn of phrases
3. Truthfulness of feeling <i>(Conviction, sincerity, honesty reflected in writing)</i>	<ul style="list-style-type: none"> • deep passion for the topic/issue • contains little or no clichés/stereotypes • strong sense of voice, highly appropriate for the content and purpose
4. Originality of thought <i>(Unusual perspectives or presentation)</i>	<ul style="list-style-type: none"> • keenly insightful • fresh, original ideas with excellent elaboration
5. Sensitivity to the world at large <i>(Awareness and reflection of the world and/or social/cultural views)</i>	<ul style="list-style-type: none"> • keen awareness of world views • remarkable ability to grapple with pertinent social/cultural issues • enlightened response

Source: Creative Arts Programme Creative Writing Rubrics, Ministry of Education, Gifted Education Branch, Singapore

2. Offer exemplars for reference and inspiration

To facilitate internalisation of the criteria established, it would be helpful to contextualise them with the use of exemplars to show how the standards are realised in practice. Instead of using esoteric works by consummate writers (which may prove too hard for our young writers to grasp or master) as a frame of reference for our students, it may be a good idea to offer developmentally appropriate student exemplars that have, in some way, met some of the standards. Reading such student exemplars offers our young writers a valuable opportunity for reflection. They serve as a reasonable challenge and source of inspiration, encouraging our writers to apply the same principles of writing to their own work. Such a practice is in alignment with Lev Vgotsky's principle (Lipscomb, Swanson, & West, 2004) of aiming at the zone of proximal development, ensuring that learning is attainable while maintaining a sufficient level of challenge for the students involved. **Table 2** offers an example of how generative questions could be used to guide our students' reflection with the use of a student exemplar.

3. Teach creative thinking heuristics

Apart from learning the criteria for good writing and receiving a wide range of literary exemplars for reference and inspiration, our students need to be familiar with creative thinking heuristics that help them to come up with innovative perspectives, especially when they suffer from writer's block. There are quite a number of heuristics that serve the purpose of promoting creative thinking: *SCAMPER* and *Synectics* are among those useful and accessible to our young. **Tables 3 and 4** show how *SCAMPER* and *Synectics* could be shared in class, and put to constructive use in creative writing.



Table 2: Using student exemplar for reference

Fernweh

Take a map of the city and fold it in half. Mark out where you are and where you want to be, the Wall standing somewhere in between, and marvel at how close it seems on paper.

Shaped almost symmetrically, halved and held lengthwise, the edges of my city almost meet. Yet everything is only almost something, and by the year I turned sixteen I was angry, furious with having to settle for the nearly-there, the not-quite.

Scaled and shrunk onto a map, Berlin is unlovely, ill-shaped and jagged. I covered its sides with my yearning hands and see a human heart spread between my palms. There are words in German for most things: the word for wanderlust, *Fernweh*, literally translates to an ache for distance. Mine, then, was an ache for jagged places and distance, distance from the home that had stopped feeling like one since —

That summer I bought a one-way train ticket to Berlin, but left enough money in my pocket for a return trip. Just in case.

Written by Liu Fangzhou, Raffles Girls' School (Secondary), Age 15
Extracted from *Eye on the World: Baring Soles* (2012)

Questions for reflection:

1. How effective is the writer in provoking your interest in this excerpt? How believable is the narrator?
2. How successful is this excerpt in conveying truths about life?
3. What surprises you about the way this excerpt is written?
4. In what ways has this excerpt affected your understanding of creative writing?
5. If there is something you could change for this excerpt or adapt for your own work, what would it be, and why?

Table 3: SCAMPER (by Alex Osborn and Robert Eberle)

Method	Explanation	Suggestions	Examples using Edwin Thumboo's Poem, "Ulysses by the Merlion"
S ubstitute	What would happen if X is used instead of Y?	Would you like to change the <ul style="list-style-type: none"> • Speaker? (age, gender, race, class etc.) • Context? (geographical, social, political, religious etc.) • Time frame? (past, present, future) 	How would the poem change in meaning if the speaker were a contemporary traveller instead of Ulysses?
C ombine	How can X be combined with Y to create Z?	<ul style="list-style-type: none"> • How can any two (or more) literary elements be combined to create a new insight? • How can any two (or more) images be combined to create a new metaphor? • How can any two (or more) registers be combined to create a new literary style? • How can any two (or more) attitudes be combined to create a sense of ambivalence? 	<p>What would your response as a reader be if the speaker of the poem had combined a sense of wonder with doubt?</p> <p>What if the poet had combined the perspectives of Ulysses and the Merlion in the poem?</p>
A dapt	How can X be altered to emulate/ surpass Y?	<ul style="list-style-type: none"> • How can you vary your thinking or writing style? 	<p>How would the poem change in meaning if it were adapted into a sonnet or song?</p> <p>How different would the poem be if it were written in an informal register of English?</p>
M agnify or M inimise	How can you increase or decrease X to produce Y?	<ul style="list-style-type: none"> • How can you enhance or reduce the weighting of any of the literary elements to create a different impact? 	What would happen if greater emphasis were placed on the auditory/ tactile/visual imagery in the poem?
P ut to Other Purposes	How can X be used for another function?	<ul style="list-style-type: none"> • How can a literary element/ idea/form be put to a different use? 	What other purpose does the Merlion serve?
E liminate	What would it be like without X?	<ul style="list-style-type: none"> • What can be eliminated from the poem to create a different impact? 	What would happen if the second stanza were removed?
R everse or R e-arrange	What would happen if I put X before/after Y?	<ul style="list-style-type: none"> • How can you change the word order or the structure of the literary text to create a different effect? 	What would happen if we re-arrange the stanzas of the poem?

Adapted from Serrat, O. (2010). *The scamper technique*. Washington, DC: Asian Development Bank.

Table 4: Synectics (by William Gordon)

Synectics refers to the joining of different and apparently irrelevant elements. Synectic methods are metaphor- or analogy-based techniques for bringing elements together in search for a new idea or solution. They work by making the familiar strange and the strange familiar through the following ways:

Types	Examples
<p>1. Direct analogy In a direct analogy, students draw parallels between one idea, object or situation and another.</p>	<ul style="list-style-type: none"> • How is humour like toothpaste? • Which is darker, a murky pool or a lie?
<p>2. Personal analogy For personal analogies, students would imagine they were an animate or inanimate object to develop a deeper connection and empathetic involvement with the analogy they create.</p>	<ul style="list-style-type: none"> • Be an iceberg in Alaska. How do you feel about yourself and the human world? • Imagine you are a beast. What are your desires and how will you fulfil them?
<p>3. Compressed conflicts These are symbolic analogies, bringing together words that express diametrically opposed ideas. They compel students to consider two opposite ideas at the same time. Sometimes, these juxtapositions may be literal antonyms, but they may also express more complex or oblique yet conflicting relationships.</p>	<ul style="list-style-type: none"> • How can a class be a quiet riot? • How can graduation be a form of sweet sorrow?

Adapted from Starko, A.J. (2010). *Creativity in the Classroom: Schools of Curious Delight* (4th ed). pp.151-154. New York, NY: Routledge.

Table 5: Reflections on literary work and growth

1. What are the key ideas in your work, and where do you get these ideas?
2. What kind of a change would you like to see in the reader after reading your work, and what are you doing to bring about that change?
3. What is your greatest challenge in creating this literary work, and how do you handle it?
4. Did you share your writing with others to get their ideas about it? If so, how did this sharing change the way you looked at this piece?
5. How did you feel about this literary work when you were writing it? What made you feel this way?
6. What is the most significant revision you made to this piece of writing? Why?
7. What would you have changed about any of your works if you have more time and/or resources?
8. Which is your most satisfying work in your portfolio, and why? Which is the least satisfying, and why?
9. What have you learnt about yourself as a writer after reflecting on your works?
10. What still puzzles you about creative writing, and what is your next goal?

Adapted from Camp, R, Seidel, S, Wolf, D, Zessoules, R , teachers and administrators of Pittsburgh Public School System (1993) *Arts Propel: A Handbook for Imaginative Writing*. pp.96-98. Cambridge, MA: Harvard Project Zero and Educational Testing Service.

4. Encourage Meta-cognition

According to David Perkins (Perkins, 2009, p. 137), teaching heuristics alone will not be sufficient to secure high-quality performance: students generally lack a mental schema to check their own understanding and progress, hence the need for self-management strategies to be imparted. It thus behoves us as educators to familiarise our students with meta-cognitive strategies so that they can independently assess the soundness of their artistic choices, take stock of their gaps in knowledge and work to bridge

these. Of particular relevance to creative writing is journaling, which helps pupils to “engage in self-explanation, a strategy that improves understanding” (Perkins, 2009, p. 139). Journaling serves to develop self-discipline in a student, getting the creative producer in him/her to assume the role of a literary critic and take an impassioned look at his/her own work, with a view to revise for improvement. **Table 5** shows some questions to promote reflective thinking on the creative process and products in students’ journals.

Table 6: Communicative feedback

Dimensions	Explanation	Literary Examples
Clarification	Ask questions about unclear points or absent ideas; gather relevant information so that the feedback which will be given can be constructive.	What is the central message you want to convey? What is the emotion you are trying to evoke in your reader? What would you like your reader to remember after reading your work?
Appreciation	Stress positive points and interesting strengths so that the recipient knows what in your view worked well, what to hold onto, and what to keep doing.	Your precise and economical use of language here makes this paragraph compact. You have shown us how snow could assume so many different meanings in this poem. This symbol is pretty effective.
Concerns and Suggestions	These focus on a positive future: how to improve this or do better next time. They avoid criticism of the person’s capabilities or character and address the situation.	I am concerned that there’s too much explicit telling in this extract which may come across as didactic to the reader. Would you like to consider showing your character’s traits through speech or action? That would make your writing more subtle. I am concerned that such an ending may be too abrupt for the reader. Would you like to consider resolving the central conflict to facilitate closure?

Adapted from Perkins, David (2009). *Making Learning Whole*. pp.85-86. San Francisco, CA: Jossey-Bass.

5. Provide constructive feedback

While it is important to train our students to be self-directed learners, we, as stewards of young writers, must still assume responsibility for their growth by checking on their progress in a timely manner and offering them constructive feedback for improvement. David Perkins (Perkins, 2009) argues for the use of communicative feedback, which involves three key elements: clarification, appreciation, and concerns and suggestions, as shown in **Table 6**.

Communicative feedback seeks first to understand the intentions and convictions of the writer, and affirms his strengths, thus creating receptiveness for suggestions for improvement. We also need to be sensitive to the cognitive and affective needs of struggling students, and offer them a differentiated form of guidance. Susan Brookhart (Brookhart, 2008) proposes the use of specific feedback strategies to help them, as shown in **Table 7**.

Scaffolding creative writing is not a walk in the park. It requires a tremendous amount of patience and understanding as well as genuine conviction on the part of the educator about the

value of offering structured, focused and timely guidance to young writers. However, its rewards may be great as it can lead to deep learning on the part of our students about the science and art of creative writing, and develop in them habits of mind that practitioners of the art possess. The world today is characterised by uncertainty and doubt. The task of preparing our young to become competent and confident individuals who can shape the beliefs, practices and values of our country positively through creative language has never seemed so important as now.



Table 7: Feedback strategies for struggling students

Strategy	Explanation	Literary Examples
Focus on feedback on the process.	Show how particular efforts result in a particular performance, helping students to “learn how to learn”.	I saw you going back to use an image to represent the character’s state of mind. Now that you have made this change, can you see that you’ve created a far more vivid mental picture, and lasting impression, for your reader?
Use self-referenced feedback.	If a direct comparison with the criteria for good work would result in a resounding failure, look for signs of improvement in the student’s previous work. If students can see that they did make some progress, they are more likely to persist.	The lines in your first stanza are disjointed. But, in this stanza, your lines run logically from the first to last. Could you revise your first stanza so that it reads like this one?
Select one or two important points for feedback, and suggest small steps for improvement.	Break up a complex task into small, manageable steps.	Next time, after writing a paragraph, could you check if there is any word or phrase that does not add significant meaning to your text? If there is, remove it. Your work will become compact this way.
Use simple vocabulary . Define or explain words related to achievement or learning targets, or at least check for understanding.	Do not avoid learning-related terms but do avoid complex vocabulary if simpler word choices are available.	When you create a character, you need to consider why he is doing what he is doing. That’s called motivation. Action in a narrative is driven by it.
Check for understanding of feedback.	If a student doesn’t understand the message, he cannot make a change for the better.	Would you like to share with me what you’ve learnt, and one thing you are going to work on in your next draft?

Adapted from Brookhart, Susan (2008). *How to Give Effective Feedback to Your Students*. p.102 Alexandria, VA: Association for Supervision and Curriculum Development.

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The E2K Science Programme

Mdm Liew Poh Yin and Miss Phuan Siew Khoon, GE Branch

“Give a man a fish and he will eat for a day.
Teach a man to fish and he will eat for the rest of his life.”

~ Chinese proverb

Learning to Fish in E2K

Excellence 2000 (E2K) Science Singapore is a Science enrichment programme for upper primary pupils who demonstrate interest and ability in Science. “Learning to fish” is an appropriate metaphor to describe the goal of E2K: To equip our most curious and motivated pupils with skills to “fish” for their own knowledge, rather than have them wait for fish to be “served” to them. The E2K Science Singapore programme, developed by the Israel Centre for Excellence through Education (ICEE), aims to promote the inquiry approach to Science teaching and learning. The programme consists of activities based on six curriculum units which are delivered using the E2K pedagogy. The programme was piloted in 30 schools between 2009 and 2011. Since its implementation, the E2K Programme has received positive feedback from both teachers and pupils. Pupils have gained confidence in independent inquiry and teachers have gained skills in facilitating inquiry learning.

From 2012, E2K has expanded to 13 more schools in Singapore. The expansion of E2K to

more schools interested in provisions for high-ability learners in Science will continue over the next few years. Besides training teachers in the use of the E2K curriculum and pedagogy, for up to a year after the training, Gifted Education Branch officers also provide them with guidance on E2K implementation.



Poh Yin and Siew Khoon

Inquiry in E2K

The inquiry approach in E2K models the approach scientists use to generate knowledge in Science. By replicating this process in the classroom, pupils experience Science just as scientists would. Such a learning situation calls for the learner to use the reasoning and processing approaches of scientists.

Pupils will, over time, acquire the habits, attitudes and dispositions of scientists. Apart from subject-specific competencies, pupils would also acquire generic 21st century competencies such as critical and inventive thinking, independence and confidence, as well as information and communication skills. These competencies are naturally developed as pupils learn and collaborate in the E2K inquiry setting. They need to communicate their ideas to others,



and at times, defend their ideas and reasoning. They are also exposed to a diversity of opinions and ideas, and learn to be more open to alternative ideas.

How does E2K allow pupils to experience Science as scientists? Just as scientists start off with a problem to which they do not have answers, pupils learn Science concepts through investigating problems that arise from real-life situations. Contexts used are those that pupils can easily relate to. Problems are not framed as aims of experiments, as those would be contrived situations that are far removed from the daily experiences of pupils.

When scientists work on a novel problem, they cannot be certain where their research will lead them. At times, they could face confusion; at other times, they may need to reformulate or repeat their experiments. The E2K lessons make provisions for such an experience in the pupils' learning. During the exploration phase, teachers allow pupils to make mistakes, giving them minimal input such that the pupils are "forced" to rely on their own resources. This allows the pupils to develop independence in experimentation and confidence in their reasoning. However, it does not mean that the teachers are not involved — they are still actively observing the pupils to note what they have done well and where they have gone wrong. These observations are used for closure later on in the lesson.

For scientists, what is important in the exploration phase is their protocol, experimental design and the results they have obtained. Meticulous and proper documentation allows them to re-examine their experimentation and improve on them if necessary. In E2K, pupils are trained to write precise protocol and to report their results honestly so that these provide a strong basis for subsequent analysis and troubleshooting with the facilitation of the teacher. The empirical nature of Science becomes evident to the pupils in the process — their results are a direct reflection of their experimentation, as they move from the uncertain to a better degree of certainty through their experimentation process.

In the analysis stage, scientists rely heavily on the input from others. They refer to results obtained by other people in other laboratories, as well as to journals for records of past experimentation. Scientists have an increased degree of confidence about their results when their results corroborate those of their learned peers. They will re-examine their experiment

when their data differs from that of others. Such a situation is simulated for the pupils in E2K. The teacher will facilitate the collation of results from all groups in the class for analysis. Trends are confirmed only if most groups show the same trend. Conversely, the pupils learn to spot anomalous data that deviate from the general trend. Pupils learn that they do not confirm trends based on the data of one group.

Even as the pupils immerse themselves in the scientific experience, the teacher is central to the learning that takes place under E2K. It is the teacher who creates the learning situation and who then guides the pupils through the thinking and learning process. It is only through the teachers' observations, notes, and facilitation that pupils analyse and learn from the scientific journey they undertake in E2K.

The E2K Experience: Effects on Pupils

The impact of adopting the E2K pedagogy is most evident in the pupils' behaviour in E2K classes. It is encouraging to observe that pupils are more confident in questioning their peers and in responding to peer critique. They are also more keen to work independently in a scientific inquiry. A teacher from River Valley Primary School commented:

E2K students are more independent in their learning as they do not see the teacher as the sole provider of knowledge. They are more critical of the things they see, in a positive way — they develop an eye for detail [and appreciate] the need for experimental precision as well as accuracy. Finally, E2K has made High-Ability Science students even more interested in Science. They are eager to attend E2K lessons and look forward to every lesson. That's an indicator of success to me.



How to make a bead hover in water

Two P5 pupils from Singapore Chinese Girls' School (Primary) reflected on their E2K experience:

I have learnt how to explore different scientific concepts and also broadened my thinking, as during E2K we could critique other people's protocols and ask them questions about their experimental procedures.

I find E2K enjoyable and fun because we get to work in groups; we get to plan our experiments, prepare the materials and actually get to carry out the experiments. Sometimes, the results are unexpected.

The E2K Experience: Equipping and Enriching Teachers

It has been observed that teachers were also becoming more skilled at facilitating discussions and increasingly comfortable with allowing pupils to take calculated risks. The teachers consider this an achievement as they consciously suppressed their instinct to correct pupils' experimental protocols and ideas. The teachers also shared that they are transferring E2K pedagogy to their regular Science classes.

'I feel I have sharpened my questioning techniques and it is helpful in my regular teaching. I could also apply these techniques in the teaching of other subjects like Mathematics.'

~ A Teacher from Red Swastika School

'In an E2K classroom, [pupils] are given the freedom to experiment and sometimes even to fail... and to learn from one another [the] variations in procedure or measurement. In this aspect, I've learnt to be less uptight when experiments do not proceed as planned even [in] a regular Science class as we can always learn from our mistakes.'

~ A Teacher from River Valley Primary School

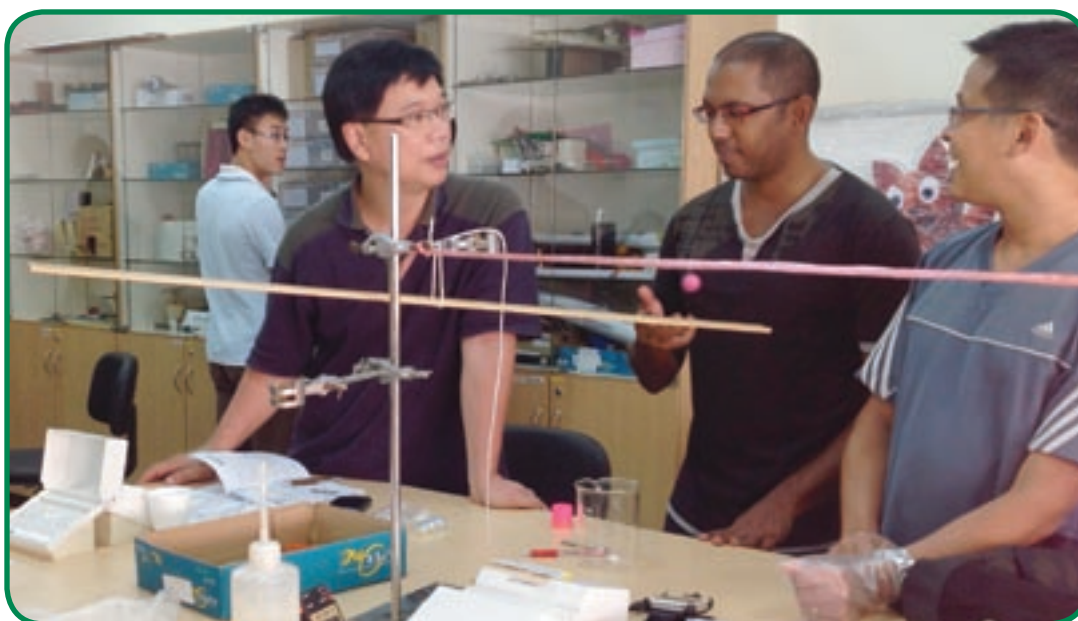
Additionally, E2K teachers and their colleagues observed that E2K pupils are taking the lead in learning by inquiry in regular Science classes. This has generated interest in the programme within their school as well as in schools in their cluster. It also affirms the effort invested in the programme and its focus on the process of knowledge generation in Science instead of merely focusing on scientific knowledge as a product. The sea of scientific knowledge is vast, and thanks to the E2K programme, an ever-increasing number of young scientists will have their hearts and minds set on 'fishing' for new discoveries.

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Employing the principle of moments to weigh an object

Inter-school Debate Championship 2013 and RHB-Straits Times National Spelling Championship 2013

Daniel Tan, GE Branch



Educators today have a wide range of resources and strategies at their disposal for enhancing their pupils' language skills. There are few experiences, however, which can match the intensive preparation, excitement, and rapid skill acquisition associated with a competition.

Every year, the Gifted Education Branch organises several programmes to enrich the learning of high-ability pupils in the English Language. These programmes include *Wits & Words: Inter-school Debate Championship (IDC)*, supported by Raffles Girls' School (Secondary) and the Debate Association (Singapore) [DA(S)], and *The RHB-Straits Times National Spelling Championship (RHB-STNSC)*, organised in partnership with The Straits Times and sponsored by RHB Bank. The two programmes also have the strong support of the National Library Board, Singapore. The IDC and RHB-STNSC both aim to build pupils' linguistic competencies and sensitise them to appreciate the power of precision in language.

While IDC focuses on the development of pupils' oral communication skills through the cut-and-thrust of argumentation and rebuttal, RHB-STNSC provides a platform for pupils to understand the importance of having a wide vocabulary and being able to spell accurately. Despite differences in appeal, both programmes have had growing levels of enthusiasm and participation, as testified by the number of participants and primary schools involved. For instance, the preliminary round of the 2013 RHB-STNSC attracted 1400 registrants, who all underwent the trial of spelling 50 different words to earn a place at the Zonal Rounds. The preliminary round of the 2013 IDC attracted 61 teams from 61 primary schools.

The effects of these two programmes spill beyond the competitive rounds that take place.

In the course of preparing for the RHB-STNSC, participants are exposed to a wide range of lexical items used in context, an exposure they would not have had in normal contexts of language use. Even more pupils took advantage of an online spelling competition, set up by The Straits Times as a RHB-STNSC fringe event, to further challenge themselves in their free time. This keen desire to spell accurately reflects pupils' understanding of the importance of precision and clarity in language. A washback effect from the RHB-STNSC is that schools also run their own competitions to identify their good spellers. Consequently this leads to changes in the classroom as pupils become keen to acquire new vocabulary and take an active interest in the way words are spelled and used in specific contexts. This learning translates into concrete gains when pupils use new words learnt to better express themselves in composition writing. Mrs Helena Baldwin of Holy Innocents' Primary cited participation in RHB-STNSC as a good opportunity for her pupils to learn spelling strategies from one another, expand their vocabulary and make use of the new words learnt in a variety of contexts. Another observation by teachers is that pupils also gain motivation to read, as they see that those with a good vocabulary gained from a wide reading diet have an edge in the Championship. Even participants who have not made it into the finals have come away satisfied with the many new words they have learnt, and with a fierce resolve to return to do better the following year.

Similarly with the IDC, the gains over the years have been noticeable. Ms Nicole Lee, Director of Training, DA(S), commented that there have been marked improvements in the standard of debate among the participating primary schools over the years. She noted that "the debaters have definitely become much more adept and confident in public speaking. It used to be just



Our young debaters in action

reading off cue cards and now we see a greater attempt at engaging the audience and being persuasive, entertaining speakers.” In addition, she observed that pupils generally showed higher competencies in substantiating arguments with examples and evaluating issues deeply in relation to the motion, showing evidence of development in the aspects of critical reasoning and analysis. Pupils learnt how to take on various viewpoints on a topic, and emerged with a more balanced understanding of issues. The ‘softer’ skills of collaboration were also not neglected, as they learnt the roles and responsibilities of individual speakers, and learnt how to work cohesively as a team in debating.

Ms Lee’s views have been echoed by teachers as well. Ms Silvia Dennis of South View Primary School commented that the confidence and language skills of the debaters from her school had improved significantly as a result of participating in this event. Mr Mohd. Razif Ansari of Rivervale Primary School added that not only has the standard of debates improved, he also observed that his pupils have become more able to “think deeply about issues” and become more sensitive to the use of words. He mentioned that participation in such debates offered pupils the rare opportunity to test their mettle and truly analyse the complexities of controversial topics.

The teachers-in-charge generally agreed that participating in debating is a great way for pupils to interact and engage in healthy, intelligent discourse on topics they can relate to. The IDC offers a platform for pupils to get more sustained exposure to and involvement in debating, as they get the opportunity to hone their skills against peers from other schools. Debate programmes carried out in some schools as enrichment activities are limited if they last only a short while. The development of debating skills needs time and sustained, regular opportunities for sparring with others. Training



A junior debater makes his case

for the IDC allows teachers to pay more attention to the pupils who have the interest and capability to engage in debate. Ultimately, participation in the IDC encourages and helps pupils to retain the debate skills learnt.

Lest we think that competitions lead to rivalry and unhealthy impulses, the teachers for IDC and RHB-STNSC were unanimous in supporting these programmes. High-ability pupils are not limited to a narrow range of schools, as evidenced by the spread of schools from which the debating and spelling talents have come from. Participants with strong performance in both competitions have come from many schools — Edgefield Primary, Yio Chu Kang Primary and Unity Primary among others — as newer and less experienced teams progress with hard work and proper guidance to emerge triumphant over time. Mr Daniel Ying, from Cantonment Primary, who has worked with pupils from both GEP and mainstream schools, is a strong advocate that all pupils, mainstream or GEP, with an interest and aptitude in language, can benefit significantly from participation in such ‘mindsports’, as it allows them to compete against the very best, regardless of background, to learn and build confidence.

Debating trains dexterity of mind in terms of critical thinking and evaluation, while simultaneously developing the ability to address an audience with confidence and eloquence. At the same time, spelling well is an indicator of one’s awareness of word forms and word origins. It is also a mark of one’s linguistic precision and clarity, improving the standard of both written and spoken expression. Both platforms are growing and evolving, and we look forward to engage more educators and pupils who will recognise their affordances in years to come. Hopefully, an ever-widening circle of pupils will trace their lifelong proficiency and love for the English language to such experiences as the RHB-STNSC and the IDC.

The Mathematics Assessment Project and 21st Century Competencies

Mr Lim Chong Jie, GE Branch

As we embark on infusing 21st century competencies in the classroom, some key concerns surrounding many Mathematics teachers revolve around (i) how 21st century competencies in Mathematics look like, (ii) how 21st century competencies can be manifested and infused in Mathematics lessons, and (iii) how such competencies can be assessed. In Mathematics, 21st century skills like Critical and Creative Thinking need not necessarily require high-level Mathematics and are not only restricted to mathematical proofs and competition-type problem solving. In a past issue (July 2012) of *The Exchange* Ms Tan Lay Chin (GE Branch) showed how to do so, using "Math Problem Posing" to infuse critical and creative problem solvers. On top of these tasks, teachers can also infuse critical and creative thinking into Mathematics teaching and learning through the use of open tasks (for example, mathematical modelling tasks, authentic tasks), investigative tasks, and research assignments.

In the US, there is a similar call to focus on assessing 21st century skills like problem-solving and critical thinking in schools. An online resource, *the Mathematics Assessment Project (MAP)*, a collaborative project between the University of California, Berkeley, and the Shell Centre team at the University of Nottingham,

involves working with the Silicon Valley Mathematics Initiative and school systems across the US and UK to develop improved assessment in Mathematics. At the American Educational Research Association (AERA) Annual Meeting 2012 (*Non Satis Scire: To Know Is Not Enough*), held in April 2012 in Vancouver, Canada, Alan Schoenfeld, Affiliated Professor at the Department of Mathematics at University of California, Berkeley, shared how resources on MAP can be used for formative assessment of complex thinking in Mathematics.

The MAP aims to enable teachers to achieve the *Common Core State Standards for Mathematics (CCSSM)* in their classrooms by developing materials that are ready for use in the classroom. These materials comprise (a) summative tests or tasks, and (b) Classroom Challenges. The summative tests and tasks include applications of Mathematics in routine and non-routine problems which require students "to design, plan, estimate, evaluate and recommend, review




Mathematics Assessment Project

ASSESSING 21ST CENTURY MATH

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The Mathematics Assessment Project

"And I'm calling on our nation's governors and state education chiefs to develop standards and assessments that don't simply measure whether students can fill in a bubble on a test, but whether they possess 21st Century skills like problem solving and critical thinking and entrepreneurship and creativity."

President Obama, 1 March 2009.

New for 2013: Ten new 'Classroom Challenge' formative assessment lessons for Middle School are now available, including [the first five lessons for Grade 6](#)

Screenshot of the MAP Homepage (<http://map.mathshell.org/materials/index.php>)

and critique, investigate, re-present information, explain, define concepts, and show their skills in routine technical exercises" (¶2, "Mathematics Assessment Project: Summative Assessment", 2012). For those familiar with Bloom's taxonomy, on top of critical and creative skills that are assessed in such tasks, the summative tests and tasks aim to also assess the mastery of mathematics that have higher cognitive demands.

On the other hand, Classroom Challenges are lessons that support teachers in formative assessment. These challenges aim to assess students in their conceptual understanding of mathematics as well as their ability to solve both routine and non-routine mathematical problems. The lessons include problems for students to solve, tasks on analysis of sample solutions and reasoning, as well as questions for discussion,

thus providing students the opportunity to go beyond simply providing numerical solutions, to communicate their mathematical thinking in words. The focus on formative assessment to bring about mathematical learning and reasoning is not surprising; Black and Wiliam (1998) showed strong evidence for the effectiveness of formative assessment in raising standards of achievement.

Samples and Snapshots of Materials Available

Currently, materials suitable for students ranging from Grade 6 to High School (based on the CCSSM) are available on the website. These materials are equivalent to the standards of Primary 5 to Secondary 4 in Singapore schools.

Assessment task: Penalty Shoot-Out (15 minutes)

Have students complete this task, in class or for homework, a few days before the formative assessment lesson. This will give you an opportunity to assess the work, and to find out the kinds of difficulties students have with it. You should then be able to target your help more effectively in the follow-up lesson.

Give each student a copy of the assessment task: *Penalty Shoot-Out*.

Read through the questions and try to answer them as carefully as you can.

It is important that, as far as possible, students are allowed to answer the questions without your assistance.

Students should not worry too much if they cannot understand or do everything, because in the next lesson they will work on a similar task, which should help them. Explain to students that by the end of the next lesson, they should be able to answer questions such as these confidently. This is their goal.

Assessing students' responses

Collect students' responses to the task. Make some notes on what their work reveals about their current levels of understanding and their different problem solving approaches.

Penalty Shoot-Out

1. The bar chart represents the outcome of a penalty shoot-out competition. Each person in the competition was asked six shots at the goal. The graph shows, for example, that four people only scored one goal with their six shots.

2. How many people were involved in the shoot-out? Show how you obtain your answer.

3. Complete the table with values for the mean, median, mode and range of scores. Explain how you calculate each answer.

Mean score	_____	
Median score	_____	
Mode score	_____	
Range of scores	_____	

2. There is another penalty shoot-out. Use the table of results to draw a possible bar chart of the scores.

Mean score	3
Median score	2.5
Mode score	4
Range of scores	4

Show all your work.

Box 1 Pre-assessment Task for Lesson on "Mean, Median, Mode and Range" (Grade 6) [Reproduced from p.T-2, Teachers Guide, Grade 6 Lesson "Mean, Median, Mode and Range", Mathematics Assessment Project, 2013]

Common issues	Suggested questions and prompts
<p>Misinterprets the axes on the bar chart</p> <p>For example: The student states that there were six people involved in the shoot-out (Q1a).</p> <p>Or: The student does not understand the term 'Frequency'.</p>	<ul style="list-style-type: none"> • Complete this sentence "This bar shows that" (indicate one of the bars). What does the term 'Frequency' mean? • How many people scored three goals? How many people scored four goals?
<p>Uses incorrect values when calculating the mean</p> <p>For example: The student finds the total of the frequencies rather than the total number of goals.</p> <p>Or: The student divides by six rather than the total frequency.</p> <p>Or: The student adds the scores: $(1 + 2 + 3 + 4 + 5 + 6)$ and divides this total by 6.</p>	<ul style="list-style-type: none"> • How many goals were scored? • Six goals were scored five times. So what is the total number of goals? Compare this to your total, what do you notice? • Imagine writing the scores out as a list. From this list, how would you work out the mean?
<p>Confuses the position of the median with the value for the median</p> <p>For example: The student adds one to the total frequency and divides by two to give a median of 8.5 (Q1b).</p> <p>Or: The student just divides the frequency by two (Q1b).</p> <p>Or: The student assumes the median is 3.5, half way between 1 and 6</p> <p>Or: The student writes two values for the median, 3 and 4.</p>	<ul style="list-style-type: none"> • The median is the middle score when all the scores are in order. Is this what you have found? • Try writing the scores in order: 1,1,1,1,2,2,3,..... Which is the middle score? How could you do this directly from the frequency graph without writing a list?

Box 2 Prompts to Common Issues in Pre-assessment Task on Mean, Median, Mode and Range (Grade 6) shown in Box 1 above [Reproduced from p.T-3, Teachers Guide, Grade 6 lesson "Mean, Median, Mode and Range", Mathematics Assessment Project, 2013]

Classroom Challenges

Conceptual understanding seems to be the focus of every lesson package. Many lesson packages include pre-assessments, materials for inductive teaching, group tasks, and solution analyses. Activities and tasks usually require students to use mathematical concepts to explain certain observations or approaches. Students are also made to go through proofs where necessary. Suggested comments for teachers are also included in the lesson packages.

The following boxes show excerpts from a Grade 6 Concept Development Lesson on the topic "Mean, Median, Mode and Range" which give us an idea of how the materials are structured. Box 1 shows the Pre-assessment task which comprises basic questions related to that topic. This allows the teacher to find out what the key gaps and misconceptions are, and to identify students who have little or no background in this topic and those who are highly advanced in this topic.

Teachers are also given prompts they can use to dispel common misunderstandings (or issues)

that cause pupils to make mistakes in the Pre-assessment. See Box 2.

The resource then provides a suggested lesson outline, with a whole class instructional section, followed by collaborative small-group work where pupils work at matching cards depicting the bar graphs to the corresponding tabulated data. Pupils are asked to share in a whole class discussion what they learnt from the card-matching experience. The teachers are provided with discussion questions to focus on helping their pupils reveal the reasoning behind their decisions. See Box 3.

Box 4 shows a Classroom Challenge problem-solving task for the same level (Grade 6). Through the design of a candy carton, the pupils are asked to solve real-world and mathematical problems involving area, surface area, and volume.

Summative Tests and Tasks

There are three types of summative tasks: novice, apprentice, and expert tasks. The tasks are categorised based on complexity, familiarity,

Whole-class discussion (20 minutes)

It is likely that some groups will not have matched all of the cards, but the aim of this discussion is not to check answers but to explore the different strategies used by students when matching/completing the cards, as well as identifying areas in which students struggled.

First select a pair of cards that most groups correctly matched. This approach may encourage good explanations. Then select one or two cards that most groups found difficult to match.

Once one group has justified their choice for a particular match, ask other students to contribute ideas for alternative strategies, and their views on which reasoning method was easier to follow. The intention is that you focus on getting students to understand and share their **reasoning**.

Use your knowledge of students' individual and group work to call on a wide range of students for contributions.

Which cards were the easiest to match? Why was this?

Which cards were difficult to match? Why was this?

When matching the cards, did you always start with the bar chart/statistics table? Why was this?

Did anyone use a different strategy?

You may again want to draw on the questions in the *Common issues* table to support your own questioning.

Box 3 Suggested Discussion Questions for Lesson on Mean, Median, Mode and Range (Grade 6)
[Reproduced from p.T-8, *Teachers Guide, Grade 6 lesson "Mean, Median, Mode and Range"*, Mathematics Assessment Project, 2013]

cognitive demand, and amount of scaffolding. Novice tasks tend to be short, simple, routine, closed, and cognitively less demanding, while expert tasks tend to be long, complex, non-routine, open, and cognitively more demanding.

For example, for Middle School (Grades 6 to 8), the novice tasks entitled "*Short Tasks: Ratios and Proportional Relationships*" comprise seven closed mathematical problems similar to those found in Mathematics textbooks in Singapore. On the other hand, the expert tasks entitled "*Counting Trees*" require students to apply the concepts of sampling, area and proportion to provide a good estimate for the number of each type of tree in a given diagram.

Design a Candy Carton

A candy company wants you to design a carton that will contain 18 candies.

Your design must take into account the following:

- The candies are each 1cm deep and 2cm in diameter.
- The carton must be made from a net that fits on a single sheet of letter-sized cardboard.
- The design should require as little cutting as possible.
- The sides of the carton will be fixed together using glue flaps. Show where these will be on your net.

Produce two possible designs for nets of the candy carton.

Compare your two designs.

Record in writing which carton you think is best, and why.

Box 4 Part of a Problem-solving Task for Grade 6
[Reproduced from "*Designing: Candy Cartons*", Mathematics Assessment Project, 2013]

Summative tests are compiled using the summative tasks available on the website. Each test has a balance of novice tasks, apprentice tasks and expert tasks to enable each test to assess the standards delineated in the CCSSM. Rubrics are also provided for each test.

Using MAP resources in local classrooms

How can the materials in MAP be used to complement our current resources? Resources on the MAP website, particularly activities and tasks, are rich in Mathematics and are suitable for group work and class discussions for students to explore Mathematics, apply mathematical concepts in non-routine problems, and reason mathematically. Such activities and tasks enable students to work on the higher levels of Bloom's taxonomy that are not often assessed in the usual pen-and-paper modes of assessment in Singapore. After all, mastery in Mathematics is

not just about being able to solve textbook-type problems, it is also about being able to see things from the mathematical perspective. While many open tasks are designed for summative purposes, as alternative modes of assessment, these tasks can also be used as part of the curriculum to infuse higher order thinking skills and 21st century competencies like communication skills, critical and creative thinking in Mathematics lessons, as well as the value of resilience.

Since the MAP resources seem so good, does it mean that we throw away what we have been doing for the topics for which MAP resources are available out of the window? The obvious answer is "No" — for a few reasons, it is still important to practise the fundamental algorithms after understanding a concept so that students can move on to learn more difficult concepts in the future without having to revisit, for instance, adding unlike fractions, due to lack of familiarity; and it is still crucial for students to be engaged in solving multi-step, closed problems so that students learn to break down problems into small parts. Journal writing and

constructing mind maps are still effective ways for students to exercise their metacognition and ability to make connections between different concepts. After all, a good balance of teaching strategies and a well-considered list of materials to be used are critical in ensuring that learning is effective and efficiently carried out.

References

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Upcoming Conferences

- University of Connecticut 36th Annual CONFRATUTE**
14 – 19 July 2013
 Storrs, USA
<http://www.gifted.uconn.edu/confratute/>
- 2013 SENG Conference: Supporting Emotional Needs of the Gifted**
19 – 21 July 2013
 Orlando, Florida, USA
<http://www.sengifted.org/programs/conferences/2013annualconference>
- 33rd International Conference on Critical Thinking and Education Reform**
20 – 25 July 2013
 Berkeley, California, USA
<http://www.criticalthinking.org/pages/33rd-international-conference/1112/>
- "Celebrating Giftedness and Creativity" World Conference 2013 of the World Council for Gifted and Talented Children**
10 – 14 August 2013
 Louisville, Kentucky, USA
 The above conference that was scheduled to be held at Auckland, New Zealand from 5 to 8 August 2013 has been relocated to Louisville, Kentucky USA.
<http://www.worldgifted2013.org>
- International Conference on Talent Development & Excellence**
25 – 29 September 2013
 Antalya, Turkey
<http://ictde2013.org/>
- National Association for Gifted Children (NAGC) Annual Convention**
6 – 10 November 2013
 Indianapolis, Indiana, USA
<http://www.nagc.org/2013convention.aspx>

提高学生阅读理解作答技巧的尝试 —以小五学生为例

关忠慧/南华小学

一、前言

阅读理解测试中的高层次问题一直在困扰着学生。他们往往在考试中作答应用、分析、创造等阅读高层次的题目时,总体表现差强人意。南华小学高才合班的学生也不例外。思维能力方面有优势的学生,在中文阅读理解题方面无法展示才华。

针对以上问题,我们要探讨学生在回答高层次思维问题时,究竟遇到什么问题,以及如何帮助学生克服问题。

二、研究意义和范围

南华小学高才组和华文部的几位老师:关忠慧、黎凤贞、洪冰冰、卢素贤、吴立华、杨丰义、刘建国组成专业研究小组,决定通过研究确认学生在阅

读理解高层次题目作答时所遇到的具体问题,并针对问题设计方案,提高作答阅读高层次题目的表现。

三、研究方法

南华团队以我校的小五G班作为研究的对象。班上一共有16名高才课程的学生以及9名主流生。学生语文能力属于中等水平,听说能力尚可,读写能力不强。他们作答阅读理解的低层次问题还可以,对于较高级别的题型就显得力不从心,无从下手。

教师先按一般阅读理解教学设计给学生上一堂阅读理解课,旨在通过这一堂课确定学生究竟在阅读理解作答面对的问题。在进行第一次教学时,教师要求学生将高层次题目的答案书写下来,以供研究小组的教师进行分析。教学设计如下:

教学时间:60分钟

教学活动的目标:

- 通过讨论,学生能理解短文内容,把握主题。
- 学生能做大高层次问题。

教学步骤及方法:

引起动机:

- 展示图片,图片显示某个学生作答阅读理解(二)的得分(11.5分,该项目总分是26分),引起学生的共鸣和重视。
- 请学生谈谈阅读理解中哪些问题最难,接着介绍阅读篇章并进行一些阅读理解的训练。

教学活动:

- 分发阅读篇章(见活动单一),学生默读。
- 学生提出不能理解的词汇或句子,老师引导学生推测词意、理解篇章,最后根据上下文回答问题。
- 学生小组讨论,然后口头呈现Q20-Q22的答案。
- 分发答题纸,学生完成最后两题高层次问题的作答。

总结:

- 选择一个学生的答案,请学生点评他的答案。老师讲评与总结。

活动单一:

有一个名叫哈利的男孩,由于家境贫困,经常三餐不饱,也没有钱交学费。为了帮补家用和赚取学费,他每天放学后,会挨家挨户去售卖手工艺品。

这天傍晚,哈利走了一整天,又渴又饿。他决定向一户人家讨点食物吃。当一位漂亮的女孩打开大门时,他却不好意思开口要食物,只求女孩给他水喝。女孩微笑地给了他满满一大杯牛奶。

哈利一口气喝完牛奶,不好意思地问:“我.....我.....应该付您多少钱?”女孩仍旧微笑着说:“不用了。妈妈经常教导我:施以爱心,不图回报。”

十几年后,有一名来自小镇的妇女得了一种罕见的疾病,性命危急。哈利医生看到病历上的地址时,马上向病房跑去。他来到病床前,一眼就认出,这位病人就是当年送他满满一大杯牛奶的天使。

经过一番的努力,哈利医生成功地完成了手术,妇女恢复了健康。哈利医生要求把账单送到他的办公室。当妇女出院前要支付医药费时,意外地发现已有人帮她付清一切费用。她接过账单,看到上面写着:“医药费——满满一大杯牛奶”时,眼泪不禁流了下来。

Q20 哈利在生活中遇到了什么困难?(1)他如何去克服困难?(2分)[复述]

Q21 “施以爱心,不图回报”这句话是什么意思?(3分)女孩怎么表现出这种精神?(2分)[分析/理解]

Q22 哈利医生有哪些值得我们学习的地方?请列举两点说明。(4分)[分析/理解]

Q23 为什么哈利医生要在账单上写下“医药费——满满一大杯牛奶”这句话?(2分)如果你是那名妇女,看了账单后,你会有什么反应?请具体说明。(2分)[分析/创造]

Q24 哈利为什么称那位女孩为“天使”? (2分)写一写你在现实生活中的“天使”为你做了什么事?(2分)[分析/应用]

教学活动结束后,研究小组对学生在Q23和Q24的表现进行评估、对比。学生作答Q23的第一个部分分析题时,有两种错误,一是根本不理解“医药费——满满一大杯牛奶”这句话的字面意思,二是只认为这句话就是感谢的意思,不能根据篇章归纳出答案。作答第二个部分时,学生答案没有与文章主旨挂钩,无法综合分布在不同段落的信息,并对信息进行深入的分析。

对于Q24的第一部分的分析和第二部分的应用类题型,学生在作答时只能回答出答案的第一部分“小女孩像天使”,无法通过篇章中小女孩的行动归纳出因为女孩帮助别人却不图回报的答案;第二部分的应用类题型,学生只能写出生活中的天使是老

师/同学/母亲等,没有进一步说明“生活中的天使”帮我做了些什么事情而不图回报。

经过评估和对比之后,研究小组确认学生作答效果不理想的原因之一是学生不熟悉阅读理解高层次问题的要求以及作答技巧。要有效帮助学生克服这个问题,可先从改变现有阅读理解教学开始。有了这个共识以后,研究小组开始重新设计阅读理解课,将侧重点放在帮助学生掌握高层次题型的要求和作答技巧。

研究小组设计的教学活动同样在小五G班进行,教师也同样要求学生将高层次题目的答案书写下来。

研究小组设计的教案如下:

教学时间:60分钟

教学活动的目标:

- 学生能了解分析,应用,创造题的形式及作答技巧。
- 学生能将上述技巧运用到作答高层次问题中。

教学步骤及方法:

引起动机:

- 一起回顾上次阅读理解篇章中的题目,告诉学生第一次教学活动的Q23、24即是此堂课要介绍的其中三种题型,引出这节课要介绍的——记忆、理解、分析、应用、评价、创造题。

教学活动:

- 简介布鲁姆教育目标分类:记忆、理解、分析、应用、评价、创造
- 重点介绍分析题,应用题,创造题的题型。联系上节课的阅读理解题目,并以课文《扣了半分》为例,介绍作答技巧:
 - 记忆题:子勇造的句子中,“眼前一亮”这个词语如何用得好?
 - 理解题:想到要去找老师,子勇的心情是怎样的?为什么?
 - 评价题:子勇、妈妈和老师,你最欣赏哪一个人?为什么?
- 介绍分析、应用、创造题型的作答技巧。

分析题:

关于“.....有什么改变/变化”的题目

技巧1:

- 根据文章的内容,先总结出有几个方面的改变/变化。
- 清楚地说明前后的不同(“变化之前”、“变化之后”怎么样)。
- 例1:文英在刚出院时和得到作者的帮助后有了什么改变?(4分)(必须包括生活中及学习上的改变)(取自该班学生小四年级测验题目)

关于“指的是什么”/“这句话的意思”的题目

技巧2:

- 说明词语或句子的字面意义
- 结合文章的意思进一步说明
- 例2:“施以爱心,不图回报”这句话是什么意思?女孩怎么表现出这种精神?

关于“你认为”的题型

技巧3:

- 有些问题虽然是“你认为.....为什么?”,但是重点还是考查对内容的理解,无须作个人的价值判断,也无须联系现实生活说明。(视篇章内容来决定)
- 例3:你认为子勇去找老师问“扣了半分”的事情这个做法对吗?为什么?

应用题

关于“如何从文章中的比喻/道理联系到生活中?”题目

技巧4:

- 找出共同点:枯井与泥沙皆指困境;
- 接着说明如何克服困难;最后,“站在泥沙上”指的是取得的成果。
- 例4:试从你的生活中举例说明你如何从“枯井”脱困。

创造题

关于“如果你是作者/文中的xxx,你会怎么做?”题目

技巧5:

- 关键:要具体说明。如:除了“我会好好报答母亲”,学生还须具体地说明如何报答。
- 分发活动单二,学生默读5分钟。若有疑问,可向教师提出。
- 教师提出问题Q21、22。
- 分发答题纸,让学生在题目的后面注明题型(分析、应用还是创造题),学生完成最后两题高层次问题的作答。

- 分发活动单二,学生默读5分钟。若有疑问,可向教师提出。
- 教师提出问题Q21、22。
- 分发答题纸,让学生在题目的后面注明题型(分析、应用还是创造题),学生完成最后两题高层次问题的作答。

总结:

- 老师结合当天练习题的类型,并针对学生的答题情况,进行讲评与总结。

活动单二:

两年前,麦克曾经生了一场重病,后来治好了。这一回,麦克的妹妹玛利也生了同样的病,需要输血。玛利康复的唯一希望就是获得曾患过同样疾病,但后来康复的人的血液。再加上两人的血液都属于特别的血型,于是麦克便成了理想的捐血人选。

“你确定要捐血给妹妹吗?”医生问。麦克先是迟疑了一下,满脸不自在,嘴唇微微抖着,然后才勇敢地说:“没问题,为了妹妹。”

不久,兄妹二人被推入医院的手术室。玛利瘦弱而苍白,麦克则强壮而健康。两个人都没有说话,妹妹不知所措地看着哥哥,麦克却微笑着用关爱的眼神鼓励妹妹。

当护士把针头插入麦克的手臂,他的微笑消失了,并紧张地看着血液通过管子流向妹妹。

快要结束时,麦克发抖的声音打破了寂静,“医生,我什么时候会死?”医生此时才明白,原来麦克起初的迟疑和害怕,是因为他以为捐血就是牺牲生命。尽管这样,麦克早在那一刻,已做出了重大的决定。

Q20 为什么麦克是妹妹理想的捐血人?(3分)[理解]

Q21 当医生问麦克是否确定要给妹妹捐血时,麦克的心理有什么变化?(2)为什么他有这种心理变化?(3分)[分析/理解]

Q22 试比较兄妹二人被推入手术室时有什么相同和不同的地方?(4分)[理解]

Q23 “麦克早在那一刻,已做出了重大的决定。”麦克做了什么重大的决定?(2分)如果你是医生,你会在知道真相后,对麦克说些什么?(2分)[理解/创造]

Q24 这篇文章让你明白了什么道理?(2分)请说明你会如何在生活中运用这些道理。(2分)[分析/应用]

教学活动结束后,研究小组的教师对学生在Q23和Q24的表现进行评估,以分析解决方案的成效。

四、教学成效

经过研究小组老师们的共改,发现学生在课后作答阅读测试高层次问题时的表现有进步。学生更清楚题目的要求,并能够综合篇章中的信息,更好地组织并呈现答案。从成绩来看,学生第二次作答分数与第一次作答相比提高了(见表一)。



从表一可看出经过研究小组设计的教学活动后,学生作答的总体效果比较好,及格率都有不同程度的提高:学生在分析题型方面的表现进步的幅度较大,提高了近28%;在应用题型方面的表现提高了16.2%;在创造题型方面的表现提高了近11%。这些数据表明,学生基本掌握了高层次问题的题型和作答技巧,将学到的理论运用到实践中。

学生反馈也相当正面,大部分都表示重新设计的阅读理解课

让他们学会答题的方法,也可以更有信心作答高层次题。其中5G的泽贤提到:“我以前不知道怎么做创造题,现在知道了。”5G浩哲:“我觉得第二堂课对我的帮助较大,因为我学了(不同的)题型。”

从数据和学生反馈看来,清楚说明各题型的要求以及答题技巧,对于学生作答阅读高层次问题是有帮助的。



表一:学生作答成绩的及格率对比

测试 题型	第一次教学后		第二次教学后	
	测试	及格率	测试	及格率
分析	Q23a	52.0%	Q24a	78.9%
应用	Q24b	47.0%	Q24b	63.2%
创造	Q23b	73.7%	Q23b	84.2%

五、结论与建议

通过这次研究,我们确认学生在作答阅读理解高层次问题得分不高的原因之一是,学生对这类问题不熟悉,抓不住答题的重点。明确地与学生分享高层次题型的要求和作答技巧,可帮助学生提高学生的作答能力,达到了立竿见影的效果。

在今后的教学中,可以根据学生的学习能力和特点,建立学生个人学习成长档案袋,记录其学习成长的过程。在进行课文教学时,把学生分成不同的组,采取差异教学的方式,针对不同学生的薄弱环节,选择适合学生程度的材料“对症下药”。

此外,要进一步提升学生在阅读理解高层次题目的表现,研究小组认为有必要从学生语文基础着手。虽然我校不少学生在思维能力方面有优势,但部分学生的语文能力薄弱而无法准确表达自己的观点或想法,亦或学生语文基础薄弱而无法深入理解篇章。

六、研究局限

研究小组在选择两篇难易度相近的阅读理解篇章遇到了一定的挑战。最后选择了主题与“关爱”相关、篇幅相近,而且所使用的文字大部分是学生学过的两篇文章。由于两篇文章的难易度未必拿捏得好,在一定程度上会影响表一数据的效度。

七、结语

此次研究的实验是探索提高学生阅读理解高层次问题作答技巧的一次尝试,起到了抛砖引玉的作用,业界同仁可以参考。

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Field-based Learning for P6 Social Studies: Joining Hands to Touch the Past

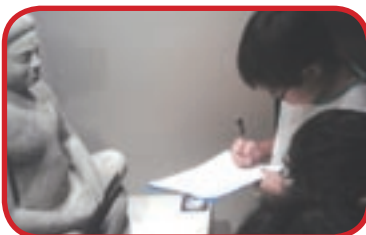
Mr Khong Weng Keong, GE Branch

In the new Primary 6 Social Studies curriculum, Southeast Asia (SEA) takes centre stage, and field-based learning takes on great significance in encouraging learning beyond the classroom. In field-based learning, pupils need to methodically study real-world phenomena and construct knowledge based on their observations. This approach brings to life content and concepts learnt in class in an authentic setting, and helps pupils contextualise their learning.

Three challenges need to be addressed in order to carry out a successful field-based lesson: (i) locating a suitable site, (ii) developing appropriate learning materials, and (iii) having expert facilitators. To overcome these challenges, GEB's Social Studies curriculum officers turned to the Asian Civilisations Museum (ACM) for assistance. The ACM, with its rich collection of artefacts from various Southeast Asian countries, was certainly well-positioned for field-based learning. With the help of Ms Viswani, Manager, Education (ACM), a customised learning package ("Discovering History Through Artefacts") was put together. The package consists of six activities and covers two galleries — the Southeast Asian Gallery and the Mary and Philbert Chin Gallery. Ms Viswani held a training workshop on 14 May 2012 for Social Studies teachers. The teachers honed their facilitation skills and also built up their knowledge of the artefacts used in the package. In turn, the Social Studies teachers shared their knowledge and skills with colleagues from other departments and gung-ho parent-volunteers whom they had roped in to help in the learning journey.



Preparing to be History detectives



Face to face with the past

The field-based learning visits to ACM took place between 22 May and 1 November last year, with most schools organising visits as post-examination and school vacation programmes. During the visits, pupils took on the role of an investigator, scouring the galleries for clues and information

about the artefacts to complete activities, learning more about the diverse cultures of SEA at the same time. They explored the galleries, with great anticipation of the new discoveries in store, determined to overcome the challenges posed to them. While they were certainly serious about completing the activities, their laughter and smiles openly displayed their enjoyment of the process. Their excitement was stoked by the spirited narration of the teachers and parent volunteers, which imbued the artefacts with life and made them relevant to the pupils. Many pupils were surprised to learn how women in the past adorned themselves with earrings and accessories that were incredibly heavy and bulky. Another activity that was high on the engagement factor was the one on examining the warrior shields of the Dayaks — with human hairs woven onto them. Without fail, those drew gasps of disbelief from the pupils.

The pupils benefited greatly from the virtuous cycle of collaboration and sharing between teachers, museum resource personnel, and parents. They sensed the infectious enthusiasm of the teachers and parents, and the quality of the facilitation they received during the learning journey helped them to carry out the activities with confidence. The pupils' feedback unanimously reflected how much they had enjoyed the experience of learning about SEA in the museum. The benefits went beyond the knowledge they had gained, for they had now developed a greater interest in discovering the past through artefacts in the museum. Many pupils also indicated that they would like to visit ACM again and other museums in the future.

The learning journey was made possible by the generous support of ACM, teachers and parent-volunteers. This has been an exhilarating start to our journey as we explore ways to make the most of resources that exist in the community to bring Social Studies to life for our pupils. What we see as ancient artefacts lying in a museum are actually a part of the past that we can touch — brought to life by the efforts of the many enthusiastic hands linked together to ensure that our collective memories and stories are passed on from generation to generation. Just as it takes a village to raise a child, we have discovered the power of the sense of community achieved when teachers and stakeholders step into the gap to connect the pupils to the past.



The Hungarian Approach to Talent Support: Aspiring to be a Model for Europe

Péter Csermely



*Péter Csermely is a Professor of biochemistry at Semmelweis University (Budapest, Hungary). In 1995, Prof. Csermely launched a highly successful initiative, which provided research opportunities for more than 10,000 gifted high school students. An outstanding mentor for undergraduates, he received the Order of the Republic of Hungary (the Knight's Cross) in 2005. In 2006, he established the Hungarian National Talent Support Council. He is currently the President of the European Council for High Ability (ECHA). He contributed this article to *The Exchange*.*

Nurturing the potential of talented people is increasingly regarded as a pledge for our future well-being and prosperity. Consequently, efforts to identify and exploit, in the positive sense, the talented, from local best practices to national educational policies, have intensified globally. Hungary, similarly to Singapore, is one of the countries that have, fortunately, a well-thought-out and long-term talent-nurturing strategy.

The 20-year **National Talent Programme** adopted by Hungarian Parliament in 2008 focuses on ensuring social support for this cause, the underlying idea being that talent as a human resource needs social support to unfold, and society in turn needs its talents in order to prosper.

Many components of the National Talent Programme, including the strategy to rely on co-operation and equal contribution of the **private and public sectors**, have grown from strength to strength in the past four years, allowing the programme to excel, relative to the array of international talent support initiatives. A good example of co-operation and social responsibility is the funding offered by private donors, allowing the **National Talent Fund** which finances the National Talent Programme to allocate significant funds to our talent support programme.

The colourfulness of the Hungarian talent support system, a legacy of its traditions, is reflected in the structure of the **talent point network** created bottom-up in recent years. The establishment of the network has been secured by the support provided by the European Social Fund to the so-called **Hungarian Genius Programme** operated by the Association of Hungarian Talent Support Organisations, an NGO.

However, the novelty of the talent point network already comprising almost a thousand units is co-operation. Co-operation makes it feasible to provide each and every talent the most suitable form of support and, moreover, to let the network itself design new forms of support. The model based on co-operation facilitates the manifestation of more talents and talents of a novel type: this is actually one of its priority functions. A related development reflecting the successful operation of the network is that almost **100 thematic and regional talent councils** were formed out of the talent points in the past one or two years, and the councils themselves were organised into a college (creating a national representation) in November 2012.

Some talent councils are communities organised on a voluntary basis by the various talent points of a region to protect their professional standards or to fully exploit the funding options; others are organised at national level, along a given topic, such as the Council of Mathematics Teachers or The Council for Roma¹ Support.

The so-called **Talent Bridges Programme**, a follow-up of Genius Programme and part of the National Talent Programme, focuses on supporting talented children and young persons. Its goal is to deepen the social integration of the talent support network; to trigger more active social participation; to convert talent support initiatives to practice. It stimulates the operation of the Talent Points; activates the network of professionals providing relevant on-the-job training and of the stakeholders of talent support, in an effort to provide direct support to the talented youth and to advance their development. The Talent Bridges Programme defines as the centres of gravity the need to develop the potential of the

¹ The Roma people are a minority race in Hungary.

talented to the full, and to ensure the social utilisation of their achievements; to nurture the sense of social responsibility of the talented, and to “plough back” the energies of the mature, successful and dynamic talents into talent support. Besides, it contemplates a domestic communication campaign addressing society in general and the groups contributing to talent support one by one, to call their attention to the model examples, the best practices and the opportunities for action. It also launched a campaign within the European Union to raise awareness abroad of the Hungarian talent support model and the mutual benefits inherent in it, and to strengthen the relationships between the domestic and the foreign talent support workshops and programmes.

I am pleased to say that our colleagues managed to identify 24 thousand talented young people and helped them unfold their talents over the two years of the Hungarian Genius Programme. The 2013-14 target of the Talent Bridges Programme, the successor of the Genius Programme, is to provide support to 35 thousand talented persons. Given these figures and the consolidation of the talent point network, we sincerely hope to be able to support 240 thousand talented youth already under the Talentum Programme scheduled for 2014 - 2020 and co-funded by the European Union.

This may seem a most ambitious plan — and that’s what it is. However, one must not forget about the biggest challenge, that is, the current unfavourable economic environment in Europe, which threatens to undermine the enthusiasm of our teachers and mentors that would be absolutely essential for talent to take wing.

Unfortunately, a significant part of the Hungarian teacher community is worn out. Many interpersonal conflicts affect today’s schools, and that does not promote talent support. The working conditions are further aggravated by the constantly changing regulatory and administrative environment. Hungarian teachers and talent coaches often work for free, sacrificing their evenings, weekends and holidays to spend time with the talented youths.

However, Hungary has made several significant efforts to give its teachers thorough theoretical and methodological grounding in talent support. Currently, five institutions of higher education offer further education programmes of one, two or three years specialised in talent education, and that is quite remarkable considering the size of the country. It is a strength of Hungarian talent support that it offers excellent opportunities for acquiring in-depth knowledge of the topic. We

have managed to rectify our former shortcoming, namely that teachers had been offered few short (10 - 30-hour) on-the-job courses on the topic of talent. Eighty different teacher training programmes have been developed and some 14 thousand teachers have been provided training under the Hungarian Genius Programme.

Talent support in general should pay special attention to three crucial phases in the career of talented persons. The first one is pre-school education and the first levels in primary school. If playfulness and creativity are seriously harmed at that age, talent may be lost for good. The pre-school situation is generally quite good in Hungary, but the same cannot be said of the first primary school years. The second key phase occurs at the end of secondary school and the beginning of university. In Hungary, the talented youth have many opportunities at that time, and one function of the talent point network is to help the students grasp such opportunities. The third key phase, the one concerning the utilisation of talent, is the most critical one. The experience in Hungary today is that the industry, the companies, are not always talent-sensitive.

As the head of the European Council for High Ability (ECHA) I am glad to say that Hungary became a trend-setting and decisive model country in Europe in the past quarter of a century. Our cutting-edge initiatives include the **European Talent Centre in Budapest** created in 2012, of which we are very proud. It is dedicated to presenting the Hungarian example to stakeholders outside Europe and also to harmonise the European talent support efforts, to promote the establishment of talent points and to draw the European talent map.

It is no accident that the Centre was created in Budapest, Hungary, since Hungarian talent support and especially the achievements of the past few years have been of outstanding significance in Europe, and Hungary’s long-term (twenty-year) talent-nurturing strategy, its systematic approach and in particular the so-called talent point network co-operation model have met with considerable European acclaim from the start.

Joint work has resulted in the professionally outstanding talent support conferences of 2006 and 2011 organised in Hungary with the help of the ECHA network. The **International Conference on Talent Support of 2011 held as part of the Hungarian EU Presidency** highlighted the theoretical aspects and policy implications of talent support at European level, and on the last day of the Conference, the **Budapest Declaration on Talent Support** was

accepted by the 300 participants (experts and decision-makers) representing 24 European countries. In the Declaration, the participants agreed to invite stakeholders from every country of the European Union to convene annually to discuss the developments and current questions of talent support.

The International Conference on Talent Support 2011 represented a major step forward in co-ordinating talent support efforts in Europe. The **Written Declaration** was composed with the contribution of the talent and educational policy experts of several EU countries and Members of the European Parliament. On the initiative of Hungarian MEP² Ms Kinga Gál, the Written Declaration was submitted to the European Parliament, which had not treated the issue since 1994. The ideas expressed in the Declaration call the attention of the MEPs and the European decision-makers to the fact that **talent and creativity are the main drivers of competitiveness**. Talent development, on the other hand, may require thorough **collective thinking and collective measures** not only at the level of the national educational policies of the Member States, but also at the level of Community strategies. The Declaration highlights that it would be essential to treat talent support as an EU-level priority in future European strategies, such as the strategies governing the European Research Area and the European Social Fund.

The idea formulated in the Declaration was that support should be provided for **setting up a network of talent support communities, the European Talent Points and the European Talent Centres**. That would be a major step towards the emergence of a talent-friendly Europe. Besides the components of formal education, this network would host also the extra-curricular talent support options and that, in turn, may well lead to the **emergence of new national and even international best practices in talent support**, and their adaptation in the European countries. The **Written Declaration has been signed by 178 MEPs**, that is, it has fulfilled its mission of calling the attention of many European decision-makers to the talent issue. This success has paved our way for taking further steps at the international level to create a European talent support network in co-operation with the Member States.

The global experience is that talent support boosts self-esteem and hence employability and social mobility. Talent support is considered

more and more frequently a crucial component of the Hungarian and international programmes targeting the underprivileged groups. The Declaration underlines the importance of the education and on-the-job training of educational professionals engaged in talent support. **Teachers** with talent support knowledge and skills play **a key role in talent development**, and their preparation for identifying and nurturing talents has always been an essential component of the national talent support strategies aiming at talent development.

In Hungary, as well as in Europe and one might even say globally, the demand is greatest for those who are talented in the “market-sensitive” natural sciences, since this is where competition is keenest internationally. Educational policy and private talent support in China, the USA, Israel not to mention Singapore and many European countries such as Germany have for years tried to find best practices, solutions to identify and develop persons talented in the natural sciences, with remarkable success.

The strategies of many countries give priority to the development and management of talents in the so-called **STEM** (science, technology, engineering, mathematics) fields, since the loss of such talents would imply tangible arrears for their national economies. Hungarian talent support has traditionally assigned a major role to artistic, literary and musical education, but talent support in the “marketable” natural sciences that is, the priority treatment of the development of young persons talented in the natural sciences, at every level, from public education to the institutes of the Hungarian Academy of Sciences, has appeared explicitly in the national strategies only recently.

Talent support has become more than a necessity, it's a kind of **life insurance**, and this is especially true in Hungary and in Europe as both have to face the challenge of the migration of their talents which may have unpredictable economic effects measurable in euro billions in the long term. To prevent such migration, Hungary, together with the other European states, is seeking ways and means to keep their talents at home. In a way, creating a talent-friendly Hungary and a talent-friendly Europe might be the answer. However, in the longer run, we need to establish a World-wide Talent Support Network to discover the vast treasures of hidden talents in each country on Earth.

² MEP: Member of European Parliament

Interview with Educators who are Former GEP Pupils

Mrs Soo Kim Bee, GE Branch

In 2014, we will mark 30 years of the GEP, a unique programme for academically gifted pupils, in Singapore. In this article, we put the spotlight on three former GEP pupils (GEPpers), Mr David Khoo (Humanities/Social Studies), Mr Andy Shi (Science/Chemistry) and Ms Tan Yong Hui (Mathematics), who have chosen to return to serve as educators. Currently, they are curriculum officers in the Gifted Education Branch (GEB), CPDD. They share with us their views of the GEP and their experiences in the programme through the lens of an educator.

What do you think is distinctive about the GEP and what it has tried to do for academically gifted pupils?

Miss Tan Yong Hui: The GEP offers opportunities for students to develop themselves in areas beyond the national examinations. These include enrichment topics, mentorships, research projects, as well as a focus on service to the community. Intellectually, students are challenged and stretched in a safe environment where opinions can be expressed without fear of judgement. There is also a strong focus on the development of one's character and to have a global outlook.

Mr Andy Shi: In many other countries, the gifted children are put together in a class with a mix of pupils of all abilities. What is really unique about the Singapore GEP is that it actually brings together the brightest minds and puts them together in the same class. The advantage here is that you then create an environment where the pupils can spar cognitively with one another and

compete to push their boundaries through an appropriate differentiated curriculum and teacher guidance. It would be difficult for such pupils to be stretched with this level of rigour in a mixed-ability class. As for fears that putting such pupils together will reinforce their arrogance, from my personal experience when I first joined the GEP, I found myself learning to be more humble. While I had been easily one of the top pupils in my previous school, in the GEP I had to work much harder to eventually become the best in my favourite subject in P6.

Mr David Khoo: Now that I have an 'inside view' of the GEP from HQ, I am even more appreciative of the effort put into selecting and training teachers, and of the work of officers in guiding and monitoring these teachers. The commitment to quality and excellence on every level, through the years, has made this Programme what it is today. I see it as part of our national promise to give every child the best education possible, which must include the cognitively gifted. The training I have received in the Branch confirms my own belief that gifted children learn best in an environment which stretches their intellect, caters to their specific emotional needs, and allows them to identify with peers who share their interests and challenges. One precious principle which I learned in the Branch is that the gifted child is first and foremost a child. If we as a society do not attempt, within reasonable limits, to bring out the best in such children, their gifts will be wasted, or worse, become a liability if they are not taught to handle them.



Left to right: Mr David Khoo, Miss Tan Yong Hui and Mr Andy Shi

What aspect of the GEP resonates most with you (i) as a student, and (ii) as an educator?

David: As a student, I loved the fact that we did not solely rely on off-the-shelf textbooks and workbooks. It communicated to me very clearly that learning was about loving and pursuing knowledge, rather than about completing a syllabus, and that there were many ways to explore the ideas and questions in the world.

As an educator, the discussion-driven nature of the GEP made me realise early that teachers need not have all the answers. Everybody benefits from dialogue and debate, much more than from the mere absorption of information thrown at us. This experience helped to develop a deep belief in me, when I became a teacher, that I needed to listen to, encourage and acknowledge every voice in my own classroom. This is especially so when there are students who had been socialised into staying silent by home environments or former schools where their thoughts and questions were not welcomed or valued. Such confidence to participate is more than a life skill – it is part of affirming every student's intrinsic worth as a person, and that is something each classroom and school owes its charges regardless of their academic ability.

Yong Hui: The GEP teachers I had were open to ideas and they set up lessons which generated a lot of discussion in class to get us to think critically and creatively. We understood that there was no wrong answer in a discussion. They would always ask questions which probed and challenged us to think deeply. It allowed for a challenging and varied exchange of ideas. There were also many opportunities for collaborative learning in a flexible learning environment. For example, we could rearrange our tables and chairs in class, or we could go out to the garden for our lessons.

When I became an educator, I realised that many students were preoccupied with getting 'model answers' from their teachers. I emulate my GEP teachers and try not to feed my students with answers. Instead, I try to push them to co-construct their knowledge with me. I also try not to dismiss any answer directly — I get my students to explain the process by which they arrive at an answer.

Andy: As a student, I appreciated that subjects were taught in a fun and interesting way, with little 'drill-and-kill'. As an educator, I also cherish this aspect of the GEP — it allows the teachers to focus on engaging their pupils rather than on the end-results. The unique thing about GEP pupils is

that once their interest is piqued, they become very self-motivated to learn.

Reflecting now as a teacher/educator, how has being a GEPper made you a better teacher in your respective subject areas (History, Chemistry and Mathematics)?

David: The fact that I enjoyed learning in general gave me the tools to pursue my favourite subjects — Literature and History — even after I left the GEP. If I had been in the mainstream, I might well have underperformed, or been disruptive in class due to a lack of space for exploring my interests or a lack of a challenging environment. This is what I try to establish for my students. When I step into class to teach, it always felt like a break, no matter how tired or down I felt. I love my subject, and I want my students to enjoy it too and see the myriad connections which can be drawn between ideas.

Over the years, my students have consistently given me feedback that they liked my passion for the subject. Of course, some have complained about my 'digressions'. These, I explained, were the result of my belief, a result of my own experience within the GEP of the importance of concepts and meta-concepts, that there is a need to give them a larger context within which to see the history syllabus. In hindsight, I believe that my own rewarding experiences working on my Individualised Research Study (IRS) projects convinced me of the benefits of exploring one's interests and in learning to delve deep into a subject. That alone has carried me through many a difficult time as a teacher mentor in Project Work.

Yong Hui: Mathematics is considered boring by some, as they see it as a subject where one works only with calculations. I had the privilege of having GEP teachers who shared the joy of Mathematics with me. When it was my turn to teach Mathematics, I wanted my students to enjoy the subject too. Whenever I introduce a topic, I show my pupils the relevance of what they are learning by giving them a task which requires the application of the Mathematical concept they will be learning. By the end of the topic, they will find that they can manage the task they have been assigned earlier. I also try to inject relevant videos, puzzles, jokes, etc. into my lessons, to show a less boring side to Mathematics. These have often been mentioned by students as elements they enjoyed in my lessons.

As a GEPper, I have also learnt to appreciate interdisciplinary work and having an open mindset. I encouraged my students to showcase alternative

solutions and made them embark on projects which required knowledge of not just Mathematics, but also of other subjects such as Biology. I also invite them to question me and not trust everything I say. I tend to give them more autonomy in decision making.

Andy: I think the GEP helped to build my critical thinking abilities such that it became a very natural and subconscious response when thinking about any problem posed to me. In my teaching of Chemistry, it has helped me to be able to think on my feet when my students raised questions that were unexpected. I was able to quickly dissect the question and formulate a line of answer. I think that I was also more able to help my students analyse and understand the demands of a novel question, and not be 'stuck' when faced with one.

Based on your own experiences as a teacher in the classroom, how has being a GEPper informed or shaped your approach to the affective aspects of teaching?

Yong Hui: Being a GEPper made me place a lot of emphasis on affective education in the classroom. Whenever I heard students saying that they were giving up in class, I would remind them to persist and teach them about resilience. It helps that the school I was in placed emphasis on affective education through the development of intellectual, intrapersonal and interpersonal traits. I would remind my students that grades are not everything, and that academic strength does not compensate for lack of character. I emphasise this message especially for students who are discouraged by their own academic performance. Personally, I feel that the affective aspects of teaching are sometimes neglected in our hectic pace and I constantly remind myself not to let that happen. It is very important to me that my students have sound character.

David: I firmly believe that it has given me more empathy for all kinds of learners. Because of the difficult Math and Science topics in the GEP which I had struggled with, I know what it feels like to be the only one in the room who is confused. So I made sure I did not give up on those who were frustrated with my subject, or who seemed to be trailing. At the same time, I know that when faster students get taken up with an idea, they need the freedom and attention to ask questions and contribute to the class. I also know firsthand how students labelled 'stronger' can become more emotionally stressed and risk-averse. I have counselled such students to let go of their fears, and take on fresh challenges.

Andy: I think that perhaps being a GEPper had some drawbacks too. I tend to assume that my students are as self-motivated as we were. Hence, I think that perhaps I should have monitored, or pushed certain students a little more to achieve beyond what they have. I do not think that being in the GEP has made me very different emotionally from mainstream students, so I was still able to understand my students' struggles with emotional issues.

In what way has your approach to teaching been influenced by your exposure to teaching pupils of different profiles: those who come from the mainstream, as well as those who are gifted or have high ability?

David: Teaching students with a range of abilities has helped me appreciate all the more the need for differentiated learning. It was a steep learning curve for me to adjust to teaching mainstream students who were very used to a rigid style of learning and writing. They came from schools with almost no experience of class discussion. I came to realise quickly that being very strong in a subject may actually make you a worse teacher, if you cannot build stepping stones for students to meet you on the same intellectual plane and match you in pace. So, I had to provide as much structure and scaffolding as possible for certain students, even though my stronger students scoffed at such teaching methods.

On the other hand, managing the high-ability students required very different techniques. This is where I am grateful for my GEP background: for one, I was not intellectually intimidated or awed by them. I had to be harder on some of them so that they did not rely on stylistic flair at the expense of substance in their essays. I also wanted them to retain a sense of intellectual humility in interacting with their peers. At the same time they greatly appreciated my tolerance for their quirky behaviour, divergent thinking and strong instinct to champion just causes.

Yong Hui: Most, if not all, of my students, as they were junior college students, were at least of high ability. I only had the opportunity to interact with average mainstream pupils for short stints. When I taught Mathematics to mainstream students, I needed to go more slowly and lessons were rather 'dry' as I was told to keep to the syllabus. On the other hand, when I taught English to normal academic students, lessons were very interesting as we had to use games to hold their attention. They were more restless and preferred learning through games, with less talk from the teacher.

Teaching the gifted or high-ability students presents a different set of challenges. They are just as restless and like games, but they want to see the link between the game and what they were supposed to learn. As a teacher, you are expected to be engaging and compact the syllabus, provide enrichment, and yet give them sufficient practice to do well in the examinations. The students are very competitive and tend to compare achievements among themselves. Thus, I reminded them to learn the concepts and not just procedural skills, so they could transfer their learning. I also gave them more autonomy to decide how much practice they needed, as well as whether to develop the enriched task further, as their preferences differed. I wanted them to keep in mind the broader perspective of learning for its own sake.

Andy: When I first started out teaching in the IP in VJC, I was pitching my lessons to the GEP standard that I had been used to. However, I quickly realised that I had to slow down and provide more scaffolding. My aim for my students was still to instil in them the love of, and interest in, the subject. However, I had to be more mindful of checking for understanding, and not assume that most of them would understand all the concepts discussed.

What do potential GEP teachers need to know about teaching high-ability/GEP pupils?

Andy: The first thing these teachers will realise is that they cannot answer all the pupils' questions. In a high-ability or GEP class, the teacher is much less the 'sage on the stage'. Rather, he or she is a facilitator in the pupils' acquisition of knowledge. These pupils can learn basic content knowledge but they need to be guided to make sense of the content, such as making connections between concepts and topics, or seeing potential applications.



This is how I would advise teachers: First, start by trying to instil in them the 'need to know' — convince them that there is a worthy and intriguing problem here to solve — and the pupils will drive their own quest for knowledge. Second, manage their affective needs. This is all the more important because this group of pupils has unique needs and quirks: it may be in not knowing when to stop asking questions (as in my case!), or in feeling pressure from not being able to meet their own high expectations of themselves.

Teachers need to remember that they are children after all, no matter how bright they may seem. Their emotional development may not be up to their level of cognitive development, hence ethical and rational decision making is an important skill to impart. Also, even as we strive to stretch them to their fullest potential, we should not be unreasonable in our expectations — the children are not all equal in their gifts, nor are they gifted in all areas.

Yong Hui: High-ability pupils have varying interests and need the teacher's help to stay engaged in class. Assignments which allow them to explore their interests will be well-received. They also need to be reassured and feel that you sincerely care for them, as not all of them are confident. If they do not like your subject, you would face a difficult uphill battle. However, if they can feel your concern for their well-being, they would put in more effort. Although they may have high ability, they can also be unmotivated and will require your guidance to learn to be self-directed learners.

When these students challenge what you teach, they do not mean to embarrass you or wish to put you down. Rather, they are looking to you as a source of expertise to clarify their doubts. They will not mind even if you are unable to answer their question, if you can show them how you go about looking for answers and clarification. Their behaviour does not mean a lack of respect for you as a teacher; in fact, it shows that you are engaging enough for them to pay attention to what you say.

David: They must know that teaching the gifted is a 'calling within a calling'. Mainstream teachers may not be able to relate to or sympathise with the unique problems of teaching in the GEP. Many will think that it is easier to teach 'smart kids', but it may be just as hard or harder to command the respect and attention of such pupils. Some pupils may tend to rely on flair and last-minute brilliance rather than on consistent hard work. Others may be

more afraid of failure and experimentation because of the “gifted” label. The best GEP teachers are flexible and are able to think on their feet.

What do you like most about your current work as a HQ officer?

Andy: Working in education, I feel that I have a chance to influence the next generation. It is about making a difference in someone’s life, a lasting impact that not every profession can provide. I love to work with young people, to feel their energy and passion and potential for so much good. Although I am not directly in contact with students now, I know that the work I do affects them — they benefit from the programmes I help organise and the teachers I help to train. In HQ, our work affects many more students than would have been possible as a single teacher in a school. I also like working in the Gifted Education Branch because we constantly try to stay at the forefront of innovation in education — we get to try out what research tells us should work, and there is just so much more that you can do with gifted and high-ability pupils that goes beyond preparing them for exams. I am happy that lots of things that were first pioneered in the GEP have filtered down to the mainstream (e.g., project work, Socratic questioning, inquiry and mentorships) — it just goes to show that pedagogy for the gifted is in essence good pedagogy for every student.

Yong Hui: I like the variety in the work that I do currently. It offers a different experience from teaching in school. I get to work with many different groups of people in many different types of projects. It offers a breadth of experience, which definitely helps me to grow. I also get to see students enjoying the curriculum and activities that we write, design, or organise for them, and it is very encouraging.

David: Coming to GEB has helped me make more sense of my education and professional life. I exercise my training and instincts as a teacher when dealing with curriculum and pedagogy matters. However, seeing the GEP from the viewpoint of a GEB officer has brought my education full circle. I can readily identify with so much of what goes on in the GEP classroom. I feel a sense of duty to make the GEP experience even better for those who will come after me, so that they can surpass current standards. I feel more useful here, with a greater sense of belonging, compared to teaching in a high-pressured ‘A’ Level system.

If you could come up with a wish list for the GEP, what would you include?

Andy: I would just wish for more understanding. GEP or former GEP students are not super-human. We are normal human beings with the same feelings, aspirations, and dreams. Societal expectations can be too high sometimes, in wanting all GEPpers to achieve at the highest level.



Yong Hui: I would definitely include my wishes for small class size, passionate teachers, and unique enrichment programmes. The small size of my class allowed for greater interaction between the teacher and students. It allowed teachers to understand each of us on a personal level. Passionate teachers make us work hard for them without us realising it.

David: I wish the programme could have a public image that was realistic and reasonable, something not impossible with smart public relations efforts. Currently, there is still some awe, resentment and mystery swirling around the GEP, and people either remember certain cases of negative elitism, or regard the GEP as a guaranteed pathway to success. My wish is that people would understand the GEP’s place in the system and also its limitations, so that they do not have unfair expectations of its graduands. If the general public could understand that the GEP pioneered some pedagogy that is now used in the mainstream system, and that the GEP does not offer its pupils a magic ride to success, they would neither revile its students nor ironically, clamour for their children to gain entry into the programme.

In the science-fiction film, *Minority Report*, the plot centres on “Pre-Cogs”, pre-cognitive siblings whose ability to see the future allows arrests before crimes occur. The film concludes with the dismantling of the system and the transference of “Pre-Cogs” to somewhere quiet to find “relief from their gifts”. That line speaks to me. People do not always understand that gifts can be a burden, and that these gifts need to be nurtured in a safe yet stimulating environment. Most of my GEP peers go on to live quiet lives, but I see that they are no less fulfilled than others. On top of that, they use their gifts responsibly. So, the GEP has not failed them.

The Big Move

Mr David Khoo, GE Branch

On 6 December 2012, the Gifted Education Branch (GEB) relocated its premises for a third time in its history. Having moved from the Environment Building to the Grange Road "campus" in December 1996, the Branch had been nestled there for 16 years — the longest it has been in one place to date. As a result of the Professional Wing reorganisation in December 2011, GEB became part of the Curriculum Planning and Development Division (CPDD), and thus, it was fitting that it shared the same premises as the other CPDD Branches in MOE HQ, on North Buona Vista Drive.

The team in charge of the move made numerous reconnaissance trips to the 13th floor of MOE HQ to prepare the way for the Branch to move into its new home. One major undertaking was the conversion of an e-studio into the GEB library to house the large number of books owned by the Branch! At the same time, a massive effort was underway in Grange Road to convert stacks of resources and records — some dating back to the typewriter era — into digital form. From March to November 2012, a team of temporary clerks had to be hired to help complete this herculean task. Officers experienced severe parting woes, but it had to be done: a "reductionist" approach was taken and only the most essential materials were preserved.

On the day of the move, three giant moving trucks made six trips in all, bringing 500 boxes,



Celebrating our first Lunar New Year in Buona Vista

nine metal cupboards and assorted furniture to Buona Vista. In answer to prayers no doubt, the weather stayed fine until the last truck left Grange Road. No items were reported lost!

The GEB has left its former premises with many rich memories of the creation and collaboration within its walls. Our teachers will remember Grange Rd campus fondly as the place where they met regularly to plan, share, and discuss all manner of curriculum matters pertaining to the GEP. The GEB looks forward to many fruitful years in its new office, benefiting from closer interaction with other CPDD Branches, and renewing its vision to serve high-ability learners and grow talents. After all, "Buona Vista" can be translated as "excellent view" — a truly ideal place from which to set our sights on new horizons.



Our last photo in Grange Road

Welcome to GE Branch



(from left to right)

Mr Tan Han Yu Melvin, previously from Victoria School, joins GEB as Science officer.

Mr Quay Cheng Huat, previously from SEAB, joins GEB as Science Senior Specialist.

Miss Tan Siew Yan, previously from Raffles Girls' School (Secondary), joins GEB as Maths officer.

Mrs Ethel Koh Ai Leen, previously from St. Anthony's Canossian Secondary School, joins GEB as Counsellor.

Mr Daniel Tan Kok Heng, previously from Serangoon Junior College, joins GEB as English officer.

Mr Jared Goh Wee Siong, previously from Dunman High School, joins GEB as Humanities officer.

Farewell

We bid a fond farewell to the following officers:



Mr Samuel Lee (Mathematics) who left to join Raffles Girls' School (Secondary), after 2½ years in GEB.



Mr Eugene Lee (Mathematics), who left to join Commonwealth Secondary School, after 3 years in GEB.



Miss Teh Chiew Guek (Counselling), who has left for the Special Education Branch, after 7 years in GEB.

On No Pay Leave

Ms Jennifer Goh (Science); and
Ms Selvathi d/o Sambasivam (Counselling)

The ExChange is a platform for the GE Community to share research, best practices and news on GE programmes and training. We welcome your comments and contributions. The ExChange is published for internal circulation only. ISSN 2010-0132

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