



Final Report of Project

Project No. : 2010 / 0103

Part A

Project Title: Project on Accessible E-learning Support

Name of Organization/School: Hong Kong Blind Union

Project Period: From May / 2011 (month/year) to April / 2013 (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

** Final Report of Project prior to the 8th 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 8th 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.*

1. Attainment of Objectives

The main goal of the project is to bridge the learning gap and digital divide between students with and without disabilities. The project aims to assist print disabled children to make the best use of e-learning in their academic pursuit, like their able-bodied peers do with the following specific objectives:

- to substantially increase the provision of accessible electronic learning materials to students with print disabilities;
- to make available assistive hardware/software in affordable price to students with print disabilities;
- to facilitate e-learning developers, teachers and parents to embrace the skills and knowledge in using and designing accessible e-learning materials for students with print disabilities.

Details of the achievement are spelt out in the table below:

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
Providing accessible electronic learning materials (AEL materials) to print disabled students	Production of AEL materials with free supply of assistive aids to read the materials.	Fully achieved	1,589 applications of AEL materials were received while over 97%, i.e. 1,544 AEL materials were distributed to the students as at Apr 30, 2013. On top of the AEL materials, near 1,000 copies of screen reading software, NVDA, have been distributed for the use of registered users.	N/A
Making available assistive hardware/software in affordable price	Research and development of assistive aids and distributing for the needy free of charge	Fully achieved	Two innovative assistive software, MathCast and P-BRITE, were developed. Both software can be downloaded at HKBU website free of charge. Besides, the screen-reading software NVDA (HK version) developed by our agency, was distributed to registered users free of charge too.	N/A

Embracing the skills and knowledge in using and designing accessible e-learning materials for the needy	<ul style="list-style-type: none"> - Producing guideline on AEL materials and distributing for the schools and publishers free of charge - Providing training and demonstration sessions for both students and family members / teaching staff - Producing 8 video clips on usage of assistive aids to read AEL materials 	Fully achieved	<ul style="list-style-type: none"> - 6,000 copies of the guideline on AEL materials were produced and distributed to schools and publishers. - 9 training sessions were conducted for 208 teaching staff and 14 demonstration sessions were conducted for 176 participants - There were nearly 800 views of the videos as at Apr 2013 	N/A
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2. Project Impact

A simple survey was conducted from Feb to April 2013 in order to collect users' feedback on the project. Among the 171 registered students and 17 registered schools, 64 completed and valid questionnaires (6 questionnaires completed by teaching staff of registered schools and 58 questionnaires completed by individual students) were received. Among the 58 questionnaires collected from individual respondents, 27 were visually impaired, 16 were physical handicapped and 15 were dyslexic.

Out of the 64 respondents, 44 (68.8%) had applied for converting services of learning materials. The majority of them were visually impaired or physically handicapped students. Only 4 dyslexic students applied for the services successfully as prior approval for copy right exemption has to be secured from concerned publishers for providing accessible learning materials for dyslexic students.

20 respondents (31.3%) had joined the training workshop or demonstration sessions. 47 respondents (73.4%) had applied for assistive software such as NVDA (HK Version) or MathCast. For those having not applied for assistive aids from the project, over 50% of them were physically handicapped who could read the AEL materials on the computer or other devices directly while some visually impaired students had already got their own assistive aids

Among the 58 questionnaires collected from individual students, 38 respondents (65.5%) agreed that "e-learning is more convenient" and 35 respondents (60.3%) agreed that "e-learning can arouse their interest at learning on the whole".

2.1 Learning effectiveness

Provision of Accessible Electronic Learning materials

- According to our users' verbal feedback collected in individual interviews and training sessions, the e-learning materials had greatly enhanced their learning experience. Firstly, the users were only required to wait for around 1-2 months in average for the e-materials after submitting a request. In contrast, the turn-around time was about 30% longer for requesting the Braille



equivalent. Secondly, e-learning materials, with the help of assistive tools, offer various facilities that can immensely strengthen the learning capabilities of print disabled students.

- Among the 44 respondents who had applied for AEL materials from the project, over 90% of them found the service acceptable or satisfactory. 29 respondents (65.9%) were satisfied with the converting time for the AEL materials and 12 respondents (27.3%) found the converting time acceptable. 35 respondents (79.5%) were satisfied with the accuracy of the AEL materials and 7 respondents (15.9%) found it acceptable.

Training and demonstration provided to the users and relevant parties

- During the demonstration sessions, the participants, including students, parents and teaching staff had been equipped with sufficient skills and knowledge to use the e-learning materials in an effective way. The training not only enhanced their skill of using e-learning materials, but also broadened their mind set of learning in an innovative way. The ways to use different kinds of assistive aid to make their learning effective and efficient were shared in the training and demonstration sessions.
- Among the 20 respondents who had joined the training workshop or demonstration sessions organized by the project, all of them agreed that the training workshop or demonstration sessions helped them understand more about the project as well as the functions & usage of assistive aids in e-learning. The workshop could help them have better way in e-learning.

Availability of assistive aids

- NVDA (HK version) is a screen reading software, developed by the Union, providing English, Putonghua and Cantonese speech and Braille output. The software was introduced to the users and a series of training on NVDA usage was provided to over 200 participants. As compared to imported screen reader that costs nearly \$10,000, the unit price of NVDA (HK version) is only HK\$300, which is far more affordable to the needy. Moreover, the registered users, including both students and schools, were offered free license of the software for their personal and educational use.
- The project developed an accessible Math expression software, Mathcast, for print disabled students to enable them to read and edit Math problems through NVDA. Two demonstration sessions were arranged for teaching staff of Ebenezer School and many valuable feedbacks were collected. According to the feedback obtained, even though the software still has room for improvement, it could help print disabled students, especially for those visually impaired, to solve their difficulties to submit mathematic homework to the teachers in main stream schools. In existing practice, visually impaired students have to do their mathematic homework in Braille format first and then pass it the resources teachers to help convert it into printed format to their mainstream school teachers . It is time consuming and may affect the students' learning motivation.



- Another software developed in this project is Putonghua BRITE (P-BRITE) which enables translation between Chinese text and Putonghua Braille automatically. As the software is only available for free download at HKBU from April 2013, there is no significant data available for report up to the end of project in April.
- Among the 47 respondents who had applied for assistive software, 36 respondents (76.6%) stated that the assistive level of the assistive aids in their learning process was satisfactory while 10 respondents (21.3%) found it acceptable.

2.2 Professional development

- The training for teachers and other professional staff at schools enabled them to facilitate their print disabled students in learning. Besides, free consultation and support were provided to some special schools in order to help the school provide an accessible e-learning environment to the print disabled students. For example, advice was given to Hong Kong Red Cross John F. Kennedy Centre for their website revamping to make sure it is accessible to print disabled students.

2.3 School development

- This project had increased participating schools' confidence in teaching students with print abilities, especially for those mainstream schools with less experience in dealing with print disabled students. The support such as training for teaching staff, supply of relevant assistive aids, consultation and advices not only helped the school better understood about the needs of print disabled students, but also gave them knowledge and skills in teaching students with print disabilities.

3. Cost-effectiveness

Table 2: Budget Checklist

Budget Items <i>(Based on Schedule II of Agreement)</i>	Approved Budget (a)	Actual Expense (b)	Change [(b)-(a)]/(a) +/- %
Staff Cost	\$1,962,480.00	\$2,055,933.82	+4.8%
Equipment	\$622,500.00	\$464,152.50	-25.4%
General Expense	\$159,000.00	\$167,147.08	+5.1%
Services	\$1,007,920.00	\$1,037,304.80	+2.9%
Other (Contingency)	\$78,000.00	\$0.00	-100%

4. Deliverables and Modes of Dissemination

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.
1,544 AEL materials were distributed, including 566 e-books and 988 e-learning materials such as handouts and notes.	All distributed e-learning materials was in accessible format and readable by common assistive aids without any barrier.	Mailing of CD, email, direct delivery of the AEL materials to the users throughout the whole project.	N/A
Near 1,000 copies of NVDA	NVDA is much cheaper than other screen-readers available in the market.	The software was sent to the registered users via email upon request; or users could download it directly at HKBU website with downloading code provided by HKBU.	N/A
Two assistive software, MathCast and P-BRITE	New software tailor-made to address the learning needs of print disabled students.	Free download at HKBU website (www.hkbu.org.hk)	Yes, QEF can share the information of the two developed software information and download way with any interested parties
9 training sessions and 14 demonstration sessions	Enabled the students, teachers and parents to pick up the e-learning skills.	Please refer to Table 4 for the detailed date and venue of the activities conducted.	N/A
A set of guideline on production of AEL materials	The guideline served as a valuable reference for concerned parties to embrace the skills and knowledge in producing AEL materials.	Distributed 6,000 copies to over 1,000 schools and the full copy can be downloaded at Project theme website (http://aelsupport.hkbu.org.hk)	Yes, QEF can share guideline information and download way with any interested parties
8 video clips on usage of assistive aids	Easy reference for concerned parties.	All the videos has been uploaded at HKBU website for free watching at anytime.	Yes, QEF can share videos information with any interested parties
A Casebook recording interviews of users and volunteers	Collecting the feedback of the stake holders.	Distributed 1,500 copies to over 1,000 schools and the full copy can be downloaded at Project theme website (http://aelsupport.hkbu.org.hk)	Yes, QEF can share casebook information with any interested parties

5. Activity List

There were a series of activities organized under the project in the past two years. Details please refer to Table 4 as below.

On top of the activities organized by Blind Union, the project team has joined various activities as guest speaker or exhibitor to promote the project. Full list of activities organized by Blind Union or engaged during the project period can be found at Appendix I.

Table 4: Activity List (Organized by Blind Union)

Types of activities (e.g. seminar, performance, etc.)	Brief description (e.g. date, theme, venue, etc.)	No. of participants				Feedback from participants
		schools	teachers / teaching staff	students	others (Please specify)	
Briefing session	Jul 29, 2011 HKBU	-	-	-	5 volunteers	Please refer to the section below for the details of feedback obtained from volunteers, students, parents and teaching staff respectively.
Demonstrations on assistive aids	Aug 13, 2011 HKBU	-	-	12	20 parents	
Demonstrations on assistive aids	Aug 26, 2011 HKBU	-	-	7	-	
Training workshop on e-learning	Aug 31, 2011 Ebenezer School	1	40	-	-	
Demonstrations on assistive aids	Sep 26, 2011 Ebenezer School	1	-	5	-	
Demonstrations on assistive aids	Sep 27, 2011 Ebenezer School	1	-	6	-	
Demonstrations on assistive aids	Sep 28, 2011 Ebenezer School	1	-	6	-	
Briefing session	Sep 30, 2011 HKBU	-	-	-	3 volunteers	
Training workshop on e-learning	Oct 20, 2011 Hong Kong Red Cross John F. Kennedy Centre	1	30	-	-	
Demonstrations on assistive aids	Oct 20, 2011 Ebenezer School	1	-	6	-	
Training workshop on e-learning	Oct 28, 2011 Hong Kong Red Cross Princess Alexandra School	1	20	-	-	
Demonstrations on assistive aids	Nov 20, 2011 Ebenezer School	1	-	3	21 parents	
Briefing session	Nov 25, 2011 HKBU	-	-	-	10 volunteers	
Volunteer gathering	Dec 8, 2011 Dialogue in the Dark	-	-	1	13 volunteers	



Training workshop on e-learning	Jan 6, 2012 Fortress Hill Methodist School	1	32	-	-
Briefing session	Jan 13, 2012 HKBU	-	-	-	4 volunteers
Demonstrations on assistive aids	Jan 14, 2012 HKBU	-	-	3	2 parents
Training workshop on e-learning	Mar 8, 2012 HKU SPACE	-	-	-	30 students of Special Education Diploma
Training workshop on e-learning	Apr 23, 2012 HKBU	1	5	-	-
Sharing with CQSEC (重慶盲人學校)	May 10 & 11, 2012 HKBU	1	4	-	-
Software MathCast demonstrations	May 18, 2012	1	40	-	-
Demonstrations on assistive aids	May 20, 2012 Ebenezer School	1	-	2	9 parents
Launching Ceremony of project casebook	Jun 16, 2012 HKBU	5	9	5	32*
Demonstrations on assistive aids	Nov 26, 2012 China Holiness Church Living Spirit College	1	4	20	-
Demonstrations on assistive aids	Dec 12, 2012 Concordia Lutheran School (North Point)	1	1	2	-
Demonstrations on assistive aids	Dec 17, 2012 Kwun Tong Kung Lok Government Secondary School	1	3	12	-
Briefing session	Jan 30, 2013/5/7 HKBU	-	-	-	4 volunteers
Demonstrations on assistive aids	Feb 5, 2013 Carmel Bunnan Tong Memorial Secondary School	1	4	1	-
Software MathCast demonstrations	Apr 23, 2013 Ebenezer School	1	7	-	-
Demonstrations on assistive aids	Apr 29, 2013 Chong Gene Hang College	1	-	20	7 parents

*there were over 50 participants joining the Launching Ceremony of project casebook on June 16, 2012, including officiating guests, teachers / teaching staff, students, parents, representation from publishers and different government departments such as EDB, EAA, OGCIO, mass media, etc.

Feedback from participants on activities organized in the project

1. Volunteer joining briefing session

Total 5 briefing sessions were organized for 26 volunteers. On top of an introduction of the project and special learning needs of print disabled students, knowledge and skills on producing accessible e-learning materials were shared with the volunteers as well. According to verbal feedback collected during the activities, the volunteers shared that they were impressed by this meaningful project and they had got some basic ideas of how to produce accessible e-learning materials for the needy after the briefing session.

A volunteer gathering was held in December 2011 for the volunteers to share their experiences and views on the project. Besides, an email invitation was sent to all registered volunteers to ask them to share their comments on the project for the production of project casebook in April 2012. More than 10 concrete messages were received from the volunteers and all of them were positive. Detailed content can be found at the project casebook which was published in June 2012.

2. Students and parents / family members joining demonstration session

14 demonstration sessions were conducted for 176 participants, including 105 students and 71 parents / family members. According to verbal feedback collected during the activities, they all agreed that the demonstration session had enabled them to understand more about the usage of assistive aids and how to use it to make their e-learning process more effective and efficient. Meanwhile, the majority of participants agreed that the assistive aids were helpful in their learning process on the whole and the comments obtained are consistent with the survey results.

Besides positive feedback, some participants, especially for the group with physical handicap and dyslexia who were not so familiar with assistive aids such as screen reader NVDA (HK Version), gave a lot of comments on the functionality design of the assistive aids at the same time. They suggested many creative functions which had never been mentioned by the visually impaired group before. Some ideas were constructive and possible. These ideas were helpful for Blind Union to further develop assistive aids and make it widely used by different groups in need.

3. Teaching staff join training workshops / demonstration session

9 training sessions were conducted for 208 teaching staff including teachers, physical therapists and occupational therapists. According to verbal feedback collected during the activities, they all agreed that the training workshop had given them more ideas about the needs of print disabled students in learning and the ways to use e-learning to facilitate their students in learning process.

6. Difficulties Encountered and Solutions Adopted

6.1 Identifying suitable ebook production vendor

In the original proposal, sufficient manpower was proposed to handle the tasks of convert accessible

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

e-learning materials. However the manpower for making e-books was not approved and QEF counter-requested the project to outsource the book production jobs.

In the beginning of the project, HKBU spent more than four months' time on finding suitable vendors and providing intensive training to them. Substantial amount of time was spent on the training and negotiation with the vendors. Fortunately, a few vendors were identified after long time of searching. On the other hand, application for reallocation of resources to add extra manpower for ebook production were approved by the QEF in August 2011 and May 2012. As a result, the overall ebook production progress became more smooth in the second year of the project.

6.2 Seeking consent of the publishers

Another difficulty we encountered was in seeking the consent of the publishers for the e-book production order from students with dyslexia as according to the existing Copyright Ordinance, dyslexia is not included in the definition of print disabilities. Usually, it took us more than one month's time to get the reply from publishers after sending request to them.

The situation became better when the project has been operated for a period of time and cooperative relationship were established with some key publishers

The overall waiting time for getting approval from the publishers was much shorter than that at the beginning of the project. However, the overall availability of ebooks for dyslexic students was still much less than that for the other two groups of students as the complexities of application and reluctant replies from some publishers. It ended up that many dyslexic students only applied for assistive aids and training from the project while their e-learning materials were mainly provided by schools or resources teachers.

Hong Kong Blind Union
Accessible E-Learning Support Project - Activities report

Activities	Date	Venue	Number of Participants
Briefing for potential users – joining school open day and setting up a booth with “i Learn at home” project to introduce the 2 projects to students, parents and teachers	Jul 12, 2011	SAHK B M Kotewall Memorial School	Over 50 visitors to our booth
Brief presentation of the project at “i Learn at home” meeting with other concerned social service agencies	Jul 28, 2011	The Hong Kong Council of Social Service Web Organic project meeting	Representatives from 14 NGOs
Briefing session for volunteers	Jul 29, 2011	Hong Kong Blind Union	5 volunteers
Demonstrations of using e-learning materials with assistive aids*	Aug 13, 2011	Hong Kong Blind Union	12 students & 20 parents
Demonstrations of using e-learning materials with assistive aids*	Aug 26, 2011	Hong Kong Blind Union	7 students
Training workshop on e-learning / briefing of project#	Aug 31, 2011	Ebenezer School	40 school staff
Brief presentation of the project at “i Learn at home” activity	Sep 15, 2011	The Hong Kong Council of Social Service Web Organic project “Seed School Program” briefing	Representatives from over 100 schools
Demonstrations of using e-learning materials with assistive aids*	Sep 26, 2011	Ebenezer School	5 students
Demonstrations of using e-learning materials with assistive aids*	Sep 27, 2011	Ebenezer School	6 students
Demonstrations of using e-learning materials with assistive aids*	Sep 28, 2011	Ebenezer School	6 students

Briefing session for volunteers	Sep 30, 2011	Hong Kong Blind Union	3 volunteers
Training workshop on e-learning / briefing of project#	Oct 20, 2011	Hong Kong Red Cross John F. Kennedy Centre	30 school staff
Demonstrations of using e-learning materials with assistive aids*	Oct 20, 2011	Ebenezer School	6 students
Training workshop on e-learning / briefing of project#	Oct 28, 2011	Hong Kong Red Cross Princess Alexandra School	20 school staff
Briefing session for volunteers	Oct 28, 2011	Hong Kong Blind Union	10 volunteers
Demonstrations of using e-learning materials with assistive aids*	Nov 20, 2011	Ebenezer School	3 students & 21 parents
Workshop of the project at “i Learn at home” activity	Nov 24, 2011	Hong Kong Productivity Council	Representatives from 50+ schools
Briefing session for volunteers	Nov 25, 2011	Hong Kong Blind Union	10 volunteers
Volunteer gathering	Dec 8, 2011	Dialogue in the Dark	13 volunteers and 1 VI student
Training workshop on e-learning / briefing of project#	Jan 6, 2012	Fortress Hill Methodist School	32 school staff
Briefing session for volunteers	Jan 13, 2012	Hong Kong Blind Union	4 volunteers
Demonstrations of using e-learning materials with assistive aids*	Jan 14, 2012	Hong Kong Blind Union	3 students & 2 parents
Training workshop on e-learning / briefing of project (students of special education diploma at HKU SPACE) #	Mar 8, 2012	Pathways Foundation Limited 博思會	30 potential staff of special education
Training workshop on e-learning / briefing of project#	Apr 23, 2012	Concordia Lutheran School – North Point	5 teachers
Sharing with CQSEC (重慶盲人學校) on e-learning / briefing of project#	May 10, 11, 2012	Hong Kong Blind Union	4 teachers

Math expression software (MathCast) demonstration #	May 18, 2012	Ebenezer School	40 school staff
Demonstrations of using e-learning materials with assistive aids*	May 20, 2012	Ebenezer School	2 students & 9 parents
Launching Ceremony of project casebook	Jun 16, 2012	Hong Kong Blind Union	Over 50 participants
Learning and Teaching Expo	Nov 22, 23, 24, 2012	Hong Kong Convention & Exhibition Centre	Over 150 visitors to our booth
Demonstrations of using e-learning materials with assistive aids*	Nov 26, 2012	China Holiness Church Living Spirit College	20 students & 4 teachers
〈世界青獅服務日〉閱覽生命嘉年華	Dec 9, 2012	Lions College	20 students
Demonstrations of using e-learning materials with assistive aids*	Dec 12, 2012	Concordia Lutheran School (North Point)	2 students & 1 teacher
Demonstrations of using e-learning materials with assistive aids*	Dec 17, 2012	Kwun Tong Kung Lok Government Secondary School	12 students & 3 teachers
Briefing sessions for volunteer	Jan 30, 2013	Hong Kong Blind Union	4 volunteers
Demonstrations of using e-learning materials with assistive aids*	Feb 5, 2013	Carmel Bunnan Tong Memorial Secondary School	1 students & 4 teachers
Math expression software (MathCast) demonstration#	Apr 23, 2013	Ebenezer School	7 teachers
Demonstrations of using e-learning materials with assistive aids*	Apr 29, 2013	Chong Gene Hang College	20 students & 7 parents

Training on e-learning / briefing of project for teaching staff

* Demonstration of using e-learning materials with assistive aids for students, parents and teaching staff

