

## Introduction

Hong Kong is well-known for its fast pace of life and competitiveness. The schooling system is also very competitive and academic due to the lack of placements in universities (Yuk Yee, 2005). As a result, parents and teachers put great emphasizes on teaching materials that will prepare students for the exams. This results in many negative ramifications, first being the spoon-feeding techniques where teachers only focus on the required facts for exams. This action discourages students from adopting deeper learning approaches (Kember, 2000). Secondly, students may perceive learning as memorizing and regurgitating of facts and consequently lose interest in learning and become dependent upon the teacher to transmit facts to them (McKay & Kember, 1997). Thirdly, in such a competitive environment everyone is doing what is best for themselves, therefore, little collaboration is exhibited. *well said*

The consequences of an exam-based culture do not prepare students with what is needed *A very interesting way to introduce the need for collaboration* for the 21<sup>st</sup> century. As we are now in an age of information technology, most students are highly capable in using technology to find facts and information through the internet (Pelletier, Reeve & Halewood, 2006). Teachers are no longer perceived as the disseminator of information and the spoon-feeding teaching technique is now obsolete. Instead there is now a shift to assist student in learning how to learn and collaboration in creating knowledge together.

*yes* In light of this contrast, a learning approach called knowledge building was implemented into a primary one English class in hopes to understand if it can solve the problems that exam-based culture has created. And to investigate whether or not students of such a young age are able to grasp some of the 21<sup>st</sup> century skills needed to prepare them for the future.

This paper is set out to provide a literature review on the 21<sup>st</sup> century skills, knowledge building and how it was incorporated into a primary one English class. Next, is a reflection on the limitations and possible reiterations of the initial deployment of knowledge building implemented.

### Literature Review

With the immense technological advancement in the 21<sup>st</sup> century comes the age of information overload. Students are now only one mouse click away from a bombardment of information. Students need to acquire 21<sup>st</sup> century skills in order to accommodate to the vast amount of information that is presented to them. Therefore Scardamalia and Bereiter argue that the goals of schooling need to go beyond the acquisition of knowledge. Schools in the 21<sup>st</sup> century need to focus on helping students to improve their ideas, develop new ways of thinking, and advance collective learning (2006).

Good point  
A very nice way to put words about 21st century skills

very nice - this is the basis of the course  
One of the ways to acquire 21<sup>st</sup> century skills is through knowledge building. The knowledge building approach was developed in Canada in the mid-1980s to promote students' understanding, inquiry and collaboration (Chan, 2010). It stresses that both students and teachers are members of a community in which they are improving and creating knowledge together (Chan, 2010). Knowledge is no longer understood as information in the mind but as a contribution to the community in which others collectively build upon it and create new knowledge from it. Students are no longer receptors of knowledge disseminated by the teacher.

The teacher acts as a facilitator that scaffolds students as a community to culture creativity and build upon each other's learning. Just as Vygotsky's zone of proximal development states that student are able to achieve and understand more with the aid of a higher-ability person (1987).

Another aspect that knowledge building stresses is the use of technology such a knowledge forum. It allows students to keep track of their discovery, discussion and learning process which can be shared amongst everyone.

There are twelve principles of knowledge building outlined by Scardamalia (2002) distinguishes it from other cooperative pedagogy. However, only a few of the <sup>principles</sup> principals are used to analyze the implementation of the knowledge building in the primary one English class.

### Design and Analysis

Introduction & background is good

### **Participants**

The implementation of knowledge building was done with a cohort of twenty-four primary one students with mix-abilities. Most of the students came from low social economic families where their parents knew very little English and provided very little support at home.

### **Intention of Design**

For the implementation of knowledge building I selected the unit about animals because it was a topic that was quite familiar to the students. They already learned names of the animals and simple sentence structures to describe them. This ensures that I can focus on implementing the principles of knowledge building without being overly concerned about the language focus. I intentionally applied knowledge building as a form of <sup>explains</sup> informative assessment to allow students to use the language they have learned already. I wanted to implement knowledge building to see

if it could solve the problems of examination-based learning culture. I wanted to investigate if there is a change in students' dependency on the teacher, deep learning, motivation and collaboration in group environment.

probably cannot solve the exam culture  
But it is an alternative  
But it is to examine how innovation is possible & there can be different ways than just exam

## Lesson Plans of Implementing Knowledge Building into a Primary One English Class

### Pre-lesson

A blank piece of paper was given to each student and they were encouraged to draw one or two animals that they were interested in researching (see appendix 1). The intention of this was to provide student with a sense of ownership for allowing them to decide what they want to learn as opposed to traditional learning where the teacher dictates what the students learn. As they drew I walked around the classroom and facilitated students by helping them write down the names of exotic animals such as bats, buffalo and snakes. Afterwards, six animals were chosen to use as a basis for the following classes.

### Lesson One

The class started with a PowerPoint showing different animals. This was used as an introduction and arousal for what their lessons would be about. Then the students were formed into groups of four and they moved their desks together. Then each group was given a poster with a selected animal in the middle and four categories surrounding it: eat, can do, habitat and body. This poster was for students to brainstorm about the animals. Then I, the teacher used panda for modeling purpose because the students are quite familiar with it.

Then I began introducing the idea of habitat. I knew beforehand that students did not understand this word so I prepared flashcards that contained pictures and names of the different habitats so they could refer to it (see appendix 2). Afterwards, I asked where the panda lived and invited a student to write it down on a yellow sticky note and stuck it on my poster near the habitat section. Then yellow sticky notes were given to each group and I allowed students to refer to the flashcards and decide which habitat their animals lived. Next, I used the panda to

demonstrate how to brainstorm for the rest of the categories (see appendix 3). The students completed their brainstorming with the help of a facilitator. I told my students that there were no correct or incorrect answers as I just wanted them to write down any information they knew about the animals. I did not want their brainstorming to be hindered or restricted by them thinking that they had to produce the accurate answer. When the students were finished brainstorming I provided each group with a piece of paper where each of them had to compose one sentence to describe the animal's body (see appendix 4). This was used as an informative assessment because they have previously learned these sentence structures.

yes

??

Is that Appendix 4?

How is it

collaborative? Do they do that together?

As homework, I gave them a piece paper that required them to find out more about what their animals truly eat, lives, can do and details about their body parts (see appendix 5). In addition, they needed to find out one interesting fact about their animals that they did not know before. I encouraged them to ask their parents for assistance in finding out the information on the internet.

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Good design.

**Lesson Two**

After receiving the homework I have selected some of the interesting facts that students found and read them to the class to arouse their interest. Then I allowed students to use pink sticky papers to write down the additional new information onto their animal brainstorm. Afterwards, I asked each group to complete their writing from the previous class by adding what their animals eat, can do and where they live by referring to the posters. In the end, I asked students to write down something that they have learned about their animal within these two classes (see appendix 6). As some students were finished, I invited them to be interviewed by the facilitators to ask about what they have learned through this knowledge building.

## Analysis

*No need to include all principles*  
As I created the lesson plans for my knowledge building class, I knew I would be unable to include all twelve knowledge building principles. This is due the fact that my students would take some time to get used to this new learning approach. Furthermore, they are quite young and have not matured in their thinking so it would be difficult for them to establish principles such as rise above and epistemic agency. However, through my observation I was able to witness some astonishing developments made by my students during the lessons that demonstrated some of the principles of knowledge building.

There were *several* few positive outcomes from the implementation of knowledge building in my primary one class. The first positive change that I observed was the change in the role of the teacher. I was initially anxious that my students would not be able to do knowledge building by themselves because they were so used to me providing them with answers. However, my role as a teacher has completely changed. I was the facilitator that guided them in their knowledge building adventure. I modelled *✓* what they had to do and they took responsibility *✓* for their own learning (Brown & Campione, 1994). They completed all the components of the lessons by themselves with occasional help from the facilitator. They no longer waited for me to give them answers, instead they enlisted the help of their group members. *Good*

The second aspect I was surprised by was the democratization of knowledge.

Democratization of knowledge is when "all participants are legitimate contributors to the shared goals of the community" (Scardamalia, 2002, p.11). Because of inclusive education I have quite a few low-ability students with learning disabilities. In the beginning I was afraid that my low-ability students were unable to contribute to brainstorming because they quite limited in

language and as a result the implementation of knowledge building would not be beneficial for

them. However, I have observed that through the help of high-ability students within the group

the weaker students were able to reach <sup>move up</sup> their zone of proximal development. Another way of

scaffolding that I used was pictures of the different habitats. According to Brown and Campione

artifacts such as books and wall displays can be used to support proximal development (1994). I

knew my students did not understand the word habitat, so I made flash cards with different

habitats and the name on it. Students were able to successful use and refer to them to determine

what habitat their animals live in. Through the scaffolding of both students, facilitators and

artifacts, students were about to carry out knowledge building with minimal difficulties. As a

result everyone was able to contribute throughout the whole process.

### Discussion

#### **Limitations**

There were numerous constraints involved, firstly, this was the first time that students were put into groups so a lot of time was spent giving expectation on behaviours and discipline.

Furthermore, they spent time adjusting to their new seating arrangements whereby every time I wanted their attention the children with their backs facing me had to turn their chairs around to look directly at me. Moreover, due to the fact most of the students are from low social economic statues where parents are unfamiliar with English, they got limited help to complete their homework. Only one-third of the students were able to complete the homework correctly. This limited the amount of new information that was contributed to the building of new knowledge during the second lesson. Overall, the biggest constraint was time. There was not enough time to

yes a reasonable explanation of democratic

take time

implement a more detailed knowledge building class with more scaffolding and informative assessment.

### **Reiteration and Improvement of Lessons**

After the lessons were conducted I reflected upon the lessons to identify aspects that I would change if I have the chance to teach it again next year. One major concern I had was I did not incorporate many elements that required students' higher-order thinking, which is one of the core 21<sup>st</sup> century learning skill. Characteristics of higher-order thinking is being about to give elaboration, making inferences, building adequate representation, analysing and contrasting relationships (Lewis & Smith, 1993). Therefore, there are a few aspects that I would like to enhance or make addition to my lessons to enhance high-order thinking.

The first being that I would add a class to allow students to do group <sup>4.210</sup> presentations so that they can see each other's progress and learn about the different animals. One of the twelve principles of knowledge building is symmetric knowledge advancement. Since each group has become experts of their animal they can contribute their expertise to other groups so that everyone can advance in knowledge together (Scardamalia, 2002). Or I would conduct a jigsaw activity where an expert from each group rotates to other groups and present animal. This teaches the children to have good listening skills towards others and learn from others. The expert learners must articulate what he or she must present so that others are able to learn about their animal. Through the jigsaw activity everyone is participating and it further helps creates a student-centered learning environment (Mengduo & Xiaoling, 2010).

The second high-order thinking element I would add into my lesson is the Venn diagram. Chan states that graphic organizers such as concept maps help students to "maximize, organize



and structure their knowledge coherently” and “to recognize meaningful relationship” (2000, p.

12). The student used a simple brainstorm map to categorize the four aspects they are learning about the animals. It keeps their thinking and learning organized and they are able to quickly locate the information they made. However, I feel that though it was useful, it did not promote higher-order thinking. So I would make an additional Venn diagram for students to complete

after they finish the jigsaw activity. Students can select an animal that other groups researched on and complete a Venn diagram that compares and contrast their animal with the other group’s animal. It is through the process of “abstracting and organizing key information and examining the relationship among concepts, students develop a deeper understanding” (Chan, 2000, p.12).

And I hope that by allowing students to complete an additional Venn diagram they are able improve their higher-order thinking.

The third improvement that would like to make to my lessons is to add self-questioning. According to Chan (2010), self-question is important because it reflects the ability to check their own learning. I asked my students to write down one thing they have learned in the lessons which allowed them reflect on their learning but it did not promote further discussion or generate further inquiry. So next time I would add one more question to their homework. I would ask them to write down one question about their animal that they are interested in researching about. Then I can use these questions to teach my students how to go about researching and discovering more about their animal and answer their inquiries.

The last aspect I would like to change in my lesson is to provide simple authoritative literature to students so that everyone would be able to build upon their knowledge. I asked my students to go home and find out more about their animals on the internet with the help of their parents. I have discovered that two-third of them were not able to come up with new facts. I

suspected it was because my students' parents are from low economic status and are not highly educated so they were unable to produce the answers in English. As a result not every student was able to contribute new information to the brainstorm map. In order democratize knowledge and make student take pride in their advance of knowledge I would provide authoritative sources such as library books or children's website to those with limited family support so they are able to contribute to knowledge advancement (Scardamalia, 2002).

How to not  
Good Reflection - on collective learning?

### Reflection

After implementing knowledge building in my primary one English class I have developed a deeper admiration for my students. I have initially underestimated their abilities and was worried they were unable to complete most of the tasks, especially the lower-ability students. But to my surprise they have far exceeded my expectation by adapting to the new teaching approach. Through knowledge building they became independent learners who no longer expected me to answer all their questions. They were driven by intrinsic motivation and interest of the topic. Furthermore, they were able to work cooperatively in groups and taking part in all the activities. Finally, were able to develop and learn more than required in the curriculum. After these lessons I have gain greater confidence in my teaching and lessen my uncertainty in giving my students more responsibility in their learning. Next year I hope to begin establishing a knowledge building environment earlier in the year to help my students cultivate higher-order thinking skills and independence in learning. Empirical evidence shows instruction of higher-order thinking skills can benefit both high and low achievers, so in order to help my students gain the necessary skills for the 21<sup>st</sup> century I would establish an inviting learning environment to build knowledge in (Zohar & Dori, 2003).

very  
-100  
wonder by the  
sign of new  
teacher  
understanding  
more about  
Inquiry  
teaching

yes

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## Conclusion

Through the implementation of knowledge building, I was able to see the benefits and advantages of it through my students' work. They were able to take responsibility for their own learning without the teacher dictating what to do. They learned through collaboration and building on each other's ideas. Most importantly they learned because they were interested and passionate about their learning. I was able to slowly transform my classroom from a teacher-centered one to a more inviting learner-centered one that allows students to learn through interest and gain learning skills along with knowledge.

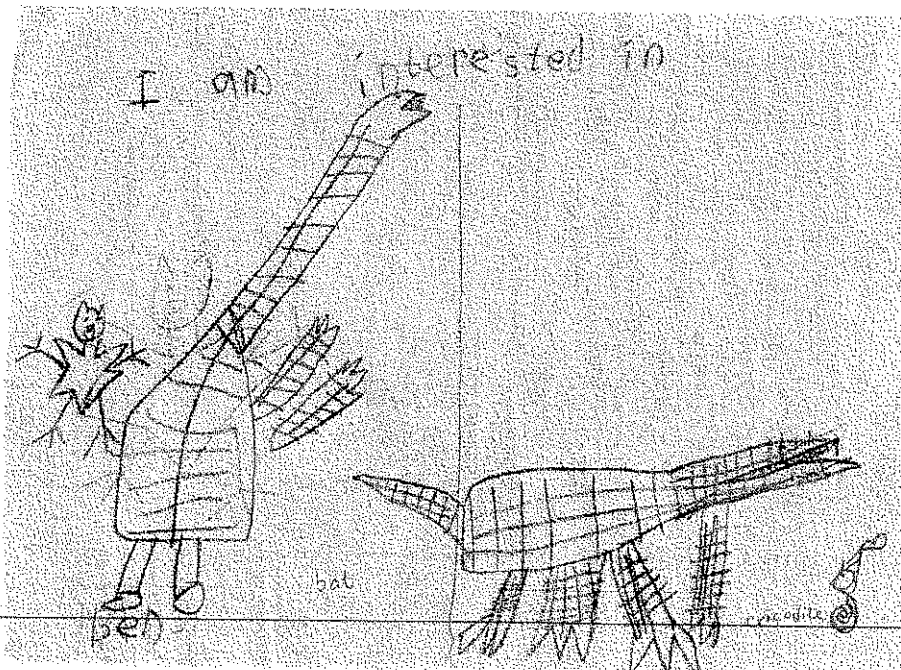
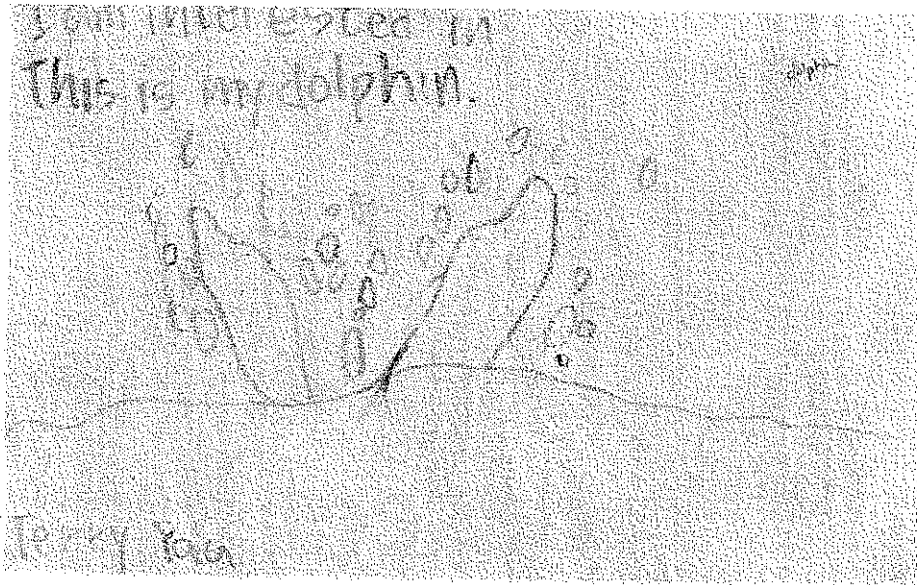
good

## Reference

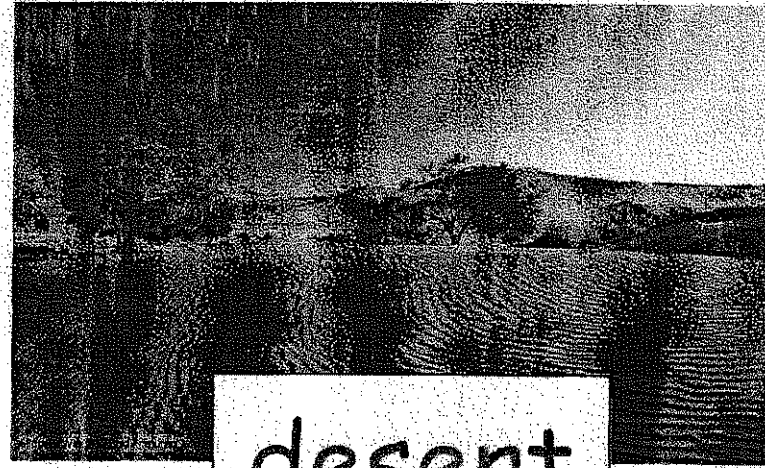
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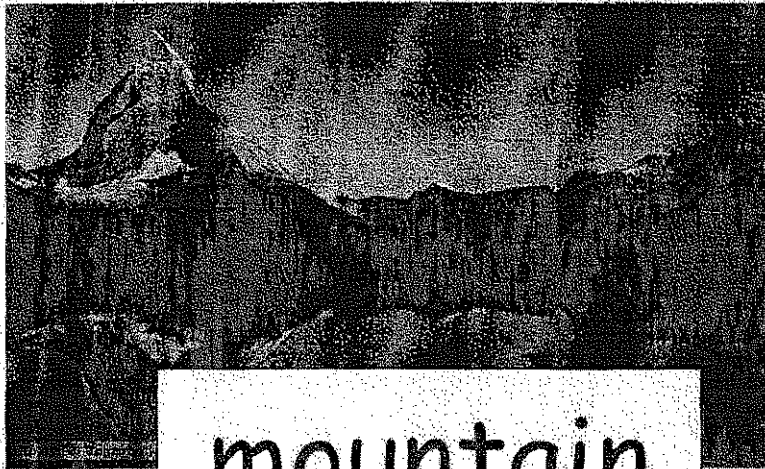
Appendix 1 Students' drawing of animals they are interested in



Appendix 2 Flashcards of animal habitats

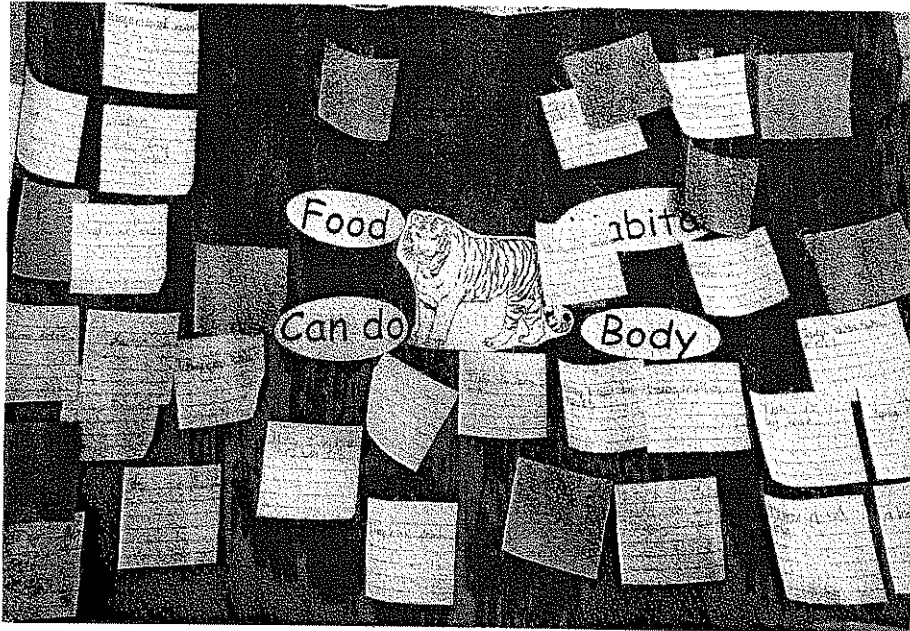


desert



mountain

Appendix 3 Brainstorming posters about animals



Panda was used for modeling





Appendix 4 Collaborative writing about their animal

Group three Date 7<sup>th</sup> April 2014

giraffe

giraffes have four long legs  
 They have very small ears.  
 They have long necks.  
 They can live in the savanna.  
 They eat leaves and grass.  
 They can drink water.  
 They can leap.

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Group four Date 7<sup>th</sup> April 2014

alligator

Alligators have small eyes.  
 They have long tail.  
 They have big mouth.  
 They have claws on sky.  
 They live in the water.  
 They eat meat.  
 They can swimming.  
 They can crawl.

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Appendix 5 Students' homework to find out more about their animal

Name: Tomy Lou

Date: 7<sup>th</sup> April 2019

Go home and find out more about your animal.

- 1) My animal is tiger
- 2) My animal eats meat
- 3) My animal lives in forest
- 4) My animal can hunt
- 5) Interesting facts about my animal: The mortality rate of tiger cubs is about 50% in the first two years.

Name: Gigi

Date: 7<sup>th</sup> April 2019

Go home and find out more about your animal.

- 1) My animal is alligator
- 2) My animal eats meat
- 3) My animal lives in river
- 4) My animal can crawl
- 5) Interesting facts about my animal: They have a four-chambered heart.

Name: Agnes Wong

Date: 7 April 2019

Go home and find out more about your animal.

- 1) My animal is Bird
- 2) My animal eats fruits
- 3) My animal lives in cave
- 4) My animal can fly
- 5) Interesting facts about my animal: Because eat ~~can~~ fly in the dark

Appendix 6 What I have learned

Name: Ellis Chih Date: 9<sup>th</sup> April

Write at least one thing you have learned in the class.

I have learned Some parrot species  
can live for over 80 years.

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Name: Terry Yau Date: 9<sup>th</sup> April, 2014

Write at least one thing you have learned in the class.

I have learned the mortality rate of tiger cubs  
is about 50% in the first two years.

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