ABSTRACT

In the MOE Workplan Seminar on 29th September 2004, Mr Tharman Shanmugaratnam said, “We want to nurture young Singaporeans with minds that keep inquiring…. We want our young to have the toughness of ‘adversity quotient’ …to work hard to achieve their dreams. If we, as teachers, are to prepare such learners, we need to change the way we teach and the way our pupils learn. They need to have effective communication skills and good interpersonal social skills and they need to become inquiring, life-long learners. SEED (Strategies for Effective and Engaged Development), the current MOE programme being implemented in P1 classrooms, provides the opportunity to develop such an education. This programme creates the opportunity to develop strategies that can kindle the curiosity and creativity of children so that they can be the sort of engaged learners described by Mr Tharman Shanmugaratnam. In this paper we will describe how Compassvale Primary School has developed both curriculum and pedagogical practices to encourage such learning.

INTRODUCTION

In the MOE Workplan Seminar on 29th September 2004, Mr Tharman Shanmugaratnam said, “We want to nurture young Singaporeans with minds that keep inquiring…. We want our young to have the toughness of ‘adversity quotient’ …to work hard to achieve their dreams. If we, as teachers, are to prepare such learners, we need to change the way we teach and the way our pupils learn. They need to have effective communication skills and good interpersonal social skills and they need to become inquiring, life-long learners. SEED (Strategies for Effective and Engaged Development), the current MOE programme being implemented in P1 classrooms, provides the opportunity to develop such an education. This programme creates the opportunity to develop strategies that can kindle the curiosity and creativity of children so that they can be the sort of engaged learners described by Mr Tharman Shanmugaratnam. In this paper we will describe how Compassvale Primary School has developed both curriculum and pedagogical practices to encourage such learning.

Current ideas of best practice in early childhood education inform us in our construction of the SEED curriculum. These are based on certain theoretical principles of child development and learning, in particular, the work of Piaget, Vygotsky, Erikson, and others and include:

1) Children construct knowledge. Knowledge is constructed as a result of dynamic interactions between the individual and the physical and social environments. In a sense the child discovers knowledge through active experimentation. Children need to form their own hypotheses and keep trying them out through mental actions and physical manipulations - observing what happens, comparing their findings, asking questions, and discovering answers - and adjust the model or alter the mental structures to account for the new information.

2) Children learn through social interaction with other adults and other children. The teacher encourages and fosters this relationship as well as relationships with peers and other adults by supporting the child in his or her efforts and later allowing the child to function independently. The teacher's role is one of supporting, guiding, and facilitating development and learning.

3) Children learn through play. Play provides opportunities for exploration, experimentation, and manipulation that are essential for constructing knowledge and contributes to the development of representational thought. During play, children examine and refine their learning in light of the feedback they receive from the environment and other people. It is through play that children develop their imaginations and creativity. During the primary grades, children's play becomes more rule-oriented and promotes the development of autonomy and cooperation which contributes to social, emotional, and intellectual development.

4) Children's interests and "need to know" motivate learning. Children have a need to make sense of their experiences. In a developmentally appropriate classroom, teachers identify what intrigues their children and then allow the students to solve problems together. Activities that are based on children's interests provide motivation for learning. This fosters a love of learning, curiosity, attention, and self-direction.

5) Human development and learning and are characterized by individual variation. A wide range of individual variation is normal and to be expected. Each human being has an individual pattern and
timing of growth development as well as individual styles of learning. Personal family experiences and cultural backgrounds also vary.

Specifically, these principles translate into teaching and curricula that place greater emphasis on:

*Active, hands-on learning
*Conceptual learning that leads to understanding along with acquisition of basic skills
*Meaningful, relevant learning experiences
*Interactive teaching and cooperative learning
*A broad range of relevant content, integrated across traditional subject matter divisions

Such a learner is an engaged learner, a person who is self-directed, focused and strategic in her thinking and planning, an explorer and questioner, a problem solver, and a decision maker. An engaged learner also has social and collaborative skills that will enable her to grow through interactions with others. At Compassvale Primary School, we have tried to design a curriculum that might enable such participation by students. We have also worked to develop our capacities as teachers to enable such engagement by students. In this paper we will describe the curriculum we have developed and in the subsequent two papers we will describe the pedagogical practices and professional development programs.

The curriculum we have constructed, we have called the “Seamless Curriculum”. It loosely can be described as following the project approach as described by Katz & Chard (1989). We use the term project to refer to an extended in-depth study of topics determined by the teacher or by the teacher in discussion with the children. In projects, children actively participate in formulating the empirical questions to be addressed, predicting and hypothesizing possible answers to them, representing their findings using a wide variety of verbal, mathematical and graphic media, checking and re-checking their findings, as well as debriefing each other on the progress of their work (See Katz & Chard, 1989).

**Background**

The traditional Primary School curriculum is very subject-based. There is little integration or crossing-over although there is some subject matter that does overlap. To a young child who has just “graduated” from the kindergarten, entering a primary school can be both confusing and bewildering. There are many subjects to handle and each seems totally unrelated. There seems to be no interconnectedness in the learning, which the young learner may perceive as disjointed, segmented and totally unrelated to the world he lives in.

In most of the today’s Primary 1 classes, teachers teach by subjects and according to the units prescribed by the textbooks that are written for the generic “learner”, by writers who do not even know the background or abilities of our particular pupils.

At times, the main preoccupation of the teachers is to “cover” the syllabus and to prepare the pupils for continual and semester examinations. The question then arises, where and when do teachers find time to teach critical life skills and values? The development of the character of the child is not given enough prominence.

As educators, we feel that we should be the one to determine the learning journey of our pupils, to moment they step into school. We want to teach them vital communication and social skills, for them to be able to be well-adjusted social, responsible beings with the right values. We decide that we should have our own curriculum fully designed by our teachers. Hence the seamless curriculum is developed.

**Objectives of the Seamless Curriculum**

The teachers at Compassvale Primary School have developed an innovative curriculum in use in the Primary 1 classrooms. This “Seamless Curriculum” integrates standard subject matter content in the sciences and social studies in order to teach communication and interaction skills. Through richly developed topics such as “Community”, “Farming”, “Transportation” and “Myself” children develop proficiencies in reading and writing in English language as well as sharing and discussing their ideas of the content with each other orally.

In particular, the Seamless Curriculum integrates English, Math, Science, Art and Craft, Social Studies and Health Education in a thematic format. The P1 teachers, as a group, have come together to craft activities, and lessons to achieve learning outcomes in the various subjects based on classic primary one themes. For example, the theme “Farming”. Here pupils learn about animals and plants, what farmers do and why, how important farming is to them, as well as embedded language arts and mathematical skills through pupil-centred sessions. There are songs, making of art work, maps and models using recycled materials, collages etc which relate
directly to an activity. Believing that learning in context and real life situations may help reinforce learning, there is no demarcation that the children are learning English, Math or Science in these discussions. For most of the themes, there is a “learning journey”. During this pupils get opportunities e.g. in “Transportation” to go to the LRT to learn about buying of tickets, entrance, exit, safety on trains etc. In the “Farm” unit, pupils go to a cow and a quail farm and learn about life cycle of the animals, care and keeping. When they return to school, they learn to write paragraphs and create communal posters summarizing what they learned on the trip.

In a particular lesson, pupils may be reading aloud a book such as “Peilin’s Father Is a Vegetable Farmer” (English language instruction) with embedded discussion of how verbs reflect whether or not the subject is plural and how pronouns are used in English. The class in their discussion of the book listed types of vegetables, and discussed what vegetables are (parts of plants). This, in turn, became a discussion of what plants need to be able to grow (biological sciences). The teacher, might, at this point have launched into more science, or maybe a math lesson with bar graphing of (say) types of vegetables the children liked to eat. Instead, she reminded them of their experiences at the quail farm where “Uncle William”, told them, at length, how an important economic byproduct of his quails was the fertilizer made from their waste. This conversation went on to a discussion between the difference between vitamins and food (Health Sciences) and finally culminated in the teachers describing techniques for reading a passage so that they could “really understand” it. This cycled back to the earlier discussion of decoding sentences with pronouns as subjects and noun-verb agreement. The children then did a short worksheet on the last skill and finally wrote a paragraph (six sentences or more) about the animals at a farm.

The Seamless Curriculum aims to:

1) ensure that pupils learn in a holistic manner in which learning is integrated and connected and related to the world of the pupils. Pupils learn concepts in meaningful contexts and natural situations where they can apply what they have learnt.

2) satisfy pupils’ curiosity and thirst for knowledge through the exploration of their immediate surroundings and through learning journeys.

3) provide fun and meaningful activities to engage pupils and provide opportunities whereby pupils can learn to ask questions and look forward to each school day.

4) provide pupils with ample opportunities to acquire life-skills such as communication and social skills and the right values through experiential learning

*Teachers the Innovator and Creator*

The teachers themselves drive the Seamless Curriculum programme. They create, design, innovate and plan the teaching and learning of their pupils. They have come up with resources, worksheets, songs and games to entice the new pupils who have just ‘graduated’ from kindergarten into reading, writing and talking and in the correct use of English. As the teachers provide their own worksheets; text books and workbooks are generally not used. The entire school is trying to do away with textbooks and commercially produced worksheets and coming up with their own.
**Across the subjects**
Seamless Curriculum @ CVPS begins in the Primary One classroom. Subjects such as English, Mathematics, Science, Art and Craft, Health Education and Social Studies are integrated based on agreed learning outcomes, social skills and values.

No longer are teachers merely dispensing content. As professionals they determine the learning outcomes and tailor the curriculum to suit needs of their own pupils. They also have the opportunities to experiment and to reflect. No longer will they be dictated by the cold and impersonal textbooks, workbooks and the hassle of completing the syllabus. They see themselves as facilitators of learning and not just knowledge dispensers.
Productive Pedagogy
They also view the child as the active learner, taking into consideration the way children at this age learn and how best they learn. They are aware of the different learning styles that children have and try to cater to their multiple-intelligences through the innovative lesson plans they come up with which include singing, movement, visual and aural components. Opportunities for pupils to participate and be actively involved are provided. Learning in context adds extra richness to their experiences. Values and skills are also embedded in the lessons and taught explicitly to the pupils. A trip to a farm awakens the senses of a child as he experiences the smell and sight of animals on the farm. He uses his observation powers, his auditory senses as he listens to the farmer, applies his health knowledge learned in class as he washes his hands before and after eating quail eggs. Values are practised as he shares his food with his friends during a break at the farm.

The Thematic Journey
Teachers design, craft and provide learning opportunities for their pupils based on themes which are selected to sequence the child’s development and experience. In the beginning theme “Myself” pupils learn the art of communicating with their classmates (Language and social skills), how to introduce themselves to one another (language for social interaction), sing songs such as “I am special”, learn to count to ten using parts of their body (Mathematics and Language, with usage of ‘I have’) eg. I have two eyes, ten fingers etc.

Carefully selected themes such as Myself, My Family, recognise the needs and existing schema of these Primary 1 pupils who have just come in from pre-school learning. New experiences are added to their existing knowledge as the themes take them further to their immediate surroundings as ‘My Friends in School’ and ‘Our Community’. Thereafter we expand their environment on themes like ‘On the Farm’ and ‘Transportation’. Towards the end of the year, we fire their imagination through ‘Stories We love’.

The English Language becomes the tool for learning across the curriculum. The thematic framework allows for the embodiment of the principles of language learning and teaching.
For example, in the theme, ‘My Family’, they learn how to greet relatives and ask for permission to use facilities when they visit a relative’s home (language for social interaction), draw and write about their favourite member (language for literacy response and response), pair activity: tell about their family and listen to what others have to say about their family (language for information)

Learners’ Participation
During the lessons, pupils are highly engaged in classroom activities which involve singing songs with accompanying movements, co-operative strategies, group activities, language games, role-playing, dramatization and other self-directed activities. Through such activities, they model the processes of language and process skills such as their speaking and listening skills, thus developing their oral interaction and team building skills. Pupils are given the opportunities to participate and to be part of the learning process.

“Learners’ participation and interaction are important in language learning, and in fostering self-confidence and social relationships among pupils from different cultural backgrounds and religions.”

The high level of participation through the use of co-operative strategies gives all pupils an opportunity to take part. This encourages oral interaction and builds up their confidence and speaking abilities. The pupils find themselves very much involved in the learning process and are not passive recipients of knowledge. Their experience starts the moment they step into the school, even during recess where they eat with their friends and teachers.

Learning Journeys
A child’s learning experience goes beyond the classroom. Learning journeys outside school provide the experiential experiences which the child explore to seek answers to questions posed. These learning journeys also give sense to what the child learns in the classroom and an opportunity for pupils to practise the skills and values they have been taught.

These learning journeys provide them the meaningful contexts to read and write purposefully. The learning journey provides the background for the integration of reading, writing and oral communication and for the integration of language usage in and outside the classroom.

For example, in the theme “Our Community”, their learning journeys were to a Sengkang Fire Station, Vishnu Cow Farm and Quails’ Farm.

For example, before the visit to the Vishnu Cow Farm, they read and find out about different types of farms. In the pre-learning journey lesson, they discuss what they would like to see at the farm and what kind of things they want to learn and what kinds of questions they want to ask.

On the visit to the Vishnu Cow Farm itself, pupils are to see, touch a real cow, see for themselves a new calf and feed the cows themselves. They also learn the importance of drinking milk.

After the trip, they discuss what they liked most about the trip and to write down as reflections what they have learnt on the trip.

Assessing the Learner
The assessment of the child is not based on just their acquired cognitive knowledge but also the whole-child development. The teacher observes the child while he is engaged in the class activities and notes the weaknesses and strengths of the child. Undesirable social behaviours are taken note of and child is counselled and observed further for improvements. Conversely, good values and habits displayed are given positive reinforcement. The opportunities for the teacher and the child to bond are better than in the traditional approach to teaching. Parents are seen as partners in learning. They provide feedback on their children’s health habits, social skills and are even given opportunities to assess their children’s progress in these areas.

The Teacher Innovator
Teachers’ creativity is tapped in their preparation of the lesson plans as they develop more personalized teaching strategies that in turn create greater ownership of the programme. They craft the lessons; create their teaching materials, even using their family members as the ‘stars’ in slides for lessons on healthy habits, shopping at the supermarket etc. This satisfies the professional yearnings of a teacher, of making learning fun, interesting and meaningful.

Through the implementation of their prepared lessons on selected themes, teachers are more sensitive and aware
of the successes and failures of these lessons. They become more reflective as they think of what has taken place and how they can make further improvements. This also helps the teacher to be more responsible for her own professional development.

The Process of Designing the Seamless Curriculum
1) Determining the Learning Outcomes

We play our true role as professionals as we come together to tailor the curriculum to the needs of our own pupils. We determine the learning outcomes as well as decide the content and scope of the curriculum.

After a theme has been selected, we get together to determine the learning outcomes of the different themes in the seamless curriculum. Although there is integration of the subjects, we have to keep in mind the syllabus requirements and learning outcomes of the various subjects we are integrating. In Primary 1, we still have to teach the content for English and Mathematics, for the pupils to acquire basic literacy and numeracy skills.

We prepare a focus wheel for each theme. Since we feel that teaching values is the core of education, we put the values which we want to teach for a particular theme in the centre. Next, we focus on the critical skills such as communication and social skills, the ability to get along with others and to communicate effectively that we want our pupils to acquire. Thereafter, we decide on the learning outcomes based on the various subjects we intend to integrate.

We also have the opportunities to experiment, to reflect, to proceed to meet the pupils’ needs and abilities. No longer will we be dictated by the cold and impersonal textbooks, workbooks and the hassle of completing the syllabus and preparations for the continual assessments and semestral examinations. We see ourselves as facilitators of learning and not just knowledge dispensers.

We also view the child as the learner, taking into considerations the way children at this age learn and how best they learn. We are aware of the different learning styles that children have and try to cater to their multiple-intelligences through the innovative lesson plans we come up with which includes singing, movement, visual and aural components. Opportunities for pupils to participate and be actively involved are provided in the lesson plans.

2) Preparation of the Lesson Plans and Resources

Our creativity is tapped in our preparation of the lesson plans as we develop more personalized teaching strategies which in turn create greater ownership of the programme. We craft the lessons; create our own teaching materials, even using our family members as the ‘stars’. This satisfies the professional yearning of a teacher, of making learning fun, interesting and meaningful and the satisfaction of seeing the happy smiles of the children as they enjoy the lessons.
Lessons planned by the teachers are to engage the pupils so that they learn in meaningful contexts which are they can relate to their personal lives. Learning in context adds extra richness to their experiences. Values and skills are also embedded in the lessons and taught explicitly to the pupils. In another example, a trip to a farm awakens the senses of a child as he experiences the smell, the sight and the animals on the farm. He uses his observation powers, his auditory senses as he listens to the farmer, applies his health knowledge learned in class as he washes his hands before and after eating quail eggs. Values are practised as he shares his food with his friends during a break at the farm.

Benefits of the Seamless Curriculum

A. The Learner
Pupils will find learning fun and meaningful as they engage in activity-based lessons that are relevant and applicable to their real-life situations. They have opportunities to practise communication and social skills as they interact with their classmates and teachers. They develop their process skills even before they have formal Science lessons at Primary 3.

B. The Teacher Innovator
In designing, planning the curriculum, teachers inadvertently increase their professional competency. There is a sense of ownership and purpose as they source and create suitable teaching materials. The teacher innovator taps on each others’ strengths and expertise. They become more reflective as they sculpt their pupils’ learning and their own teaching.

C. The Parent As Partners
The parent is seen in partnership with the school with roles clearly spelt out. They are encouraged to volunteer according to their own competency levels within and outside the classroom. Parents now join hands with the school as they take a more active role in the learning of their children by providing feedback to the teacher for example in their children’s health habits and social skills in the theme “Myself”.

D. Sharing with Others
Sharing our expertise and experience in Seamless Curriculum with other schools in our cluster will enhance the teaching and learning not only for these schools but also for us at Compassvale Primary. The opportunity to learn from each other cannot be overemphasized.

Our Greatest Challenge: Building staff capacity

With SEED, our teachers cannot rely on the textbooks as many have been used to in the past; they now have to tailor their teaching content and strategies to students’ responses and queries. This means that they have to be quite knowledgeable and skilled in many areas. Our teachers also have to continually encourage students to analyse, interpret, and predict information, and rely heavily on open-ended questions to promote extensive dialogue and discourse, and engage our pupils in their learning and discovery.

In Conclusion

Teaching and learning now takes place, not in prescribed short units of study determined by the commercial textbooks but becomes more alive when taught in meaningful contexts related to the pupils’ experience and schema. The integration of the language skills with other social skills and values is done seamlessly and authentically through pre-determined themes and in real situations. Pupils are seen to develop in their communication skills, their cognitive knowledge and their interpersonal skills.

As teachers, we are sensitive to the future needs of the school and the pupils we teach. Being involved in this project helps us to respond to such needs which will result in our continual learning. It allows us to be more pro-active and reflective as it gives us an opportunity to come up with creative and relevant teaching materials, thus developing ourselves professionally. It provides an opportunity for us to try out things we have not done before. This has also foster team spirit and sharing among us.