

Part C: Project Details

1. Goals and Objectives

The project aims to enhance kindergarten teachers' professional capacity of developing school-based activities in teaching Chinese, English, and Mathematics effectively by adapting an inquiry approach through professional coaching and peer learning.

Objectives:

1. To improve kindergarten teachers' understanding of the key components of school-based inquiry learning and teaching
2. To coach kindergarten teachers to prepare school-based child-centered activities for teaching Chinese, English (as second language), and mathematical concepts
3. To enhance kindergarten teachers' skills in facilitating students' inquiry learning as in asking questions and discovering answers to the questions, being students' learning partners as well as helping students to be active learners
4. To provide interactive learning opportunities for kindergarten teachers to exchange and share the activities they design for teaching both within their schools and among schools in the community
5. To promote peer learning culture among kindergarten teachers and help schools to build a student-centered learning environment

2. Needs Assessment and Applicant's Capability

2.1 Needs Assessment:

According to a suggestion in LC Paper # CB(2)277/06-07(01) for the future development of pre-primary education in Hong Kong (Legislative Council Panel on Education of Hong Kong, 2006), all early childhood education teachers are required to complete at least a basic teacher training program at diploma level by the end of the 2011/12 school year. It implied that they have to complete about 360 hours of training in any early childhood education program recognized by the Education Bureau (EDB) or Social Welfare Department. Although the basic training program is a way to ensure teachers' professional capability, it is not in-depth enough for the teachers to fully understand and master the various pedagogical methods, more so in applying the methods to specific learning areas.

Inquiry learning is a constructivist approach developed from the West based on the belief that learners actively involve in the learning process. The approach mainly focuses on the process of asking meaningful questions and discovering possible answers which meet young children's cognitive development at the Intuitive Stage. It builds upon students' problem-solving attitude and habit that better equips them to take charge of their own learning (Audet, 2005). It has been adopted in the pre-school curriculum in Hong Kong for over ten years and most teachers might have learned its theoretical concepts and basic principles. Some might even have involved in the relevant trainings and projects supported by EDB and Quality Education Fund that introduced some pre-planned teaching units for teachers to follow and replicate. However, they might fail to effectively apply it if they did not personally involve in the lesson planning process. In fact, student-centered value and hands-on materials are two main elements to successful teaching design (Knodt, 2008). Replicating pre-planned teaching units may ensure the teaching process running smoothly, but have no advantages for the development of problem-solving skills, such as creativity. In addition, it also runs counter to the essence of inquiry learning: exploration and discovery. Moreover, Cheng (2006) documented three cases of in-service kindergarten teachers in the adaptation of Western constructive learning approaches. It had clearly revealed the need of a school-based program supported by the

collaboration of inquirers such as teachers and researchers in order to put theories into practice. Thus, it is better to provide a school-based training program in which professional consultants will coach the teachers to design their teaching plan in accord to their own school environment and conditions.

Furthermore, to implement the inquiry learning and teaching approach, teachers firstly have to possess such attitude and habit. However, most of these teachers themselves grew up in the education system that emphasized recitation would in turn do not encourage questioning and exploration. They also need to develop effective facilitation skills. Thus, it is better to provide a full training course for building teachers' professional capability of implementing this approach.

The present project will echo the need in providing an in-depth training on school-based inquiry learning and teaching for kindergarten teachers. The training course will focus on the design and implementation of activities in building young learners' foundation of two learning areas: Language (Chinese & English as a second language), and Early Mathematics. These two learning areas are very important for cognitive and language development. However, many preschool teachers claimed that they were weak in one of these two areas and thus they have been lacking of confidence in teaching them. In fact, the project is mainly designed to improve the teachers' professional capability for planning an integrated curriculum across different learning areas. It aims to empower the teachers not just to be answer providers but also to be more confident in facilitating students in asking questions and discovering answers. In addition, the development process of each unique school-based inquiry learning and teaching activity will provide valuable pedagogical implication on early childhood education.

2.2 Applicant's capability

The present project needs to be carried out by child development and educational specialists who have both academic and practical experiences in training and coaching teachers in the development of their own school model for school-based teaching modules.

The Center has rich experience in coordinating and collaborating with various stakeholders such as the school administration, teachers, students, and parents in many educational projects. It has been involved in projects related to enhancing effective learning and teaching for over ten years. The followings are some of the recent projects:

- The Incubation Model of Creativity Teaching and Learning in Languages for Gifted, Average, and Special Learners (funded by Quality Education Fund, 2006);
- Creativity in Learning and Teaching: A Channel Model in Primary School Curriculum (funded by Quality Education Fund, 2004);
- The Study on Learning and Teaching of Putonghua in Hong Kong Kindergarten (funded by Education & Manpower Bureau, 2003).

The Center has also carried out training projects on effective teaching methods including:

- Intermediate Course on Affective Education for Gifted Learners (funded by Hong Kong Academy for Gifted Education, 2009)
- Intermediate Course on Nurturing Gifted Learner on Leadership, Creativity and Critical Thinking (funded by Hong Kong Academy for Gifted Education, 2009)
- Advanced Course on Educating the Gifted Students - Teacher Training Programme on Educating Gifted Students on Leadership, Creativity and Critical Thinking (II) (funded by Education Bureau, 2007)
- Advanced Course on Educating the Gifted Students - Teacher Training Programme on Educating Gifted Students on Leadership, Creativity and Critical Thinking (I) (funded by Education Bureau, 2005)

Apart from the projects mentioned above, the Center has substantial experience in working with young children. In addition to a newly designed program "Super Junior" based on games that promote mathematical concepts of kindergarteners launched in April 2011, the followings are the representative projects on early childhood education:

- Evaluation Study of the Use of Storytelling Services in Building Parents' Confidence in Story-telling, Children's Creativity and Confidence, and Parent-Child Relationship (funded by Hans Andersen Club Limited, 2011)
- A Study on Teachers' and Parents' Perspective on Creativity Enhancement in Early Childhood Education (funded by Research Committee, HKBU, 2005)
- Creative Play Behaviors of Preschool Children in Hong Kong (funded by Area of Excellence, HKBU, 2001)

As for the three specialists, they had not only participated in the above mentioned projects, they have also coached a wide range of teachers, including those in early childhood education, to design and deliver lessons using different effective learning and teaching strategies for individual projects in their areas of expertise as well as in serving as curriculum consultant.

Given the Center's extensive background in conducting successful projects associated with effective learning and teaching and the specialists' professional knowledge and experience, this project team will certainly have the capacity to carry out the project proposal above.

3. Targets and Expected Number of Beneficiaries

3.1 Direct Beneficiaries:

Teachers from all kindergartens in Hong Kong are invited to attend the teacher training seminar and workshops on inquiry learning and teaching. It is expected to have about 450 teachers as participants. Eleven kindergartens are invited to join the project as partner schools. About 55 core teachers (5 teachers/school) engaged in coaching group will receive intensive training on designing and delivering inquiry learning activities. About 1,320 kindergarteners (120 students/school) will receive a series of school-based teaching modules for nurturing their inquiry-oriented learning attitudes and habits. In addition, about 55 assistant/other teachers in the 11 kindergartens (5 teachers/school) will also directly benefit by involving in the training of co-planning activities. Furthermore, about 2200 parents will also be directly benefited from attending the parent seminars. Towards the end of the project, a joint-school exhibition open to public will be hosted to showcase the teachers' and students' work. It is expected to have about another 500 participants.

3.2 Indirect Beneficiaries:

All publication materials, such as workshop/seminar videos, teachers' reflection and teaching manuals, will be distributed to all kindergartens (2118, according to figures provided by EDB) and educational agencies of early childhood. Lastly, the significant outcomes of the proposed project will be the convincing evidence to support that school-based inquiry learning and teaching should be considered as an essential topic of early childhood education.

4. Conceptual Framework

4.1 Early Childhood Development

In Hong Kong, most of the young children aged 3 to 6 years old at the stage of intuitive thought, learning vast amount of knowledge, are placed in kindergartens. The stage of intuitive thought is a sub-stage of pre-operational stage according to Piaget's cognitive development theory (Hill, Stremmel, & Fu, 2005). Furthermore, they tend to grow very curious and ask many questions that enable them to master the tasks and concepts through learning the primitive reasoning in exploring the relations between questions and the appropriate answers (Pulaski, 1980). Indeed, this kind of reasoning is an essential process for storing and retrieving information as well as cognitive adaptation, i.e. the process of assimilation and accommodation.

From the perspective of Erikson's theory of psychosocial development, these young children are at the stage of initiative vs guilt. They naturally develop a sense of being good if the activities they initiate produce desired results. Definitely they will be delighted by a sense of right in the process of solving problem. Initiative promotes children's autonomy and responsibility if their efforts are being encouraged and supported (Crain, 2011). Indeed, our young kids nowadays growing up in an environment surrounded by self-learned resources, such as electronic books, videos, and computer activities, are increasing their initiation of learning. Therefore, kindergarten teachers not only need to act as knowledge providers, but also as knowledge facilitators so as to encourage students to develop their thinking skills and self-directed learning skills.

In addition, according to the perspective of Vygotsky's Socio-Cultural Theory, kindergarten teachers of course serve as a "more knowledgeable other" to provide verbal instructions in the learning process and also facilitate cooperative/collaborative learning (Crain, 2011). The theory emphasized more on cultural influences and social contributions in cognitive development (Dimitriadis & Kamberelis, 2006; Hill, Stremmel, & Fu, 2005). Hence, school settings and teacher-student interaction definitely play an important role in developing children's memory strategy and higher mental functions. Through the dialogue with teachers such as question-and-answer interaction, children will naturally internalize the knowledge and the information processing style as their "inner speech" (Crain, 2011).

4.2 Inquiry Learning

Inquiry learning is one of the most effective approaches in the preparation of students as “Life-long Learners” and “Problem-solvers” in the future. Undoubtedly, it meets with individual needs of young children and better caters for students’ diverse needs in schools (Turner, 2008). It also implies that students are guided to ask “meaningful” questions and explore appropriate answers to the questions and then share their new knowledge through the educational process provided in school. In this process, the students will become independent inquiry learners in answering the questions formulated by their own-self, and become structured inquiry learners in answering the questions asked by others.

4.3 The Role of Teacher and Student

During the inquiry learning process, teachers act as knowledge facilitators in “working together with students to pursue their questions and ideas” (Hill, Stremmel, & Fu, 2005, p.44). They serve as learning partners of the students to demonstrate basic research skills, as in observation, reflection, speculation, questioning, and theorizing. Thus, in line with child-centered perspective, teachers need to follow the students’ leads and understand their teaching (Hill, Stremmel, & Fu, 2005) and students could be their own “teacher” in their quests. Furthermore, students should be treated as active learners involved in making decisions, questioning assumptions, and posing problems.

4.4 School/Classroom Environment and Curriculum

Inquiry learning needs to base on a student-centered learning environment in where the students can learn best and have a whole-person development. For a student-centered learning environment, it needs to possess the following major characteristics (British Columbia Ministry of Education, 2010):

- Enriched environment with multi-purpose materials and tools inviting and welcoming the involvement of students;
- Open and flexible settings giving various levels of stimulation for creativity and interaction;
- Protective and safe settings for children to engage all senses in exploration;
- Play oriented activities for children enjoying the inquiry process without fear;
- Supportive and thoughtful environment giving hints and prompts as well as providing explicit instructions

According to the general guideline of curriculum planning given by EDB (Curriculum Development Council of Hong Kong, 2006), the pre-primary curriculum is required to meet children’s developmental traits and characteristics. EDB suggested key components of the curriculum: developing children’s positive learning attitudes and good living habits based on child-centered approach. It leaves plenty of room for teachers to contribute their own ideas in accord with the school environment and conditions.

4.5 Early Childhood Education Program

Basically, current Early Childhood/Kindergarten Teacher Education Programs/Courses cover four domains: professional studies, subject studies, general education and field experience. Most of the modules mainly focus on subject knowledge and child development theories but only a few modules focus on training of teaching skills. In addition, most of the in-service teachers have realized that the Western

teaching approaches they learnt could not be directly adopted in their own school (Cheng, 2006). For eliminating teachers' frustration and providing the best learning setting for students, teachers need an advance training channel to become more capable to develop their own unique school-based inquiry learning and teaching practices with distinguished features.

5. Innovation

5.1 Combining school-based consultation and peer learning design

Consultants will coach the core teachers in planning school-based teaching activities that are rarely used in preschool teaching training. Internal and external sharings are built in to promote peer learning and sustainability of the project.

5.2 Integrating school-based inquiry learning and teaching in the target learning areas

In the proposed project, inquiry learning will be combined with the school conditions and curriculum in developing a unique series of teaching units. Inquiry learning is mostly applied in science learning. This is a pioneer project which focuses on language, second language, and mathematical concepts in early childhood education in one single project. In addition, it does not only focus on exploring questions but also emphasize on discovering appropriate answers. Teachers will develop school-based activities which may be quite different from the previous QEF projects that employed inquiry learning with stressed on the replication of the pre-planned activities.

From the project, teachers will acquire certain inquiry teaching and learning pedagogical strategies which can be applied to different learning areas including questioning, facilitating discussion as well as providing guidance and support to students in the process of discovering and finding answers. They will learn to engage students in different levels of inquiry such as open inquiry, guided inquiry, structured inquiry, and limited inquiry. These inquiry levels can be approached in a guided or unguided way. For the guided way (i.e. guided, structured, and limited inquiry), teachers provide the basic elements of the lesson to stimulate students making their own questions and allow students pursuing answers on their own methods. Teachers have known students' questions and answers in advance and need to reinforce students practicing inquiry skills and investigating answers. For the unguided way (i.e. open inquiry), teachers allow students to propose their questions and make generalizations which can be used to arouse students' interest in the teaching topic in any learning areas.

6. Extent of Teachers' and Principals' Involvement in the Project

6.1 Involvement of Core Teachers

The core teachers are expected to attend the intensive workshops and supervision sessions with subject consultants. They have to share their learning experiences with the assistant /other teachers in their own schools and also their teaching modules with teachers from other kindergartens.

6.2 Involvement of Assistant/Other Teachers

Assistant/other teachers of the school are invited to attend the workshops and joint school sharing. They are required to attend the in-school sharings to evaluate their peers.

6.3 Involvement of Principals

The principals are invited to take part in the workshops and supervision sessions as well as the in-school sharings and joint-school exhibition. They also need to encourage the teachers to attend the training sessions and also provide the necessary supports such as the arrangement of consultation sessions. For supporting parent seminar, they need to encourage and invite the parents to attend it.

7. Implementation Plan with Time-line

The lesson study model (Dudly, 2005) will be adopted in the implementation of this project. It is a professional development process in which a group of teachers work collaboratively and systematically examine their pedagogical practices to become more effective in teaching and learning. It involves joint planning, teaching, observing, and critiquing the lessons. To integrate inquiry teaching and learning in the curriculum across different learning areas, the 5 E instructional model will be used. It includes five phases of learning and begins with engage, then explore, explain, elaborate, and ends with evaluation. A brief introduction of the model is shown in the rating criteria indicated in Appendix I. As this is a school-based project, advice to the lesson design in different learning areas will be varied among the schools because the curriculum of each school may be different. The various approach, such as theme-based, project-based, or the spiral model, that different schools is using will be taken into consideration. The teachers will decide the topic and the learning area they would like to focus on, and the consultants will integrate the 5 E model into the lesson design for each individually school accordingly.

To prepare teacher to use school-based inquiry instruction, five steps of Short's (2003) inquiry learning process will be adopted in the present project.

1. Preparing inquiry starts from the core teachers will study the school theme, condition, and environment with consultants for reorganizing the classroom settings that facilitate inquiry learning across different learning areas. Meanwhile it will prepare teachers' readiness and openness in responding to questions and answers raised by students.

2. Developing an inquiry lesson plan, the core teachers will create a series of inquiry lesson plans in the coaching of consultants using the lesson study model as the next step of training process.

3. Practicing inquiry consists of teaching, revising, and then re-teaching the lesson. During the process, the core teachers will record the students' questions and answers related to other learning areas. By analyzing students' responses, teachers will understand students' interest and revise their teaching plan accordingly.

4. Deploying inquiry will be applied in the school implementation phase. Core teachers will prepare and teach inquiry lessons with the advice and assistance of their consultants.

5. Supporting inquiry teaching continues throughout the first and second phase of the proposed project by continuing contact between the core teachers and consultants.

The expected duration of the project will be 27 months.

Phase I – Preparation & Teacher Training (Mar. 2012 – Jul. 2012)

- Project team will visit the partner schools to meet with principals and core teachers, study the school environment and settings, and discuss the necessary arrangements for implementing the project.
- The project will invite an experienced trainer to conduct the seminar. All kindergarten teachers in Hong Kong will be invited to attend. The seminar will cover the key components and concepts of inquiry learning and teaching for school-based curriculum design so that the teachers can have a full understanding of the method.
- Concurrent workshops on the three learning areas will be conducted by consultants with maximum 50 teachers in each session. The workshops are open to all interested kindergarten teachers but priority will be given to the teachers of the partner schools. The consultants will demonstrate how to implement inquiry approach in teaching the particular learning area.
- Tools to evaluate the effectiveness of the project in terms of teachers' teaching style and students' behavioral changes will be designed, and pilot test will be conducted in the partner schools.
- The first progress report will be prepared.

Phase II – School Implementation (Aug. 2012 – Nov. 2013)

- There will be 3 rounds of individual supervision by consultants. Each partner school can choose the target grade, one of the three learning areas, and one unit from the curriculum for individual consultation. About 5 core teachers from each partner school participating in the consultation will be divided into two teams receiving supervision separately. Each team will have two co-planning sessions with the consultant. Under the consultant's supervision, they will learn to design inquiry-based teaching modules. Two observation sessions will be arranged for each of the co-planning team to present their newly designed activities with the presence of the consultant and assistant/other teachers in the same school. In the two observation sessions, the consultant will observe and comment the teachers' teaching performance. At the same time, questionnaires and self-reflection paper as well as self-assessment will be carried out.
- The second round of supervision will be run similarly to the first round. Each team will also have two co-planning sessions with the consultant. In this secondary stage, the consultant will be less directive and the core teachers should be able to have a better grasp of the concept.
- Similarly, two observation sessions will be arranged and perceived as in-school sharing sessions with the presence of assistant/other teachers in the same school and the consultants. In these two sharing

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sessions, the assistant/other teachers need to observe the core teachers and provide peer assessment on the teaching. In addition, they also need to assess students' learning attitude in the sessions.

- Each partner school with the assistance of the consultant will organize a parent seminar to introduce the key strategies of inquiry learning and report its effectiveness in this project.
- In the third round of supervision, each co-planning team will meet with the consultant one time to prepare teaching contents especially for the sharing in the joint school conference. With minimal supervision by the consultant, the core teachers are expected to be more capable and independent in planning teaching activities. Before the joint-school exhibition, the last observation session will be arranged, in which the consultant will give overall comment on the teachers' performance.
- The second and third progress reports will be prepared.

Phase III – Evaluation & Dissemination (Dec. 2013 – May 2014)

- In addition to the sharing workshops, the core teachers will share and present their teaching plan in a joint-school exhibition.
- The comments and suggestions on the teaching plans given by the participants of the exhibition will be collected to be used for analytical information to evaluate the overall effectiveness of the project.
- Students' work and data from various assessment tools will be compiled and analyzed.
- A collection of publications will be produced.
- A progress report and a final report will be prepared.

Proposed Time-line (month/ year)	Action Plan
Phase I – Preparation & Teacher Training	
Mar. 2012 – Jul. 2012	<p><i>Mar-May</i></p> <ul style="list-style-type: none"> ✓ School Visits ✓ Teacher Training Seminar and Workshop <ul style="list-style-type: none"> 1st session: a 1.5-hr seminar on inquiry learning and teaching 2nd session: a 2.5-hr workshop for each learning area (Chinese, English, and Mathematics) ✓ 1st Progress Report <p><i>Jun-July</i></p> <ul style="list-style-type: none"> ✓ Preparation of Evaluation Tools
Phase II – School Implementation	
Aug. 2012 – Nov. 2013	<p><i>Aug-Oct</i></p> <ul style="list-style-type: none"> ✓ 1st Round Individual Supervision by consultants <p><i>Nov 2012-Jan 2013</i></p> <ul style="list-style-type: none"> ✓ In-school Assessment on teacher and student performance ✓ Self-reflection/self-assessment ✓ 2nd Progress Report <p><i>Feb-Apr</i></p> <ul style="list-style-type: none"> ✓ 2nd Round Individual Supervision by consultants <p><i>May-Jul</i></p> <ul style="list-style-type: none"> ✓ In-school Sharing & Peer Assessment

	<ul style="list-style-type: none"> ✓ Parent Seminars ✓ 3rd Progress Report <p><i>Aug--Nov</i></p> <ul style="list-style-type: none"> ✓ 3rd Round Individual Supervision by consultants
Phase III – Evaluation & Dissemination	
Dec. 2013– May. 2014	<p><i>Dec-Feb</i></p> <ul style="list-style-type: none"> ✓ Joint-School Exhibition ✓ Conduct overall program evaluation ✓ 4th Progress Report <p><i>Mar-May</i></p> <ul style="list-style-type: none"> ✓ Compile students' work and assessment report from various sources ✓ Data analysis ✓ Final report ✓ Production of publications

8. Budget

Item	Year 1	Year 2	Year 3	Total
	03/12-02/13	03/13-02/14	03/14-05/14	
A. Staff Cost				1,128,600
- Project Associate (\$16,000 x 27 mths x 1.05)	201,600	201,600	50,400	
- Project Coordinator (\$24,000 + \$1000 x 27 mths)	300,000	300,000	75,000	
B. Equipment				15,500
- Digital camera \$2,500 x 2	5,000			
- Digital video camera \$4,500 x 2	9,000			
- Data storage	1,500			
C1. Services - Preparation & Teachers Training (Mar 2012 - Jul 2012)				28,350
- Traveling for school visit (2 staff x 11 schools x \$50)	1,100			
- Teacher training seminar & workshops - 4 hrs				
* Speaker for Seminar (1.5 hrs x \$800)	1,200			
* Speaker for Concurrent workshop (2.5 hrs x 3 workshops x \$800)	6,000			
- Student helper for recording and other logistics support (3 helpers x 5 hrs x \$50)	750			

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- Venue & Equipment	16,000			
- Material	2,500			
- Stationery	800			
C2. Services - School Implementation (Aug 2012 - Oct 2013)				403,150
- Traveling for co-planning & observation + evaluation (Consultant, Staff & Helper) (3 persons x 11 schools x 10 times x \$50)	6,600	9,900		
- Consultancy fee for co-planning & observation + evaluation (11 schools x 10 times x 4 hrs x \$800)	140,800	211,200		
- Student helper for video recording (11 schools x 10 times x 2.5 hrs x \$50)	5,500	8,250		
- Reference & class material (\$1000 x11 schools)	11,000			
- Parent seminar (\$600 x 1.5 hrs x11 schools)		9,900		
C3. Services - Evaluation & Dissemination (Dec 2013 - May 2014)				141,400
- Focus group interview (1.5 hrs, 1 staff & 1 helper)				
* Traveling (2 persons x 11 schools x \$50)		1,100		
* Student helper for video recording (11 schools x 2 hrs x \$50)		1,100		
* Student helper for transcription (11 schools x 10 hrs x \$50)		5,500		
- Assessment tools for teachers and students				
* Printing (pre & post, seminars, workshops, exhibition) (\$1 x 3,000 sets)	3,000	3,000		
* Student helper for data entry (pre & post, seminars, workshops, exhibition) (3,000 sets x \$50 / 8 sets)	18,750	18,750		
- Joint-school Exhibition				
* Venue & equipment		3,400		
* Material		3,600		

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* Student helper for video recording (4 hrs x \$50 x 2 persons)		200		
* Poster & postage for invitation		13,000		
- Publication				
* Manual & CD (design, editing & production) (1,000 copies)			50,000	
* Postage of publications & CD (\$20 x 2000 copies)			20,000	
Contingency	6,800	8,700	2,200	17,700
	737,900	799,200	197,600	1,734,700

Justification:

(i) A project coordinator and a project associate will be needed since the project will cover a wide scope of work, including teacher training seminar and workshops, school implementation, data collection and analysis, and compilation of reports and publication pamphlets. In particular, it is necessary to have two project staff to carry out concurrent sessions including school visits for lesson co-planning, observation, and evaluation as well as focus group interview.

The project coordinator will be responsible for overseeing and monitoring the whole project, liaising with collaboration partners (subject consultants, school principals and teachers), organizing various events (seminars, workshops, exhibition), preparing evaluation tools (questionnaire, scales, checklists), conducting data collection and analysis, compiling and preparing all reports and publications, as well as training student helpers. He/she should have attained master's degree with 4 to 5 years of research and frontline school experiences.

The project associate will be responsible for providing assistance in all the tasks mentioned above at all stages in addition to providing support to consultants and teachers, arranging and coordinating school visits and focus group interviews, liaising and supervising student helpers, and processing data. He/she should have attained master's degree or first degree with at least 2 years of research experience as he/she will need to conduct data collection such as observation and interview and data analysis independently as well.

(ii) It is necessary and essential for the purchase of 2 digital cameras and 2 digital video cameras for this project as it will produce a lot of photos and video recordings of all the lessons while the lessons will be conducted concurrently at different schools. The records will facilitate professional editing and analysis of teachers' and students' performance.

(iii) University professors, researchers and experienced teachers in inquiry learning and teaching will be invited to be speakers and facilitators of the training workshops for teachers. The rental of venue and audio-visual equipment on university campus, printing of training materials and stationery items are required for organizing the seminar and workshops.

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- (iv) University professors with teacher training expertise in early childhood education as well as learning areas of Chinese, English, and Mathematics will serve as subject consultants for the partner schools. They will provide a total of 3 rounds of individual supervision to the teachers. The first and second round of supervision includes 2 co-planning sessions and 2 lesson observation with evaluation sessions. The third round of supervision includes 1 co-planning session and 1 lesson observation with evaluation session. The project team will visit the schools regularly. The traveling expenses are estimated at \$50 round trip.
- (v) All the training workshops, supervised lessons, and exhibition will be videotaped in order to produce a CD-ROM or VCD to be shared with other teachers as well as to conduct analysis on the performance of teachers and students. The video recording editing as well as photography will be carried out by university students. Their assistance is also needed in the facilitation of various events, data collection, and data processing such as transcribing interviews and data entry.
- (vi) In each term, each school will be provided with a lump sum for purchasing resource books and multi-media materials on inquiry learning and the specific learning areas for facilitating curriculum design as well as materials for delivery of the class activities.
- (vii) This project will support each school to host a parent seminar towards the end of the second school term. A lump sum is provided to each school to cover the cost of speaker's honorarium and any other miscellaneous expense.
- (viii) For conducting project evaluation, printing cost of the questionnaires and scales to be completed by teachers and students is standard items. Since focus group interviews will be conducted as well, cost for traveling and transcription is necessary.
- (ix) For dissemination purposes, a joint-school exhibition at the University will be organized to encourage sharing and exchange of experience and good practices with other schools. This will involve material cost and venue charge by the University. In addition, the production and design cost of the publications and CD as well as postage for mailing the products are standard items if deliverables are to be produced and disseminated.

9. Asset Usage Plan

The Grantee should plan the deployment of assets that cost \$1,000 or more per item upon project completion.

Category	Item / Description	No. of Units	Total Cost	Proposed Plan for Deployment & Justification(s)
Audio and Video Equipment	Digital camera	2	\$5,000	<i>They will be kept at Center for Child Development, Hong Kong Baptist University. The Center will use them in future educational projects that involve schools of secondary level or below for capturing and recording various concurrent events such as the teacher training workshops, lessons, parent seminars, and joint-school sharings. The records will facilitate professional editing for dissemination and</i>
	Digital video camera	2	\$9,000	

				<i>analysis of teachers' and students' performance.</i>
Computer Hardware	Data storage device	1	\$1,500	<i>It will be kept at Center for Child Development, Hong Kong Baptist University. The Center will use them in future educational projects that involve schools of secondary level or below for the storage of documents, photographs and video clips from the projects.</i>

10. Report Submission Schedule

The grantee commits to submit proper reports in strict accordance with the following schedule :

Project Management		Financial Management	
Type of Report and Covering Period	Report Due Day	Type of Report and Covering Period	Report Due Day
Progress Report 1/3/2012 - 31/8/2012	30/9/2012	Interim Financial Report 1/3/2012 - 31/8/2012	30/9/2012
Progress Report 1/9/2012 - 28/2/2013	31/3/2013	Interim Financial Report 1/9/2012 - 28/2/2013	31/3/2013
Progress Report 1/3/2013 - 31/8/2013	30/9/2013	Interim Financial Report 1/3/2013 - 31/8/2013	30/9/2013
Progress Report 1/9/2013 - 28/2/2014	31/3/2014	Interim Financial Report 1/9/2013 - 28/2/2014	31/3/2014
Final Report 1/3/2012 - 31/5/2014	31/8/2014	Final Financial Report 1/3/2014 - 31/5/2014	31/8/2014

11. Evaluation Parameters and Method

11.1 In-school Assessment

It will focus on teachers' teaching performance and students' learning performance. For the teaching performance, the core teachers will be asked to write a self-reflection paper to record and discuss the learning process in the consultation sessions and the difficulties in planning school-based inquiry learning activities as well as the ways to overcome the difficulties. They are required to fill-out the self-rated questionnaires to measure their instructional self-efficacy (Bandura, 1994). Furthermore, for peer evaluation, teaching assistants will be invited in a focus group interview to discuss and comment on the teaching effects.

For assessing students' learning performance, the assistant/other teachers will be asked to observe and rate students' capability on questioning and providing answers. According to the three types of scientific questions (experimental, observational, and research) proposed by White & Fitzsimmons (2005), video recordings of the observation sessions will be analyzed by project researcher to study the improvement of

students' questioning styles. Students' attitude change in learning by effect of the inquiry-based teaching modules will be measured. The results provide in-depth understanding on the effect of inquiry learning approach in early childhood education.

In brief, The 5 E model of inquiry learning will be adopted as a framework for designing measuring tools in the proposal project. The rough examples of measuring tools for teacher and student can be seen in Appendix I.

11.2 Overall program evaluation

Principals of the partner schools will be invited to fill-out a program evaluation form that focuses on administration and operation of the project. In addition, through the kindergartens, parents will be invited to provide objective judgment on the effectiveness of the project. Other early childhood educators and parents attending the joint school event will be invited to evaluate the project design and the outcomes reported in the events.

12. Expected Deliverables and Outcomes

A series of events will be hosted including a teacher seminar, 3 teaching workshops, 11 in-school sharings, 11 parent seminars, and a joint-school exhibition. A collection of publications will be produced and sent to all kindergartens. Teaching plans, teachers' reflection paper and sharing, and students' products will be compiled. Classroom demonstration and program experience will be videotaped and recorded in a CD-ROM.

13. Sustainability of the Outcomes of the Project

13.1 Co-planning team

One or two co-planning teams will be established in each partner school by the assistance of the project team. The co-planning team should independently operate to implement inquiry learning approach on new topic or subject after the project is completed. This kind of cooperation will serve as a model for other teachers to facilitate peer learning culture in the schools.

13.2 Early childhood education program

The project will provide valuable pedagogical implication on early childhood education and evidence that the school-based inquiry teaching activities can improve students' learning. Thus, the publications and videotape recordings can be used in teacher training courses of early childhood education as reference.

14. Dissemination

Details of the project and students' performance will be presented at a joint school exhibition and sharing workshops at the end of the project. Follow-up teachers' or parents' seminars will be held if needs

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arise. Further information of the project will be released on press interviews and web publication. Project result and experience will also be presented in local and international conferences.

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Name of Observer: _____ Date: _____ Time: _____

Topic: _____ Class: _____

Please tick in the boxes for the number of questions asked by teacher in each category.

Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Engagement																				
Total:																				
Exploration																				
Total:																				
Explanation																				
Total:																				
Extension																				
Total:																				
Evaluation																				
Total:																				
Overall:																				

Rating criteria

Engagement: Teacher raises questions to arouse students’ interest or to identify misconceptions in students’ understanding.

Exploration: Questions asked by teacher facilitate students to question/challenge their observations and discuss their predictions or alternatives.

Explanation: Questions encourage students to explain concepts in their own words and clarify their ideas.

Extension: Questions stimulate students to apply concepts and skills in new (but similar) situations and use formal labels and definitions.

Evaluation: Questions stimulate students to assess their own answers and encourage them to look for answers that use observation, evidence, and previously accepted explanations.

Responses by students

<u>Category</u>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Yes/No answers																					
Total:																					
Responded teacher's questions with an answer																					
Total:																					
Responded teacher's questions with a question																					
Total:																					
Responded classmates' questions with an answer																					
Total:																					
Responded classmates' questions with a question																					
Total:																					
Overall:																					