

**CONFIDENTIAL**  
**Quality Education Fund**  
**Application with Grant Sought Not Exceeding \$150,000**  
**Application Form Part II: Project Proposal**

<b>Project Title</b> Interactive learning platform – Learning Management System (LMS)	<b>Project Number</b> 2014/0136 (Revised)
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**Basic Information**

**Name of School / Organisation / Individual**  
**Queen's College**

**Beneficiaries**

- (a) Sector:  Secondary
- (b) Students: 144 and S.1 (progressively to S.6)
- (c) Teachers: 8 (progressively to all teachers)
- (d) Parents: Approx. 288

**Proposal****(I) Project Needs**

- (a) Please state the aims of the project in clear and concise terms and elaborate how the proposed project could impact on school development.
1. To facilitate the school's e-learning development, the project aims at providing a web Learning Management System (LMS) platform
  2. To increase learning motivation by incorporating electronic pedagogical materials (e.g. LMS quiz, voice recording and multimedia resources) and increasing interactions through small-group discussion and learning (e.g. discussion forums on LMS).
  3. To better establish a student-centered learning environment for mainly Liberal Studies, Integrated Science and Geography [to be further illustrated in (c)] by connecting tablets with classroom server for teachers to monitor students' learning progress of all students in class and give feedback or make adjustment at the spot accordingly. This is to develop students' self-directed learning skills, especially in identifying resources for their own needs and learning, which in the long term, cultivate students' life-long learning ability.
  4. To facilitate outside classroom learning by recording, storing and backing-up teaching materials and learning process (such as notes, in-class discussion content and videos) on the cloud server. Teachers can video-tape the explanations of basic concepts for students to watch and prepare for lessons. After a lesson, students can also revise and retrieve in-class teaching materials at home, and parents can keep track of their children's learning process and facilitate their learning accordingly.
  5. To provide students' performance data for teachers to reflect on, adjust and customize pedagogical strategies to better cater for learners' differences.
  6. To provide a platform for students to view learning outcomes of their classmates. This provides learning opportunities through peer-observation, peer-evaluation and self-reflection.
  7. To enhance understanding and competence of different stakeholders of Queen's College in e-learning through sharing and workshop organized. This builds a solid foundation for 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.
  8. To provide 10 – 20 sets of self-learning concepts tutorial and an online discussion forum for each S.1 Class for Liberal Studies for the first trial.
  9. To provide 8 – 10 sets of supplementary experiments and e-learning materials for S.1 Integrated Science for the first trial.
  10. To provide 3 – 5 lessons of map-reading and e-learning materials for S.1 Geography for the first trial.

- (b) (i) What are the areas of the needs and priorities of the school?
- Enhance learning and teaching to facilitate students' knowledge on subjects / learning areas / generic skills development
- (ii) Please give background information to justify the demonstrated needs as mentioned in (b)(i).
- School development plan: In response to the successful application of the Support Scheme for e-Learning in Schools launched by the EDB, the school has developed a three-year e-learning development plan to commit to the use of e-textbooks, e-learning resources and relevant pedagogies. Our school is setting up a wireless network system, purchasing tablets and implementing e-learning in Geography, Liberal Studies and Integrated Science (S.1) from the second semester in 2014 – 2015 onwards. The project of developing a Learning Management System (LMS) will build a solid foundation to support the plan and provide a platform for continuous development of e-learning in our school.
  - Literature review summary: Learning management system aim at 'managing the entire instructional program and learning process' (Szabo & Flesher, 2002) of an organization. In school context, the management system collects and records results of students' performance for the school to indicate and monitor learning process of an individual student. Through the learning management system, Bailey (1993) suggested supplementary materials or extra guidance can be provided based on individual students' learning progress. Information age requires schools to focus on individual learners' need (Reigeluth, 1994; Reigeluth & Garfinkle, 1994; Senge et al, 2000). School should customize learning and teaching rather than standardizing (Joseph & Reigeluth, 2002). By establishing the learning management system, teachers can have a better picture of students' learning progress as an individual and customize pedagogy and feedback accordingly without time and geographical constraints. Knowles (1975) stated self-directed learning as a process in which individuals take initiative, with or without the help of other, to diagnose their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate learning outcomes' (p.18). LMS provides a platform to self-direct learning. Students can access to different forms of information that they think they need. This process of self-directed learning trains their skills as well as responsibility to life-long learning.
  - Assessments on students' performance: Students are currently accessing to various online learning platforms mainly for English and Chinese Language learning. About 90% of the students managed to pass the online learning assessment without teachers' reminder which is encouraging. However, these online learning platforms are limited to English and Chinese Language learning. The implementing of LMS can extend the scope of self-directed learning in Languages to other academic subjects as well.
  - Relevant experiences: Our school's Liberal Studies Team has worked with the Centre of Information Technology Education under the project Computer-supported Collaborative Learning 2011. S.1 students were able to create their theme project website (<https://sites.google.com/site/qcls1cgp6/home>). Results were encouraging and the school received positive feedback from students, teachers as well as parents. Both teachers and students found themselves competent in mobile learning. Our school has successfully applied for the Support Scheme for e-Learning in Schools and has commenced implementing mobile learning by developing a data base of the school's history and plants, activating by QR code. Teachers and staff have gain experience in launching an e-learning platform which will aid the setting up of the LMS.
- (c) Please elaborate the innovative ideas or new practices to enhance, adapt, complement and/or supplement the existing practices that will facilitate the development of the school to address the needs specific to its own context.
- In terms of in-class learning – The LMS allows the teacher to manipulate students' portable devices, for example, to switch their screens to assigned videos, texts, forums or tasks and it also allows the teacher to see from his screen some particular students' screens. Through LMS, the teacher can capture a screenshot from a particular student's device and show it on the big screen. Students can enjoy interactive learning by posting comments and answers on their tablets via the LMS. The teacher can generate data and give immediate feedback from what s/he has extracted from students. Being able to visualize different opinions and answers from classmates, students also develop a higher learning motivation and strengthen their critical thinking skills.
- In terms of specific needs of subjects –
- Liberal Studies stresses on logical reasoning and critical thinking.** LMS allows students to acquire basic concepts by themselves before lessons and thus allows more lesson time to be used

for issue discussions. Liberal Studies also relies on teacher's instant feedback for guiding and extending a discussion.

It also involves expressing stance and opinions. Critical thinking is also an important skill to be acquired. LMS supply a platform for students to express and read one another's opinions simultaneously instead of the whole class listening to one student expressing his opinion. Besides, all students can be involved in answering a question by posting their answers on the platform instead of having the teacher call upon one student and only he is involved in answering as well as thinking.

**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. Besides, some experiments are too dangerous to be done in class, for example, mixing Cesium with water. LMS allows teachers to upload different experiments as reference. Different from giving video links for students to watch at home, the LMS allows teachers to provide guidance, such as explanatory notes in word or audio format and cultivate students' habit of **self-learning**. Furthermore, the LMS will engage students in practical activities for the acquisition of science process skills in learning Science, rather than only relying on conducting experiments on the LMS. Science process skills involves researching skills – setting clear and meaningful objectives, making hypothesis accordingly, collecting and analyzing data and drawing upon conclusions. LMS can help teachers monitor on students' individual research progress through giving feedbacks through the platform. Besides, the platform can help students generate data from other students (sending out questionnaires or graph-plotting for instance) and/or share their data with their classmates. This can facilitate research methodology by assisting data collection process.

**Geography** requires **map-reading skills**. LMS allows Geography teachers to synchronize his/her device with students' devices so that he/she can enlarge, reduce the map to show specific features – such as map scale, colour, symbols and grid lines. Teachers can also show animations or videos for climate change analysis. Unlike showing a video through teacher's computer and classroom screen, LMS allows students to go through an animation of changes in annual rainfall, for instance, at their own speed. They can 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**.

In terms of learning outside classroom – LMS with storage function allows teachers to record **teaching contents/ lectures for students' preparation** before class. Students can retrieve the recordings from the flipping classroom for self-study so that direct transmission of knowledge (standardized part) can be done at home and more in-class time can be allocated to classwork or other forms of class activities in which more personal guidance can be given. Teachers of different subjects can **access and share the uploaded pedagogies** and teaching materials which further improves their teaching methods in their own subjects. With the capacity to store in-class comments, students can also read the discussions of other groups after lessons which extend their scope of learning after class. LMS serves as a platform for students' access to information they need **without time constraints**. Whenever a question pops up, students can search from the LMS for resources uploaded by teachers, content taught during lessons and discussions and comments made by classmates to look for answers. The ease of access as well as the new form of technology increase students' incentive and curiosity to learn. Besides, with LMS providing necessary resources and information, the learning responsibility will fall back onto students themselves. They may build a habit of looking for answers and information through the LMS and in the long run, **develop self-directed learning skills** which aids and encourages **life-long learning**.

In terms of continuous development of e-learning – LMS with can store teaching materials and feedback. **Other teachers** may create, share and amend **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 teachers' professional development – the development of LMS provide experience for teachers to adopt e-learning in class. Through sharing sessions and workshops to be held in academic meetings, staff meetings and the staff development days, other teachers can also become confident and competent in adopting e-learning and e-teaching in their classroom.

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**.

**(II) Project Feasibility****(a) Please describe the design of the project, including:****(i) Approach/Design/Activity**

The school will be equipped with WIFI network and sufficient tablets for students through the grant from Support Scheme for e-Learning in Schools launched by the EDB in 2014. The LMS will serve as an operating software, a platform to link devices as well as for storage of learning progress and pedagogical materials. Teachers will develop and adopt various forms of e-learning through the use of tablets facilitated with LMS.

Before lessons, teachers videotaped short lectures of basic knowledge that students have to acquire. Students will download and watch the video to gain an understanding of the concepts taught, and can even further search for additional information regarding the concepts for preparation.

During lessons, since students already understand basic concepts through short lectures, teachers can skip the teaching part and go directly to discussion of issues and other tasks for consolidation of knowledge. The idea of flipping classroom allows direct instruction (standardized script teaching) to be done at home and therefore, more class time can be allocated to application and consolidation of knowledge, e.g. group discussion, case-study and even homework, which allow teachers to give customized feedback and comments.

Also, teachers can project e-learning materials (such as pages of e-book, maps, videos, recordings, multiple-choice questions and/or news articles) onto students' tablets via the LMS, whereas students can make notes, discuss and/or answer teachers' questions via the LMS. This enables teachers to have a general picture of students' learning progress and adjust teaching accordingly, whereas students will develop higher learning incentives and are more engaged in lessons. The system also shows teachers the level of engagement and understanding of individual student for better catering learners' diversity.

After lessons, students may log into their own account at home to recap what has been learnt in class and review notes and comments made during the lessons. Further, the system also allows more time for students to check comments and discussions made by the teacher and other classmates during the lessons. This expands their scope of intake of the topic discussed in class. By giving, reading and reflecting upon comments, students can develop critical thinking skills.

LMS also provide various means for group work – online discussion forum, responding to peers during and/or after lessons etc... which strengthen students' collaboration and communication skills.

All data recorded will accumulate every year on the cloud server and analysis generated is expected to guide the school's direction to enhance students' learning effectiveness.

In addition, parents may also log into the parents' account to keep track of their children's learning progress. They may therefore assist their children's learning at home with reference to the learning content. This strengthens home-school co-operation and can engage parents as a resources for their children's learning, which further develops a genuine student-centered learning model. Also, by introducing parents to the project, they can experience the benefits of e-learning which facilitate the implementation of the school's three-year e-learning development plan.

The school's IT team will assist with technical operations of the LMS and make adjustments according to stakeholders' feedback after trial. The school's ICT teachers will equip teachers and students with basic operation skills by carrying out introduction sessions.

All pedagogical materials will be stored on the cloud server to form an easy access platform as well as an expandable archive for the sustainable development of e-learning in future. The platform and cloud server will strengthen communication among students, teachers and parents to create the desirable student-centered learning environment.

In short, the LMS can build a learning community involving the three main stakeholders of Queen's College – student, teachers and parents, with students being the center of learning and teaching.

**Student-student effect:** students can learn from one another by reviewing comments via the LMS during and after lessons

**Student-teacher effect:** all students are able to interact the teacher at the same time via the LMS and the teacher can generate a better picture of individual response at the spot and cater for learners' differences at the spot.

**Student-parent effect:** students are able to visualize their learning progress and ease parents' tension of feeling uncertain of what is learnt from school. Parents can extend the learning by bringing up learnt issues or topics at home.

Project period: 8/ 2015 to 4/ 2016

Month / Year	Content / Activity / Event	Target Beneficiary/Participants
Aug – Oct 2015	<ol style="list-style-type: none"> <li>1. Workshop in using LMS to facilitate e-learning in class and at home</li> <li>2. Seed teachers of S.1 Geography, Liberal Studies and Integrated Science to develop pedagogical strategies in implementing LMS for their subjects as pilots</li> </ol>	Subject teachers of S.1 Geography, Liberal Studies and Integrated Science teachers
Nov 2015 – Mar 2016	<ol style="list-style-type: none"> <li>1. Seed teachers to conduct trials of the LMS-facilitated e-learning in class as well as at home</li> <li>2. Evaluation by teachers and students of trials of the LMS-facilitated e-learning</li> <li>3. Review of the effectiveness of the trials and make adjustments to the system as well as teaching strategies</li> </ol>	- Seed teachers of S.1 Geography, Liberal Studies and Integrated Science. - S.1 students of respective classes
Apr 2016	<ol style="list-style-type: none"> <li>1. User sharing session by seed teachers</li> <li>2. Colleagues of other subjects discuss on ways to implement LMS-facilitated</li> </ol>	- Seed teachers of trials - Teachers of other subjects

(b) Please explain the extent of teachers' and/or principal's involvement and their roles in the project.

(i) Number of teachers involved and degree of input:

A total of 7 teachers of Geography, Liberal Studies, and Integrated Science of S.1 will participate in developing e-learning pedagogy through LMS. 1 teacher of ICT will assist the teachers in developing e-learning pedagogy and operating the LMS. They will use tablets, facilitated by the LMS, to create an interactive learning in class. They will also establish learning materials for students to access at home through the LMS. Besides planning and implementing, they will evaluate and review the trials. Comments and suggestions will be made and the system will be adjusted accordingly. In addition, they will also carry out sharing sessions to colleagues of the school.

Principal will initiate collaboration among the 3 subject departments for preparation and sharing, and in the long run, for the development of e-learning and e-teaching environment at school.

Head of department will discuss with their respective panel members on the pedagogy strategy in implementing e-learning and e-teaching in both the short run and long run.

(ii) Roles of teachers in the project:

Leader

Co-ordinator

Developer

- (c) Please provide the budget of the project and justify the major items involved.

**Grant Sought: HK\$ 106 000**

Budget Item	Expenditure Detail		Justifications
	Item	Amount (\$)	
Service	1. Subscription of Cloud based LMS for individual staff and student access, with school common storage area.	30 000	For the implementation of effective interactive e-learning and development of school-based e-learning teaching materials, whilst accessible anytime anywhere by all 3 stakeholders. Relevant server installation for the purpose of learning and teaching in the classroom.
	2. Server (in-class control) (rental) with in-class control software purchase	36 000	
	3. Subscription of App creation software	30 000	
	4. Teacher training in LMS and in-class control software (Around 3 times in one year) (Around 7-10 hours)	5 000	For teacher training so as to implement effective school-based e-learning.
General expenses	Audit Fee	5 000	For QEF requirement.
<b>Total Grant Sought (\$):</b>		<b>106 000</b>	

**Assets Usage Plan:** Not applicable at this phase/moment.

### (III) Expected Project Outcomes

- (i) Please describe how to evaluate the effectiveness of the project:

- Observation: Observation on students will be carried out. Students will be observed on their learning motivation, mood, degree of involvement and participation in LMS-facilitated e-learning and their confidence and competence of adopting the system.
- Focused group interviews: Students and teachers in focus group will be interviewed to learn opinions and effectiveness of the project. Feedback will be used to adjust the implementation of e-learning in the following years.
- Pre-and post-activity surveys: Post-activity surveys will be carried out among students and teachers for evaluating the level of effectiveness of e-learning in the classroom facilitated by LMS. Post-activity surveys regarding e-learning at home facilitated by LMS will also be carried out among students, teachers and parents to quantify their feedback.

- (ii) Please state the project deliverables or outcomes.

- Learning and teaching materials

Tailor-made teaching materials including teaching notes, worksheets, students' output with teachers' feedback (completed worksheets with teachers' comments), videos of teachers' teaching and students' performances will be uploaded. Students' consent will be sought before sharing of their output. Students and teachers in the school can share and use the materials for pedagogical purposes.

Subject	Level	Material	Quantity
Liberal Studies	S.1	Lesson plans with teaching notes/worksheets, students' pre-lesson preparation notes/tasks, students' output with feedbacks	4 sets
Integrated Science	S.1	Lesson plans with teaching notes/worksheets, students' output with feedbacks	2 sets
		Videos of teacher's teachings and students' performance on practical activities for the acquisition of science process skills and conducting experiments	2 sets
Geography	S.1	Resources package with teaching plan and teaching notes/worksheets, students' output with feedbacks Package also includes video illustrations: Package includes video clips of teacher's teaching and students' performance for students' preparation of lesson and acquisition of knowledge during lessons through the LMS	1 package

Resource package

Resources packages include tailor-made teaching notes, worksheets and teaching plans. These resources packages can be shared to other schools. If necessary, teachers preparing the resources packages can share their experiences with other schools in aiding their establishment and development of e-learning and e-teaching in their schools.

The ownership and the copyright of the deliverables, such as learning and teaching materials produced for the LMS should vest in the Grantor so that they can be disseminated to all schools.

This is to clarify and confirm that there is no duplication of funding for interactive learning platform (LMS) at our school.

#### Report Submission Schedule

My school commit(s) 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
Final Report 1/8/2015 - 30/4/2016	31/7/2016	Final Financial Report 1/8/2015 - 30/4/2016	31/7/2016