

**Final Report of Project**

**Project No. : 2009/0539**

**Part A**

Project Title: Developing Curriculum Leadership with Holistic Curriculum Planning in Science KLA under the New Senior Secondary context

Name of Organization/School: HK Association for Science & Mathematics Education Limited

Project Period: From 01/05/2011 to 30/11/2012

**Part B**

*Please read the **Guidelines to Completion of Final Report of Quality Education Fund Projects** before completing this part of the report.*

Please use separate A4-size sheets to provide an overall report with regard to the following aspects:

1. Attainment of objectives
2. Project impact on learning effectiveness, professional development and school development
3. Cost-effectiveness – a self-evaluation against clear indicators and measures
4. Deliverables and modes of dissemination; responses to dissemination
5. Activity list
6. Difficulties encountered and solutions adopted

*\* Final Report of Project prior to the 8<sup>th</sup> call should be signed by the supervisor of the school/the head of the organization or the one who signed the Quality Education Fund Agreement for allocation of grant on behalf of the organization.*

*\* Final Report of Project under the 8<sup>th</sup> and subsequent calls should be submitted via “Electronic Project Management System” (EPMS). Once submitted, these reports are regarded as already endorsed by the supervisor of the school/the head of the organization or the one who signed the Quality Education Fund Agreement for allocation of grant on behalf of the organization.*

*This form/guidelines can be downloaded from the QEF webpage at <http://qef.org.hk>.*

## 1. Attainment of Objectives

The aims of this project are to develop curriculum leadership in schools and enhance school-based holistic curriculum development (HCD). With the support of five participant schools<sup>1</sup>, the aims of this project have been satisfactory achieved. The table below lists out the five objectives stated in the proposal and the attainment of each objective.

Objective statement	Activities related to the objective	Extent of attainment of the objective	Evidence or indicators of having achieved the objective	Reasons for not being able to achieve the objective, if applicable
Develop optimum school-based curricula to cultivate science literacy for students	13 school-based planning meetings to discuss curriculum plans, action plans and implementation schedules; 49 implementation meetings to discuss and evaluate the action plans of the participant schools	Fully achieved	Five school-based curricula have been developed.	
Enhance the professional capacity of science development in schools including teachers' understanding of other science curricula beyond their original specialized subject	13 school-based planning meetings; 4 training meetings for teachers to learn about new IT teaching strategies	90% attained	Teachers from different Science (Physics, Chemistry and Biology) subjects shared their ideas and contributed their knowledge to the development of curriculum plan. Teachers from different science subjects learned some new IT teaching strategies from professionals.	Not all the Science teachers in a school involved in the development of curriculum plan
Develop school-based exemplars regarding the strategies to enhance collaboration amongst teachers for promoting science education	49 implementation meetings; 9 preparatory meetings to discuss the details of the dissemination seminars	85% attained	School-based exemplars including lesson episodes, meeting documents, worksheets have been developed.	Not all the schools providing collaborative platforms (e.g. lesson planning periods), therefore only some schools can provide insight on strategies to enhance collaboration
Develop teacher network with the focus on curriculum leadership and collaborative culture	3 steering committee meetings to discuss project outcomes; 5 working group meetings to discuss progress of the participant schools	Fully achieved	Teachers representing the five schools participated in these meetings to share their learning in this project and listen to comments from professionals	

<sup>1</sup> The five participant schools are: Pentecostal School (PS), Po Leung Kuk Yao Ling Sun College, (PLKYLSSC), Assembly of God Hebron Secondary School (AOGHSS), Ma On Shan St. Joseph's Secondary School (MOSSJSS) and Po Kok Secondary School (PKSS).

Disseminate the messages and practical knowledge regarding collaboration amongst science teachers under the NSS context and good practices developed in this project	3 dissemination seminars to share project experience of the participant schools	Fully achieved	Three dissemination seminars were held within the project period. Three journal papers were produced to report school experiences.	
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## 2. Project Impact

### 2.1 Project impact on five collaborating schools

One of the major impacts of this project is to enhance collaboration within science department and with other subjects. As observed in Pentecostal School, teachers of different science disciplines including Physics, Chemistry and Biology came together to contribute their knowledge and ideas on S1 Science curriculum plan. This exercise provides science teachers with an opportunity to discuss the interface between junior and senior secondary science curriculum. In Ma On Shan St. Joseph's Secondary School, a school-based activity named StudyBlocks<sup>2</sup> was marked on school calendar. Teachers of difference subjects (e.g. English, Mathematics and PE teachers) had a chance to plan and implement the activities together. This kind of collaboration is expected in New Senior Secondary Curriculum but does not naturally found in local secondary schools. Through joining this project, participating schools began to develop their school collaborative culture at department and school levels

Another major impact of this project is to increase teachers' knowledge of holistic curriculum development (HCD). With regular school-based meetings with project consultants in some participating schools, the KLA coordinators as well as teachers could learn from consultants how to design school-based curriculum plan which could suit their students' need. The working group meetings and steering committee meetings organized for this project also provided ample opportunities for KLA coordinators/teachers to learn from other schools, EDB staffs and academics.

From the student feedbacks<sup>3</sup> of the participating schools, we noticed that the students were also benefited from this project. Through re-structuring the S1 Science curriculum of Pentecostal School, the learning objectives of the curriculum became more prominent. Students were found to improve their science process skills as well as their capability to learn science with English<sup>4</sup> as the medium of instruction. From the interview data of the students in Ma On Shan St. Joseph's Secondary School, students responded that they have more opportunities to conduct science investigation in StudyBlocks than normal science lessons and had increase their interest in learning science. The questionnaire feedbacks from students of AOG Hebron Secondary School further showed that after participating in the online learning platform developed for this project (Hebron Science Quest), students were more willing to ask questions related to science and again enhance their interest in learning science.

<sup>2</sup> The StudyBocks refer to whole day activities specifically arrange in school curriculum to facilitate the learning of KLAs.

<sup>3</sup> Student feedbacks include responses from student questionnaires and interview, results of pre- and post-tests, results of school examination.

<sup>4</sup> The findings were reported in the dissemination seminars.

## 2.2. Project impact on education community

The notion of Holistic Curriculum Development (HCD) has been highlighted recently to emphasize the significance of curriculum planning across junior and secondary levels.

With the experience of working with five schools, four models of promoting HCD have been observed. They are:

1. Re-arranging the curriculum content with emphasis on the learning objectives (e.g. in Pentecostal School, the S1 Science lesson time is arranged into double lessons for the learning of science process skills);
2. Infusing the goal of developing science process skills into the existing curriculum (e.g. in PLK Yao Ling Sun College, learning activities were specifically designed to teach science process skills in daily science lessons);
3. Isolating specific time slots in the school calendar for the development of science process skills (e.g. in Ma On Shan St. Joseph's Secondary School, Science StudyBlock is arranged in every year); and
4. Extending the learning of science using online learning platform (e.g. in AOG Hebron Secondary School, Hebron Science Quest was developed to promote students' interest in learning science).

Through detailed study of the five participant schools, four success factors for HCD have also been proposed. The four factors are:

1. School administration – the school investment of manpower and curriculum space to facilitate HCD;
2. School colleagues – the support of KLA coordinator and school teachers to the development of HCD;
3. Tools – the curriculum framework and curriculum materials developed to facilitate professional dialogue and promote the sustainability of HCD; and
4. External agents – the support of professional consultants and the opportunity to network with other schools.

## **3. Cost-effectiveness**

### Staff Cost

One full time project liaison officer was recruited for the project. She was able to manage the project, assisted project manager and facilitated project consultants in meetings and seminars. With her help, 3 dissemination seminars, 3 journal papers and 5 curriculum plans with supporting curriculum materials were developed with good quality.

### Equipment & miscellaneous

The equipment (e.g. computer, printer) bought for this project has been fully utilized to produce the deliverable for this project. However, as this project did not ask for General Expenses in the budget of proposal. The General Expenses items (e.g. printing paper, stationery) were put in this category.

### Services

Most of services budget was used for consultancy services and school services. The project consultants provided on-site intensive support which led to the production of quality case reports and curriculum materials. Other than recruiting school consultants, the budget of school services had been used by some schools to recruit research assistants. The schools reported that the assistants had facilitated the development of curriculum plans and lessened

the workload of Science KLA coordinators.

The table below is the budget checklist to show the cost-effectiveness of this project.

Budget Items (Based on Schedule II of Agreement)	Approved Budget (a)	Actual Expense (b)	Change  (b)-(a) /(a) +/- %
Staff Cost	\$253,300.00	\$252,000.00	- 0.51%
Equipment	\$20,500.00	\$29,574.30 <sup>5</sup>	+ 44.26%
Services	\$790,600.00	\$797,414.65 <sup>6</sup>	+ 0.86%
Contingency	\$20,000.00	\$9,074.30	- 54.63%

#### Other funding source

As some of the items such as staff insurance and travelling expenses were not included in the original budget, the project's applicant (Hong Kong Association for Science and Mathematics Education) had provided additional financial support to this project.

#### Sustainability of the learning programme and materials developed

The fruitful experience of this project had been reported in 3 dissemination seminars. Participants attending the seminars received samples of curriculum materials developed in this project. Every participant attending the last seminar in addition received a hard copy of the *Hong Kong Science Teachers' Journal*. In which, three journal papers related to this project were included. We counted that the participants including the teachers in the 5 participating schools (more than 440 local science teachers) were benefited from our project experience.

Although the financial input of this kind of school-based project is over one million Hong Kong dollars, we found that both the participating school teachers and students were greatly benefited from this project. Sharing of participating school experience in dissemination seminars has also drawn other teachers' attention to the significance of HCD. The school cases reported in journal have further highlighted the pivotal factors of HCD. As the knowledge of HCD is consolidated and curriculum materials are ready, we are confident that the experience and materials generated from this project will inform the future development of school science curriculum management. . To further promote the goal of HCD, we suggest this kind of school-based projects with intensive on-site support should be continued and extended to more local schools.

#### **4. Deliverables and Modes of Dissemination**

The project was extended for one month to 30 November 2012. Within this one month, the last dissemination seminar was conducted. Similar to the two seminars conducted previously, positive feedbacks were received. The table that follows is a summary of the evaluation data of the final seminar.

<sup>5</sup> Some of the actual expense is paid by contingency and other funding source.

<sup>6</sup> Some of the actual expense is paid by other funding source.



<b>Part A</b>	<b>Mean<sup>7</sup></b>
The objective(s) of the event was/ were achieved.	4.2
The content was relevant to the subject area of the event.	4.2
The knowledge gained could be applied to my work.	4.1
The speaker(s)/facilitator(s) was/were effective.	4.2
Overall, I was satisfied with the event.	4.2
<b>Part B</b>	
Most useful/most impressive part of this event:	
<ul style="list-style-type: none"> <li>- Extending learning beyond schools - via Internet</li> <li>- Discuz forum</li> <li>- Use IT in L&amp;T, integrating curriculum</li> <li>- Hebron Science Quest</li> <li>- Science Quest/ St. Joseph's School Science Day</li> </ul>	
Suggested activities for future event of this type:	
<ul style="list-style-type: none"> <li>- How to integrated HCD (implementation)</li> <li>- 建議局方也提議一些方案做到 HCD 或加入英語教學例子</li> </ul>	
Other comments or suggestions:	
<ul style="list-style-type: none"> <li>- 希望今天分享的內容可放上網分享給大家</li> </ul>	

To evaluate the project as a whole, a table showing the dissemination value of the project deliverables is presented below.

Item description (e.g. type, title, quantity, etc.)	Evaluation of the quality and dissemination value of the item	Dissemination activities conducted (e.g. mode, date, etc.) and responses	Is it worthwhile and feasible for the item to be widely disseminated by the QEF? If yes, please suggest the mode(s) of dissemination.
Five School-based Holistic Curriculum Plan in Science KLA	The school-based curriculum plans can be applicable to other schools. But, modification/ adaptation of the plans are required.	Complied to a file, will send to QEF with this final report	Yes, but teacher professional development workshops/ school-based support are needed.
Curriculum materials to promote science learning in schools	The curriculum materials can be used in other schools with modification.	Distributed the curriculum materials to 324 participants at 2 dissemination seminars on 21/6/2012 and 2/11/2012; received positive responses from teachers in the seminars <sup>8</sup>	Yes, but teacher professional development workshops/ school-based support are needed to discuss the rationales of the design.
Cases of the school experiences regarding the development of collaborative culture and curriculum leadership	The school cases reported four factors which support school-based curriculum development. A good reference to curriculum developers and KLA coordinator on how to implement school-based curriculum development.	Complied the school cases into three journal papers and reported in <i>Hong Kong Science Teachers' Journal</i> ; distributed the schools cases to 108 participants on 2/11/2012; received positive responses from teachers in the seminars <sup>9</sup>	Yes, as journal papers disseminated to schools.

<sup>7</sup> 1 (strongly disagree) → 5 (strongly agree)

<sup>8</sup> The questionnaire data have been attached with previous progress reports.

<sup>9</sup> The questionnaire data is described in this report.



3 teacher training seminars to disseminate the experiences, knowledge and materials generated from this project	The teacher training seminars shared the 18-month experience of developing school-based curricula. Different modes of school-based curriculum strategies were introduced. This can broaden participants' knowledge of different types of curriculum planning.	3 seminars on 15/6/2012, 21/6/2012 and 2/11/2012, more than 430 participants participated in the 3 seminars received positive responses from teachers in the seminars	Yes, repeated seminars can be conducted.
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A foremost element contributing to the success of this project is the collaboration of different professional bodies. This project established a close link with local schools, local education association, governmental department and tertiary universities. The working group meetings, steering committee meetings and dissemination seminars served as platforms for different parties to share their ideas and contribute their knowledge to curriculum planning. This kind of close connection between frontline teachers and other professional groups is seldom observed and is found to be crucial to promote HCD.

## 5. Activity List

Within the 18-month project period, there are in total:

- 13 school-based Planning Meetings with participant schools to analyse situations, discuss curriculum plans, action plans as well as implementation schedules;
- 2 Training Meetings for schools to learn about new teaching strategies;
- 3 Steering Committee Meeting to discuss project outcome;
- 5 Working Group Meetings to discuss progress of the participant schools;
- 8 Consultancy Meetings to discuss issues such as teacher professional development strategies, case writing;
- 49 Implementation Meetings to discuss and evaluate the actual implementation of the project in participant schools;
- 8 Lesson Observations regarding the implementation of the project activities in classrooms;
- 2 School-based Activity regarding the implementation of the project activities in schools; and
- 9 Preparatory Meetings to discuss the details of the dissemination seminars;
- 5 Teacher Interviews to collect teachers' feedback on the development of curriculum leadership;
- 3 Student Interviews to collect feedbacks on project activities;
- 3 Dissemination Seminars to share project experience of participant schools.

Particulars of activities conducted during the project period are reported below.

Types of activities	Brief description	No. of participants				Feedback from participants
		schools	teachers	students	others	
Planning Meeting	2/6/2011, Pentecostal School	1	1		1 consultant, 1 staff	--
Planning Meeting	3/6/2011, PLK Yao Ling Sun College	1	1		1 consultant, 1 staff	--



Types of activities	Brief description	No. of participants				Feedback from participants
		schools	teachers	students	others	
Planning Meeting	3/6/2011, AOG Hebron Secondary School	1	5		1 consultant, 1 staff	--
Planning Meeting	9/6/2011, Ma On Shan St. Joseph's Secondary School	1	1		1 consultant, 1 staff	--
Planning Meeting	9/6/2011, Po Kok Secondary School	1	1		1 consultant, 1 staff	--
Steering Committee Meeting	15/6/2011, EDB Kowloon Tong Education Services Centre	4	6		1 consultants, 1 academic, 3 EDB staffs, 1 staff	--
Planning Meeting	29/6/2011, PLK Yao Ling Sun College	1	6		1 consultant, 1 staff	--
Planning Meeting	6/7/2011, Pentecostal School	1	2		1 consultant, 1 staff	--
Training Meeting	21/7/2011, Office of Broad Learning Education in Kwun Tong	1	2		2 consultants, 1 staff	Teachers found E-class platform useful and were benefited from the training meeting.
Planning Meeting	22/8/2011, Pentecostal School	1	3		1 consultant, 1 staff	--
Planning Meeting	26/8/2011, AOG Hebron Secondary School	1	5		1 consultant, 1 staff	--
Planning Meeting	29/8/2011, PLK Yao Ling Sun College	1	1		1 consultant, 1 staff	--
Implementation Meeting	15/9/2011, Pentecostal School	1	4		2 consultants, 1 staff	--
Consultancy Meeting	15/9/2011, The Chinese University of Hong Kong				3 consultants, 1 staff	--
Implementation Meeting	23/9/2011, Pentecostal School	1	4		1 consultant, 1 staff	--
Training Meeting	30/9/2011, Office of Broad Learning Education in Kwun Tong	1	3		1 consultant, 1 staff	Teachers found E-class platform useful and were benefited from the training meeting.
Implementation Meeting	3/10/2011, Pentecostal School	1	4		1 consultant, 1 staff	--
Planning Meeting	7/10/2011, PLK Yao Ling Sun College	1	1		1 consultant, 1 staff	--
Planning Meeting	10/10/2011, AOG Hebron Secondary School	1	1		1 consultant, 1 staff	--
Implementation Meeting	12/10/2011, Pentecostal School	1	4		1 consultant, 1 staff	--



Types of activities	Brief description	No. of participants				Feedback from participants
		schools	teachers	students	others	
Planning Meeting	17/10/2011, AOG Hebron Secondary School	1	3		1 consultant, 1 staff	--
Consultancy Meeting	19/10/2011, EDB Kowloon Tong Education Services Centre				3 consultants, 1 staff	--
Working group meeting	19/10/2011, EDB Kowloon Tong Education Services Centre	3	6		1 consultant, 1 academic, 2 EDB staffs, 1 staff	--
Implementation Meeting	20/10/2011, Pentecostal School	1	4		1 consultant, 1 staff	--
Implementation Meeting	28/10/2011, Pentecostal School	1	4		1 consultant, 1 staff	--
Consultancy Meeting	1/11/2011, EDB Kowloon Tong Education Services Centre				2 consultants, 1 staff	--
Training Meeting	2/11/2011, Office of Broad Learning Education in Kwun Tong	1	3		2 consultants, 1 staff	Teachers found E-class platform useful and were benefited from the training meeting.
Implementation Meeting	8/11/2011, Pentecostal School	1	4		1 consultant, 1 staff	--
Implementation Meeting	14/11/2011, PLK Yao Ling Sun College	1	1		1 consultant, 1 staff	--
Implementation Meeting	15/11/2011, Ma On Shan St. Joseph's Secondary School	1	4		1 consultant, 1 staff	--
Training Meeting	15/11/2011, Office of Broad Learning Education in Kwun Tong	1	3		2 consultants, 1 staff	Teachers found E-class platform useful and were benefited from the training meeting.
Implementation Meeting	16/11/2011, Pentecostal School	1	4		1 consultant, 1 staff	--
Lesson Observation	24/11/2011, Pentecostal School	1	1		1 consultant, 1 staff	--
Implementation Meeting	24/11/2011, Ma On Shan St. Joseph's Secondary School	1	3		1 consultant, 1 staff	--
Implementation Meeting	24/11/2011, Assembly of God Hebron Secondary School	1	4		1 consultant, 1 staff	--
Lesson Observation	29/11/2011, Pentecostal School	1			1 consultant, 1 staff	--
Implementation Meeting	29/11/2011, Pentecostal School	1	4		1 consultant, 1 staff	--



Types of activities	Brief description	No. of participants				Feedback from participants
		schools	teachers	students	others	
School-based Activity	2/12/2011, Ma On Shan St. Joseph's Secondary School	1	12	156	1 consultant, 1 staff	Students found the school-based activity (Science investigation) interesting and would like to have more chances to conduct similar activities again.
Implementation Meeting	8/12/2011, Pentecostal School	1	4		1 consultant, 1 staff	--
Implementation Meeting	14/12/2011, Pentecostal School	1	4		1 consultant, 1 staff	--
Steering Committee Meeting	14/12/2011, EDB Kowloon Tong Education Services Centre	4	6		3 consultants, 2 EDB staffs, 1 staff	--
Implementation Meeting	19/12/2011, PLK Yao Ling Sun College	1	1		1 consultant, 1 staff	--
Lesson Observation	20/12/2011, Pentecostal School	1	3		1 consultant, 1 staff	--
Implementation Meeting	6/1/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Implementation Meeting	13/1/2012, AOG Hebron Secondary School	1	6		1 consultant, 1 staff	--
Implementation Meeting	16/1/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Implementation Meeting	18/1/2012, PLK Yao Ling Sun College	1	1		1 consultant, 1 staff	--
Implementation Meeting	2/2/2012, Pentecostal School	1	5		1 staff	--
Implementation Meeting	10/2/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Implementation Meeting	21/2/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Preparatory Meeting	23/2/2012, EDB Kowloon Tong Education Services Centre	1	2		1 consultant, 1 staff	--
Consultancy Meeting	23/2/2012, EDB Kowloon Tong Education Services Centre				3 consultants	--
Implementation Meeting	1/3/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Implementation Meeting	9/3/2012, Pentecostal School	1	4		2 consultants, 1 staff	--
Implementation Meeting	19/3/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Implementation Meeting	19/3/2012, Po Kok Secondary School	1	1		1 consultant, 1 staff	--
Implementation Meeting	21/3/2012, AOG Hebron Secondary School	1	5		2 consultants, 1 staff	--



Types of activities	Brief description	No. of participants				Feedback from participants
		schools	teachers	students	others	
Implementation Meeting	27/3/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Working Group Meeting	30/3/2012, EDB Kowloon Tong Education Services Centre	5	5		1 consultant, 1 EDB staff, 1 staff	--
Lesson Observation	18/4/2012, Po Leung Kuk Yao Ling Sun College	1	2		1 consultant	--
Implementation Meeting	20/4/2012, Pentecostal School	1	4		1 staff	--
Preparatory Meeting	24/4/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Implementation Meeting	30/4/2012, Pentecostal School	1	4		1 staff	--
Implementation Meeting	2/5/2012, Ma On Shan St. Joseph's Secondary School	1	5		1 consultant, 1 staff	--
Lesson Observation	4/5/2012, Pentecostal School	1	2		2 consultants, 1 staff	--
Lesson Observation	8/5/2012, Pentecostal School	1	2		1 consultant, 1 staff	--
Implementation Meeting	9/5/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Preparatory Meeting	14/5/2012, Pentecostal School	1	3		1 consultant, 1 staff	--
Implementation Meeting	17/5/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Consultancy Meeting	18/5/2012, HKASME office				3 consultants	--
Consultancy Meeting	22/5/2012, HKASME office				3 consultants, 1 staff	--
Implementation Meeting	23/5/2012, AOG Hebron Secondary School	1	5		1 consultant, 1 staff	--
Implementation Meeting	25/5/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
School-based Activity	25/5/2012, Ma On Shan St. Joseph's Secondary School	1	12	154	1 consultant, 1 staff	Students enjoyed the school-based activity (science investigation) and would like to have more chances to conduct similar activity again.
Student interview	25/5/2012, Ma On Shan St. Joseph's Secondary School	1		8	1 staff	Same as above
Implementation Meeting	4/6/2012, PLK Yao Ling Sun College	1	2		1 staff	--
Lesson Observation	4/6/2012, PLK Yao Ling Sun College	1	1		1 consultant	--



Types of activities	Brief description	No. of participants				Feedback from participants
		schools	teachers	students	others	
Student Interview	5/6/2012, AOG Hebron Secondary School	1		8	1 consultant, 1 staff	Students found the online learning platform can enhance their knowledge of science. They are more willing to ask science related questions. Students also reported increase in interest in learning science after participating in the online platform.
Implementation Meeting	7/6/2012, Pentecostal School	1	4		2 consultants, 1 staff	--
Student Interview	7/6/2012, AOG Hebron Secondary School	1		14	1 consultant, 1 staff	Same as above
Teacher Interview	12/6/2012, AOG Hebron Secondary School	1	3		1 consultant, 1 staff	Teachers found worth-while of designing such an online learning platform. Teachers would like to continue running the platform after this QEF project.
Teacher Interview	13/6/2012, AOG Hebron Secondary School	1	2		1 consultant, 1 staff	Feedback from the Vice Principal of AOG Hebron Secondary School: Through developing the Hebron Science Quest, the collaboration of teachers of different science subjects could be enhanced.
Teacher Interview	14/6/2012, AOG Hebron Secondary School	1	3		1 consultant, 1 staff	Feedback from the KLA coordinator: This project can strengthen my ability of organizing projects in the science department.
Preparatory Meeting	15/6/2012, Pentecostal School	1	3		1 consultant, 1 staff	--
Consultancy Meeting	15/6/2012, HKASME office				3 consultants, 1 staff	--

Types of activities	Brief description	No. of participants				Feedback from participants
		schools	teachers	students	others	
Dissemination seminar	15/6/2012, United Christian College (Kowloon East)	13	18		1 consultant, 1 staff	Positive feedbacks were received from the participants. <sup>10</sup>
Preparatory Meeting	18/6/2012, Pentecostal School	1	3		1 consultant, 1 staff	--
Preparatory Meeting	20/6/2012, Pentecostal School	1	3		1 consultant, 1 staff	--
Dissemination seminar	21/6/2012, EDB Kowloon Tong Education Services Centre	150	216		3 consultants, 1 staff	Positive feedbacks were received from the participants. <sup>11</sup>
Lesson observation	22/6/2012, Pentecostal School	1	3		1 consultants, 1 staff	--
Teacher Interview	27/6/2012, Pentecostal School	1	2		1 staff	Teachers of Pentecostal School found this project is worth conducting. The project could enhance the collaborative culture of junior science team. The project consultants could support the school to revise junior science curriculum.
Implementation Meeting	6/7/2012, Pentecostal School	1	4		1 consultant, 1 staff	--
Teacher interview	6/7/2012, EDB Kowloon Tong Education Services Centre		2		1 staff	Teachers of PLK Yao Ling Sun College and Ma On Shan St. Joseph's Secondary School found this project is worth conducting. The project helped the schools to evaluate the school curricula developed so far.
Working Group Meeting	10/7/2012, HKASME office	3	3		2 consultants	--
Working Group Meeting	30/7/2012, HKASME office	3	3		1 consultant, 1 staff	--
Consultancy Meeting	6/8/2012, EDB Kowloon Tong Education Services Centre				3 consultants	--
Preparatory Meeting	6/8/2012, EDB Kowloon Tong Education Services Centre		2		1 consultant, 2 EDB staffs, 1 staff	--
Consultancy Meeting	8/8/2012, HKASME office				3 consultants	--

<sup>10</sup> Reported in third progress report

<sup>11</sup> Reported in third progress report



Types of activities	Brief description	No. of participants				Feedback from participants
		schools	teachers	students	others	
Working Group Meeting	17/8/2012, Shatin	4	4		2 consultants, 1 staff	--
Preparatory Meeting	21/8/2012, PLK Yao Ling Sun College	1	1		1 consultant	--
Implementation Meeting	27/8/2012, Pentecostal School	1	6		1 consultant, 1 staff	--
Implementation Meeting	19/9/2012, Pentecostal School	1	4		1 staff	--
Implementation Meeting	27/9/2012, Pentecostal School	1	5		1 consultant, 1 staff	--
Implementation Meeting	28/9/2012, AOG Hebron Secondary School	1	9		2 consultants, 1 staff	--
Implementation Meeting	9/10/2012, Pentecostal School	1	6		1 staff	--
Steering Committee Meeting	12/10/2012, EDB Kowloon Tong Education Services Centre	4	9		4 consultants, 2 EDB staffs, 1 staff	--
Implementation Meeting	17/10/2012, Pentecostal School	1	6		1 staff	--
Preparatory Meeting	25/10/2012, Ma On Shan St. Joseph's Secondary School	1	2		1 consultant, 1 staff	--
Implementation Meeting	26/10/2012, Pentecostal School	1	6		1 consultant, 1 staff	--
Preparatory Meeting	26/10/2012, PLK Yao Ling Sun College	1	1		1 consultant, 1 staff	--
Dissemination seminar	2/11/2012, EDB Kowloon Tong Education Services Centre	60	108		4 consultants, 1 staff	Positive feedbacks were received from the participants <sup>12</sup> .
Implementation Meeting	7/11/2012, Pentecostal School	1	6		1 staff	--
Implementation Meeting	21/11/2012, Pentecostal School	1	6		1 staff	--
Implementation Meeting	29/11/2012, Pentecostal School	1	6		1 consultant, 1 staff	--

## 6. Difficulties Encountered and Solutions Adopted

Most of the project activities were carried out according to the proposed schedule. One major challenge of this project is the difficulty in arranging meetings/seminars of the participating school science teachers. The project period was a double cohort year, both last cohort of S7 students and the first cohort of S6 students pursue their final year of secondary education in the same year. Therefore, they were busy with their own teaching schedule and difficult to arrange time to discuss the project details with consultants or share their project experience at an earlier time. Thus, the implementation of the project was a bit delayed. With better time arrangement with the teachers, the difficulty can finally be solved.

<sup>12</sup> Reported in Part 4 of this report



Another challenge is the difficulty to establish collaborative platforms in all the participant schools. Some of the participant schools do not have collaborative lesson periods where science teachers can discuss the curriculum plan together. Besides, not all the science teachers are actively involved in the process of curriculum development. These posed the difficulties to us when investigating the strategies of enhancing collaboration. Rather than requesting all science teachers to participate in the project, we invited Science KLA coordinator, Junior Science head and some dedicated Science teachers to the project. After 18 months of developing science curricula with some schools, some factors of supporting school-based curriculum development as well as strengthening the school collaboration have been proposed.

In sum, we found this project experience is practical and fruitful. Similar school-based project should be conducted to support HCD in Science KLA.

