



Final Report of Project

Project No. : 2015 / 0348

Part A

Project Title: Flipping the Biology Classroom

Name of Organization/School: Tsuen Wan Public Ho Chuen Yiu Memorial College

Project Period: From 10/2016 (month/year) to 8/2017 (month/year)

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

Name of Project Leader:

Signature:

Date:

Name of Grantee*:

Signature:

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.



Table 1: Attainment of Objectives

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
One CD-ROM including 22 video clips for 'Flipping the Biology Classroom'	<ol style="list-style-type: none"> Students are able to download the video clips for revision. Teachers use the video clips for teaching during lessons. 	80% of the students find the video clips useful in the survey. 80% of the students use the video clips.	<p>In post-activity survey, 84% of students watch the video clips for revision.</p> <p>Teachers also showed positive feedback about the use of video clips for teaching.</p>	N.A.
Problem-solving approach has been adopted to improve students' learning.	Problem-solving tasks are provided for students during lessons.	80% of the students find flipped classroom approach and problem-solving approach enhance their learning. Improvements can be observed in tests and exams when comparing the academic results with those in previous year.	<p>In post-activity survey, 100% students agreed that problem-solving activities can clarify their understanding about the subject knowledge. 99% students wanted more problem-solving activities in Biology lessons.</p> <p>Based on teacher's observation, F.5 students got improvement in problem-solving skills. F.5 students showed improvement in test 2 and final exam when compared with their results in F.4.</p>	N.A.

Table 2: Budget Checklist

Budget Items (Based on Schedule II of Agreement)	Approved Budget (a)	Actual Expense (b)	Change [(b)-(a)]/(a) +/- %
Tablet PCs for students	38500	2650x11=29150	9350

Tablet PCs for teachers	7000	2650x2=5300	1700
Tablet charging cart	17000	16400	600

Table 3: 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.
One CD-ROM including 22 video clips for 'Flipping the Biology Classroom'	Positive feedback was collected from colleagues. Because of the concern on the copyright of the pictures used, the quality of personal drawing was satisfactory and can be improved.	<ol style="list-style-type: none"> Lesson observation made by Principal and Vice Principal on 6 Oct 2016 – gained positive feedback and awarded Certificate of distinction Seminar held on 17 Jan 2017 – gained positive feedback about the sharing and about 60 CDs were distributed to Biology teachers. Sharing held on 16 June 2017 in Tsuen Wan Public Ho Chuen Yiu Memorial College 	No. It has been distributed to Biology teachers during seminar.

Content of the CD-ROM

Topic	Video clip description	Duration
Nutrition in humans	Human dentition	3minutes and 36 seconds
	Introduce four types of human teeth and compare milk teeth and permanent teeth	
	Digestion in small intestine	4 minutes and 32 seconds
	Summarise both physical and chemical digestion which happen in the small intestine in a mind map	
Gas exchange in humans	Egestion and excretion	1 minute and 33 seconds
	Clarify the two terms and suggest examples for each process	
	Breathing and respiration	45 seconds
	Clarify the two terms and state the difference	
	Air sacs and villi	1 minute and 45 seconds



	Compare and contrast the features and functions of the two structures	
	Changes in gas pressure in the lungs	1 minute and 22 seconds
	Explain how gas pressure and lung volume change during inhalation and exhalation	
Transport in humans	Heart valves	2 minutes and 30 seconds
	Explain how heart valves open and close and explain its importance	
	Double circulation	2 minutes and 10 seconds
	Explain the blood flow in double circulation in a flow chart and explain its importance	
	Formation of tissue fluid	3 minutes
	Explain how tissue fluid is formed	
Cell cycle and cell division	Genetic information	1 minute and 25 seconds
	Introduce the type and location of genetic information	
	Haploid and diploid	1 minute and 25 seconds
	State the difference between haploid and diploid	
	Independent assortment of chromosomes in meiotic cell division	1 minute and 50 seconds
	Describe how independent assortment of chromosomes happens in meiotic cell division and its importance	
Basic genetics	How to draw a genetic diagram	3 minutes and 50 seconds
	Describe how to draw a genetic diagram step by step	
	Production of gametes in monohybrid inheritance	1 minute and 40 seconds
	Describe how gametes are produced in monohybrid inheritance	
	Production of gametes in dihybrid inheritance	1 minute and 49 seconds
	Describe how gametes are produced in dihybrid inheritance	
	Inheritance of blood groups in humans	2 minutes and 10 seconds
Explain the meaning of multiple alleles and codominance and explain how to solve a related problem		



	Studying a human pedigree	2 minutes and 45 seconds
	Explain how to determine the dominant phenotype and how to determine if the allele is x-linked in a human pedigree	
Molecular genetics	Features of the genetic code	1 minute and 50 seconds
	Explain the features of the genetic code	
	Gene expression	1 minute
	Introduce the concept of gene expression	
	Protein synthesis	3 minutes and 30 seconds
	Describe how transcription and translation happens in a flow chart	
Biotechnology	Collection of DNA sample	42 seconds
	Explain how DNA sample is collected	
	Gel electrophoresis	1 minute and 30 seconds
	Outline the steps of gel electrophoresis	

Table 4: Activity List

Types of activities (e.g. seminar, performance, etc.)	Brief description (e.g. date, theme, venue, etc.)	No. of participants		Feedback from participants
		schools	teachers	
Seminar	17 Jan 2017 Understanding and Interpreting the Biology and Combined Science (Biology part) Curricula KTESC	Secondary Schools	About 50 Biology teachers	Positive feedback was collected.
Sharing	16 June 2017 Use of mobile learning in Biology	Tsuen Wan Public Ho Chuen Yiu Memorial College	56	Positive feedback was collected.