

**Final Report of Project**

Project No. : 2014 / 0136

**Part A**

Project Title: Interactive learning platform – Learning Management System (LMS)

Name of Organization/School: Queen's College

Project Period: From 8/ 2015 (month/year) to 4/ 2016 (month/year)

**Part B**

1. Attainment of objectives

Table 1: Attainment of Objectives of Students

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
To facilitate the school's e-learning development	A web Learning Management System (LMS) platform – <u>Canvas LMS</u> , with <u>Canvas LMS</u> service has been introduced to teachers in Queen's College.	100% (for the 7 teachers involved in the project)  60% (for all teachers in Queen's College)	All teachers have accounts and more than 60% of all teachers have made use of the system to different extent	N/A
To increase learning motivation and increasing interactions	Electronic pedagogical materials, such as online quizzes, voice recording and multimedia resources have been uploaded and viewed by students.  LMS allowed students to leave comments. After submission, teachers disclosed students' comment to the whole class for discussion and peer review.	100%	Teachers observed a higher engagement rate of in-class discussion, especially of weaker students since they were allowed to spend more time for pre-tasks at home.  More than 95% of students have engaged in the using of LMS outside classroom.  These show students are actively engaged in pre-lesson preparation and in-class discussion by responding to their peers' comments.	N/A
To better establish a	Students can easily engaged in outside	100%	All students have their own account. Through logging into the	N/A



student-centered learning environment for mainly Liberal Studies, Integrated Science and Geography	classroom learning with teachers' supporting materials (e.g. videos, supplementary readings and visual illustrations) uploaded to the LMS platform. Students developed self-directed learning skills by identifying resources for their own needs and learning, which in the long term, cultivate students' life-long learning ability.		system, they browsed the teaching materials uploaded. Students expressed that they had viewed and re-viewed the materials at their own pace and extended their learning through reference materials/links uploaded by their teachers.	
To facilitate outside classroom learning by recording, storing and backing-up teaching materials and learning process	Materials, such as notes, in-class discussion content and videos, were uploaded and stored on the LMS platform - Teachers uploaded explanation and visual illustrations of concepts for students to watch and prepare for lessons. Students also revised and retrieved in-class teaching materials at home.	100%	Students gave positive feedback regarding the facilitating of outside classroom learning through the online platform since they could retrieve learning materials and re-watch videos that were shown in class.	N/A
To provide students' performance data for teachers	The system provides participation rate for teachers to reflect on, adjust and customize pedagogical strategies to better cater for learners' differences. Also, by connecting tablets with the server for teachers to monitor students' learning progress, teachers can give feedback or make adjustment at the spot according to an individual student.	100%	Online quizzes and worksheets completion rates of Integrated Science, Liberal Studies and Geography remain at more than 90%.  Teachers approached students who had not finished the online tasks as expected and helped them with their respective difficulties.	N/A
To provide a platform for students to view learning	The platform provides learning opportunities through	100%	From the comments submitted to the platform (both in-class and at home), teachers observed	N/A

outcomes of their classmates.	peer-observation, peer-evaluation and self-reflection through posting comments on the online platform. Through reading their classmates comments selected and disclosed by their teachers, they observed multiple interpretations of a same topic. Through discussing a topic, they evaluated their classmates' responses and reviewed critically whether their thought are valid. These fostered self-evaluation and self-reflection.		multiple views towards an issue. Science teachers disclosed a student's comment and observed critical comments from other students on how that particular way to build a robot can be altered to a better one.  Others students also learnt from the discussions that there are multiple ways to interpret and solve a problem.	
To enhance understanding and competence of teachers of Queen's College in e-learning through sharing and workshop organized.	The system helps the school to set up a learning community in Queen's College by implementing the three-year development plan of the approved e-learning support scheme.	80%	Teachers shared their experience in using the LMS platform. They also shared their quizzes, tasks and e-materials by making them 'public'. By setting the materials 'public', other teachers could use them through the same platform.	Some teachers have been adopting other e-learning platforms, e.g. <i>FutureLearn</i> , and prefer using them instead of LMS. But those teachers still shared their experience of e-learning with teachers in Queen's College
To provide self-learning concepts tutorial and an online discussion for each S.1 Class for Liberal Studies for the first trial.	Videos and definitions of 10 concepts namely, (1) Sustainable development, (2) Stakeholders, (3) Basic Law, (4) One Country Two System, (5) Freedom of speech, (6) Freedom to form and join unions, (7) Cyber bullying, (8) Multiple perspectives, (9) Quality of Life and (10) Re-development, have been uploaded to <i>FutureLearn</i> for pre-lesson viewing and reading. An online discussion is set up for students to	100%	All S.1 students have accessed to the videos and readings regarding the 10 concepts before lessons. Some questions were asked in the platform and were answered by other students. Therefore, teachers could focus on more difficult questions for class discussion. Students and teachers expressed that the platform allowed more time for in-class discussion since there are only 2 lessons in every cycle.	N/A



	discuss the concepts. Students can post their views on the platform for further discussion.			
To provide supplementary experiments and e-learning materials for S.1 Integrated Science.	8 videos demonstrating robots building and using of sensors were uploaded as pre-lesson preparations.	100%	Teachers expressed that the platform allowed them to upload demonstration videos so that students could gain a general picture of their target before the lessons since it is difficult for 1 teacher to build and re-build a robot for demonstration to 36 students.  The platform facilitate pre-lesson preparation and solve the problem of in-class demonstration of relatively complicated experiments and constructions.	N/A
To provide online materials of map-reading and e-learning materials for S.1 Geography.	5 lessons of map-reading and e-learning materials regarding global warming for S.1 Geography	100%	Students and teachers expressed that the LMS platform helped facilitate learning and discussing of concepts. Visual illustrations were uploaded and students watched them before lessons.  Teachers witnessed a higher participation rate in in-class discussion especially for weaker students. The platform allowed weaker students to learn at their own pace and re-watching the videos thus build a better understanding before lesson.	N/A

## 2. Project impact on learning effectiveness, professional development and school development

Enhance interactive learning – The LMS allowed the teacher to manipulate students’ portable devices, for example, to switch their screens to assigned videos, texts, forums or tasks and it also allowed the teacher to see from his screen some particular students’ screens. Through LMS, teachers captured a screenshot from a particular student’s device and show it on the big screen. Students also enjoyed interactive learning by posting comments and answers on their tablets via the LMS. Teachers generated data and gave immediate feedback from what s/he has extracted from students.

### Strengthen students’ critical thinking

Liberal Studies requires logical reasoning and critical thinking. LMS allowed students to acquire basic concepts by themselves before lessons and thus allowed more lesson time to be used for issue discussions. If most of the students



understand the concept of ‘sustainability’, the teacher can move on to more difficult questions, such as asking ‘Why’ and ‘How’ to trigger higher order thinking. Both teachers and students agreed the platform created more time for discussion in class and discussion involves expressing of stance, opinions and criticism.

#### Enhance teaching and learning effectiveness

Integrated Science involves numerous experiments. Normally, due to time constraints, teachers can only demonstrate a very limited amount of experiments, for example burning sugar and peanuts to test their energy level instead of testing different kinds of food. Also, complicated demonstrations, for example building a robot, could be very time-consuming. It is neither feasible for a teacher to demonstrate them a few times, for example assembling and disassembling a robot, in 2 lessons, nor is it possible for all 36 students to clearly see the teacher’s demonstration at the same time. LMS allowed teachers to upload videos of assembling the robot. Together with a brief procedural menu to be given to students, students were able to start assembling the robot the moment they reach the classroom and fully utilized the double lesson to build their robot. Teachers could therefore spend more time to give comments and feedback to each group of students while they were assembling their robots. The platform therefore, enhance the efficiency and effectiveness of in-class learning.

#### Catering for learners’ differences

LMS allowed Geography teachers to synchronize his/her device with students’ devices so that he/she could enlarge, reduce the map to show specific features – such as map scale, colour, symbols and grid lines. Teachers could also show animations or videos for climate change analysis. Unlike showing a video through teacher’s computer and classroom screen, LMS allowed students to go through an animation of changes in annual rainfall, for instance, at their own speed. They could re-watch, pause or fast-forward to a specific point of the animation at their own device and finish assigned tasks. This helps cater for learners’ difference.

Also, the platform allowed teachers to upload the visual illustration before lessons, so that weaker students can spend more time understanding the content. Teachers witnessed an increase level of in-class discussion of weaker students and they showed more confidence in expressing themselves.

#### Increase teachers’ willingness to adopt e-teaching

Apart from the 7 teachers who were involved in the trial stages, introductory sessions of the LMS were also conducted for all teachers in Queen’s College.

2 LMS introduction sessions were provided to all panel heads (but all teachers were welcomed to join) to help them understand the operation of the system. The system is relatively user-friendly. With guidance from the service provider, most teachers had tried logging in, uploading videos and links, setting quizzes and sharing of teaching materials during and after the sessions.

1 more introduction session was tailor-made by the project coordinator to introduce teachers some of the

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



functions that better fit students in Queen's College. Teachers were then, more willing to make use of the platform and they also developed better confidence in adopting e-learning. Although the project only targeted 7 teachers at the trial stage, more than 50% of the teachers have actually utilized the system to different extent. This shows teachers have higher confidence and competence in adopting e-learning and e-teaching in their classroom.

In terms of continuous development of e-teaching and e-learning of the school – LMS with [redacted] can store teaching materials and feedback. Teachers created, shared and amended teaching materials, which, in the long run, can enrich the archive of e-learning materials and pedagogical strategies and sustain e-learning in the future. In the long run, students can enjoy a wide range of e-learning materials which suits their needs.

In terms of quality education – LMS records students' learning performance and continuous assessment results which enable teachers to keep track of students' learning progress and adjust pedagogy accordingly. Data generated also allows teachers to better cater for learners' differences. This creates the desired student-centered education.

3. Cost-effectiveness – a self-evaluation against clear indicators and measures

**Table 2: Budget Checklist**

Budget Items	Approved Budget (a)	Actual Expenses till 30.4.2016 (b)	Change [(b)-(a)]/(a) +/- %
Learning management system and mobile device management services	\$101,000	\$84,347	- 16.5%
Audit fee	\$5,000	\$3,500	- 30%
<b>Total</b>	<b>\$106,000</b>	<b>\$87,847</b>	<b>- 17.1%</b>

Utilization of available resources

The LMS [redacted] was purchased to facilitate teachers and students to carry out interactive discussions inside and outside the classroom. Teachers could develop and upload teaching materials and were able to share among themselves.

The purchasing of LMS also included 2 in-school preparation courses for teachers to understand the different functions and operations of the system. With the 2 courses from the service provider, teachers could upload and develop simple teaching materials, such as videos and short quizzes, right away.

Students could make use of their accounts for pre-lesson preparation and utilize online resources uploaded by their teachers as references.

Unit cost for the direct beneficiaries

Total Expenses/Direct Beneficiaries

Total Expenses/ (Students + Teachers)

\$87,847/ (144 + 7) = \$581.8

Sustainability of the learning materials developed

Materials and different tasks uploaded can be updates and re-used in the following academic year. Reference materials can be stored in the system so that teachers can add more updated materials for students' reference.

4. Deliverables and modes of dissemination; responses to dissemination

**Table 2: Dissemination Value of Project Deliverables**

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.
LMS teaching materials and teaching plans	LMS supported interactive learning. Students are better motivated to take initiative to pre-lesson tasks and reference materials. With the e-learning materials, they are more engaged in classroom discussions. It is believed that the materials are of good qualities and the dissemination value is high.	A sharing session regarding the implementation of e-learning and the utilization of LMS was conducted on 13 <sup>th</sup> May, 2016. Teachers shared among department members their experience of e-teaching through LMS.	Sharing among teachers can be a worthwhile and feasible way for the items to be widely disseminated by the QEF.
Supporting materials (including slides, notes and exercises)	Supporting materials, such as experiment procedures, PowerPoint slides, notes and exercises, were distributed to students. Students could use the materials as reference during the discussion in class and on the LMS	Supporting materials of Liberal Studies, Integrated Science and Geography were distributed to 4 classes of S.1 (144 students).	The supporting materials were designed especially for the students in Queen's College. PowerPoint slides were prepared in line with the teaching pace and teaching style of the teacher. Experiment procedures involves school-based curriculum (e.g.



	platform.		robot building) which may not be suitable to be widely disseminated by the QEF
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#### 5. Activity list

Types of activities (e.g. seminar, performance, etc.)	Brief description (e.g. date, theme, venue, etc.)	Number of participants (teachers/ students/ Others)	Feedback from participants
Lessons on Liberal Studies (4 topics involving 10 concepts)	February – April, 2016 S.1 Liberal Studies lessons	( 2 / 144 / 0 )	Students were positive towards e-learning through LMS and believed they are more motivated to learn outside the classroom with the platform.
Lessons on Integrated Science (School-based Creative Science curriculum)	February – April, 2016 S.1 Integrated Science lessons	( 2 / 144 / 0 )	Students were excited to make use of the e-learning as well as supporting materials to assemble and operate their own robots. They were observed to be more engaged in the lessons than usual.
Lessons on Geography (Global warming)	February – April, 2016	( 2 / 144 / 0 )	With the use of LMS as well as tablets in class, students and teachers can interact better. Also, the videos uploaded provided a visual explanation of relatively abstract ideas (e.g. Global warming is spreading). Weaker students find the visual illustration very helpful.
Sharing of the LMS project	13 <sup>th</sup> May, 2016 Staff Development (Session 2)	( 58 / 0 / 1 ) Others: <u>Principal</u>	Teachers gain a better understanding of the project and gain better confidence in adopting the e-learning approach through LMS.
Sharing of e-learning experiences	13 <sup>th</sup> May, 2016 Staff Development	( 58 / 0 / 1 ) Others: <u>Principal</u>	Teachers share their experience in e-learning and developing of different e-materials.





among teachers	(Session 3)		Some teachers also suggested innovative ways (e.g. connecting LMS with social media sites to assemble and distribute various types of e-resources) However, a small group of teachers admitted that they are still reluctant to adopt e-learning to a large extent.
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6. Difficulties encountered and solutions adopted

Difficulties Encounters	Solutions Adopted
1. Teachers were not familiar with the operation of the LMS platform. Some of them encountered difficulties in some relatively complicated functions, such as locking and unlocking students' devices.	A manual was produced to facilitate the teachers to use the LMS platform. Teachers were also encouraged to use simple functions, such as setting of quizzes and uploading of videos, to start with, and gradually move onto more complicated functions.
2. Production of e-materials consumed more time than expected. Technical error may also prolonged the time for preparing teaching material through LMS.	An additional course was organized by the project coordinator, to demonstrate functions that were expected to be more popular among teachers and students of Queen's College, so that teachers got to practice using the targeted functions with guidance. IT technicians have familiarized themselves with the platform in order to provide immediate assistance to teachers who need help.

Name of Project Leader:

Name of Grantee\*:

Signature:

Signature:

Date:

Date:

*\* Final Report of Project 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.*