



# REVIEW

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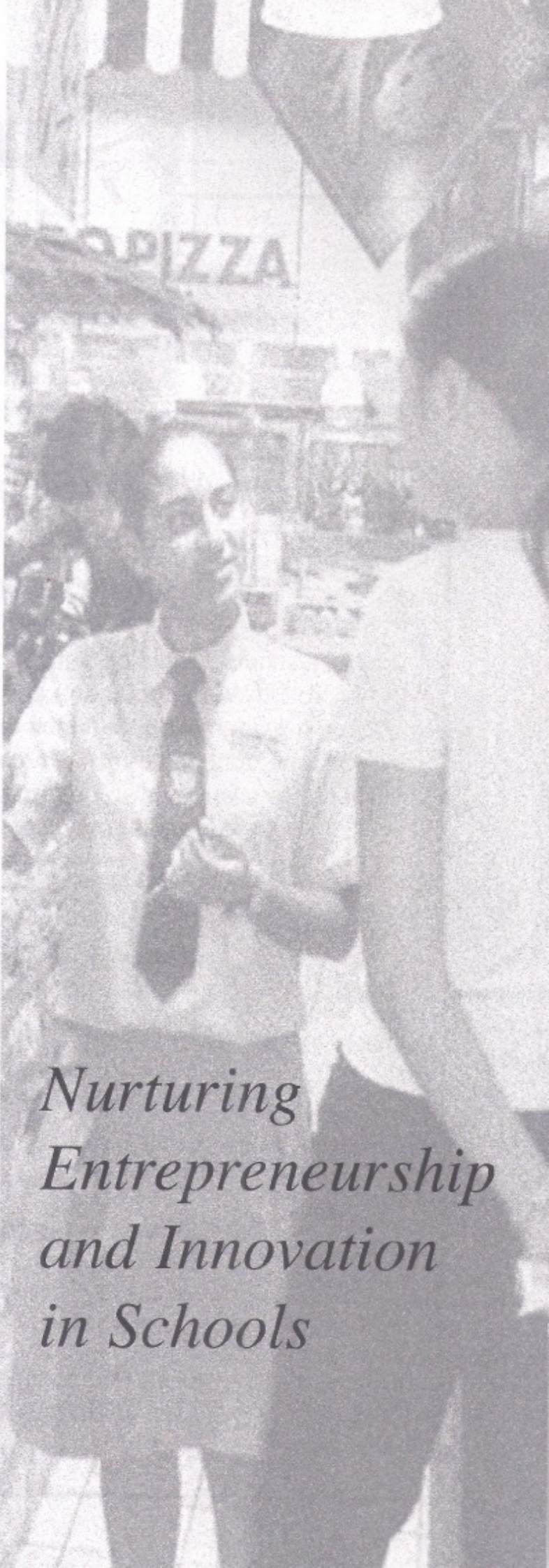
**Nurturing  
Entrepreneurship  
and Innovation  
in Schools**

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*Nurturing  
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in Schools*



*The ASCD (Singapore) REVIEW  
Committee seeks original articles on  
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Manuscripts should be between 2000-2500 words, typewritten (Microsoft Word document) and submitted in the form of a hard copy together with a 3½" inch diskette or CD. Submissions may also be done via e-mail. Photographs would be appreciated. These visuals may also be e-mailed as jpg files. Contributions by regular mail may be addressed to:

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**The themes for the forthcoming issues are:**

Vol. 12 No.2: **Why I Teach: The Reflective Teacher**  
Deadline for articles: March 2004

Vol. 12 No.3: **Life Sciences in Schools**  
Deadline for articles: June 2004



## Editorial

As you read the articles in this issue, it is obvious from the range of entrepreneurial activities and innovation projects which our schools have come up with, that they have truly gone forth to "broaden the educational experiences of their students through a wide range of learning experiences", heeding a call made by our Acting Minister for Education, Mr Tharman Shanmugaratnam, in one of his speeches. The entrepreneurial spirit is blazing right across our schools.

From the primary schools to junior colleges, our teachers and pupils have been busy, busy, busy, trying out and implementing their bright ideas with very encouraging results. It makes one re-think the notion that our Singaporean schools are too examination oriented. There are certainly no exams to be taken here. The feedback was in the vein of "we wanted to know if we could do it", "it was fun", "I/we learnt a lot", to quote the students involved. Teachers, pupils and their parents have come away from such experiments with enterprise with very positive feedback. Learning was real and learning was enjoyable. Upon reflection, all felt that the time spent, the hard work, planning, making prototypes, conducting market research, running the businesses, manning the stalls etc. was worth it as everyone concerned, especially the pupils involved, learnt to relate what they learnt in school to skills they would need in the 'real' world. Some of these junior entrepreneurs have already set their sights on making it big in the business world when they grow up!

A pleasant bonus and learning point on social entrepreneurship was achieved when some of the money raised from these junior business activities were channelled by some schools into the School Pocket Money Fund. ...truly teaching the business of learning ...with a heart.

We sincerely hope that our schools continue to innovate and stretch their entrepreneurial wings – they can only do better! Our next issues will focus on how the Life Sciences are being taught in schools and also look at the Reflective Teacher. As always, we encourage all of you out there to write in and share your experiences in the ASCD REVIEW – the journal for professional educators in Singapore. Happy reading and we hope to hear from you soon.

Soo Kim Bee



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# Project Entrepreneurship Exposure (E<sup>2</sup>) at Temasek Secondary

Mark Chan Weng Kit & Ou-Yang Geok Cheng

## Introduction

In recent times, with increasing competitions from emerging economies in China, India and other developing nations, the Singapore Government has urged its people to be more innovative, entrepreneurial and outward looking; to venture abroad in order to establish a business niche for themselves regionally and globally. In retrospect, the words 'innovation' and 'entrepreneurship' are not new. Back in 1992, Professor Howard H. Stevenson, a Lee Kuan Yew Distinguished Visitor from Harvard University, delivered two public lectures in Singapore on the topic of entrepreneurship. In both his lectures, Professor Stevenson highlighted the importance of entrepreneurship and its implications on companies and business organisations in the future (National University of Singapore, 1992).

As a result of this direction set by the Government, and subsequently the Ministry of Education, schools in Singapore are challenged with the task of equipping students with the necessary entrepreneurial skills, values and exposure, so that our young generation can be adequately prepared to face the challenges ahead of them and remain competitive globally. In Temasek Secondary School, we recognize the importance and need to promote a culture of innovation and entrepreneurship for our students. With this in mind, Project Entrepreneurship Exposure (E<sup>2</sup>) was conceptualized and launched.

## Approach & Deployment

When Project E<sup>2</sup> was still very much in the drawing board stage, the following factors for deployment were considered:

- To be successful and impactful, a school wide approach has to be adopted, albeit gradually.
- Planning and involvement should not just be confined to teachers and students, but also to the other stakeholders like the parents and the community at large as well so as to encourage ownership of the project.
- Teachers and students need to be adequately trained in basic entrepreneurship skills and values before they can be exposed to entrepreneurship-based activities.
- While entrepreneurship-based activities within the school compound should be conducted in a relatively safe environment, they should also possess certain



*Student leaders attending the Entrepreneurship workshop, under the watchful eyes of teachers and members of the Parents' Support Group.*





*One of the stalls at the Innovation Fair, a post examination activity.*

elements of risk-taking opportunities for the participants.

- Proper and regular reviews and evaluation of the project after milestone activities have to be conducted to ensure that necessary actions or changes could be carried out.
- Project sustenance has to be ensured by exposing the students to a series of other related events following the entrepreneurship-based activities within the school compound.

With these factors in mind, Project E<sup>2</sup> was conceptualized and the action plan was formulated.

Students need to be adequately trained in basic entrepreneurial skills and values before they can be exposed to any other activities. Instead of out-sourcing for external vendors, the school decided to involve suitable teachers and stakeholders, so that there would be ownership of the project. Two members of our teaching staff who have displayed keen interest in the

area of entrepreneurship, together with another two members of the school's Parents' Support Group (PSG), were thus selected to attend an entrepreneurial workshop based on the Bizworld Model in March 2002. In this workshop, the teachers and parents were taught basic entrepreneurial skills and underwent practical sessions to apply what they have learnt.

Upon their return, the teachers and parents conducted a two-day workshop during the school holidays in June 2002 for student leaders. This was followed by the running of an Innovation Fair during the Post Examination Activities in November 2002 where student leaders set up a total of thirty food, games and artefact stalls and applied what they learnt from the workshop they attended in June. The knowledge applied included drafting business proposals, maintaining detailed records of purchases and sales and trying out various marketing and advertising strategies to boost their business ventures. The school provided each stall with a seed capital of \$30. At the end of the fair, all stalls either broke even or made some modest profits. Feedback from the student leaders, teachers and members of the PSG who were present were positive.

Following the success of the Innovation Fair, sixty-four budding entrepreneurs from this group of student leaders went one step further to participate in Young Entrepreneur Annual Harvest! (YEAH!) 2002 where they set up stalls at Suntec City during the year end school holidays. The students did well to chalk up a revenue of \$6,400 in just two days of trading. The review conducted after this milestone activity again proved to be very positive and encouraging. Students were able to apply theory to real-life situations and be exposed to an environment outside of school. The experience at Suntec City has also highlighted to students the importance of key entrepreneurial values like resilience,



*One of our YEAH! 2002 participating stalls at Suntec City.*

three levels: Secondary One to Secondary Three classes with the exception of the graduating cohort due to their national examinations. More teachers, especially the form teachers, would also be involved. The project would be on-going instead of ad-hoc based, with a time frame of at least three terms.

innovation and competitiveness in any successful business venture.

A review was conducted at the end of the year and it was recommended that the school proceed to expand the scale of involvement for year 2003, based on the positive feedback and results gathered from the milestone activities in 2002. As a result, the school decided to put in place a structure that would span across a total of

It rolled off with all the Secondary Three classes being rotated in the first semester to set up booths in the canteen and run their businesses for a period of one week. Two stall carts were specially designed and made by the Design and Technology staff, so that two classes could operate their business each week. To enable teachers to facilitate their respective form classes in the planning and execution phases, all teachers attended an entrepreneurship workshop



*Teachers also attended the Entrepreneurship workshop earlier this year.*



conducted by the two pioneer teachers in the project. Student leaders in the Secondary Three classes who attended the entrepreneurship workshop or were YEAH! participants the previous year were selected to lead the committee and the class in planning their business venture proposal.

Besides playing a facilitating role to their form classes, teachers also act as the financial controller, approving funds to the class based on feasibility of the project proposal. Each class was given \$100 as start-up capital, with the school playing the role of the venture capitalist. Within a week of completion of their business venture, the class treasurer would finalise the accounts, which would be checked by the form teacher. A class reflection would also be conducted for the students on the learning points of the project, regardless of whether they made a profit, broke even or suffered a loss. Areas to be reviewed included the planning stage, marketing stage, implementation stage etc. Once completed, the reflection summary would be submitted to the project coordinators together with the class project file for an overall evaluation.

In order to encourage creative thinking and promote enterprising ideas to be conceived in the business proposals, the school did not lay down too many restrictions or red tape to the nature of business ventures students could carry out. Business ventures may vary from providing a service to the selling of merchandise, which may be commercially obtained or hand-made. The only restrictions placed were the selling of cooked food products and businesses that may infringe copyright laws. In a move to pre-empt potential business failure in a safe environment like the school, classes that incurred a loss after their initial first week would be given additional time slots to run their businesses a second time later in the year to try and recoup their losses.

As an incentive to encourage students to put in their best effort, 70% of all profits generated from their business ventures would be given to the individual class funds. The remaining 30% would be donated to needy students in the school, thus reminding our students to care for others in whatever we do.

After the successful implementation with the Secondary Three classes, the school proceeded with the involvement of the Secondary Two and subsequently, the Secondary One classes in Term Two and Term Three. Another entrepreneurship workshop was conducted for our new student leaders in the lower secondary classes during the March holidays by the project coordinators to prepare them to lead their respective classes in this project together with their form teachers.

By the end of Term Three, all Secondary One to Secondary Three classes have successfully participated and completed their business ventures.

### ***Assessment and Review***

In reviewing the whole project, it was found that the project has been successfully structured into the daily school life of teachers and students, and not just implemented as an ad-hoc event. Adopting an experiential learning approach, the large-scale entrepreneurial exposure for our students across three levels provided valuable hands-on learning for both students and teachers.

During the implementation period for the Secondary Three classes, observations made by the teachers had been encouraging as students were really innovative and enterprising in their ideas and approach. Classes put in their best efforts to make as much profit as they could. Some chose to do re-packaging so as to "value-add" their products, while others



	Sec 1 Classes	Sec 2 Classes	Sec 3 Classes	Total Combined
<b>Total Revenue</b>	\$4,428.05	\$3,039.72	\$4,246.97	\$11,714.74
<b>Total Expenses</b>	\$2,623.80	\$1,377.83	\$1,809.28	\$5,810.91
<b>Total Profit Gained</b>	\$1,804.25	\$1,661.89	\$2,437.69	\$5,903.83
<b>To Needy Students (30% of profit)</b>	\$541.28	\$498.57	\$731.31	\$1,771.16

exploited the opportunities to provide services rather than products.

In terms of profits generated, all the classes involved have managed to reap in profits, with \$540 being the highest profit reaped over five days of business. A summary of the takings by the individual level is illustrated in the table shown below.

Positive feedback and comments about the project have also been received from students, teachers and parents. Below were some of the excerpts taken from their feedback and reflections.

*"Having been encouraged by the government to build up the entrepreneurial spirit in us, I think that the school has done the right thing in organising this. It does, indeed, let us have a taste of the real business world and taught us the importance of having good relationships with others. Having experienced this project has made me more knowledgeable of the ever-changing business world. I think that this project has benefited us a lot and also helped build up our class spirit."*

**Zhi Yong, a student.**

*"I learnt a lot about this entrepreneurship project which helped me to have more confidence in either promoting or selling things. What's more important is the resilient spirit we have built through this experience. We are also able to co-operate with one another – have different ideas, share, help one another etc. Though it was*

*hard work, we managed to overcome it. And I burnt my hand from the glue gun while trying to fix the test tube that we were selling. Nevertheless, I enjoyed this very much and hope to have another chance to do it again."*

**Xiang Jun, a student.**

*"The entrepreneurship project was fun and meaningful. I learnt a lot from it. At the same time, the class bonded together as teamwork was the key to making the project a success. This experience will definitely benefit us when we grow up and start working in the adult world."*

**Sujata, a student.**

*"I feel that project E' has enhanced class spirit and cooperation among students, encouraged creativity and thinking on the part of the students, provided leadership opportunities for students and offered new experiences to them which could not be learnt during curriculum."*

**Mrs Rebecca Loke, a teacher.**

*"It was a success because both classmates and teachers supported the project. Some of the ideas were very innovative! They were so unique that we were curious enough to look. Furthermore, the prices were competitive and affordable."*

**Mr Jared Oh, a teacher.**

*"I wish to congratulate the school for 'teaching' and introducing our children in Temasek Secondary to the theory and basic steps of being financially independent. I*



also noticed that great efforts have been taken to organise hands-on fairs for the students to experience the hustle and bustle of managing their own stalls. Our children have learnt new life skills to better prepare them for the new challenges ahead for Singapore and her emerging workforce."

**Mr Patrick Scully, a parent.**

"It was an enriching experience for the students to learn and wear the shoes of an entrepreneur. It gives them the impression that being their own bosses is not just about flexible working hours. They do need creativity, salesmanship and plenty of hard work. I'm not sure whether the experience they felt was one that was encouraging or eye-opening but I'm sure the lessons they have learnt are best experienced now than later in the real world."

**Ms Chng Kim, a parent.**

From the feedback, it was evident that Project E<sup>2</sup> helped build up class spirit and provided opportunities for the development of class leadership. Although the form teacher was around to facilitate the class project, it was ultimately the class that assumed the ownership of the project, and they were the ones who decided on what to do in the end. By training and involving teachers, Project E<sup>2</sup> has helped teachers understand current needs of the nation and be at the forefront in teaching new skills related to innovation and entrepreneurship.

Project E<sup>2</sup> has also created opportunities for the school to collaborate with the public in partnerships that can develop our students to their fullest potential in the areas of entrepreneurship. Such collaborations involve external organisations like YEAH!, Tampines Mall and the North East CDC. The PSG were also involved through their roles as venture capitalists. For this year, Project E<sup>2</sup> has provided a basic platform to equip students with entrepreneurial skills that can enable them to participate in other related external organised activities like the

Bizworld Proposal Writing Competition, the Suntec City Fair and the Tampines Mall Fair, all scheduled during the school holidays in November later this year.

### **Future Development**

The school has plans in the near future to establish link ups with institutions of higher learning that are also active in promoting a culture of entrepreneurship. The school is also looking into the possibility of attaching teachers and students to industrial organisations to understand the real life opportunities and challenges from the business sector.

### **Conclusion**

In conclusion, by equipping our students with entrepreneurial skills and providing them with opportunities to apply such skills, Project E<sup>2</sup> has indeed helped our students develop skills that will be relevant and important not just for them to survive and succeed, but also for the nation to survive and succeed in the future. However, we must realise that such school-wide initiatives are but just the tip of an iceberg of what we can really offer our students. To achieve an entrepreneurial mindset among the young is a daunting task by any comparison, but what we can and should always do is to promote the culture of entrepreneurship so as to nurture that entrepreneurial mindset among our students.

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National University of Singapore. (1992). Public Lectures by Professor Howard H. Stevenson. University Liaison Office, NUS.

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*Mr Mark Chan Weng Kit is a Head of Department in Temasek Secondary and Mrs Ou Yang Geok Cheng is the Principal of the school.*



# Learning Chinese with The Rainbow Essay

Ho Sin Chan

*The Rainbow Essay* is a card and board game specially designed by both the pupils and teachers to help pupils of Holy Innocents' Primary acquire the skills of Chinese essay writing. The concept of the rainbow is used in order to capture the vibrancy and enthusiasm of the young with bright rainbow colours. The seven bright colours will hopefully ignite the sparks of imagination and creativity in pupils. The colours symbolise the 6Ws (*Who, What, Where, When, Why, How*) and the Chinese idioms takes the place of the seventh component. This helps to stimulate pupils' thinking to process information, develop ideas, learn new words and phrases for their Chinese essays. Learning is made more interesting and fun. By playing the game, pupils also acquire basic entrepreneurship skills. This is because the board game involves decision-making and risk-taking in order to play it successfully.

## **Development of Rainbow Essay**

How did this idea come about? Some of our more observant pupils noticed that their peers actually have a fear of writing Chinese essays, while other friends simply



have no interest in learning the language. On probing further, these pupils found that their friends were unable to express themselves well in the language because of their weaker foundation and exposure to the language. Their inability to contribute and do well during Chinese lessons further demoralised them. It was a vicious cycle for their unmotivated friends.

These concerned pupils saw a need to make learning of the Chinese language more exciting for their friends. Together with their teachers, they brainstormed for ideas to develop a learning aid to enhance the learning of Chinese Language.

The challenge was to develop a stimulating and innovative game which will make use of the vocabulary and idioms learnt. Pupils were excited with the plan and carried out independent work to source for more ideas, information and knowledge to be captured onto cards. At the same time, some other pupils worked on the board. With the help of teachers, the board game was



refined and tested on fellow pupils. The response was overwhelming. With the successful application of the Innovation Fund, mass production of the game could then begin.

### ***Entrepreneurship***

The Rainbow Essay board game also nurtures the entrepreneurial spirit in our pupils as they learn Chinese. It is an interesting game which requires a pupil to plan, strategize and take calculated risks in decision-making. A player begins the game by throwing a dice. As he plays the game, he tries to gain as many points as he can or to collect all the rainbow colour cards. He moves carefully, studying the situation and trading his points for colour cards with the banker or another player if necessary. This element of trading or barter evokes simple yet good lessons in entrepreneurship. It trains pupils to make decisions and move along, to be bold and yet mindful of the consequences.

### ***Conclusion***

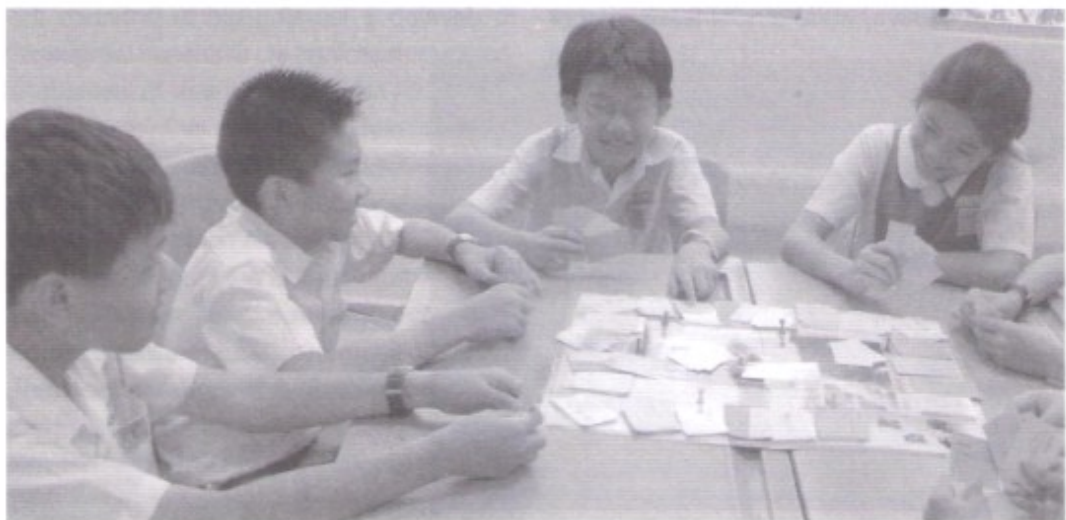
The Rainbow Essay uses the strategy of seizing an opportunity, trading, anticipating



changes and making sound decisions. It also promotes learning in a fun way. Not only has this helped to change the poor attitude of some pupils towards learning Chinese and at the same time improving their ability to write better essays, it also facilitates the pupils to think more innovatively. This augurs well in developing young entrepreneurs.

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*Mr Ho Sin Chan is a Chinese Language teacher and HOD in Holy Innocent's Primary School.*



# Dare to Venture

*Chua Siew Hong, Andrew Tan & Koh Yong Chiah*

"The college strongly believes in fostering in students a predisposition for innovation and enterprise. At the end of the day, even if students do not turn into entrepreneurs, this mindset will help them become more nimble, adventurous and well-prepared for the challenges in their future workplace."

*Koh Yong Chiah  
Principal  
Jurong Junior College*

## **Introduction**

It has become increasingly important for schools in Singapore to take learning beyond the classrooms and the prescribed syllabi and textbooks. With the recent introduction of Project Work, clearly, the direction has been set to get our students to be more involved in pursuing knowledge and inquiry as well as to take an interdisciplinary approach to learning. Such dynamic and vibrant changes in our education landscape are clearly in response to the ever changing and challenging environment that is filled with opportunities for the prepared mind – both on the economic and technological fronts.

In the light of this, there is a need to nurture a generation, which is more innovative and embraces entrepreneurship more readily. Our Prime Minister, Mr Goh Chok Tong, highlighted the importance during his National Day Rally Speech when he said, "You must create and seize the opportunities yourselves. To become a vibrant society with a strong entrepreneurial streak, the Government will have to cut loose the apron strings."<sup>1</sup> Mr Tharman Shanmugaratnam, Acting Minister for Education at the MOE Work Plan Seminar reiterated the same need to go beyond ability and analysis to innovation and knowledge building that is at



*Students setting up JJ Affinity Shop*

once individually meaningful and connected to the real world. Among other things, he said, "...we will do more to help our schools broaden the educational experiences of their students. Innovation and enterprise are best fostered through a broad-based holistic education, allowing students to draw from a wide range of learning experiences."<sup>2</sup>

In aiming to foster an entrepreneurial culture, Jurong Junior College has developed its very own entrepreneurial programme that goes beyond organizing training, seminars and workshops, to business management.

- 1 Prime Minister National Day Rally Speech, *Straits Times*, 18 August 2003.
- 2 Speech by Mr Tharman Shanmugaratnam, Acting Minister for Education, at the MOE Work Plan Seminar at Ngee Ann Polytechnic on Thursday, 2 October 2003.



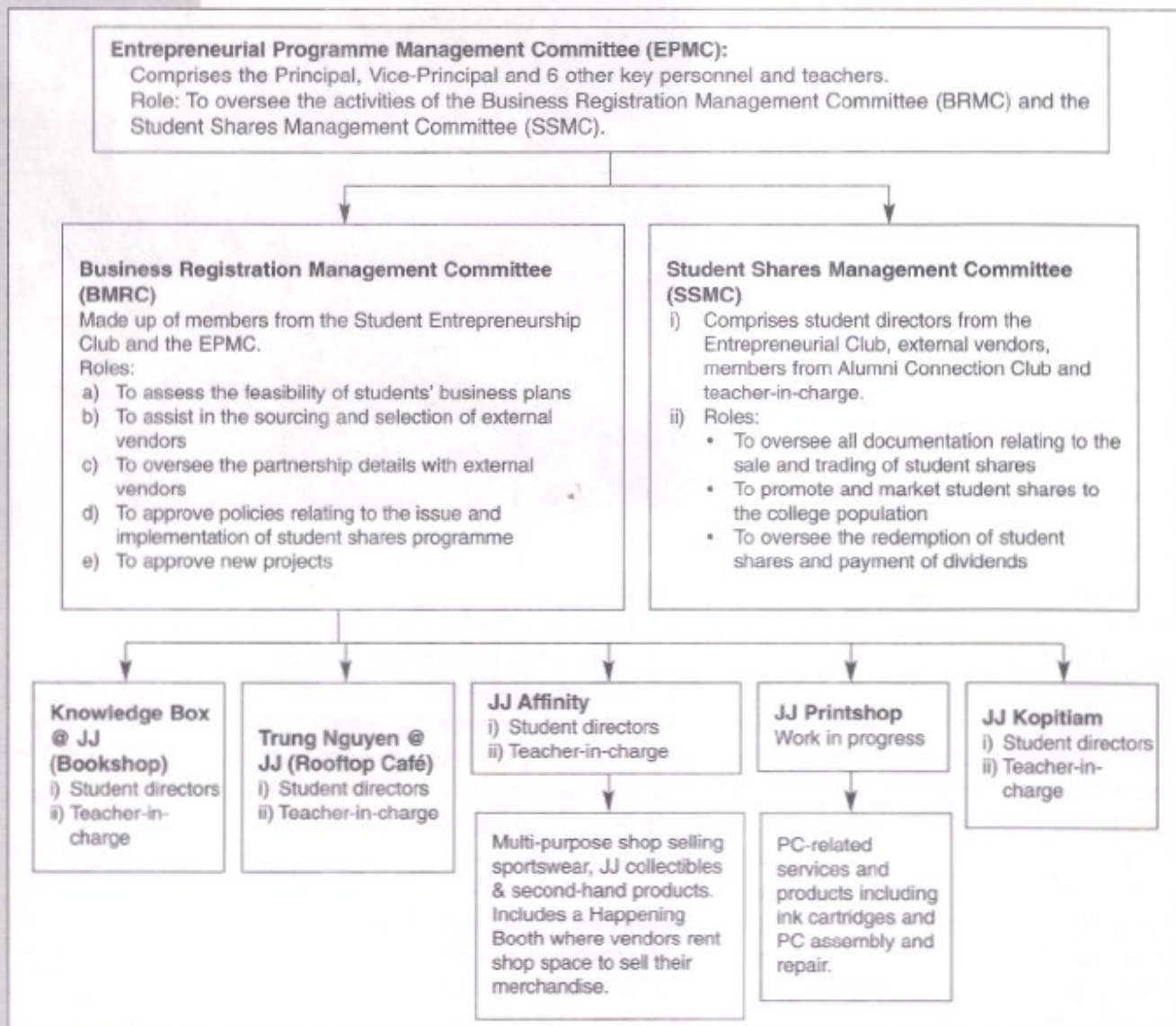
## The Organizational Structure

One of the key objectives of our programme is to expose our students to the culture of entrepreneurship and risk-taking. Critical to the success of this initiative is the organisational structure which is shown in Figure 1. It is modelled after real world business environment and set-up. The structure, while hierarchical, offers enough room for direct student involvement and decision-making, participation as well as supervision and guidance by school personnel. This is done through clear role definition and a triangular organisational structure.

While an executive management committee (EPMC) offers over-sight, business operations and decisions are divided into a business transaction arm (BMRC) and a capital investment arm (SSMC), both of which complement each other and report directly to the executive management committee. Student directors come from the Student Entrepreneurial Club which is a CCA in the college.

The numerous core businesses fall under the purview of the business registration management committee. This committee reviews student business concepts and evaluates its feasibility and limitations. To

Figure 1: Organisational Structure of the Entrepreneurial Programme in JJ



date, of the 5 identified businesses, one is completely student-run (JJ Affinity) and two involve joint ventures with approved external vendors (Knowledge Box @ JJ and Trung Nguyen @ JJ). The fourth business is in the process of being set-up (JJ Printshop) and the fifth (JJ Kopitiam) is a short-term business project.

### Operational Process

The college follows a comprehensive operational workflow for the start-up businesses. This is shown in Figure 2 below.

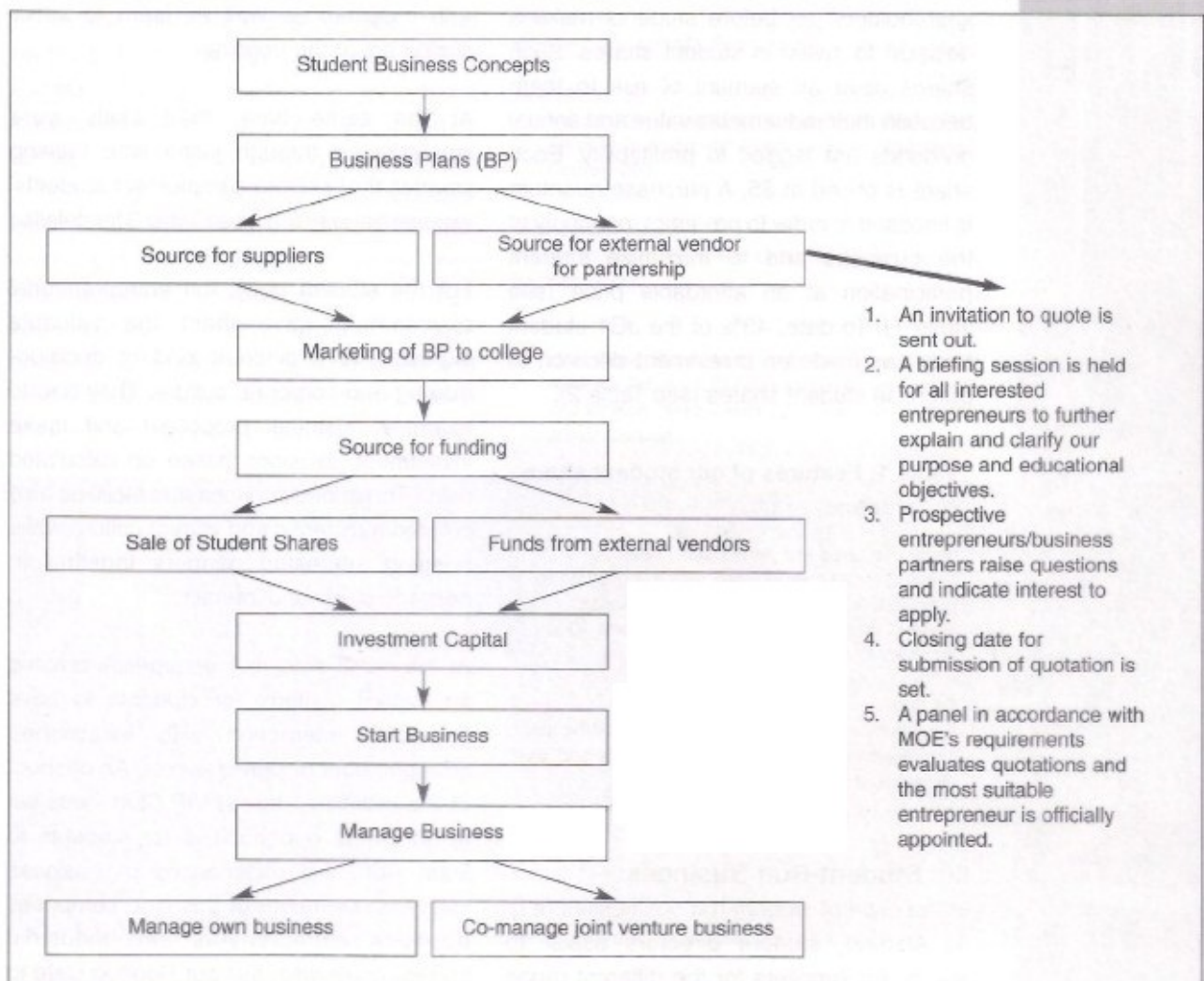
#### i) Joint Ventures

The joint ventures were established very carefully with the following criteria in mind:

- The willingness of the business partner to be part of the JJ community and to recognize that the venture is both educational and entrepreneurial in nature.
- Financial procedures and propriety in accordance with MOE guidelines must be observed at all times.

Sourcing for potential business partners involve presenting the business plan to interested entrepreneurs who were invited to submit their quotations. These were thoroughly evaluated for suitability, commitment and returns to the college before they set up their operations on college premises.

Figure 2: Workflow from student business concepts to business start-up.







*Group discussion during camp*

### ii) Start-up Capital

Getting capital for business start-ups took the form of marketing and sales of student shares to the student body. Members of the SSMC presented the projected profitability of the enterprises and the privileges that shareholders get before students make a decision to invest in student shares. Such shares have an element of risk to them because their redeemable value and annual dividends are tagged to profitability. Each share is priced at \$5. A purchase quantum is imposed in order to pre-empt monopoly of the business and to maximise student participation at an affordable price (see Table 1). To date, 43% of the JC1 student body has made an investment decision to purchase student shares (see Table 2).

**Table 1: Features of our student share programme**

Student shares are priced at \$5 each.  
Students who are non-directors are allowed to purchase 1 to 9 shares for each business.  
Student directors need to hold between 10 to 20 shares each.

**Footnote:**

If the business makes profits, students will be able to redeem the full value of their shares and the dividends at the end of the financial year.

### iii) Student-Run Business

In the case of student-run businesses (e.g. JJ Affinity), student directors assist to source for suppliers for the different range

**Table 2: Number of Shares sold**

Knowledge Box @ JJ	305 shares
Trung Nguyen @ JJ	488 shares
JJ Affinity	264 shares
No. of students who own at least 1 share	320 (43% of the JC1 cohort)

of products and they also directly handle the point of sale.

### Achievements

The student directors acquired real-world skills in more ways than one. They had opportunities to conduct market surveys, to gather customers' feedback, analyse results, brainstorm for promotion ideas, implement marketing strategies, learn stock-taking, acquire sales techniques, deal with suppliers as well as learn to serve customers at the frontline.

At the same time, their skills were strengthened through just-in-time training courses that seek to complement students' experiential learning. (See Table 3 for details.)

For the student body, the entrepreneurial environment gave them the valuable exposure to a different kind of decision-making and corporate culture. They had to examine business proposals and make investment decisions based on calculated risks. The added services and facilities also created a dynamic and vibrant culture while bringing interested partners together to network, study and interact.

At the same time, our enterprises created an explicit platform for students to have first-hand interaction with established entrepreneurs or professionals. An offshoot of this initiative – the JJ VIP Club - was set up to create opportunities for students to learn from the experiences of business veterans. Members of this club comprises business entrepreneurs and industrial professionals who visit our Rooftop Café to

**Table 3: Training Courses For Student Directors**

Title	Number of Hours	Numbers Attended
Enterprise and Entrepreneurship Modules Workshop	12	25
Directors' Modules Workshop	9	19
Workshop: Generating Sales and Increasing Profits on a Shoe-String Budget	8	35
Camp Ideapolis organised by South West CDC	3D/2N	15

chat with our students and share insight into business start-ups and the critical challenges they face.

Inspired by these true-to-life examples, student directors initiated their own sharing sessions with their fellow college mates.

### **Challenges**

While the student directors have achieved much, they have, at the same time, faced teething problems such as slow sales, excess stocks, difficulties in scheduling duty-rosters in view of constraints posed by lesson time and getting established suppliers to be interested in small-scale businesses. However, these problems encourage the students to hone their problem-solving skills and test their resourcefulness and resilience. It gave students a foretaste of real business and what it takes to succeed. Even if losses were incurred at the end of the financial year,

students would have gained invaluable out-of-classroom experience.

### **Conclusion**

The college made its first foray into real-time business ventures. It sought out opportunities where there were none and, in the process, took students beyond themselves.

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### **Acknowledgement**

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*JJ Affinity Shop*





# Strike Out On Your Own

Roger Lee and Yek Tiew Ming

## Self-Employment

Self-employment, although somewhat risky, is a rewarding and challenging career route to consider. A number of successful businesses started out as hobbies or part-time enterprises. Bengawan Solo, the confectionery chain for example, was started by a housewife on a part-time basis from her home.

Once you have decided to move on to become an entrepreneur, the decision-making process can indeed be a difficult one.

It takes a lot of perseverance, dedication, hard work and more hard work. But as many local 'towkays' have proven, the rewards can outweigh the costs.

## The Entrepreneur's Mindset

You may have the relevant and basic skills needed to set up a business in your field of expertise. But having these additional attributes will give you the extra edge in starting a business:

- **Sales experience**  
Business survives on having good marketing strategies and sales revenue. You need to find and win over clients or customers for your services or products. Effective selling skills are therefore vital, and most successful salespeople are those who are extrovert and have strong persuasive verbal skills.
- **Be a self-starter**  
You need to put in your heart and soul into the business venture. If your interest

is not there, the business will not get off the ground. There are lots of successful businesses that are generated from hobbies and those having good skills sets.

- **Creativity**  
You need to be creative and able to differentiate your products or services from the rest of the crowd. Repeat sales are generated because you have customers who love your products and your impeccable service. The competitive advantage that you possess is the key to your success.
- **An indomitable spirit**  
Walter Bagehot once said, "The greatest pleasure in life is doing what people say you cannot do." You must have the "never-say-die" spirit. Failure or problems are just situations for you to turn into opportunities.
- **Interpersonal skills**  
You will require the communication skills to mediate or arbitrate between people with opposing views when the situation arises. You must be able to handle complaints for the company; and most importantly, be able to get along well with people.
- **Financial knowledge**  
It is important that you are able to prepare budgets, secure funding for the business, keep financial records and complete income tax forms. You will need to project profit and loss statements. For example, you should show the profit and loss for each of your products and product lines, as well as

the profit and loss for your entire operation.

## **Steps To Becoming An Entrepreneur**

If you have what it takes to be an entrepreneur, you need to know how to go about fulfilling your dream of being your own boss.

Here are the steps:

- 1 Do a market research – find out if your idea is marketable. Get feedback from friends and relatives.
- 2 Prepare a business plan – this should include what you hope to achieve and how you will achieve it. If you want to create a comprehensive and professional business plan, some companies will provide the service for you for a fee.
- 3 Register your business – once you are ready, register your company with the Registry of Companies and Businesses (RCB). This currently costs \$15 per name.
- 4 Find a location – you can tender for a place with HDB or JTC for rental; or if you want to use your HDB flat for business, you need to apply to the EDB and HDB under the Technopreneur Home Office Scheme (THO).
- 5 Hire the appropriate people – employ the right people who are passionate about their work. That being said, make sure you are familiar with the employment laws and regulations.
- 6 Get the addresses of where to find what – you need to know where to register your trademark, how to pay your taxes, how to file a claim, and how to apply for government assistance. Addresses of places such as these are important information to help you launch your business successfully.

## **Resource Planning**

You know that you have a great business idea. You have studied the market and you have found that a strong demand exists for your product. You even did the whole exercise of business planning, and the results reaffirmed your belief that the business you have in mind has a strong potential.

The only problem is – you lack the resources to make the business work. Lack of funds is the most common cause of business failure. If there is no money, there will be no business. So what can you do? Here are some suggestions.

### **1 Start The Business Part-Time**


If you are not ready to take the full-time plunge in your venture, consider starting the business part-time. You can work at a job during the day, and spend time at night doing work for your business. If your business is your focus, you can take on night-time job and work on the business during the day where you can be accessible to clients.

However, starting your business on a part-time basis depends on the nature of the venture. Moonlighting will work with some businesses. However, before exploring it as an option, review your limitations.

If you work full-time during the day, ask your clients to leave you messages on your answering machine. When you come home, you can call the potential clients and discuss with them the specifications for the project. At this point, you will have to choose clients that fit well into your schedule. Clients will expect your help at various times of the day. Some will even ask you to do 'rushed' assignments. If you are already employed for another company, you may not be able to carry out your commitments as effectively. They may easily get frustrated if they cannot get hold of you on an immediate basis.







Be prepared to make a lot of sacrifices. Starting a business on the side while employed full-time will not be easy. You need to consider whether you really have the time and energy to work an 8-to-5 job, and then come home to work on building your business, in addition to juggling family responsibilities. It is inevitable that you will have to give up a lot of your personal time.

## **2 Find A Partner**

Instead of going into a business alone, you have the option of looking for a partner who will provide you with the financial resources required to help start the business. You might want to look for a "silent partner" who will be willing to put up the capital you need and step back into the background to let you run the business the way you see fit.

There are a number of questions you need to consider before taking on a partner. For example, how well you know the person and what your relationship with him or her is, prior to the business venture.

Partnerships thus are very tricky, especially if there is no clarification between the responsibilities, obligations and authority of the parties concerned. One way of overcoming future partnership problems is to have a lawyer draw up a precise partnership agreement that covers every eventuality.

In the partnership agreement, you should answer questions like:

- What will be the contribution of each partner?
- What are the responsibilities of each partner?
- How are you going to divide the profits?
- Who will run the business?
- What kind of decisions can each partner make?
- What will happen to the business if one partner wants to withdraw?
- How are conflicts resolved?

## **3 Go To Friends And Family For Additional Resources**

Families and friends are often the first stop when trying to raise capital for a business. They are relatively easy to approach and will not require much in terms of paperwork. Convincing them to lend you some money may be easier than convincing a bank to do so.

The difficult part about dealing with family is their idea of risk. They may not fully understand the risk of giving you capital for a business. After all, the \$20,000 Auntie Annie invested in your business might well go down the drain if the business fails. Thus far from being the envied entrepreneur in your family, you become the loser they want to avoid at all costs. Think about how a possible failure of the business can affect your relationship with your family and friends.

By the same token, any investor, be they family or friend, would want their investment to grow. They would expect you to deliver tangible results with the money they have put into your business venture.

Family members and friends are also more likely to meddle in the way you are running your business. After all, if Auntie Annie had financed your business, she may want to have a role in the business. Before accepting their financial contribution, talk to them about their role in your business.

## **4 Apply For A Loan From A Commercial Lender**

If you decide against approaching friends and relatives, or if you were not able to, your next alternative is to apply for a loan from commercial lenders. These include banks, savings and loan associations, or credit unions. Commercial lenders, however, often require a number of things before approving a loan.

**You have to demonstrate to the bankers and investors that an**

**investment in your business is worthwhile. In other words, they have to share your enthusiasm for the venture. The best way to do this is to present a detailed and comprehensive business plan.**

Lenders also often ask for your background history and statement of personal finances as well as a list of your personal assets. You must have a perfect credit history, showing proof that you are good in honouring your financial commitments.

### 5 Visit Incubation Centres

The Singapore government, various tertiary institutions (e.g. National University of Singapore), and private enterprises have set up incubators to assist young entrepreneurs in the start-up process.

For example, the Ministry of Trade and Industry has established a US\$1 billion "technopreneurship" fund in early April 1999 to develop and harness the growth potential of technological entrepreneurship. The SPRING Singapore ([www.spring.gov.sg](http://www.spring.gov.sg)) and the Economic Development Board (EDB) ([www.sedb.com](http://www.sedb.com)) also have various funds into which innovators can further tap. An example is the S\$20 million Life Science Investment Fund jointly set up by EDB and the Agency for Science, Technology and Research (A\*STAR) Singapore ([www.a-star.edu.sg](http://www.a-star.edu.sg)) for prototype and market development studies. On a smaller scale, the Innovation and Creativity Fund (ICF) set up by both Shell LiveWIRE ([www.singapore.shell-livewire.com](http://www.singapore.shell-livewire.com)) and the North East Community Development Council (CDC) provides budding young entrepreneurs another avenue for funding support. This ICF fund is managed by the Technopreneurship Incubation Centre located in ITE East (Tampines).

Such funding would not only assist entrepreneurs in starting up but also provide publicity for the various projects.

Some of the private investors may also take equity in your company if the projects are exciting and they can see a return for their investment.

### 6 If All Else Fails, Wait

After exhausting all possible sources of finance and you are still unable to secure the needed resources, then it is best to wait. Many entrepreneurs stubbornly persist, only to find failure staring into their faces. Pursuing your venture even if you know you don't have the resources to make it could only frustrate you in the end.

So just wait, and look for the resources that you need.

#### In A Nutshell

*Striking out on your own without any regular income can be a daunting thought. A true entrepreneur must be daring enough to take that risk and possess a strong belief that he or she can make it. To make it, you must have a solid plan and strategy as these provide the framework for you to build your work on. Nobody says it is going to be easy but if you have the determination, passion and patience, you will reap the fruits of your labour, if not sooner, then later.*

#### Quick Dipstick

Think of striking out on your own? How about assessing yourself to see if you are ready to do so? As a self-employed person, you will need a clear vision of what you want to do, lots of drive to solve the problems that will surface, plenty of initiative, i.e. a constant force and direction, to get what you want.

A) Do the following self-test and get two other persons who know you well enough (parents, friends, etc) to size up



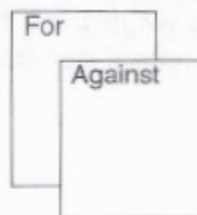


Qn	How I See Myself			How Others See Me		
	Often	Some -times	Not At All	Often	Some -times	Not At All
1 I do not give up easily but will persist despite difficulties.						
2 I enjoy challenges and am willing and able to take calculated risks.						
3 I have good persuasive and negotiation skills.						
4 I am confident that I can lead and direct others.						
5 I am self-motivated with lots of drive and high energy levels.						
6 I work well in a team.						
7 I actively seek out opportunities to make money.						
8 I am flexible and adaptable.						
9 I enjoy meeting people and am sociable.						
10 I am resourceful, i.e. able to gather information from a wide range of sources.						

if you have the personal attributes and skills to make it as an entrepreneur.

**B) Should you start a business?**

After knowing your attributes and abilities better, make 2 lists: **'For'** and **'Against'**.



**After you have gone through the above exercises, you will have a clearer picture as to whether starting a business is for you!**

**Note**

This article was first published in "A Step Forward" a book by the ITE and the ITE Alumni Association in December 2002 as part of the ITE Alumni Anniversary Celebrations held in January 2003.

*Roger Lee is the President of the ITE Alumni Association and Yek Tiew Ming is the Principal of ITE East. Both men are co-chairmen of the Technopreneurship Incubation Centre, located in ITE East (Tampines).*

# Nurturing the Young Entrepreneur – An Institute of Technical Education Experience

Iris Seet and Fang Wei

## Background

To inculcate the spirit of entrepreneurship among the students and graduates of the Institute of Technical Education (ITE) and young people in general in Singapore, an Entrepreneurship Development Initiative was launched in April 2000 by ITE, ITE Alumni Association and Shell Companies in Singapore.

The main vehicle for the Entrepreneurship Development Initiative was the establishment of the Technopreneurship Incubation Centre (TIC) which:

1. Manages and makes available facilities for incubatees at a nominal fee;
2. Facilitates collaboration projects between staff and incubates/industry;
3. Provides assistance to graduates in their start-ups; and
4. Manages the Shell LiveWIRE programme in Singapore.

## Assistance and Facilities for Start-ups in TIC

Since its inception, the TIC has housed a total of 11 incubatees. Of these, 4 had left to embark on their next phase of development after an average stay of 7 months in TIC. The TIC provides the current 6 incubatees with office space, personal computers and common office equipment like faxes,

printers and photocopiers at a nominal fee of \$100 per month.

The TIC also served as a platform for staff and students of the Institute of Technical Education to work with the incubatees in the development of their prototypes or research and testing for their products. A total of 6 projects have been initiated, of which 3 are currently on-going projects.

In addition, the TIC has assisted 9 ITE graduates to start up business through the provision of information, contacts and mentoring by members of the ITE Alumni Association.

## Management of the Shell LiveWIRE programme

A significant part of TIC's entrepreneurship training is done through the Shell LiveWIRE programme. This programme assists young entrepreneurs to develop the necessary skills to manage a new business. It also rewards and raises the profile of outstanding young entrepreneurs through the annual Young Business Start-up Awards. The Chinese Newspapers Division of the Singapore Press Holdings is an important partner of the Shell LiveWIRE programme as it provides wide coverage of the annual Young Business Start-up Award winners as well as publicise the training



Shell LiveWIRE  
Young Business  
Start-up Award  
2002



seminars held for the Chinese-speaking public in Singapore.

To help young and budding entrepreneurs to start off on the road to gainful entrepreneurship, Shell LiveWIRE actively organises a series of seminars and workshops to inculcate the spirit of entrepreneurship and provide advice and skills to those who are embarking on a career of starting their own business.



*"The Making of An Entrepreneur" Seminar*

ideas into viable/marketable products and businesses.

### ***Innovation and Creativity Fund***

The Technopreneurship Incubation Centre also manages the Innovation and Creativity Fund (ICF) launched by the Minister for Education RADM Teo Chee Hean in Nov 2001. The ICF is jointly set-up by the North-East Community Development Council and the Shell LiveWIRE programme with the objectives of promoting and inculcating the spirit of entrepreneurship in students and youths residing or studying in the North East District; as well as the provision of seed money for them to develop their

### ***Entrepreneurship Club***

To further encourage the spirit of entrepreneurship, the ITE East Entrepreneurship Club was launched with chapters in every campus in the ITE East network. Besides receiving training, members of the club are encouraged to participate in real-life projects to gain hands-on experiences. Members of the ITE East (Bishan) chapter joined other entrepreneurial clubs from schools in the North East District in running stalls at the Parco Bugis Junction to raise



*Workshop on Entrepreneurship skills for a group of ITE students*

funds for charity and other worthwhile causes. One exciting development is that student members of these clubs are currently engaged in inter-disciplinary entrepreneurship projects with their peers in other campuses.

### **Conclusion**

Since the inception of the Technopreneurship Incubation Centre in Aug 2000, it has nurtured 11 incubatees and promoted 6 collaboration projects between the incubatees and the staff and students of the Institute of Technical Education. It has also reached out and trained some 4,500 students and members of the public through the Shell LiveWIRE training seminars and workshops. A total of 12 Young Business Start-up Awards had also been given out in recognition of the young aspiring people who are successful in business. Indeed it is gratifying to note that the winner of the

inaugural 2001 Young Business Start-up Award, Mr. Joshua Koh, recently also won the *Global Leader for Tomorrow* award by the World Economic Forum. This is an endorsement of the work of TIC and its partners in contributing to the fostering of entrepreneurial talent in Singapore.

In line with the national emphasis on entrepreneurship and innovation, the Technopreneurship Incubation Centre will certainly continue to play a pivotal role in promoting the spirit of enterprise, especially among ITE alumni, ITE campuses, secondary schools (via the ICF) and public members at large for some time to come.

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*Running a stall in Parco Bugis Junction*



# Cyberpreneurs! of Commonwealth Secondary

Ng Pak Tee

## **Introduction: Entrepreneurship in School**

For Singapore to continue to be competitive in the international economic arena, it requires its own breed of entrepreneurs. While Singapore will continue to try to attract the investments of multi-national companies, it requires a portion of its citizens to be able to break new business grounds. Mr Peter Chen, then Senior Minister of State for Education, said, "As a small country with no natural resources, Singapore has to find a way to compete in the global market place. Of necessity, Singapore has to maximise its human resources and focus on the development of a technology and knowledge-based economy in the new century. It demands entrepreneurs who are technically conversant and able to spot opportunities in high tech or high value added products and processes." (*Singapore Government Press Release, 2002a*)

With Singapore facing greater economic challenges, the government has to promote entrepreneurship. Like many other national initiatives that have a social impact, it starts in the school. At the opening ceremony of Bizworld in March 2002, Deputy Prime Minister Dr Tony Tan said, "...to succeed in fostering an entrepreneurial culture in Singapore, we must begin in our schools. This is because it is in school that children develop aspirations, form attitude and decide what they

want to achieve in life." (*Singapore Government Press Release, 2002b*)

Can a school do something in its programme to churn out entrepreneurs? According to the Entrepreneurship and Internationalisation Sub-Committee (EISC) of the Economic Review Committee (ERC), the answer is yes. If the Government accepts the committee's proposal, students will soon be given early exposure to the business world. Entrepreneurship education becomes an essential but non-examinable activity in schools. Students do business projects as part of the curriculum and they can have businessmen as their mentors to learn about cash flow and other economic concepts, as well as do business projects (*The Straits Times, 13 Sep 2002*).

Mr. Tharman Shanmugaratnam, Senior Minister of State for Education said, "Some of the skills required for entrepreneurship can be taught, in educational institutions and through mentoring by real-world





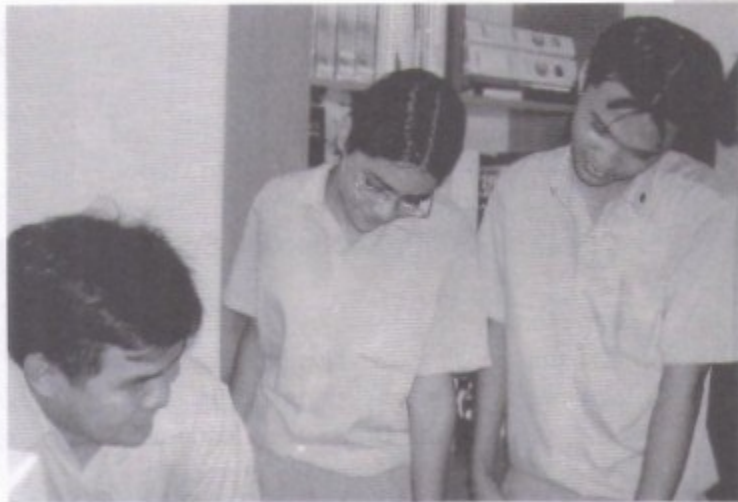
practitioners – skills such as market opportunity analysis, hedging your risks, raising funds...” (Singapore Government Press Release, 2002c)

Entrepreneurial activities have educational values. The premise is that entrepreneurship can be taught to youth and when students are given the opportunity to learn about entrepreneurship, their innate “street smart” qualities can develop into “academic smart” qualities and “business smart” qualities. Through entrepreneurial activities, students discover how what they are learning in the classroom can be relevant to the real world. They feel empowered to explore new opportunities and build a vision for the future.

There is therefore value in promoting entrepreneurial literacy and activities among students. The question is to develop good entrepreneurship programmes in school to unlock their unique entrepreneurial creativity, have a greater understanding of the business world, allow some hands-on learning and promote the sharing of knowledge and experience. In this respect, the key principles to consider are:

- Create innovative, experiential curricula;
- Partner with universities, other schools, industrial companies and community-based organizations;
- Provide professional development training and ongoing support to teachers and students in entrepreneurship;
- Provide a platform for knowledge sharing and “spreading the flame”.

This article now describes how Commonwealth Secondary School has gone about promoting entrepreneurial literacy and activities among its students through the project “Cyberpreneurs”. “Cyberpreneurs” is an innovation project undertaken by Mdm Chia Poh Kenn during her attachment to Commonwealth Secondary School from



March to September 2002, as part of her course work for the Leaders in Education Programme (LEP). The LEP, a state of the art leadership programme at the National Institute of Education (NIE), prepares a specially selected group of vice principals and MOE officers for school leadership, emphasising on knowledge creation and innovation. The “Cyberpreneurs” experience can be a good case study for other schools that are embarking on the same journey to develop student entrepreneurs.

### ***Overview of “Cyberpreneurs”***

“Cyberpreneurs” is a collaborative school-home-community project that serves as a first step to nurture student entrepreneurs by providing entrepreneurial knowledge and skills to students at Commonwealth Secondary School who aspire to become entrepreneurs. During the project, students experienced authentic learning through an attachment at an e-learning business enterprise where they observed a role model entrepreneur at work. They also met some other local entrepreneurs and interviewed them to gain insights into the making of an entrepreneur. They carried out product market research, prepared a business plan and presented it to an entrepreneur. These students then put together their collective knowledge in a digitised form and made this available through the e-portal to the rest of the school



community. Their next lap in their aspiration to becoming entrepreneurs was to start the young entrepreneurs' enterprise in the school, providing various essential and popular services to other students in school.

### ***Commonwealth Secondary School***

Commonwealth Secondary School has a visionary principal, Miss Dorothy Tay and a dynamic IT head of department (HOD/IT), Mr Charles Surin. Under their leadership, the school has been actively promoting e-learning. The school also has a new co-curricula activity, Cybernauts, where students serve as IT ambassadors under the guidance of the HOD/IT.

The school also has a strong partnership with parents and other school stakeholders. The school is committed to making the school-home-community collaboration a success. School stakeholders actively participate in a number of school activities. This close partnership avails resources for greater learning opportunities and exposure for Commonwealthians, bringing the school closer to fulfilling the school vision of building the Commonwealthian as one *"who has character, confidence and*



*creativity, and is fully committed to the service of the community and the nation."*

"Cyberpreneurs" therefore taps on the strengths of the school in IT and stakeholder partnerships. It develops the student entrepreneur by providing them with authentic, experiential learning through an attachment with an e-learning business enterprise, AsknLearn. It also provides entrepreneurship education through seminars with the staff of the School of Business & Accountancy and Innohub Centre, Ngee Ann Polytechnic and a lecturer from National University of Singapore (NUS) Business School, who is the parent of a student at the school. The





knowledge gained by the students who went through the project is shared with the others through an e-learning platform. The pilot project, which proves to be a great success, paves the way for a wider scope of implementation in the school.

### ***The Technology and Implementation of "Cyberpreneurs"***

Ten lower secondary students were chosen for the pilot project. They were proficient in IT and were enthusiastic about exploring synergies between technology and entrepreneurship. Ngee Ann Polytechnic, and the staff of Innohub Centre of the same polytechnic provided students with an 8-hour course on Entrepreneurship. This provided a body of structured knowledge so that students have an understanding of the concepts and skills to recognize opportunities that others have overlooked, and the insight and knowledge to act where others have hesitated. The project also incorporated a visit to the Innohub Centre at Ngee Ann Polytechnic to inspire students to innovate by providing them with the opportunity to view completed innovations by the polytechnic students. Overall, the experience helped the students to:

- Recognise entrepreneurial opportunities;
- Conduct a self-assessment of their entrepreneurial acumen;
- Gain greater awareness of entrepreneurship qualities;
- Identify issues related to entrepreneurship so as to enable students to conduct an effective interview with a Singapore entrepreneur;
- Understand the stages of business planning, capital development and



marketing; and

- Challenge and breakthrough conventional thinking.

AsknLearn provided the students with authentic learning experiences through a 10-day attachment. This was experiential learning in action. The attachment gave the students first hand experience in observing an entrepreneur at work. They also carried out a market survey, analysed pricing, examined customer acceptance level of the product and prepared a business plan stating their recommendations. They interviewed local entrepreneurs to gain insights into what it took to be an entrepreneur, the tears, joy and challenges along the journey. As Mr Tharman said, "It helps to have role models – local examples of individuals making serious amounts of money by taking a different route and working hard at it, and those that have made it big after first falling." (Singapore Government Press Release, 2002c) To help students plan and manage a business entity, a parent who was a lecturer from the School of Business, National University of Singapore provided basic training in financial projection and analysis.

The school provided the incubator for students to model what they have observed



and learnt from the entrepreneurs and spearhead entrepreneurial projects in the school. These students also served as ambassadors, generating interest in entrepreneurship by sharing their learning experiences with the rest of the school during a school assembly. They consolidated their knowledge of entrepreneurship, digitised it and shared it in the form of an e-project with the other students using an e-portal <http://www.cwss.moe.edu.sg/library/cyberpreneur.swf>. **Annex A** has a sample page of the e-portal.

In the near future, these young potential entrepreneurs would take on the role of "student consultants", providing advice and input for fund raising activities in school that require some entrepreneurial skills. These students would assist in preparing business development proposals. As a result of the project, the students have become more knowledgeable about business enterprise matters. They have recognised opportunities for business ventures in the school and have prepared proposals to start the young entrepreneurs' venture. The members of the young entrepreneurs' venture have already submitted two business proposals to the principal to start a digitising service and a bookshop service to support CCA and project work.

Through such business ventures, these student entrepreneurs aimed to:

- Integrate and apply the skills learnt during the "Cyberpreneurs" project into a real-life business venture;
- Provide convenience for students who require certain popular services in school at cheaper rates and shorter turnaround time; and
- Raise money for the school's CCA fund by contributing to the school around 50% of the profits earned.

In the digitising service business venture,

the student entrepreneurs planned to offer the students services such as:

- Printing/Photocopying services
- Laminating services
- Binding services
- Scanning services
- Making already-scanned photos into clearer and sharper photos
- Burning photos into a compact disc

In the bookshop business venture, the student entrepreneurs focused on the sale of the following:

- Newspapers (The Straits Times and The New Paper)
- Magazines (Teenage and Lime)
- Second-hand story books and magazines
- CD-R/RW
- Floppy Disk
- Floppy disk holders
- Project-work materials (Vanguard sheets, Styrofoam boards etc.)
- Special School Souvenir Items (Memo Pads etc.)

### ***Impact of the "Cyberpreneurs" Project***

Before and after the project, surveys comprising eight questions on concepts and issues related to entrepreneurship were carried out. The focus of the questions was to gauge students understanding of:

- Who an entrepreneur is;
- The qualities required to be an entrepreneur; and
- How to prepare a business plan.

The survey analysis showed that 90% of the students indicated that they knew what it meant to be an entrepreneur after the project compared to only 20% before the project. Also, after the project, 100% of the



students indicated that they knew how to prepare a business plan, compared to only 10% before the project.

As part of the project, the students were required to reflect on what they have learned through the experience. These documented reflections revealed interesting insights about the students' mental model of entrepreneurship and their feelings about the "Cyberpreneurs" project. Some of the reflections:

*Chan DeYang (Sec 1/4):*

*I learnt that being an entrepreneur involves taking risks, being dedicated, having a passion and most of all being able to think out-of-the-box, being creative. To me, having a passion for something and being dedicated is not a problem. I think I have interest in being an entrepreneur. However, I realise that I am not a very creative person and I need to improve on that!*

*Koh Ren Kiat (Sec 1/4):*

*Being innovative is very important for an entrepreneur. I do not think I am a very creative or innovative person, but I have determination, which is also very important to be a successful entrepreneur.*

*Vinoth Gopinathan (Sec 2/4):*

*I realise that being an entrepreneur is not easy. It requires a lot of determination, creativity, being able to accept failures and recovering from them as well as being brave enough to take calculated risks.*

*Maung Thu Yin Pye Aung (Sec 2/6):*

*Being patient, diplomatic and attentive to customers will help an entrepreneur to do well.*

*Ooi Kang Sheng (Sec 1/5):*

*I think this course has helped me in taking a big step towards becoming an entrepreneur.*

"Cyberpreneurs" as a project prototype has shown potential for expansion and

adaptation to other business contexts. The school can organise a similar course on entrepreneur education for other interested students. The young entrepreneurs' venture can lead to many other spin-offs in the future, such as an e-entrepreneurial venture (business on the web). The pioneer student entrepreneurs will be recruiting new members to join them in their activities. The entrepreneur education material on the e-portal can be enhanced and enriched.

Mdm Chia Poh Kenn shared that in carrying out this project, it was necessary to bear in mind the cultural factor in school. Entrepreneurship was not an established component of the school programme. Therefore, she had to talk to teachers and students about it so that they would buy into the idea. In order to get the teachers to accept her idea and share her enthusiasm, she had to emphasise the educational value of "Cyberpreneurs" and to assure them that it was not a gimmick or something to create additional work for them. To ensure the sustainability of the project, she had to enthuse the people involved so that there would be commitment towards the project. Although she had the innovation idea, to have it realised, collaborative relationships with people were important. Also, she had to adopt an open and flexible attitude throughout the implementation process. Even though there were main planned stages, there were no rigid and linear steps in the process. Instead, she constantly scanned the environment to make adjustments to smoothen the process.

## **Conclusion**

To support a national economic strategy, one thing schools can do is to create a school environment that encourages entrepreneurship to flourish. It is only when this entrepreneurial spirit is fostered in school that entrepreneurship will take off more successfully in Singapore. Through school-business partnership to



provide an authentic learning experience, enabled by technology to encapsulate and share knowledge on entrepreneurship, "Cyberpreneurs" has just provided the Entrepreneurship and Internationalisation Sub-Committee (EISC) of the Economic Review Committee (ERC) a working prototype of entrepreneurship education in Singapore schools.

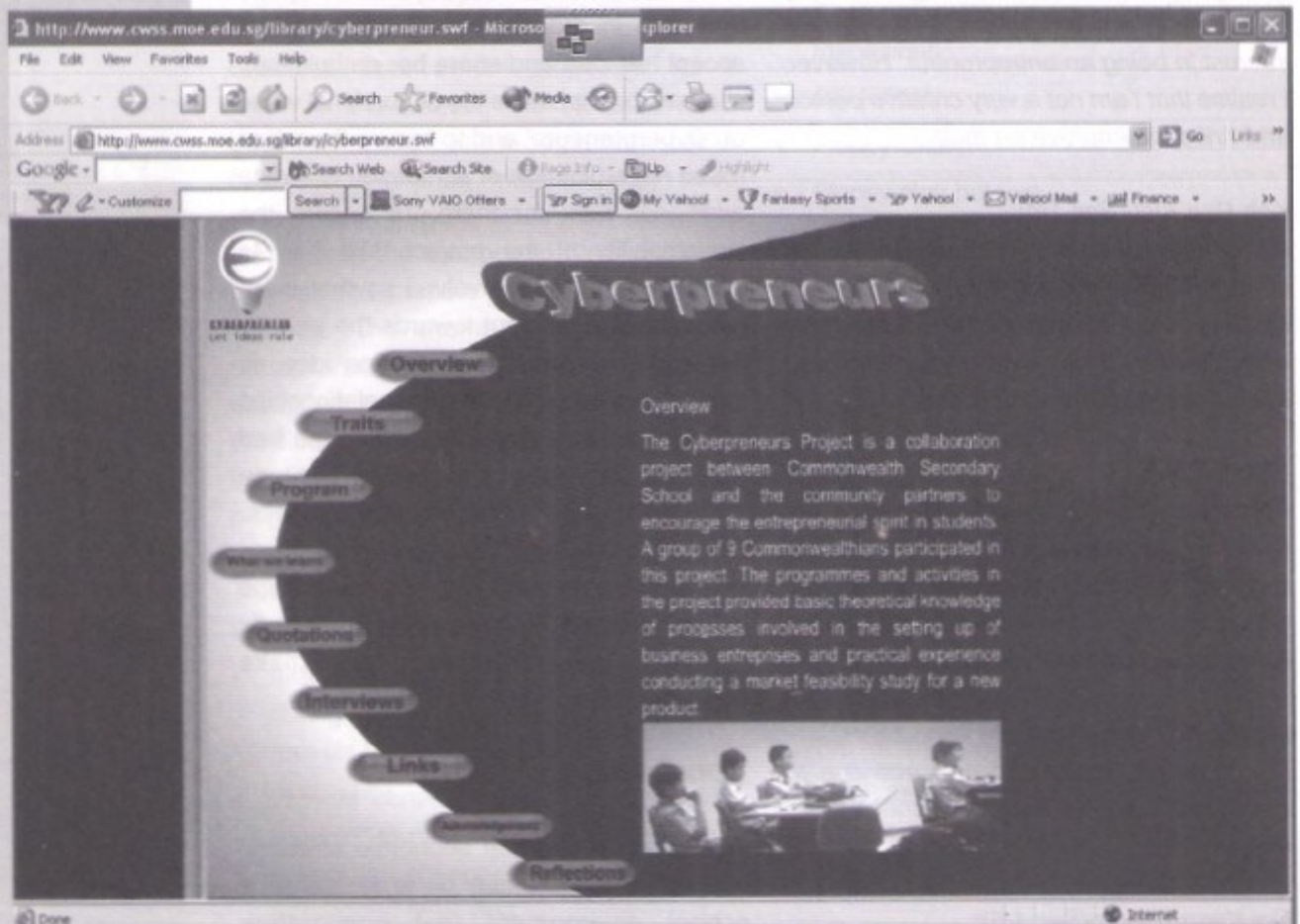
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*Dr Ng Pak Tee is an Assistant Professor with the Policy and Management Studies Academic Group, National Institute of Education, Nanyang Technological University, Singapore.*



ANNEX A: A sample page of the project from the website



# Student Entrepreneurship Programmes – Are We on the Right Track?

Richard Mak

## **1. The role our schools play in our student entrepreneurship development**

Though there is a clear need to develop the entrepreneurial potential of our students, this should not distract our educationists from their job of nurturing all-rounded students who will be good citizens for our nation.

The school's role is NOT to develop our students to be entrepreneurs while they are still in school. This is too onerous a task for our teaching profession. Our teachers are not exposed to business happenings. The school's role could be to ignite our students' interest in entrepreneurship and to provide them with a taste of what going into business is all about.

## **2. Student Co-operatives as a means to ignite entrepreneurial interest**

Many schools set up students' co-operatives as a vehicle to give students a taste of running a business outfit. The students' co-operative provides a simulated business environment where students are organized to man the counter, do stock-taking, place orders for goods, merchandizing and display of goods. They pick up operational skills in running the day-to-day affairs of a shop like customer service skills, inventory management skills, etc. They also develop a sense of responsibility and accountability as real money is used. However, operating a student co-operative is giving a taste of being an employee rather than being an entrepreneur. The retail-base setup does not provide scope to develop the sense of

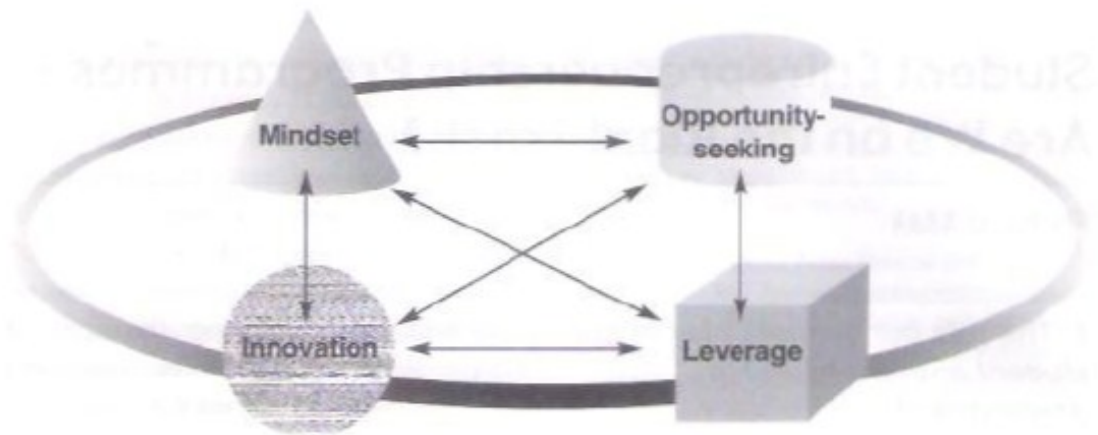
ownership and risk-taking; the spirit of independence; the desire to be resourceful and innovative nor inculcate the "never-say-die" attitude.

Notwithstanding the limiting scope of the student co-operative, the question that needs to be answered is – does running a student co-operative help to ignite students' entrepreneurial spirit? Newspaper articles on the school scene reported that some students find running a retail outlet tiresome and routine. If the sentiments reported are anything to go by, then running a student co-operative may not further the aim of getting students to be their own bosses in the future.

How are schools going to provide students with a taste of entrepreneurship and to expose them to the ecstasy and agonies of the business world?







Learning System – M.O.L.I.

### ***The Entrepreneurship Learning System (M.O.L.I.)***

Going into business is daunting for most people (let alone teachers/students) as there are so many variables and unknowns to deal with. Surviving, much less success, is pretty elusive. To be successful, entrepreneurs need to stay focused on the few key variables in doing business. If we could identify these key variables to ensure entrepreneurship success what would these variables be?

As a business consultant and Master Trainer in Entrepreneurship, I have distilled the key variables for entrepreneurship success and develop them into an integrated Learning System: **(M.O.L.I.)** – Mindset, Opportunity-seeking, Leverage and Innovation. It is based on more than 15 years of research on entrepreneurship development.

#### **Mindset**

Aligning your business goals with the passions in your life will help to propel you through obstacles. There are two categories of mindset. The Defensive Mindset will help you to overcome your fear of business failure and the Offensive Mindset enables you to enhance your willingness to venture out of your comfort zone with a “never-say-die” attitude.

#### **Opportunity-seeking**

The cornerstone of entrepreneurship is

opportunity seeking. I quote SM Lee, “*Entrepreneurship is identifying an opportunity regardless of the sources currently available and executing that opportunity for the purpose of wealth creation, in the public, private and global sectors.*”

#### **Leverage**

Leverage is about multiplying your resources by gunning for synergistic gains in every way. Examples include: through working with others, harnessing information technology and the internet.

#### **Innovation**

This variable underlies the importance of doing things differently and doing different things to sustain a business. Innovation also denotes the action-oriented approach to translate business possibilities to profitability.

The Mindset is the fuse waiting to be set alight by the Opportunities and Innovation after that you leverage on resources from the environment and off you go.

There are no guarantees to success but I am confident that my framework, could greatly enhance the odds in business success.

### ***Play the Game Right! – The Fun Way to Serious Business***

Based on the proprietary Learning System



for Entrepreneurship Success, my associate, Mr Quek Joo Hock and I have invented the world's first board game for entrepreneurship training called "Zeros-to-Heros". This game is dedicated to aspiring entrepreneurs – students as well as adults. The ZEROS in the title refer to player who may have zero understanding of business.

### ***Business Dynamics In Action***

The Game consists of a colourful board, tokens and 4 stacks of cards namely: Opportunity, Innovation, Leverage and Events. The slots on the board bear names of enterprises from 4 industries namely: food & beverage, retail, IT and services and retail.

As the Game is being played, participants will become more aware of their decision-making skills and their individual risk tolerance levels. The winning is in the learning itself. It is better to lose through play than to pay expensive lessons in real life.

By playing the game, participants take in the information on the cards, which are based on the real business world. The cards are on Opportunity, Innovation, Leverage and Events. The merits of the board game as a tool for entrepreneurship developments are as follows:

### **Business Dynamics in Action**

It helps players to appreciate business intricacies and gain an insight of business dynamics in action. The players learn how the various variables interact with each other and at the same time, their risk-taking thresholds are revealed. Playing the game often will sharpen the quality of decisions and develop business acumen.

### **Ignite the Entrepreneurial Spirit**

It seeks to help them to discover their calling in starting a business and to spur them on to greater heights. Playing the game make the invisible VISIBLE and will heighten players' awareness of the key variables which boost Entrepreneurship Success.

### **Entrepreneurship Education in a Fun & Entertaining Way**

The bite-sized information on the cards allows business happenings to be easily ingested. This facilitates learning in a fun and entertaining way.

### **Realistic Game Scenarios**

The cards are based on real life business happenings in Asia. The events are realistic and players could easily relate to it. There are even scenarios on sabotage which highlights the dark side of doing business. The game mirrors real life business





situations and is a good reflection of our mindset and behaviour.

### **So what's so unique about "Zeros to Heros"**

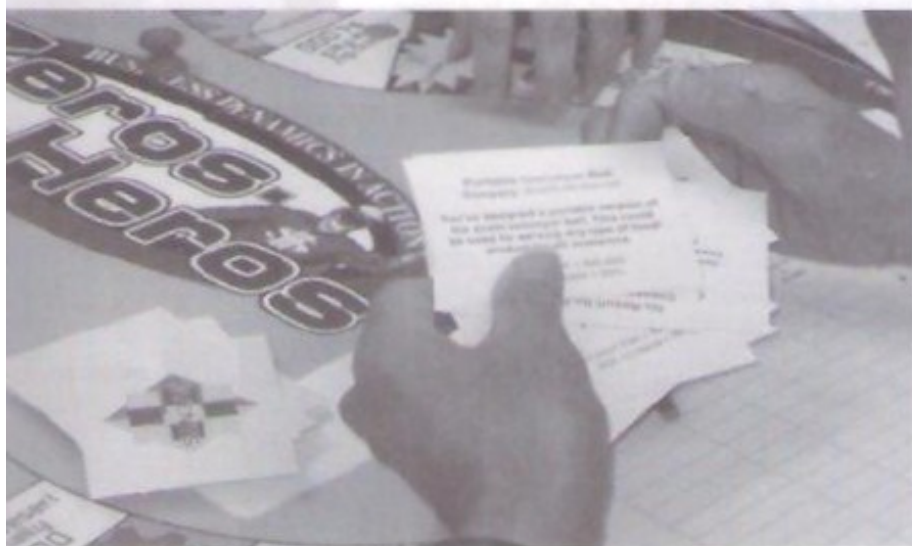
- It is a fun game. Engaging the participants. It turns the whole learning process around. No longer is learning boring for students! It is low pressure learning. High pressure learning is ineffective.
- It is effective because it disarms the students, opens up their minds to the learning, of whatever is the context and content to be learned.
- It changes behaviour. The Leonardo da Vinci of the 20th Century, Buckminster Fuller used to say, "don't try to change people, if you want them to change, give them a tool to work with, their behaviour will change"
- It is flexible. It allows for learning at different levels, and in different settings. It allows the facilitator to use it in different situations and perhaps as a lead-in to teach other concepts.

- It is repeatable. One of its strengths is that it allows participants to play the game over and over again until they become very conversant with the various concepts of entrepreneurship.

- it is Creative. Participants will learn to make up their own rules and let go of their fixed mindsets, in this fast changing dynamic world of Entrepreneurship, where rules are being rewritten daily.

- Allow participants to make mistakes, without paying too high a price.

With the global economic slowdown, September-11 incidence and SARS, stepping into the unknown business arena is certainly not for the faint-hearted. However, business success and nurturing budding entrepreneurs need not be random or a hit-or-miss affair. If there is a learning system that can greatly minimize the risks, then it has come at the right time! After all, what better way to prepare for reality than a dress rehearsal, even if it comes in the form of a game board.



**Richard Mak** is the Director of Alpha-Plus Training Consultants Pte Ltd. He spent 15 years developing a learning system for the world's 1st board game on entrepreneurship success. He also pioneered Entrepreneurship (Self-Employment Training) programmes with the Singapore Polytechnic more than a decade ago. Some of his students are now successful businessmen. Richard lectured extensively in world-renowned MBA programmes in Singapore, Kuala Lumpur and Jakarta with the University of Leeds, Open University, Maastricht School of Management. He is listed in the International Who's Who directory and has presented research papers at world conferences in Entrepreneurship Development.

For more information, please visit the website [www.innovation.com.sg](http://www.innovation.com.sg) or e-mail: [mak@innovation.com.sg](mailto:mak@innovation.com.sg).



# Maths @ The Supermarket: Improving Students' Attitude towards Learning Mathematics

Siti Nazrah

"Most motivation theorists encourage the development of tasks that have some personal meaning for students"

– Stipek D. 1996

In face of the rapidly changing world, learning no longer confines itself to the set of theories and experiences shared by the classroom teacher in the short span of the one hour lesson. Instructional methods are undergoing a revolution in order to make learning meaningful, fun and engaging. MATS is one such activity that is carefully crafted to provide our pupils with a powerful platform for multi-disciplinary learning. It is a futuristic teaching pedagogy format that makes sure that pupils can apply what they have learned in contexts outside of the classroom. Fun in learning is inevitably evident in the process.

## **Multi-disciplinary learning through Innovation Protocol (IP)**

MATS is carried out in a supermarket where students learn the value of money. Students are given a budget of \$1 per person to prepare their group lunch. First 30 minutes is given for them to plan their nutritious lunch, next 30 minutes for them to purchase the ingredients and another 30 minutes to prepare the group lunch. MATS is unique and innovative because it integrates several curriculum subjects for multi-disciplinary learning. **Mathematics** – students learn to estimate and the value of money as well as





improve their mental calculation. **Health Education** – students learn the nutritional value of food and practise proper handling of food. **National Education** – students realise the constraints in Singapore where we need to import our food supply and they learn to appreciate the different ethnic culture and be sensitive towards the religious practices of other races which is vital in a multi-racial community (e.g. halal food). **Art** – students get to apply their creativity in the food presentation. **Science** – students get to apply their science knowledge during the food preparation and cooking. **English** – students learn to express their thoughts in written and verbal English expressions during the food presentation.

### ***Arouse students' interest in Mathematics through experiential learning***

MATS has created opportunities for learning to take place anywhere and if is not limited to school or classroom environment. It helps students realise the need to be life-long learners. Students get to relate and apply Mathematics to real-life situations through purchasing items in

the supermarket. Thus, it promotes Mathematics as a living subject or "Maths Alive". It also stimulates students' interest in Mathematics in a short time through a meaningful, challenging and fun activity.

### ***Integrate Teamwork***

In this project, students are divided into groups of 5. It allows students to work cooperatively in teams while demonstrating mutual respect, positive attitude, care, diligence and loyalty. As students work in groups, moral education is reinforced when they learn to be more socially responsible. They understand the need to queue up and exercise patience hence they learn to be civic minded.

### ***Develop students' decision-making and life skills***

MATS develops students' life skills through decision-making processes. Students also learn the value of better time management in completing their tasks. This also serves to develop in students the range of competencies that are needed in their adult life.





### ***Encourage students to be creative and innovative***

As part of the assessment criteria, students are challenged to create a nutritious, sufficient and presentable meal within the budget and time constraints. Students try to capture the judges' attention by presenting their dish creatively and coining witty names. This will develop creativity and innovation in our students.

### ***Develop students' entrepreneurial skills***

Students are exposed to Entrepreneurial skills such as deciding on their Product, Sourcing, Pricing and Costing, and the Manufacturing Process. While deciding on what to purchase, they are tested on budgeting skills so that they do not overspend. They learn about economies of scale when they purchase in bulk and then share with other groups to cut costs.

### ***Strategic resource learning ground***

The location of the mall directly opposite the school affirms the choice of this Maths activity. The mall is recognised as an excellent strategic resource area where Maths lessons can be conducted and learning of concepts accelerated by its authenticity. Learning is made connected to them personally and the world they live in. In addition, the favourable support from the Management of the mall heightens our students' sense of personal responsibility to demonstrate exemplary conduct at all times. This certainly fosters a stronger community link between the school and its neighbourhood.

### ***Impact of MATS in moulding the future of our nation***

MATS is one activity that ensures the students go through the patience of doing something and completing it. It is no longer

adequate to give a fish to sustain and satisfy. In the face of globalization, it is of far greater worth to teach our students to fish, to continually learn and acquire new skills. Through MATS, students get to develop multiple skills through the project which enables them to be capable citizens. Students generate ideas for their projects and manage their own learning and group activities. Students work collaboratively to manage their project, to collect and present their results. Through the teamwork, each student has a unique contribution to make; he uses his talents and abilities to benefit his team. He learns self-reliance in addition to working closely with others to sharpen his team's competitive edge. While competing with others, students learn the right values and attitudes to assure the livelihood of the individual, the community and the country's survival and success.

### ***Involve parents and other stakeholders in pupils' education***

The project also requires the full support and confidence of parents and the community. As we work together with them as partners, we are able to develop our children to their fullest potential and mould them for the future of Singapore.

### ***CONCLUSION***

Educators are tasked to make learning interesting and meaningful. Learning is optimized when lessons are relevant, fun and engaging. Our students should never be short changed of what they most deserve at every stage of their learning. MATS has given our students a breakthrough in learning the subject. Greater mileage in learning is guaranteed when students take ownership and find joy in the learning process, thus achieving its long-lasting value.

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*Siti Nazrah is a teacher in Rivervale Primary and the Project leader in this enterprise.*





# Nurturing Young Entrepreneurs in Deyi Secondary

*Sng Chern Wei*

## **Synopsis**

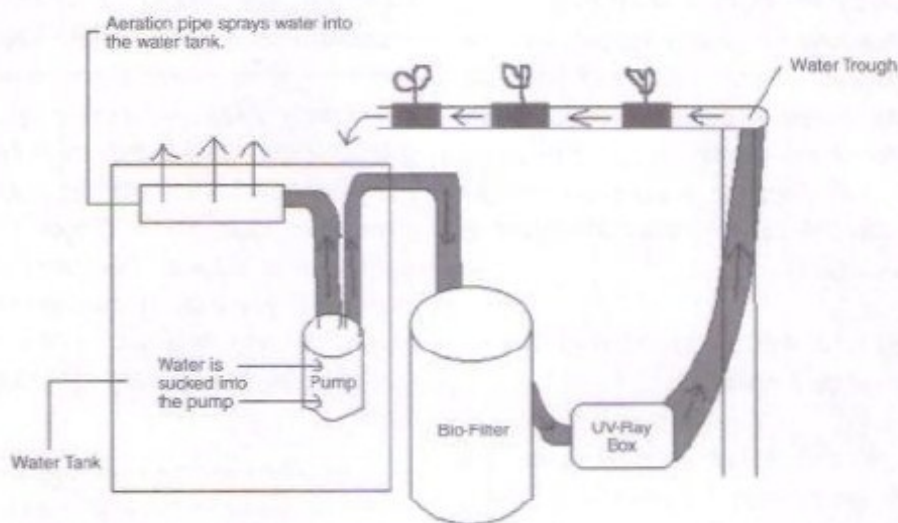
Deyi Secondary School, in collaboration with Ngee Ann Polytechnic, has embarked on a journey to nurture young entrepreneurs. Under the mentorship of students from the School of Business and Accountancy in Ngee Ann Polytechnic, Deyi students have developed a business plan to turn their Science Aquaponics Project into a potential enterprise. The students have successfully marketed their proposal to Carrefour Pte Ltd. They are now making quarterly deliveries of their aquaponics vegetables to Carrefour, where they will promote and sell their vegetables to consumers on the day of the delivery. This article traces how the project was first started and how it had evolved into a school-wide effort to promote entrepreneurship.

## **National Education Phase (1999)**

Our journey in promoting entrepreneurship

can be traced back to 1999. Concerned with Singapore's dependency on imports for our food supply, and motivated by their interests in exploring how we could overcome our scarcity in land and water and become more self-reliant, a group of Deyi students had set up the Aquaponics Project in 1999 with support from their teachers.

In this project, the pupils grew vegetables in a greenhouse in the school using the Aquaponics technique. This technique is a combination of aquaculture (i.e. fish rearing) and hydroponics (i.e. growing vegetables without soil). It offers a closed ecosystem, where the waste of fishes is recycled to provide nutrients to the plants. The plants in turn help to purify the water for the fish by removing excess nutrients. This intensive farming method uses little land and requires minimum operating cost. It also produces high yields without the use of any fertiliser or pesticides. The schematic diagram below illustrates the Aquaponics process.





The project started as an enrichment programme to sensitise our students to Singapore's constraints, and encourage them to explore creative ways of overcoming these constraints. At the same time, it also demonstrated the application of Science in Agrotechnology and introduced them to high technology farming.



*The Aquaponics Greenhouse in Deyi Secondary School*

### **Science Research Phase (2000 – 2001)**

In the next phase of the project, the focus was expanded beyond using the greenhouse as a platform for national education. The greenhouse provided a rich environment for students to engage in self-discovery and hands-on experimentation in science. To harness this potential more fully, the students were encouraged to apply the skills they had learnt in their science lessons to carry out research projects of their own interest in the greenhouse. Since year 2000, Deyi students and their teachers had been capitalising on the Aquaponic greenhouse to conduct various science research studies. Some of the investigations carried out so far include studies on the effect of varying nutrients, pH, oxygen, temperature, light intensity and humidity on plant or fish growth in the greenhouse.

Many of these research projects have won recognition and awards.

One of them clinched an outstanding award in the North 1 Cluster Science Conference in 1999 and went on to win a gold medal in the 2nd APEC Youth Science Festival in 2000. In 2001, another 2 research projects received awards at the North 1 Cluster Science Conference. Deyi students continued to carry out research in the greenhouse and participate in competitions, such as the National Science Fair in 2002. These research projects have helped to arouse our students' interest in Science, and equip them with the fundamental research and project work skills that would prepare them for life-long learning.

### **Entrepreneurship Phase (2002 – 2003)**

With the growing awareness on innovation and enterprise as the key competitive advantage for our students in the knowledge economy, the school began to explore ways in which the Aquaponics greenhouse could help to nurture innovative and entrepreneurial spirit amongst students. Hence, in 2002, a group of students were challenged to develop the Aquaponics project into a business venture. Besides encouraging entrepreneurship, this would also help our students to experience how knowledge from different subjects is inter-connected and applied in a real-world context.



*Deyi students working in the greenhouse*





*Deyi students and the Principal at the sale in Carrefour on 8 Feb 2003*

To equip our students with the essential skills for starting and running a business, the school collaborated with Ngee Ann Polytechnic to spearhead a mentorship programme. Under this programme, students from the School of Business and Accountancy in Ngee Ann Polytechnic would mentor and guide the Deyi students over a 10-week period on the fundamental skills needed to develop the Aquaponics project into a business venture. Through this mentorship, our students picked up essential business skills such as conducting market research, writing business plan, analysing financial statements and book-keeping.

In learning these basic skills, the students organised themselves into groups such as the Marketing Department and the Operations Department to look into the various aspects of turning the Aquaponics project into an enterprise. These groups were led by a few student CEOs who had to ensure that the work of the different groups was well coordinated and aligned with the common goal. The experience of working in such groups, besides

giving students a flavour of how businesses are organised, also exposed them to important life skills like teamwork and communication skills.

The experience also required our students to apply the knowledge and skills that they had learnt in different subjects to see their business idea through. For instance, the students had to tap on their Science concepts to optimise plant growth to ensure timely delivery as promised during the monsoon season, and their knowledge in Principles of

Account to project the likely profits and losses. Such first hand experience on how knowledge and skills across different subject areas are integrated and applied in a real-world venture has helped our students to better appreciate the inter-connections between the subjects.

At the end of the mentorship programme, the Deyi students had developed a comprehensive business proposal to commercialise their aquaponics vegetables. The students approached several retail chains to present their proposal, and successfully marketed it to Carrefour Singapore Pte. Ltd in February 2003. In the process, they experienced the need for



*Deyi students promoting the aquaponics vegetables to consumers in Carrefour on 8 Feb 2003*



perseverance when faced with "rejection". Under the agreement with Carrefour, our students would supply the supermarket with quarterly deliveries of their aquaponics vegetables for a period of one year.

The first delivery and sale of the aquaponics vegetables in Carrefour was held on 8 Feb 2003. As part of the marketing plan developed by the students, a product launch was organised a day earlier in the school to generate greater publicity for the sale as well as greater awareness of the aquaponics vegetables. On the day of the sale, the students set up a booth in Carrefour to market their vegetables to the consumers. Sales were brisk and all the aquaponics vegetables were sold out within hours.

On reflection, students who participated in this entrepreneurship enrichment programme had found the experience unique and rewarding. Gwendolyn Ng, one of the student CEOs, said that, *"the project has been very enriching for me. I was given the opportunity to present the proposal to the management of Carrefour. This experience was an eye opener and it would stay with me forever. I'm very grateful for this chance."*

Another student, Loh See Ming, also remembered the experience very fondly. She said, *"I learnt a lot from this project. I learnt the technique of growing vegetables using Aquaponics. I also experienced the life of a businesswoman. It was hectic but at the same time fun!"*

### ***The Journey Ahead (from 2004)***

The Aquaponics project has come a long way since its inception in 1999. The school has recently reviewed the programme and concluded that there is scope for this enrichment programme to be developed further. In order for the entrepreneurship



*Deyi students promoting the aquaponics vegetables to consumers in Carrefour on 8 Feb 2003*

programme to create a more systemic impact among the participants, the exposure needed to be sustained over time and the activities structured to provide build-up in the difficulty level of training and projects.

Hence, from 2004, this entrepreneurship enrichment programme will be formalised as an Innovation and Enterprise Club in Deyi, and be offered to students as one of the co-curricula activities (CCA). This will allow us to develop a 4-year plan to nurture the participants in a more systematic and integrated way, as opposed to a more ad-hoc and one-off approach in an enrichment programme.

With the introduction of the new CCA framework, under which students can take part in more than one CCA, we believe that this is a timely development to encourage and nurture the budding entrepreneurs among our students. Offering the Innovation and Enterprise Club as a CCA will help us to reach out to a larger population of students, and expose more of our young to the spirit and skills of entrepreneurship.

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*Sng Chern Wei is the Vice-Principal of Deyi Secondary.*



# The Learning Support Entrepreneurship Programme

Betty Chan

## School Background

The Learning Support Programme (LSP) was implemented in Canberra Primary School in January 2002. Pupils in the LSP are being supported in their learning of listening, speaking, reading and writing skills in English by the Learning Support Co-ordinator, Ms Betty Chan. The LSP provides additional support to pupils in Primary 1 and Primary 2 who are educationally at risk, and do not possess the pre-requisite language and literacy skills to access the curriculum.

Grammar rules, Parts of speech, Vocabulary building and Spelling.

## Collaboration

With the skills that they have learned, these children are now creating new songs. They have written 24 songs and the school has commissioned a company to design and print them out as an attractive line of posters. These songs and poems are also available in albums and big books.



## Objectives

Because of the low literacy skills, the LSC has come up with an innovative way of making the children learn English through songs and poetry. The students are taught poem and song writing skills by Ms Betty Chan. She uses tunes that are familiar to the children such as "Twinkle, Twinkle Little Star", "I Hear Thunder", "London Bridge is Falling Down" and "Clementine" to teach

## Future Plans

These "Little Entrepreneurs" are excited about their plan in raising funds for needy students in their school, as funds raised through the sale of these posters would benefit their schoolmates in need. They have big plans to write more songs and to cut a music CD of songs they have written. These songs would be helping children aged 3 to 10 to learn English in a fun way.





These "Little Entrepreneurs" feel proud that they are able to contribute to their school and to the community.

The school hopes to develop an enterprising culture among our pupils and to nurture in them a spirit of innovation and enterprise.

The school has plans to involve children in Primary 4 and 5 to organize road-shows in shopping-centres to showcase the work of their younger peers and to market their CDs and posters.

*Betty Chan is the Learning Support Programme Coordinator in Canberra Primary School*





# The Enterprise Programme

*Tay Siu Hua, Norwita Mohd Ariff, Liu Wei Cheng & Syed Mohd Ashraf Shah*



In Monk's Hill Sec School, we strive to nurture our pupils to be ENTERPRISING – a school value – and we envision all Monkshillians as successful entrepreneurs.

On Saturday, 15 March 2003, Monk's Hill organised Family Community Day, an annual event that has been a highlight of the school year, since 2000. This year's Family Community Day was specially crafted to incorporate the enterprising element in the way students participated in the event. The idea was mooted after attending a presentation on an entrepreneurship competition, "Start Up a Business" and "The Game" by Ngee Ann Polytechnic. This event also addressed one of our domains in the school's Character Development Programme (CDP).

Work towards the event started with an entrepreneurship training where students are taught the following skills:

- Arriving at a business idea
- Conducting a survey as a market scan
- Write up a business plan
- Production planning
- Marketing and promoting their products
- Budgeting skills and Pricing strategies
- Preparing a financial statement
- Looking at successful business enterprise and their strategies

Different levels were assigned different ventures:

- Secondary One students manufactured and sold a tangible product.
- Secondary Two students prepared or repackaged food or beverages.
- Secondary Three students set up a game stall.

To make this a more realistic exercise in starting a business venture, students

registered their companies with the event organiser after receiving rules of the competition. Students were given a start-up capital of \$100 upon approval of their company proposal. With this amount, students were constrained and therefore had to look for creative ways to manage their companies. The students were also encouraged to make use of recycled materials in their planning.



Students taking Principles of Accounts assisted the organising committee in the auditing process. The individual company's earnings were announced at school assembly and awards were given in the following categories:

Most profitable stall – team with the highest return on investment (one for each level).

Creativity & innovation – will be judged based on originality, extent of change value add and practicality/business potential.

Marketing excellence – based on marketing effort (eg. packaging of products and display of retail outlet) that reflects effectiveness, creativity in display and selling skills.

As a close, students reflected on their learning points and experience for the day. Over 70% of the students gave feedback that they have become creative and innovative in their planning process. They have learnt to sharpen their competitiveness and were more willing to explore new challenges.

Our students can also be proud of the fact that the profits from their hard-earned efforts have gone into assisting the needy pupils in the school. Everyone who



contributed to the event could feel gratified in the knowledge that success goes along with charity.

*Miss Tay Siu Hua is HOD-IT/Mat, Miss Norwita Mohamed Ariff is HOD-English, Mr. Liu Wei Cheng is HOD-PE/CCA and Mr. Syed Mohd Ashraf Shah is the Principal of Monk's Hill Sec School*



# Project GrowE (Grow Entrepreneur)

Sharifah Fairuz Alsagoff & Rosnidar Arshad

**Project GrowE:** A synergy between **Park View Primary** and **Meridian Primary Schools** InnoWits teams to develop entrepreneurial skills and cultivate the entrepreneurial spirit in pupils through education, experience and exposure.

**Our Challenge:** "However, Singaporeans can only slowly change with changing circumstances. Our values and culture are not deeply embedded because we are a young society of immigrant stock. Nevertheless, it will take time and effort to change them through education..... The world has changed and so must we"

*SM Lee Kuan Yew  
An Entrepreneurial Culture for Singapore  
February 5, 2002*

**Our Concern:** Singaporeans aren't cut out for global economy? We lack the courage to take risks? Are we really mere followers who lack the spirit of innovation?

**Our Vision:** A creative and innovative young entrepreneur.

**Our Mission:** To develop entrepreneurial skills and cultivate entrepreneurial spirit in pupils to meet future challenges.

The InnoWITs (Innovation and Work Improvement Team) teams from Park View and Meridian Primary collaborated on **project GrowE** to address the concern.

The team from Park View Primary comprise Jareen Ng Kah Leng and Oh Boon Seng

with Rosnidar Arshad (Team Leader) and Sharifah Fairuz (Facilitator).

The Meridian Primary team comprise Wong Hoe Shyan, Goh Huang Yiing, Osman Bin Mohamad, Nicholas Tan, Md Taufeeq, Stephen Chua, Eleanor Chua Lee Hoon (Team leader) and Tay Koon Guan (Facilitator).

The teams from the two schools merged and named their project team **E=(MP)<sup>2</sup>**. The project began in May 2003. The members looked at the current situation and articulated the desired future.





## **Current Situation**

The project team made various assumptions about what was lacking in the pupils from informal observations by the teachers. Generally, many of our pupils expect to be 'spoon-fed' in classroom situations. They do not volunteer answers readily. They are not able to handle failure and were afraid to venture into new territory. They are not prepared to take risks. They fear competition and are averse to stress. They lack the ability to analyse and plan. They rely on others to make decisions. They are mostly followers rather than leaders.

## **Desired Future**

The project aims to help our pupils address their deficiencies. Our pupils will have the confidence and initiative to take risks. They will be committed and driven to be self-sufficient. They will display the essential traits of an entrepreneur – passion, integrity, responsibility, creativity, foresight and risk-taking.

## **Tools**

Using **Innovation Protocol** as a tool, the team went through the cycle of Perceive and Re-perceive, Ideate, Evaluate, Prototype and Assess several times. The team first perceived that pupils should learn the ropes of entrepreneurship from young in order to have an edge and be well versed in business dealings, as they grow older. The members identified their target group – 80 Primary Five pupils from each school to be in the Young Entrepreneur Programme ("YEP").

The YEP is an experience-based instructional programme outside the school curriculum. Through the YEP, pupils developed and



experienced their own "real world" in the context of entrepreneurship. They discovered the importance of cooperation and they were motivated to marshal their own creative and analytical resources. YEP was also their Interdisciplinary Project Work ("IPW").

In the YEP, pupils formed 17 companies, like self-organising economic societies with the consultative guidance by their teachers. The pupils began to understand business fundamentals during the 'Fun For Fund' workshop. Essentially they learnt basic business concepts, concepts of the entrepreneur's hardware and software.

## **Key Features of YEP**

1. Personal dynamics and networking.
2. Search for business opportunities.
3. Attributes of a good entrepreneur.
4. Venture creation and company formation.
5. Communication skills.
6. Team building and experiential learning.
7. Brain-teaser exercises and games.
8. Market research and data gathering.
9. Product development.
10. Personal reflections.

The programme was conducted from the 4th to the 6th of June in the respective schools.



### **Mini Society**

The facilitator and the team leader of the Park View team attended a four-day intensive course on Conducting Mini-Society Workshops in Schools from 10th to 13th of June. The YEP programme was based mainly on the Mini Society principles.

The Mini Society approach to instruction, learning-by-doing, is the crucial pivotal element. The experiential path to learning is a natural route. It is built upon these essential characteristics. Pupils participated in experiences that provided:

#### ***1 Personal as opposed to vicarious involvement***

Mini Society pupils are not analysing problems that occurred in the past. They are experiencing personal involvement in a living society, they form the operation of which they have created. Dilemmas that require decision-making and action are their personal and societal dilemmas. Analysis and decision-making become much more interesting and vital when it is the pupils' lives they are discussing.

#### ***2 Active as opposed to passive roles***

Mini Society citizens are not simply reading about experiences, nor are they being lectured on an abstract situation or subject. They are mentally and physically moving about. When problems arise and decisions must be made, the pupils are not given pre-arranged answers. They are actively involved in the analysis of their own problem situations and in the selection of the alternative actions, in which they can resolve problems they face.

#### ***3 Opportunity for decision making, the consequences of which they will bear***

The decisions that pupils make in Mini Society will not be authoritatively judged as "right" or "wrong", nor will an authority who foresees consequences that the young

decision makers haven't anticipated overturn their decisions. Mini Society pupils make decisions concerning their individual career or business lives and their societal operations with they understanding that they will live with the situations their decisions create.

It is also not sufficient that pupils participate in the experience. The experience must be followed by debriefing (discussions) and the analysis of the situation or problem they have just undergone. Most of you played Monopoly as children, but probably few of you learned an extensive amount of economics from participating the game. Yet, it is entirely possible to learn several complex economics through participation in Monopoly. Why doesn't playing the game usually result in the learning? Because most people do not have the opportunity (or inclination) to step back from the play for analysis aimed at deriving the concepts they are seeing in action. They simply want to "experience"; that is they want to play, and preferably win, the game.

#### **Evaluation and Re-perception**

Evaluate and re-perceive were two important tools in Innovation Protocol. **Ethnography** with field trips was used as means of assessment and evaluation.

- **Ethnography study** – Foresight and Insight Gathering

The focus of ethnography was not on community members. It was more on the social practices and the ways these shaped the community, the belief and value systems it embodied and the lives of the individuals that comprised it.

The members developed profiles of potential entrepreneurs from their pool of pupils, staff and parents. They also visited interesting places to re-perceive. The Heeren and Starbucks experiences especially enlightened the members. At The Heeren, the members developed



profiles of some entrepreneurs. The team realised that enterprising culture is the sum of 'values, beliefs and attitude'. Entrepreneurship is, after all, not all about making money. **Passion, confidence, creativity, innovation and ethics are essential attributes in the making of successful entrepreneurs.**

### **Ideation**

The team then set forth to enhance pupils' passion, build their confidence and cultivate creativity and innovation in addition to the inculcation of ethics and business knowledge.

- A. A myriad of possible ideas were generated. The main strategic tool we used was the "Yes And ... Yes But" tool. We suggested workshops, camps and courses on puppetry, speech skills, team building, and the use of the Arts, experiential learning, rotation of core modules so that every child experienced different aspects of subjects, partnership with parents and institution. The list was endless.
- B. The Ideation Stage helped us to identify trends and customers' expectations.

### **Prototype:**

**The act of developing several possibilities to test out hypotheses and responses.**

The prototypes involved the Primary 5 pupils of the two schools.

- In addition to the YEP, the rest of the P5 pupils were given opportunities to embark on photography and visual arts training to enhance and develop the passion of pupils with strong interest in those fields.
- Pupils' confidence and creativity were built by organising stage performances which pupils choreographed and

produced independently, without any assistance from teachers. Selected pupils rehearsed presentation items for performance on **Entrepreneur Day (E-Day)**.

- Pupils in the YEP conducted surveys, did market research, went for mall studies, tested their products on teachers, came up with budget proposals (low budget, high impact/returns), underwent training to manufacture or add value to products for sale on E-Day. The E-Day itself was a prototype the team conceptualised. It was a showcase of the outcome of all the other prototypes. The **E-Day** was just the beginning of the pupils' journey in developing the entrepreneurial spirit.
- On E-Day, pupils trained in Visual Arts decorated the school hall and stage. In addition, pupils trained in photography were the official photographers for that day. Selected pupils performed on stage while pupils in the YEP set-up goods and services stalls.
- The results far exceeded expectations; the E-Day was a resounding success. Each school received more than \$ 5000 of takings on that day.

### **Assess:**

**The process of determining which component of prototypes should be combined for full-scale implementation.**

As Project GrowE has already come full circle, we conducted an After Action Review. We are now ready for another cycle of YEP for next batch of pupils in 2004.

The Success Stories are reflected in Prototypes YEP, E-Day, the 17 Pupil Companies, the Concert Items as well as the Pupil Photographers and Visual Artists.

However, there is still room for improvement. As reflected in our AAR, our





processes leading up to E-Day and the formation of the 17 Pupil Companies could definitely benefit from our experience the next time round.

### **Benefits**

Pupils gained invaluable experience and exposure in the different training areas through field trips with hands-on activities arranged by the team

The project has brought about the **establishment of partnership between pupils, staff and parents of Park View and Meridian Primary as well as with industrial partners.** Staff of the two schools too gained invaluable knowledge and experience in entrepreneurship.

As Park View Primary is in E6 while Meridian Primary is in E3 Cluster, other schools in the two clusters may gain through the sharing of knowledge and experience by the two schools in the implementation of Entrepreneur Programmes.

Besides acquiring knowledge on entrepreneurship, the pupils involved also learnt to understand the real value of money, appreciating how hard it is for money to come by. They donated 50 percent of the profits to the School Pocket Money Fund.

*Justin of 5K from Park View Primary said, "I've learnt to manage and appreciate whatever money I have since the YEP programme".*

The pupils acknowledged that they have a better insight to the economic world they live in and learnt to exercise prudence in their spending. Ultimately, the propensity for risk-taking will increase when these participants build up their confidence in entrepreneurship. Their role as future entrepreneurs of Singapore to create livelihoods for fellow Singaporeans will be the ultimate goal in the years to come.

### **Sustenance**

The two schools plan to sustain the outcome of the project. They will conduct Entrepreneur programmes which include setting up an Entrepreneur Club, conducting Mini Society Workshops for P4 pupils every term, opening up stalls for pupil entrepreneurs at school canteens, annual school bazaars and even participating in the flea mart at Bishan Junction 8.

The pupils' reflection journal highlighted one fundamental point. They were able to explain the importance of entrepreneurship to job creation as well as the responsibility of the successful entrepreneur to give something back to the society in addition to jobs. ( they pledged to give 50 percent of their profits to the School Pocket Money Fund)

The team acknowledged that entrepreneurship development is a process not an event. In conclusion, the pupils articulated the importance of good citizenship to the successful functioning of a society.

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*Sharifah Fairuz Alsagoff is HOD/Mathematics and Facilitator of Project GrowE and Rosnidar Arshad is the Subject Head/Mother Tongue and Team leader of the Project GrowE*



# Entrepreneurship In School – The Evergreen Experience

Vincent Lim

Senior Minister Lee Kuan Yew used to believe that entrepreneurs were born, not bred. But experience over the years has led him to the view that circumstances and the culture of a society can help throw up more budding businessmen. He made this point in the inaugural Ho Rih Hwa Leadership in Asia lecture.

“To succeed as an entrepreneur, one has to have some extraordinary qualities such as high energy levels, a cut of mind that sees opportunities where others see problems, and a keen sense of what product or service will be profitable.”

– Mr Lee Kuan Yew, 6 Feb 2002

As Singapore reinvents itself to compete effectively in this new Knowledge Economy, the need for more enterprising individuals cannot be emphasized more. In order to raise the awareness of the fundamental attitudes, mindsets and skills of an entrepreneur, Evergreen Secondary set up EVG Entrepreneur Club to provide a platform for our students to learn, acquire and broaden their knowledge and experiences in the development of Entrepreneurship in school.

The programme implemented by EVG Entrepreneur Club, is aligned with the school's vision, mission and motto, with an emphasis on providing a nurturing environment which develops and cultivates innovation and creativity. The implementation of programme of the Club reinforces the development of leadership, citizenship and personal improvement of the more comprehensive and holistic Character Development Programme that Evergreen Secondary has put in place.

## ***A Comprehensive Approach to Promoting and Developing Entrepreneurship***

The EVG Entrepreneur Club uses a 3-prong approach to encourage creative

thinking and promote the development of entrepreneurship.

### **Approach No 1**

The first approach focuses on 4 basic business courses to equip students with a more in-depth knowledge of business concepts and terminology.

The 4 basic business courses are

- Business Plan
- Marketing Fundamentals
- Business Communication
- Understanding Customers

On the module for **Business Plan**, students will learn accounting concepts of Balance Sheet, Profit & Loss Statement, estimating business cash flows, trend extrapolation of consumers' changing tastes and preferences, forecasting of sales and break-even point of sales, before putting up a proposed business plan.

On the module for **Marketing Fundamentals**, students will focus on the 4 Ps – Product, Price, Promotion and Place, to develop a marketing campaign.

On the module for **Business**



**Communication**, students will learn various strategies to handle business presentation and business writing.

On the module for **Understanding Customers**, students will learn the importance of culture, social group, social class affecting the perception, personality, attitude and learning of the customers, both internal and external.

## **Approach No 2**

The second approach focuses on the 4 subsidiary clubs to cultivate the mindset of entrepreneurial thinking skills and challenges.

### **1. The Aquarium Club**

The Aquarium Club will teach students the ABC of managing an aquarium business. The real setting of an aquarium in school facilities students in developing a better understanding of the operating system as well as the problems an entrepreneur will have to manage in his business. In addition, the aquarium club will teach students to set up a mini fish tank, breeding and raising fish fry, maintenance of fish tank, and the technical knowledge of aquarium keeping such as filtration, fish diseases, fish care, water PH, lighting and temperature.

### **2. The Gardening Club**

The Gardening Club will teach students the ABC of managing a business dealing with flowers and gardening plants. The real setting of a Spice Corner and Flowering Corner in school facilitates students in developing a better understanding of the operating system as well as the problems an entrepreneur will have to manage in his business. In addition, the Gardening Club will teach students the fundamental knowledge of plant care. Students will also learn and assist in the maintenance of gardening in our school. One of the biggest attractions of the Gardening Club will be the introduction of Orchid planting within our school premise.

This Orchid planting will create opportunities for IPW and life science discussion as well.

### **3. The Chess Club**

The Chess Club focuses on the development of Thinking Skills in our students. The Chess Club will feature 2 chess games. The first will be International Chess and the second will be Chinese Chess. Chess games have historically been linked to the development of tactical decisions as they create opportunities for the end-users to review and forecast into the future. (A definite attribute of a successful entrepreneur.) Hence, they are excellent choices in developing and challenging our students to be more creative and innovative.

### **4. The Scrabble Club**

The Scrabble Club also focuses on the development of Thinking Skills in our students. Students will be trained to make decisions within a short time as each student is allowed only a short time frame to come up with a word in their scrabble game.

## **Approach No 3**

The third approach focuses on competitions to enable students to test their entrepreneurial spirit and skills under an intense environment. Competitions allow students to share their ideas and experiences. Furthermore, competitions motivate students to see entrepreneurship as a means of improving society's quality of life.

### ***Business Advisory Committee***

The EVG Entrepreneur Club has added another dimension to the development and promotion of entrepreneurship with the formation of Business Advisory Committee.

In this committee, we have invited a few prominent and leading Singaporean



Term	Approach 1 – <i>Business Courses</i>	Approach 2 – <i>Subsidiary Clubs</i>	Approach 3 – <i>Competition</i>
1	Developing Business Plan  Marketing Fundamentals for Young Entrepreneur	Building Thinking Skill using Chess Game  Managing an aquarium business – An EVG experience	Joining competition on Entrepreneurship organized by the Polytechnics  Chess Competition
2	Developing Business Plan  Marketing Fundamentals for Young Entrepreneur	Building Thinking Skill using Scrabble Game  Managing a gardening business – An EVG experience	Joining competition on Entrepreneurship organized by the Polytechnics  Scrabble Competition  Bazaar Sales
3	Business Communication  Understanding Customers	Developing strategy using Monopoly Game	Business Plan Competition
4	Business Communication  Understanding Customers	Annual Report of the Subsidiary Clubs	Bazaar Sales

A typical Work Plan of EVG Entrepreneur Club may take the following form

entrepreneurs to come on board to advise and share their experiences in managing and growing their businesses.

The Business Advisory Committee has put in place seminars and workshops covering the following topics:

- Starting A Business – The Big How?
- Protecting Your Ideas Using Patents
- Seeking Business Funding
- Growing A New Business
- Business in FMCG
- Venturing Overseas

One of the prominent and leading entrepreneurs involved in our Advisory Committee is Ms Claire Chiang, Vice-President of Banyan Tree Holdings and the Executive Director of the Banyan Tree Gallery.

### **Conclusion**

With the setting up of EVG Entrepreneur Club and its programmes, Evergreen Secondary has embarked on another journey towards ability-driven education, reinforcing the notion of Thinking Schools, Learning Nation. By providing a highly stimulating “business environment”, the school has played its role in developing future potential entrepreneurs for our country.

*Annex A provides updates on more recent entrepreneurial activities carried out by staff and pupils of Evergreen Secondary.*

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*Vincent Lim has taught in Evergreen Sec for the past two years. He is the Teacher Advisor of the EVG Entrepreneur Club as well as Subject Head of Innovation and Entrepreneurship*



## ANNEX A

# Promoting Entrepreneurship & Innovation



### **Structure of EVG Entrepreneur Club**

The EVG Entrepreneur Club embraces innovation and creativity in the structure of the club as follows:

#### **1 Business Advisory Committee**

This innovation adds real value to mould entrepreneurial mindset among the pupils by inviting 13 prominent leading entrepreneurs to Evergreen Secondary School. This allows pupils to further appreciate the theoretical aspects of entrepreneurial modules with real life application singled out by the entrepreneurs. Some prominent entrepreneurs who have joined the committees are

- Ms Claire Chiang, Vice President, Banyan Tree Gallery Pte Ltd
- Dr Ron Sim, Chairman & CEO, OSIM Ltd
- Mr Wong Ah Long, CEO Suntec City
- Dr Kenny Yap, CEO, Qian Hu Fish Farm Ltd
- Ms Elim Chew, CEO, 77th Streets Pte Ltd

#### **2 Modular Basic and Advance Entrepreneurial Course**

The **Basic Entrepreneurial Course (BEC)** describes the concept of Marketing and its role in the business operations and growth. This course also highlights the fundamental 4 Ps of Marketing, leading to the deployment of the Marketing Mix in Strategic Marketing Management.

The **Advance Entrepreneurial Courses (AEC)** equips students to have greater understanding to the essential Marketing and Business operational and managerial issues.

The advance level handles in-depth studies on

- a Product Branding*
- b Product Development & Product Life Cycle*
- c Pricing Policies*
- d Distribution Channels*
- e Sales Promotion & Public Relations*



## Basic Entrepreneurial Course for Teachers and Students from N5 Cluster Schools



Our EVG Entrepreneur Club has conducted the Basic Entrepreneurial Course (BEC) to teachers and students from Peixin Primary School, Fuchun Secondary, Woodlands Ring Secondary and Woodlands Secondary.

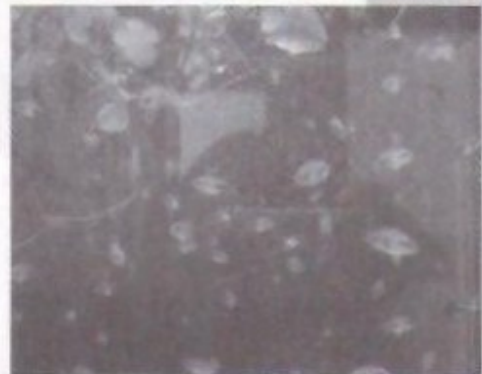
These courses are designed in-house by Mr Vincent Lim, who has 6 years of lecturing experience in the Chartered Institute Of Marketing (CIM) course as well as LCCI Diploma in Marketing.

### 3 Subsidiaries Club of EVG Entrepreneur Club

This innovation creates enormous opportunities for students to show creativity and entrepreneurial skills by applying the skills learnt in the following clubs



- Chess Club – Cultivation of creative mindset through the “3 Steps Approach”.
- Scrabble Club- Cultivation of “Think out of the box” mindset through the “Binding Approach”.
- Aquarium Keeping Club – Real life experience of managing a business operations
- Gardening Club – Hand-on experience in maintaining a “farm”.







### ***N5 Cluster Charity Bazaar at Evergreen Secondary School***

This event was put up as part of National Day celebrations on 7 Aug 03 to promote Entrepreneurial Spirit in our students in Evergreen Secondary and other schools in the N5 Cluster. Prominent entrepreneurs such as Ms Kimmis Pun, Senior Vice-President of HSBC and President of Rotary Club of Suntec City, Ms Lilian Sim, sister of Dr Ron Sim, Founder of OSIM Ltd, Mr Richard Yap, Mr Richard Toh, Directors of Rotary Club of Suntec City and Mr Christian Chua of Renosis Industries Pte Ltd and Mr Nicholas Tan, Vice-President of EduFitness.Org graced the event as the judges of the 23 participating stalls. The judges were very impressed with the entrepreneurial spirit exhibited by the students and they attributed this to the successful Basic Entrepreneurial Course that the students had taken and completed. The bazaar successfully raised a total of \$1484 for the charity, further reinforcing the concept of Social Entrepreneurship.



### ***Entrepreneurial Experience Program***

Our EVG Entrepreneur Club linked up with EduFitness.Org and Renosis Industries Pte Ltd to provide our budding entrepreneurs with opportunities to hone their entrepreneurial skills during the June school holidays. They were attached to Sun Plaza Shopping and Wisma Atrium Shopping Centre to manage a Pushcart business.





## *Sharing At Teachers' Network on Project Work in Entrepreneurship*



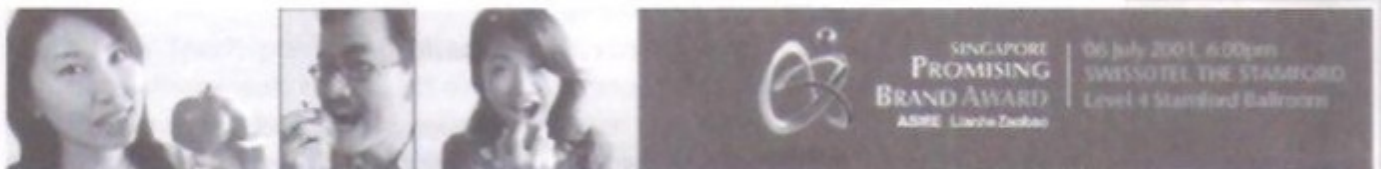
Our EVG Entrepreneur Club was privileged to conduct a sharing at the Teachers' Network on 20 Sep 2003 with 50 teachers from other schools on implementing Project Work in Entrepreneurship. Feedback indicated that the session was especially useful for schools which were interested in similarly starting Innovation and Entrepreneurship as our EVG club also offered our services to train their teachers and students in our successful Basic Entrepreneurial Course.

## *Winning the Singapore Most Promising Brand Award.*



The prestigious annual Singapore Most Promising Brand Award has traditionally attracted leading entrepreneurs to compete for the coveted top 20 leading brands in Singapore.

Mr Vincent Lim was invited by Seng Hua Hng Foodstuff Pte Ltd, owner of Camel Nuts, to assist the company in drawing up the branding strategy report and in the process help the company win the prestigious Singapore Most Promising Brand Award.



## *Looking ahead.....*

Our EVG Entrepreneur Club will be inviting our budding entrepreneurs, especially the 326 Sec 3 students who have completed the Basic Entrepreneurial Course (BEC) to draw up innovative with designs which to put on our Evergreen products such as wrist watch, water bottle, pencil case, bags and CD cases.





## '?What's That?': A Reflection on the Creation of an Interactive Educational Board Game

Edmund Lim Wee Kiat

### Introduction

What is '?What's That?'. That is the common question that pops up when people first encounter '?What's That?'.

It is a fun and educational board game created by a primary teacher and his pupils. '?What's That?' incorporates a multiple intelligences approaches into the game. This game can be used for various subjects, ranging from English and Chinese to Science and Social Studies. A major aim of the game is to make learning enjoyable, memorable and meaningful.

### How did the idea of '?What's That?' first begin?

It was a typically warm and humid afternoon and I was wondering how I could make the teaching of English topics such as *people* and *occupations* more interesting. I noticed that my pupils enjoyed playing games. Even in this age of IT and PCs, our young still like playing board games and action-based games such as *Charades*.

### Exploration

When my pupils played games such as *Charades*, they became highly involved in the game and learning process. As part of the audience, the pupils would be watching closely. They would also actively seek and share their answers. The pupil who is chosen to act would be thinking intently and trying hard to express himself, without talking or writing. I also recalled how

engaged the children were when they played time-based English games such as *Boggle*.

I then thought about ways of incorporating the entertaining elements of games into my teaching process. I discussed with two of my pupils about the games that they like and how these games can be made more educational in nature.

We identified board games such as *Taboo*, *Charades* and *Boggle*. In *Taboo*, players have to guess a specific word, which will be described by one of their team members. That word will be printed on a card, together with a few 'taboo' words. One of the game rules is that the player who is doing the verbal description cannot say that particular word and certain associated or 'taboo' words. If the player breaks that rule, the other team will get the point. Each team is given a time limit and in that given time of usually one minute, the team members will try to guess as many specified words as possible.

### Substitution

My pupils were involved in the conceptualisation of a game, which required creative brainstorming, along with the application and integration of ideas.

The words in *Taboo* game can be replaced with words that are closely related to a specific subject such as English and for a topic such as 'Occupations'. For example, the card can have the word 'Nurse' and the



associated, forbidden words such as 'Hospital', 'Clinic' and 'Doctor'. The pupil will then have to use his creativity and linguistic skills to describe that word to his team members.

My pupils and I proceeded to identify the words that we wanted and the associated, forbidden words. We had fun creating the cards for the game. While producing the cards, my two pupils were also learning new words and occupations. In a way, they progressed from being learners and consumers of knowledge to being producers.

### **Integration and Synthesis**

I then noticed that these games emphasized the use of a particular skill or ability. For instance, *Taboo* stressed on the player's verbal skills whereas games such as *Charades* highlighted the skills of acting. Hence, players who have high verbal-linguistic intelligence will have an advantage for *Taboo* and pupils whose strengths are in the bodily-kinesthetic and acting sphere will have an edge when they play *Charades*. For players of *Pictionary*, they will use their spatial intelligence to draw out the specified words.

I decided to integrate the diverse, positive elements of these games so that pupils will have the opportunities to use various modes of expression. They can also exercise the different modes of intelligence.

In '*What's That?*', players will have the chance to either speak, draw or act out the specific words but they cannot write out the word. In this way, players have the chance to use their chosen mode of communication, for example, speaking, or they can choose to stretch their other skills of communication by opting to act or draw. In the process, they will be tapping on various forms of multiple intelligences while applying their knowledge and acquiring new information.

### **Skills, Knowledge and Multiple Intelligences**

Players of '*What's That?*' are encouraged to be creative in communication and expression. In addition, they will have opportunities to use their

- Verbal/linguistic intelligence – when they describe the words,
- Kinesthetic intelligence – when they act out the words,
- Spatial intelligence – when they draw representations of the words,
- Interpersonal intelligence – when they interact with others,
- Logical intelligence – when they think logically and identify patterns, links and similar words in the data provided,
- Intrapersonal intelligence – when they exercise their self-awareness and choose their mode of expression,
- Teamwork skills – when they work with their team members, play the game and learn as a team,
- Content based knowledge – when they exercise their understanding and knowledge of the words while expressing the words on the cards.


### **Funding**

We are thankful to receive funding from MOE for this game. In the first semester, we submitted a detailed proposal to the MOE Innovation Fund. Shortly after, we were told to improve certain aspects of our proposal. After the revision, we resubmitted the proposal and in less than a month, we were promptly granted the funds that we had requested. The funds covered the cost of the materials and resources required for this project.

It was my first experience in submitting a detailed request cum proposal for funds from an 'external' source. It was a beneficial







learning experience as we had to fine-tune our aims, creation plan and testing process. In a way, many entrepreneurs would also need to seek for funding. My pupils also shared in my joy of getting official funding and approval for the creation of '*What's That?*'. There was a pleasant sense of satisfaction. However, receiving the funding was just the beginning of the production phase.

### **Production**

A team of pupils played active roles in the creation of '*What's That?*'. They were involved in the first stage of conceptualisation and exploration. Subsequently, they assisted in the stage of brainstorming and game designing. The pupils identified topics and words which can be used for '*What's That?*'. As my co-producers, they helped in typing the words onto the card template. Sometimes, they did it in school and sometimes, they did it at home. They worked hard in the production of the game.

One of my pupils, Matthew, went one stage further and started creating his own '*What's That?*' cards related to Math. He selected words linked to the Mathematical and Math concepts. Matthew then produced a range of Math related cards. This pupil soon became an independent and active learner and producer.

To enhance the durability of the cards, we printed the cards and laminated them. There was a fair bit of manual work involved as we had to cut hundreds and hundreds of cards out of the A4 size papers. Nonetheless, it was a positive learning experience as we learnt more about the physical and intellectual effort required in the production of the game and its prototypes.

Other than creating the cards, the pupils played constructive roles in the production of the other game components. For

example, Matthew assisted in the creation of the board pieces and bell. Another education officer helped to produce the board. We wanted the board to be unique and eye-catching yet simple. The multi-coloured board would be used to keep track of the performance of the different teams. A significant portion of the work involved the use of the versatile PC and common MS software such as MS Word and Powerpoint.

For '*What's That?*', we also designed and created a dice with 6 sides, presenting various options. There are 3 main options, represented by a pencil, a mouth and a film director's board with the word 'act' on it. The players will throw the dice and take up the option. Here are the options and combinations:

1. Director's Board – Act
2. Mouth – Speak
3. Pencil – Draw
4. Act/Speak
5. Speak/Draw
6. Draw/Act

For some dice rolls, the players will only have one option. However, for half the dice rolls, players can choose one of the two options. This gives them the opportunity to select their preferred or better mode of communication. Alternatively, they can choose the more difficult or challenging mode of expression to stretch their communication abilities and multiple intelligences. These options make the game more challenging and interesting.

In the process of producing '*What's That?*', my pupils also learnt the importance of teamwork and working with specific targets and roles in mind, while under a time constraint. These are valuable and useful experiences and skills for budding entrepreneurs.



It was a joy for us to see the completed product. We then tried and tested the games in various contexts. The pupils brought it home to play. We also involved other pupils in the game. *'What's That?'* was also used in the classroom for learning and revision. *'What's That?'* was played by junior college students too.

In the process, we edited the cards and improved on the game.

### **Testing**

*'What's That?'* has been played and tested by various primary pupils, some JC pupils and various education officers from MOE. To date, the results have been encouraging and positive.

It will be interesting to do further studies to verify and gauge the beneficial effects on the pupils' knowledge and performance.

We hope that *'What's That?'* will be made available to teachers of various subjects so that the benefits can be extended to more pupils and students. Learning can be indeed fun, meaningful and memorable. The use of *'What's That?'* is one of the ways to achieve that goal.

### **Presentation**

After completing the creation of *'What's That?'*, the learning experience continued when we were invited to set up a booth to present our game for the MOE ExCEL Day Exhibition. My pupils and I had an exciting time sharing the game with the numerous visitors. It was an enriching experience for them as they interacted with the visitors and promoted the game. They also had a delightful time playing the game with various visitors.

### **Pupils' reflections**

Here are the comments from the my team members

Arjun:

*I have learnt that teamwork is important as even if you are very knowledgeable, if your teammates do not co-operate with you your team may suffer. Also, 'What's That?' has improved my vocabulary significantly and has improved my social studies and other subjects too.*

Ryoji:

*I learnt about teamwork and new words that I did not come across before.*

Matthew:

*I've worked on quite a few group projects, and found that things never moved very efficiently. Working on 'What's That?' was very different. I found that having a good leader (ie one who knows what to do and who everyone listens to) makes all the difference. Everything was coordinated, and each of us knew exactly what we were supposed to do. We spent quite a lot of time on this, but unlike other projects, I don't think we wasted time on irrelevant things.*

*I enjoyed working on this project. Even though there were a few problems, all of us came out feeling as if we had achieved something, especially when we saw the finished product. I also felt as if we were actually learning something. For example, when we were doing the science cards, we had to go through our work and understand the various topics and words which we would probably otherwise have forgotten ('Endoplasmic Reticulum' is a good example).*

*I also had to help promote the game at the Exhibition. This was a new experience for me as I had to promote and explain the game to strangers. I was forced to speak*





## Comments

How do players and pupils find *?What's That?*

*?What's That? is fun*

*You can have fun while learning*

*It's mind challenging*

*See whether you can see communicate well with others.*

*Creative and interesting*

*See what you have good at...*

*You can have creative ideas while communicating*

*It's a new game*

*Shows if you act well or speak well*

*It's exciting*

*Mind boggling*

*Enjoyable*

*A great way to learn English*

*A good way of learning*

*Give people a chance to express themselves*

*I enjoyed watching the animated facial expressions and acting*

*I had fun using the words and guessing, It was challenging*

*?What's That? helps me to remember the words*

*A stress free way to improve my vocab*

*up and try to be as clear in my explanation as possible. If only all my group projects went as smoothly as this!*


## Reflection

The creation of this project has been an interesting, challenging and memorable experience for my pupils and me. We enjoyed producing and developing this educational game, although it took more time than expected. The step-by-step process of conceptualising, creating, testing and improving this product took up significant amounts of time and energy.

Thankfully, I had the support of my school, pupils, team members and family. It has been highly rewarding to see my pupils and the players having an engaging and educational time using their knowledge and abilities, while playing and watching the game. We had great fun while learning.

We would also like to express my sincere appreciation to MOE for the MIF funding and to God for His grace and blessings. I am glad that I had the opportunity to create this interactive board game, together with my pupils. We are now exploring the possibility of creating better versions of this game, which may be later produced by a commercial partner. This will be a continuation of our entrepreneurial experience in the sphere of education.

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 **Edmund Lim Wee Kiat** was a teacher from Anglo-Chinese Primary (Barker Rd). Since the publication of this article, Edmund has been seconded to the National Institute of Education (NIE). E-mail: [lim\\_wee\\_kiat\\_edmund@moe.edu.sg](mailto:lim_wee_kiat_edmund@moe.edu.sg)



# Sowing the Seeds of Innovation and Enterprise

*Chong Chin Hong*

"This is our prototype. It is a boardgame called Heroes of Heroes! We are from the Extreme Ideas Pte Ltd. I am the CEO," exclaimed Melvin Chang. "This is my team. Our vision is to see the young and the old playing this entertaining and stimulating game. It equips people with quick thinking strategies. Above all, it is fun. We plan to market this wonderful product worldwide."

"These are our unique products which you can't find anywhere else in the world," Mabelyn Tan, the Marketing Director of IT Creativities Pte Ltd explained. "We have a wide range of custom-made CD coasters and photo frames."

"Our product Deskjet is meant to make life easier for students," Jane Tor, the Founder of Creative Thinkers Pte Ltd. "With this product, students will have more storage space to keep their things neatly away and within easy reach."

Chief Product Designer, Marasseeh of Minetor Blaster Pte Ltd said, "Myopia is a serious problem in Singapore. One of the reasons for this is the result of excessive television watching. This Eye Resting device can ensure that our eyes get some rest periodically to prevent eye strain."

Jia Kong, manager of Fantasy World Pte Ltd, "We live in a stressful environment. My company aims to provide games, which relieve stress. We are the FUN people. "

"We provide mugs with IT designs based on customers' specifications. Your satisfaction is our business," claimed Siew Hock, the Managing Director of the Ultimate IT Shop.



*Stanley Ong, Primary 5 Entrepreneur explains the use of the Multi Purpose Hologram Board to a prospective customer.*



*Eye Rester by Minetor Blaster Pte Ltd Chief Product Designer, Marasseeh, explains the use of the Eye Rester.*

To the uninitiated, one would naturally presume that this was some sort of trade fair. But for those who were present at the Zhangde Young Entrepreneurs' Day, would have witnessed for themselves primary school students assuming the roles of CEOs, Product Designers, Marketing Directors and so on, in order to "sell their products, services or ideas."

## ***Young Entrepreneurs' Day***

On 17 September 2003, Zhangde Primary School held its 1st Young Entrepreneurs' Day to showcase the innovation and talents of its budding entrepreneurs. It was an



opportunity for the Young Entrepreneurs to show and apply what they learnt in the Zhangde Entrepreneur Programme to their fellow schoolmates, teachers and parents. The event was also attended and well received by the principals, vice-principals, teachers and pupils from the South 4 Cluster.

### **Companies and products**

Some 16 companies all owned by our Young Entrepreneurs set up stalls to publicize and sell their products, service or ideas. The products featured ranged from bookmarks to waistbands, from changeable mouse pads to photo frames. Prototypes of inventions were showcased too.

### **Our partners**

The school collaborated with The Little Entrepreneur Pte Ltd and The Chinese High School to nurture the spirit of innovation and enterprise among some 80 Primary 4 and 5

students. Students from The Chinese High School acted as mentors as well.

### **Partnership results**

Apart from developing entrepreneurship among the students, the programme was designed towards inspiring students and teaching them real application skills. Students were to devise and market their own ideas as co-owners of a business or company of their choice. In doing so, students explored business from "behind the scenes," to manufacturing and service provision. This culminated with the students creating, inventing and designing their very own games or products like the Pet Food, Water Dispenser, Multi-purpose Hologram Board, Eye Rester, Transparencies Washer and Robotic Insect Catcher.

### **Patents**

Creative juices really flowed among the participants. The Young Entrepreneurs were so inspired that 2 teams planned to have their ideas patented.

### **Money management**

Participants in the programme were introduced to managing their own finances. Participants were able to strike a balance between expenditure and income as well as interpret profit-loss statements.

### **Spirit of risk-taking**

Our Young Entrepreneurs learnt to construct and deconstruct ideas as a way of experimentation.

### **Students' views**

Our Primary 5 Entrepreneurs like Jun Jie and Jonathan Chong of Extreme Ideas Pte Ltd had this to say, "The programme has helped us to be more confident. We learnt how to communicate more effectively."

Owners of Life Made Easy Pte Ltd with their self-refilling Pet Food and Water Dispenser. This dispenser refills by itself.



Co-owners of Easy Washing and their handy Transparencies Washers





Another P5 Entrepreneur, Kelvin Victor of Minetor Buster felt, "Having an idea is important. It is more important that team members cooperate with one another in order to complete our prototype. Working on the prototype was challenging!"

Parveen Kaur noticed, "At first everyone had different ideas. Somehow we managed to get everyone of the team to focus on what we could do as a team. I really enjoyed working as a team."

### ***What the parents said***

Mrs Emily Chong, parent of one of the Young Entrepreneurs expressed, "I am glad my child was given a chance to participate in the programme. My son has become more confident and responsible. His outlook has also become more positive."

"A good programme! I hope my younger child gets to enrol in the programme next year," exclaimed Mrs Tan, parent of a Primary 4 Entrepreneur.

### ***How the other students felt***

"I hope we have something like this everyday. It's fun!"

"I want to be to set up my own company and make a lot of money."

"They have good ideas. I hope to be like some of them."

### ***From the eyes of teachers***

According to Mrs Tang Siew Hong, Head of Mathematics, "This is a fun way to feature inter-disciplinary projects. Students can see for themselves that it is important to learn as much as they can. They need to master the languages in order to communicate their ideas more effectively. Mathematics would be helpful for them in calculating profits or losses. Science concepts can be applied for their inventions and Art is needed in the design of their products."

Mr Esmund Chua had this to say, "It is through innovation and enterprise that new opportunities will be opened to all of us in Zhang de. When we start young, our students get a headstart!"



*Customer getting loads of FUN at the Fantasy World*

*Principal of Zhangde Pri Sch, Ms Anne Koh and Principal of Radin Mas Pri Sch, Mrs Jenny Yeo at the Extreme Ideas Stall*

### ***Parting Words***

Opportunities come and opportunities go. It is important that our young students be taught how to harness and make full use of every opportunity.

The seeds of innovation and enterprise have been sown. Let's nurture the spirit of entrepreneurship with passion, imagination and love.

*Mr Chong Chin Hong is the Vice-principal of Zhangde Primary School*



## Economics Quizzes – A Way to Nurture the Young Entrepreneur

*Tay-Chang Tyng Tyng*

The mission of Nanyang Junior College is to nurture in individuals a passion for learning and to empower them with life skills to become dynamic, thinking, responsible and gracious citizens of the world. As Singapore is moving on and becoming a knowledge-based economy, one of our objectives includes nurturing students to be entrepreneurs.

As such, all Economics teachers in the Arts Department organize an Inter-Class Economics Quiz for Economics Students every year. This event is headed by the HOD of Arts, Mr Nathan Chozha and supported by our Principal Mrs Ho Woon Ho and Vice Principal, Mr Paul Chua. The Quiz consists on two major parts. The first part tests students on economics theory. The second part is the practical part, aims to provide students with a hands-on experience. The purpose is to reconcile the theory with practical, instilling an entrepreneur spirit in students, built on sound economic reasoning.

This year (2002), a total of 49 classes (23 JC1 classes and 26 JC2 classes) took part in the Economics Quiz. The first part, which is the theoretical side, tests students on economics concepts, theories and current issues. Students are required to give definitions for economics terminologies, to analyze economics situations using say, the demand and supply framework, and to be able to identify and evaluate current economic issues. The mode of testing for this part is the traditional style, where every student is given the questions and one hour to complete the questions. The Economics teachers "invigilate" the classes and no discussion is allowed. The answers will then

be marked and marks are collated for each class. The winning class for this category was 01A3.

In addition, five Economics teachers brainstormed to come up with an idea to constitute the second part, i.e. the practical side of the quiz. Each class was given a list of 20 household commodities, and students must find the places that offer the lowest prices for these commodities. Students are given one week to complete the task. As evidence that the prices are accurate and reliable, students submit receipts, newspaper advertisements/discount coupons, contact numbers/printed price list of retailers and/or verification stamps from the retailers for the items. The winning class for this category was 02S5B. Upon announcement of the winning teams to the school, the results were posted on the Economics Notice Board so that this valuable information was shared with the rest of the school. Table 1 shows the places and lowest prices for the various items, as identified by the students.

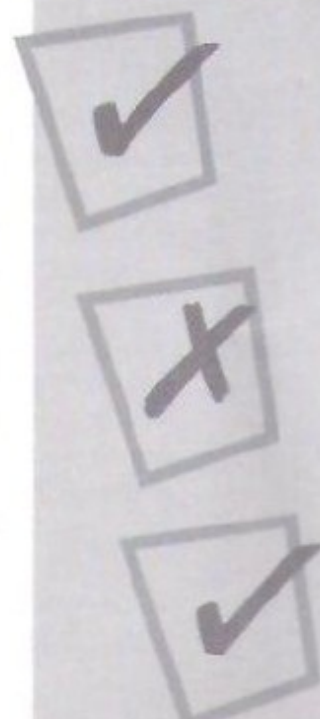
The Economics Quiz is a good learning opportunity for students beyond the classroom. Besides stretching the resourcefulness of students, they also get the chance to integrate economics concepts in an interesting manner. Students learn that competition can be tough out there. The more players there are in the market, the stronger is the competition, which is a characteristic of monopolistic competition. They also learn that while big supermarkets make up a big share of the industry, small firms can still co-exist due to reasons such as locality and personalized services. Thus,



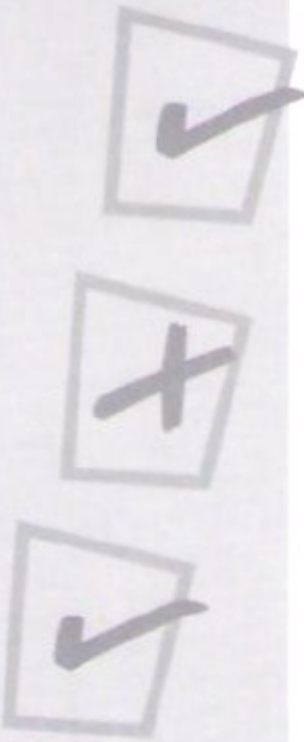
**Table 1: Shops that sell the cheapest**

	ITEM	Unit	Price*	Your Price	Places Prices Found At
1	Farmland Peanut Butter (Creamy)	510 gms	\$3.95	\$2.80	Shop & Save Aljunied Crescent
2	Pampers Premium (M)	64 ps	\$34.50	\$17	Sheng Siong 1 Station Market Blk 739A Bedok Reservoir
3	Knife Cooking Oil	3 kg	\$7.35	\$5.80	Sheng Siong 1 Station Market Blk 739A Bedok Reservoir
4	Nescafe Classic	200 gms	\$6.80	\$5.50	Prime Supermarket
5	Milo Tonic Food Drink	1.25 kg	\$10.10	\$7.30	Sheng Siong 1 Station Market Blk 739A Bedok Reservoir
6	Johnson's Baby Powder	500 gms	\$5.20	\$2.30	Lee Wah Essentials Pte Ltd 183 Toa Payoh Central #01-272
7	Pink Dolphin Vitaminised Drink	1.5 ltr	\$2.90	\$2.25	Giant- IMM Building
8	Nestle Cereal (Koko Crunch)	170 gms	\$2.95	\$1.80	Ang Mo Supermarket Blk 642 Hougang Ave 8 #01-197
9	Farmland Skipjack Tuna	185 gms	\$2.65	\$2.15	Giant - IMM Building
10	Ferraro Roche	375 gms	\$11.80	\$6.95	Sheng Siong 1 Station Market Blk 739A Bedok Reservoir
11	Pen (Pilot G-2 0.7)	1	\$2.00	\$1.60	Xin Ming Secondary School
12	Nabisco Oreo Chocolate Sandwich cookies	300 gms	\$2.50	\$1.80	Foodland - Hougang
13	Magiclean Floor Cleaner (Regular)	2 ltr	\$5.50	\$4.15	Ang Mo Supermarket Blk 642 Hougang Ave 8 #01-197
14	Kao Attack Detergent	2.5 ltr	\$10.20	\$6.80	Top Plus Freshmart - Blk 632 Bedok Reservoir Rd #01-834
15	Dove Cream Shower Rich	550 ml	\$9.80	\$6.30	Ang Mo Supermarket - Blk 642 Hougang Ave 8 #01-197
16	Lavenus Shampoo	200 ml	\$3.90	\$1.99	Watsons - Hougang Mall
17	Pringles Potato Chip (Original)	185 gms	\$2.25	\$1.90	Sheng Siong 1 Station Market Blk 739A Bedok Reservoir
18	Darlie Toothpaste (Full Jumbo Fluoride Protection)	250 gms	\$3.15	\$2.50	Kim Leng Store - Blk 32, #03-1016 Old People's Park, New Market Rd
19	Heaven and Earth Green Tea (Jasmine)	300 ml	\$3.75	\$0.40	Sheng Siong 1 Station Market Blk 739A Bedok Reservoir
20	Royal Umbrella Fragrant Rice	10 kg	\$13.90	\$10.50	Carrefour - Suntec City

\* These are the highest prices from various sources supplied by the Economics teachers.







students are given the opportunity to be aware of the business environment, which will be helpful should they want to set up a business on their own in the future. Some teachers also found the information useful as they now have new outlets to scout for bargains.

**Comments from students:**

"The quiz helps to improve our general knowledge. Through the questions asked, I am now more aware of Government policies concerning the Road Tax in Singapore and the roles played by the OPEC."

*Winnie Hoe (Student from 02A4B)*

**Reflection from Economics Teacher:**

"The practical side allows the student to understand what market information means. If you lack that information, then you may have to pay a high price compared to a low price. In real life and in setting up a business, knowledge of the market is important as this helps to keep costs low and hence profits high. Furthermore, this quiz also made them realise that the search for market knowledge is not an easy one, it is a price you have to be prepared to pay."

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*Mrs Tay-Chang Tyng Tyng is a JC1 Economics teacher in Nanyang Junior College*



# ASCD Courses

## Available for Teachers and MOE Officers

The Ministry of Education (MOE) has acquired some ASCD courses for its officers. These are accessible through VITAL, the e-learning portal that provides teachers and MOE officers an alternative mode of training for their professional development and personal growth. MOE officers can access the courses on the Internet @ [www.vital.moe.edu.sg](http://www.vital.moe.edu.sg).

- The ASCD courses on VITAL are

Title	VITAL Course Code
The Reflective Educator	G0114
Classroom Management: Building Relationships for Better Learning	G0115
Multiple Intelligences	G0116
Surviving & Thriving in Your First Year of Teaching	G0117
Memory and Learning Strategies	G0118
Student Portfolios: Getting Started in Your Classroom	G0119
Differentiating Instruction	G0120
Teacher Behaviour That Promote Assessment for Learning	G0121
Effective Leadership	G0122

- MOE officers can access and register for the above ASCD courses directly through VITAL by clicking on the register button under the General Courses in the Course Catalogue. Certifications of completion will be issued upon successful completion of these courses.
- As VITAL is linked by an interface to ASCD in the U.S., officers who register for these courses are able to interact with the ASCD trainers there as well as participate with other international participants in discussion on the ASCD portal.
- MOE has initially purchased 500 keys from ASCD for the 9 courses. Each key costs \$146 and allows the officer a place in one of the above courses. The key is valid for one year from 1 Apr 2003 – 31 Mar 2004 allowing officers a year to complete the course.
- Officers have to register for a course before they can browse through the course on VITAL. Should a decision be made not to start on the course, they should de-register from the course or they will be classified as "not completing the course".
- Officers can use the online feedback system to evaluate the courses completed. This will help STB determine whether these courses would be offered again the following year.
- Should officers wish to discuss with our local experts any issue related to any of the above ASCD courses, they can e-mail the following ASCD Executive Council members, Dr Ang Wai Hoong [whang@nie.edu.sg](mailto:whang@nie.edu.sg), Dr Cheah Yin Mee [learning@pacific.net.sg](mailto:learning@pacific.net.sg) or Mrs Soo Kim Bee [kbee@gmt.com.sg](mailto:kbee@gmt.com.sg).



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Organisation/School: \_\_\_\_\_

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Types of Membership	Fees Payable	Please tick
<b>ORDINARY</b> Membership <i>For those interested in supervision, curriculum and instruction</i>	S\$30.00 per annum	
<b>INSTITUTIONAL</b> Membership <i>For schools, institutions, libraries or educational societies</i>	S\$300.00 per annum	
<b>LIFE</b> Membership <i>For individuals</i>	S\$500.00	

### Payment:

**CHEQUE:** Enclosed, please find my cheque number \_\_\_\_\_ of S\$ \_\_\_\_\_ in payment for ORDINARY / INSTITUTIONAL / LIFE membership with ASCD Singapore.

Please make cheque payable to "ASCD (S)" and return completed form together with payment to:  
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