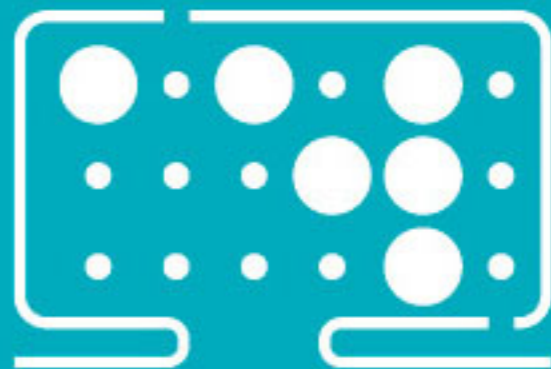


ACCESSIBLE E-LEARNING SUPPORT PROJECT

CASEBOOK

無障礙電子學習支援計劃 - 使用者分享集

Let's work together to help print disabled students to utilize their full potential! 攜手協助閱讀障礙學生，全面發揮個人潛能



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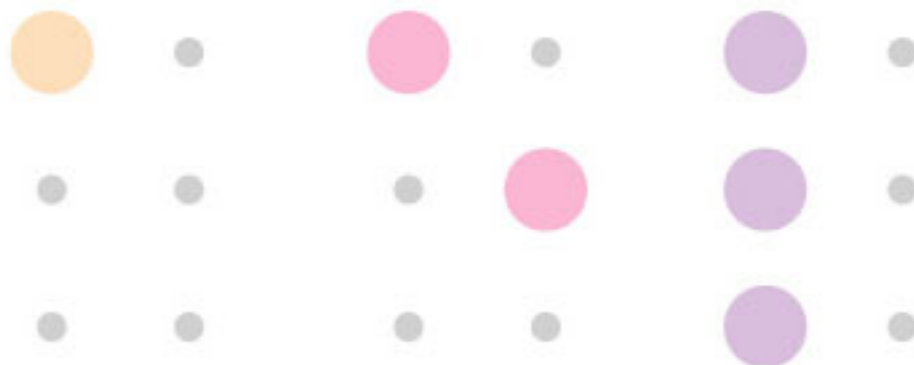
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香港失明人協進會會長莊陳有先生

Mr. CHONG Chan Yau, MBE, President of Hong Kong Blind Union

序言 FOREWORD

「每天上學就有如背著一大堆石頭，書包裡放著的是一本本厚厚的點字書。」相信不少視障朋友在求學時也曾遇過以上的情况。為了學習，視障朋友從不介意比別人付出更大的努力。但隨著資訊科技的發展，我相信今天應該有更理想的學習環境及配套令視障朋友可以輕鬆地學習。

行政長官在二零一一年施政報告指出，政府將於未來日子積極發展電子教學，希望學生可以利用普及的資訊科技及互聯網，便利地獲取訊息和學習新知識。為了讓視障學生可同樣享受資訊科技所帶來的效益，本會於二零一一年五月推出一個嶄新的「無障礙電子學習支援計劃」，為有閱讀障礙的人士，包括視障、肢體殘障以及讀寫障礙的中小學生，協助他們轉譯教科書及教材成為電子版本，免費提供相關的輔助軟件以便閱覽電子書，以及為有需要的師生及家長提供電子教材應用的培訓，縮減「數碼鴻溝」。透過計劃，讓閱讀障礙學生可以無障礙地學習，達至「電子學習除讀障」的目的。

電子書比一般點字書攜帶方便，學生可以把有關檔案儲存在電腦、平板電腦以及USB記憶棒內，大大減輕了他們書包的負擔。另外，學生可以利用搜尋功能，方便快捷地找到想閱讀的內容位置。電子書的另一個好處是學生可以在檔案內隨意加上標記及註解，作為個人化筆記，令學習事半功倍。

此分享集由學生、家長、老師、學校同工以至義工一同分享參與此計劃後的一點一滴改變，希望藉著這分享集令更多社會人士了解閱讀障礙學生的特殊需要，讓更多學生可以有接受均等教育的機會，促進香港成為一個無障礙的共融社會。



"In my old school days there were always a number of thick Braille books in my school bag and it was like carrying a pile of slates every day I went to school." I think that it has been the common situation for many visually impaired friends in their school days. In order to learn, visually impaired persons do not mind paying extra effort. However with the advancement of information technology, I believe that visually impaired persons should have better learning environment and support to learn with ease.

In his Policy Address 2011, the Chief Executive announced that the Government would proactively develop e-learning in future, and hoped that students could utilize the widely available information technology and Internet to acquire information and new knowledge in a convenient and effective way. In order to allow the visually impaired students to equally enjoy the benefits of information technology, Hong Kong Blind Union launched the innovative "Accessible E-Learning Support Project" in May 2011. The Project helps people with print disabilities, including dyslexia, visually, or physically impaired students in primary and secondary schools, by converting textbooks and learning materials into ebooks, providing free assistive software to facilitate reading, and training students, teachers and parents who need to use e-learning materials. Through this Project, print disabled students can learn without barrier, achieving our aim of "tackling barrier with e-learning".

Ebooks are more portable than conventional Braille books, students can store the files in computers, tablets and USB flash drives. This greatly reduces their burden of carrying heavy school bags. Besides, students can use the search function to quickly and easily locate the content they want to read. Another advantage of using ebook is that students can add marks and comments onto the documents as their personal notes to the materials, which significantly enhances the effectiveness and efficiency of learning.

In this casebook, students, parents, teachers, school staff and volunteers share every bit of the changes in their lives after they have joined the Project. We hope these could make more people understand the special needs of print disabled persons, more students can enjoy equal opportunities to receive education, and Hong Kong a barrier-free inclusive society.



教育局副局長陳維安太平紳士
Mr. Kenneth CHEN, JP, Under Secretary for Education

序言 FOREWORD

四月初，有「香港霍金」之稱的劉曉鋒先生與世長辭。曉鋒在世只有短短的28年，但他從未屈服於肌肉萎縮的頑疾。他用僅能控制兩根筷子的雙手，不但以一級榮譽畢業於理工大學，更成為2010年的十大傑青。我期望曉鋒的奮鬥過程，為所有的青年人，無論有否能力障礙，燃起激情和希望。我感謝香港失明人協進會推行是項「無障礙電子學習支援計劃」，支援有閱讀困難的同學。願同學常懷感恩、積極的態度，好好利用這個計劃的成果，突破自己，活出精彩的人生！



Mr LAU Hiu-Fung, often known as the Stephen HAWKING of Hong Kong, passed away in early April. While Hiu-Fung's life spanned only 28 short years, he had never succumbed to his paralyzing condition. With hands that could only move two sticks, he graduated with First Class Honours from Hong Kong Polytechnic University and was recognized as one of the Ten Outstanding Young Persons in Hong Kong in 2010. I hope that Hiu-Fung's courageous life will be an inspiration to all young people. I would like to thank the Hong Kong Blind Union for launching this innovative "Accessible E-Learning Support Project" to help those with reading difficulties. And it is my wish that the students who participate in this programme will be grateful for the opportunity and emerge from the experience with renewed confidence in their future!



心光盲人院暨學校院長林樊潔芳女士
Mrs. Fanny LAM, BBS,
Chief Executive Officer of Ebenezer School & Home for the Visually Impaired

序言 FOREWORD

香港失明人協進會的「無障礙電子學習支援計劃」，是一個創新的概念，透過把印刷版閱讀材料轉譯為電子版本，令文字內容呈現在電腦系統上。這個計劃對心光學校的視障同學來說，是學習的一個突破。他們能透過計劃中的輔助器材，選擇一套適合自己的閱讀方法，或透過聲音、或透過點字，或兩者兼用來閱讀有關書籍及資料。特別是對摸讀能力較弱或習慣以聽書模式學習的同學，提供較快捷及方便的方法去閱讀。計劃還提供現有點字書以外閱讀材料的轉譯服務，擴闊閱讀的內容，提昇視障同學的學習動力。此外，電子版在圖像、格式的表達，較傳統點字的來得方便靈活。很高興這計劃能把視障同學的學習障礙減到最少。



We are very pleased to note that the innovative "Accessible E-learning Support Project" has been successfully launched by the Hong Kong Blind Union. The project facilitates printed textbooks or reading materials to be turned into an electronic format, thus making them accessible on the computer to students with problem reading the print version. This is a breakthrough in terms of learning to our visually impaired students at Ebenezer School. Our visually impaired students can read or listen to the ebooks on their computer by means of Braille display or screen reading software. The Project would not only facilitate the reading of linear text but also offer a better alternative to Braille in representing non-linear text like diagrams and tables. The reading facilities thus made available to visually impaired students by the Project will go a long way to meeting the needs of our students in extending their learning experiences and opportunities in today's knowledge-based society.





關於 ABOUT

香港失明人協進會
HONG KONG BLIND UNION

香港失明人協進會成立於 1964 年，是首個由視障人士自行管理及組織之自助團體。一直以來，以促進視障人士發揮自助互助精神，推動平等、機會、獨立為宗旨。

Hong Kong Blind Union was established in 1964. It is the first self-help group organized and managed by people with visual impairment. It aims at promoting the spirit of "self-help" and "mutual-help" among visually impaired persons as well as striving for equality, opportunities and independence for them.

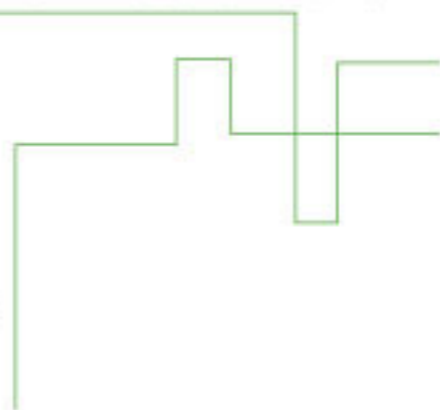


無障礙電子學習支援計劃 ACCESSIBLE E-ELEARNING SUPPORT PROJECT

計劃目標 GOALS AND OBJECTIVES

為閱讀殘障學生提供各類支援服務，協助他們善用電子模式學習，藉此消除他們與一般學生在學習上的差距。

To bridge the learning gap between students with and without disabilities by providing various kinds of support services for print disabled students so that they can make the best use of e-learning in their academic pursuit.



服務對象 TARGET

- 閱讀殘障學生，包括以下的殘障類別：
 - 視力障礙
 - 肢體傷殘（無法手持書本或翻頁）
 - 讀寫障礙
- 有關學生的家長及老師
- 向有關學生提供服務之機構
- Students with print disabilities, including:
 - visual impairment
 - physical disability (unable to hold or manipulate a book)
 - dyslexia
- Their parents and teachers
- Agencies serving students with print disabilities

服務內容 SERVICES

- 製作無障礙電子教材
 - 將閱讀殘障學生的教科書、參考書及教材轉換成他們可閱讀的電子版本；
- 培訓及支援
 - 編制指引清楚列明無障礙電子教材的格式要求，供教師及出版商參考；
 - 向有關的學生、家長及教師提供相關的技術支援及顧問服務；
- 研發相關輔助工具
 - 檢視最新的輔助科技，研發適合閱讀殘障學生的學習軟件。
- Production of e-learning materials
 - To convert textbooks, reference books and other learning materials into accessible format for the study use of print disabled students;
- Training and support
 - To compile guideline on accessible formats of e-learning materials for reference of teachers and publishers;
 - To provide technical support and consultancy service to students, parents and teachers on the use of assistive devices;
- Assistive tools research and development
 - To evaluate latest technical aids and develop suitable software for the use of the target students.



輔助學習工具 ASSISTIVE LEARNING AIDS

「工欲善其事，必先利其器」。要在學業上取得優異成績，個人的努力當然少不了。但如在學習的過程中，可以有更多的支援，相信一定讓閱讀殘障學生可更輕鬆容易地學習。

閱讀殘障學生在學習上需要比其他同學克服更多的困難，而一些輔助學習工具對他們來說更為重要，以下是一些閱讀殘障學生常用的輔助學習工具簡介。

A sharpened tool is necessary for a craftsman to excel in his job. In order to have good results in school, personal effort is indispensable. But more support in the process of learning will definitely help students with print disabilities to learn more easily.

Print disabled students have to overcome more difficulties than those without in learning. Assistive learning aids are therefore important to them. Below is an introduction on some commonly used assistive learning aids.



文件字體放大機 Desktop CCTV

可把一般文件和書本上的文字放大顯示出來，讓弱視朋友能夠閱讀。
This can magnify words in ordinary documents or books for the people with low vision to read.



印刷文件掃描報讀機 Scanning & Reading Appliance

可把印刷文件掃描和朗讀出來，讓視障朋友能夠知道文件的內容。
This can scan and read aloud printed text for visually impaired persons to comprehend the documents content.

電腦屏幕放大軟件 Screen Magnifying Software

可把電腦屏幕畫面的文字或圖片放大，給弱視朋友閱讀當中的內容。
This can magnify words or images shown on computer screen for people with low vision to read.



點字凸圖打印機 Tactile Image Enhancer

可連接電腦，然後利用它印刷凸圖點字，讓失明人士能夠摸讀。
This connects with the computer to produce tactile images and Braille dots for visually impaired persons to comprehend by touching.



讀屏軟件 Screen Reading Software

可把電腦屏幕所顯示的文字報讀或利用點字顯示器顯示出來，讓視障朋友能夠知道畫面所顯示的內容。
This can read aloud the text shown on the computer screen, or display it with a Braille display for visually impaired persons to know what is being shown on the screen.

電子記事簿 Electronic Notebook

有點字和語音報讀功能的電子記事簿，可供視障人士使用。
Electronic notebook with Braille or voice output can be used by visually impaired persons.



點字顯示器 Braille Display

可連接電腦，讓讀屏軟件能夠把電腦屏幕的資料利用點字顯示器顯示出來，讓失明朋友能夠摸讀。
This connects with the computer to let screen reading software show the contents on the computer screen with a Braille display so as to let visually impaired persons comprehend by touching.



光學文字辨識系統 Optical Character Recognition (OCR) System

可把已掃描的印刷文件轉換成文字檔案，然後失明人士可利用其他輔助器材，例如點字顯示器或電腦屏幕報讀軟件等了解有關文件的內容。
It converts scanned printed documents into text for visually impaired persons to understand what the documents are about by using other assistive aids, such as Braille display or computer screen reading software.

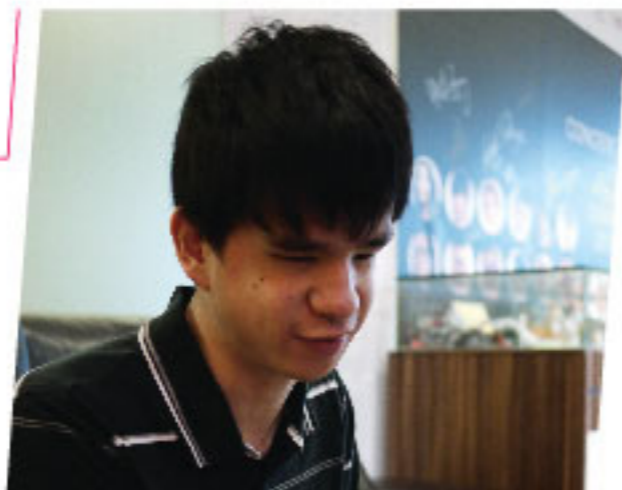


末代考生的辛酸 被訪者：嘉濠

嘉濠是本計劃的首名使用者，現時在馬鞍山一間主流學校就讀中七，亦是他在主流學校讀書的第五個年頭。他憶述兩年前準備會考的情況，可真是驚險萬分。由於公開試的參考資料繁多，而轉譯點字教材亦甚需時間，嘉濠說有些科目甚至到了考試前幾天，仍未有齊所有的點字教材。面對考試壓力的同時，嘉濠增添了一份驚慌和無助感。

在過去的學習生活中，嘉濠常常面對教材轉譯速度跟不上教學進度的問題。他曾經想過請同學替他的一些內容輸入電腦內成為文字檔案，但又怕麻煩同學太多令人生厭，最後只好請同學們把筆記內容用聲音錄下來。但每次溫習時，嘉濠就需要慢慢去搜尋不同溫習重點的錄音位置，十分費時和不便。

自本計劃推出後，嘉濠不時會把筆記、參考書及歷屆的高考試題寄給協進會的同事們，請他們幫忙轉為電子檔案，以方便他上課及溫習。這計劃除了大大縮短了嘉濠等候教材的時間外，還有一個意料之外的改變。嘉濠說：「以往老師不會派發一些人手抄寫的筆記給班中同學，主要是考慮到公平的原則，不希望有些我不能夠閱讀到的筆記卻派給其他同學。現在透過這個計劃，老師可以預先將筆記轉譯成電子版本，然後派給所有同學應用。想不到此計劃最後連其他同學也可得益。」



多年來一直和嘉濠一起學習的Jacky，以往一直協助嘉濠預備筆記和閱讀教材。自嘉濠參與計劃後，Jacky 說他的工作量真的減輕多了。他倆現在可以用多些時間交流不同的筆記和溫習重點，一起組成學習小組，希望在最後一年的高級程度會考裡爭取到好成績。

隨著使用電子教材後提升了學習效率，嘉濠覺得自己的心情比以前輕鬆得多。以往，他每天要背著六本如字典般厚的點字書上學，到現在可以減少至四本。再者，上課時老師經常需要同學們記下重點，以往他只會把重點句子首尾的詞語先記下來，而且多有缺漏，然後回家慢慢整理筆記，需時甚久。自有了電子筆記後，他可以在電子教材上的重點範圍加些記號，回家後只要專心溫習便可以，大大節省了抄寫等文書性工作的時間。

最後，快將結束中學生涯的嘉濠期望此計劃日後可伸延惠及大專生，令更多同學可以獲得協助，提昇他們的學習效能。

嘉濠與朋友
Jacky (右)合照
Photo of Ka Ho
and his friend,
Jacky (Right)



The Hardship of the Last Batch of HKALE Candidates Interviewee: Ka Ho

Ka Ho is the first user benefited from the Project. He is currently attending form 7 in a mainstream secondary school in Ma On Shan, and this is also his fifth year there. He recalls the thrilling moment 2 years ago when he was preparing for HKCEE. Ka Ho said that, because of the immense amount of learning materials for the public examination, and the long time needed for converting them into Braille, the materials of some subjects were not completely available even by few days before the examination. Ka Ho could not help being more worried and frustrated while facing the examination pressure.

In his past studying life, Ka Ho always faced the problem of not catching up with the teaching progress due to the slow speed of

converting printed materials into Braille. Once he thought about asking his classmates help input texts into computers to create text files. But he worried that it would bothered them too much. So at last he asked his classmates to record the notes with voice instead. However, it was very time consuming and inconvenient whenever he tried to locate the points.

Since the launch of this Project, Ka Ho often sends notes, references, past HKALE examination papers to the staff of Hong Kong Blind Union for helping him to convert into electronic format to facilitate his studying and revision. Apart from shortening the time of waiting for learning materials, the Project has brought about another unexpected change. Ka Ho said: "In the past, our teachers wouldn't





distribute hand-written notes to my classmates because of fairness; they didn't want to give other classmates notes that I couldn't read. Now, through this Project, teachers can convert the notes into electronic version before distributing to all classmates. Unexpectedly, this Project benefits other classmates as well."

Jacky has studied together with Ka Ho for many years and always helped Ka Ho to prepare notes and read teaching materials. Jacky said that his workload has become eased after Ka Ho joined the Project. They can now use more time to exchange notes and key points in revision, form a studying group, and hope to obtain good results in the last year of HKALE.

As learning becomes more effective after using e-learning materials, Ka Ho feels that he is more relaxed at present than in the past. Previously he needed to carry six Braille books to school, each of which was thick like a dictionary. Now the number has been reduced to four. Moreover, during classes, teachers always ask students to write down key points. Ka Ho used to jot down the beginning and the end of the key sentences and organize the notes at home, which was time-consuming, and some points would be forgotten. After ebooks are available, he can add marks to the key areas and concentrate on revision after class. This also save his time of copying the notes.

Ka Ho's secondary school life almost coming to the end. He hopes that the Project could be extended to cover tertiary students in the future to benefit more students, enhancing more students' learning effectiveness.



失明學生為迎接主流學校的學習生活作準備 被訪者：諾兒

諾兒(Joyce)現就讀於心光盲人學校中三年級，下學年她即將開始於主流學校學習。Joyce表示明白主流學校的學習環境與心光大不同，所以已開始為迎接新的學習生活而作出準備，包括多使用電子教材、上課時以電子輔助器材如 Braille Notetaker 做筆記及開始用電腦做功課，希望日後同老師和同學的溝通會方便一些。

Joyce說：「利用讀屏軟件使用電子教材溫習，不但減少了搬運點字書回家溫習的麻煩，而且問爸爸媽媽功課時亦方便得多。」由於Joyce是走讀生，即每天放學需回家的學生。以往使用點字書，如遇到測驗或考試前，她需要預早一星期開始將點字書逐少搬回家預備溫習。而每當請教爸爸媽媽功課時，又要另外取

出印刷書來對比內容。但使用電子書後，一支輕便的USB記憶棒便可載入多本的電子書，同時，爸爸媽媽透過電腦屏幕，對Joyce的溫習進度便一清二楚。

現時很多教科書內，都會列出一些網址讓學生去做資料搜集，Joyce說以往很怕去這些網站，因她要先記下網址然後再於電腦內重新輸入，而很多時都會因為輸入網址錯誤而找不到想去的網站。電子書的好處是只需一按便可直接開啟網頁，認真方便快捷。



Blind Student Prepares for Study Life in Mainstream School Interviewee: Joyce

Joyce is currently studying form 3 in Ebenezer School, and will start learning in a mainstream school next academic year. She understands that the learning environment in mainstream schools and Ebenezer School is completely different, so she has already started her preparation for new school life, including using ebooks and electronic assistive aids such as Braille Notetaker in classes for note taking, and beginning to do homework with computer, and hoped that it would be easier to communicate with teachers and fellow classmates.

Joyce said: "Using screen reading software to review e-learning materials does not only reduce the trouble of carrying Braille books back home, but is also easier when asking parents questions about homework." As Joyce is a non-resident student, i.e. a student who needs to go home after school, in the past she needed to begin carrying her Braille

books bit by bit to her home for revision a week before the test or examination, and when asking her parents questions about homework, she needed to retrieve a separate printed book to compare the content. However, after using ebooks, a portable USB flash drive is good enough to carry numerous ebooks, and her parents can know about the progress of her revision through checking the computer screen.

Nowadays, many textbooks contain lists of web addresses to facilitate students' collection of information. Joyce said she was afraid of visiting these websites in the past, because she had to remember the web addresses and then input them to the computer, a tiny memory error could be her barrier to these recommended study materials. The advantage of ebooks is that she can reach the website with just one click away, quick and easy indeed.





用「耳」閱讀 — 視障學生的學習模式

被訪者：阿驊

就讀於炮台山循道衛理中學的視障學生阿驊，他的右眼已經完全失明，而左眼只有一至兩成的視力。他往往需要比其他人花更多的精力去閱讀，因此，他比一般人更容易因為閱讀而感到疲倦。

雖然阿驊對點字有基本認識，但他仍未習慣完全使用點字書。為了減輕他用眼去「閱讀」的負擔，他現在開始多使用讀屏軟件，以聲音用「耳」閱讀。

他說：「現在有了這個讀屏軟件，就可以減少溫習的時間，以及閱讀所花的精力。當感到疲倦時，就可以利用讀屏軟件去聽。」

除了利用讀屏軟件溫習外，阿驊亦會上網搜集資料、文章以及閱讀報紙。「以前很少上網，因為覺得上網很悶！看著那些文字，有時會感到很疲倦，眼睛就不想看著電腦屏幕了。」

但自從使用讀屏軟件後，阿驊現在變得愛上網了。

讀屏軟件對於阿驊來說，還有一項很特別的用途，就是幫助改善他的懶音。他說：「讀屏軟件還令我改善了很多懶音，例如以往我會把「國家」說成「角家」，現在當我多聽讀屏軟件的讀音後，我也會讀「國家」了。」

除此以外，阿驊亦使用我們的電子書轉譯服務，他認為幫了他很多，他現在可以把檔案放在電腦或平板電腦內閱讀，不用再依賴家人替他閱讀書本的內容。另一個好處就是他不再需要拿著一疊又一疊厚厚的書上學，減輕了不少上學的「行裝」。

Read with Ear – How Visually Impaired Students Learn

Interviewee: Ah Wah

Ah Wah, a student enrolled in Fortress Hill Methodist Secondary School, has a right eye completely blind and a left eye with only 10% to 20% of normal vision. When he reads, he often needs to spend more effort. Therefore he feels tired more easily than people with normal eye sight.

Although Ah Wah has basic knowledge of Braille, he is not used to reading Braille books. In order to reduce the burden on his eyes for "reading", he now uses screen reading software more frequently to read with his "ears" on sound.

"With this screen reading software, I can reduce the amount of time used for revision, and the energy spent on reading. When I am tired, I can use screen reading software to listen." he said.

Besides using screen reading software for revision, Ah Wah also use it to collect information, articles and read newspapers online. "I seldom surfed the Internet in the past, I found it boring. I sometimes felt tired while looking at those texts, and then my eyes just didn't want to look at the computer screen anymore." But since he started to use screen reading software, Ah Wah now enjoys surfing the Internet.



Screen reading software has another benefit to Ah Wah. It can fix his pronunciation. He said: "Screen reading software has fixed many of my pronunciation problems. For instance, in the past I pronounced '國家' as '角家'. Now after I listen frequently to the voice output of the screen reading software, I know that it should be read as '國家'."

Apart from that, Ah Wah also uses our ebook conversion service. He thinks that this service has helped him a lot. He can now read by putting the files in computer or tablets, and no longer need to rely upon his family to read out the content for him. Another advantage is that he does not have to carry the endless piles of thick books to school any more, greatly reducing his burden.



為忙碌的老師提供支援，讓她們做真正的教育工作 被訪者 - 心光學校黎衍善老師

黎衍善老師於心光學校任教多年。以往，黎老師和其他老師一樣，多以點字教材教學。黎老師指出，點字教材在製作和與學生溝通上也有一定的難度。老師編寫完教材後，需由其他文職同事轉譯成點字，然後再列印給同學。但由於文職同事的數目有限，而他們同時要處理多個級別、科目的教材，工作變得非常繁重。為使學生可以早點有教材使用，老師們很多時會利用自己的課餘時間協助轉譯點字教材，連休息的時間也犧牲掉。

隨著資訊科技的普及，製作電子教材比起點字教材省時得多。有了電子書後，老師不用再等候文職同事把檔案轉譯成點字，可以直接利用電子檔案進行教學，或稍作修改製成習作供學生使用。整個教學流程不但比以前更方便、快捷，老師亦有更多時間關注學生在學習及成長上的需要。

電子教學亦改善了學生與老師的溝通。學生使用點字課本上課，每當他們遇到課文問題時，由於點字課本與印刷書的頁數有別，老師往往需要花點時間找出他們不明白的課文位置，再作講解。現在，老師只要透過電腦顯示屏便可以明白學生學習的進度。整個過程既省時之餘又可提升老師與學生之間的溝通。

最後，黎老師認為「無障礙電子學習支援計劃」最大的受惠者是心光學校的外讀生，因為當他們離開母校到其他主流學校上學時，部分學生未能及時得到點字教材使用，只能單靠聆聽老師上堂的口述知識，課後欠缺點字教材以供溫習。現在，主流學校或學生可以登記成為計劃的使用者，由計劃免費協助將印刷教材轉譯成電子教材，令學生能「學而時習之」，緊貼教學進度。



Spare Our Teachers to Focus on Teaching Interviewee: Ms. Lai Yin Sin, Teacher of Ebenezer School

Ms. LAI Yin Sin has been teaching in the Ebenezer School for years. In the past she taught with Braille materials like her fellow teachers. There was a certain level of difficulty in production and communication for Braille materials. Contents compiled by teachers had to be converted into Braille by clerical staff before being printed and distributed to students. As the supporting manpower was scarce with wide coverage to various grades and subjects the clerical staff workload became hectic and the lead time was long. In order to expedite the process, teachers often contributed their personal time to help translating Braille materials.

With the advancement of information technology, the production of e-learning materials is much easier than those of Braille materials. With the ebook the waiting for their clerical colleagues' Braille translation is over. The teachers can directly use the electronic documents for teaching or producing assignments with minor alternation. The more handy and efficient teaching process spares more time for teachers to focus on the students' needs in learning and growth.

E-learning also improves the communication between students and teachers. In the Braille textbook age, teachers had to spend extra time to identify the areas of the students' questioning because the different pagination between printed and Braille versions, before they could provide answers or further explanation. Now those teachers can monitor the learning progress through computer screens because the whole classroom is using the same electronic version that enhances the communication as well as effectiveness.

Ms. LAI thinks that the "Accessible E-Learning Support Project" benefits the Ebenezer students under integrated education most. When students leave Ebenezer for mainstream schools, many of them can only rely on oral information in classroom with unsynchronized Braille textbook for class and review. Now, mainstream schools or the needy students can register as users of the Project, and receive the assistance of converting printed materials into e-learning materials free of charge. This facilitates students' learning and revision with desirable progress.





翻頁原來並不容易 - 肢體傷殘學生如何克服閱讀的障礙 被訪者：小芳

現就讀中五的小芳雖然天生失去了雙手，但仍然無損她的學習動力。在未有使用電子書之前，小芳一直用普通印刷書來閱讀和溫習。由於沒有雙手，她的桌椅需要調到較矮的高度以方便她用雙腳翻頁。因此，小芳要彎曲著身子才可看到書本的內容，而令她的腰及頸椎長期受壓，不但使她容易疲勞，骨骼更會勞損。

小芳認為電子書的確對她有很大的幫助，因為她可以利用平板電腦閱讀教材，不需要依賴雙腳翻閱書本。她說：「現在我只要在屏幕輕輕一掃，便可以翻頁，比起印刷書方便得多。而且平板電腦可以同一時間儲存多個檔案，減輕了書包的負擔。」

參與了「無障礙電子學習支援計劃」後，小芳現在有更多可閱讀的電子書，解決了她學習的煩惱。小芳明年將會參與中學文憑試，有些科目需要寫字較多，她將會利用電腦作答，而其他科目她則會「以腳代手」作答。小芳希望考試時可以使用電子版本的試卷，使她能夠更有效率地應付考試。

Turning Pages Isn't Easy at All – How Do the Physically Disabled Students Overcome Reading Obstacles Interviewee: Siu Fong

Although Siu Fong, a secondary 5 student, was born without arms, her learning motivation is not affected. Before using ebooks, she used ordinary printed books for reading and revision. Without arms, her desk and chair have to be adjusted to a lower height to allow her to turn pages with her feet. Therefore, she needed to lean forward in order to see the content of the book, which put constant pressure on her lumbar and cervical vertebrae, made her tired easily and strained her bones.

She thinks ebooks help her a lot, as she can read learning materials with tablets, and no longer has to turn book pages with her feet. She said: "Now I just have to sweep the screen lightly to turn a page, far easier than using printed books. And tablets can store multiple files at the same time, lightening the burden of carrying school bags."

Since she joined the "Accessible E-Learning Support Project", Siu Fong now has more readable ebooks. This solves her difficulty in learning. She will participate in the HKDSE next year. For these examination of subjects that require more writings, she will answer with



computers, and for others she will use her feet to answer the questions. She hopes to be provided with examination papers in electronic format so that she could read more easily.



肢體傷殘學生的需要

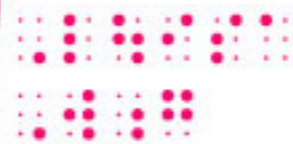
被訪者：香港紅十字會雅麗珊郡主學校職業治療師黃美嫦女士

香港紅十字會雅麗珊郡主學校是一所主要照顧肢體傷殘學生的特殊學校，校內亦有部份學生是智障、視障或腦部受損如腦痙攣等。要照顧肢體傷殘學生的特殊學習需要一點也不容易，因為他們的殘障程度各有不同，學校需要按學生個別的情況而決定如何協助他們。現今透過資訊科技的協助，可以大大改善了他們的學習條件。

學校的職業治療師黃美嫦女士(Louisa)表示，讀屏軟件的出現為他們的學生解決了閱讀的困難。學生們可以利用讀屏軟件瀏覽網頁、閱讀電子書或報紙；他們又可以在課堂內閱讀課文、範文以及試卷等等，令他們的學習更有效率。學校參加了「無障礙電子學習支援計劃」後，在校內部份電腦安裝了由計劃免費提供的NVDA讀屏軟件，方便學生使用。

除此之外，學校有部份學生使用計劃的電子書轉譯服務後，Louisa發現他們在學習上有很大的進步。學生可以把電子課本的檔案儲存在平板電腦內，大大減輕了書包的重量，對於肌肉協調有困難的學生來說是很大的便利。而使用電子書亦增加了他們自學和自理能力，因為以往使用印刷書的時候，他們要花很大的力氣才可從書包取出書本及打開閱讀，而現在他們可以自行打開電腦，透過電子書來自行溫習，從而加強了他們學習的信心。

Louisa發現使用電子書對智障的學生亦有幫助。透過讀屏軟件的發聲功能，令智障學生更容易掌握到字詞的「形」、「音」、「義」，從而豐富了語文能力。



Needs of Students with Physical Disabilities Interviewee: Ms. Louisa WONG, Occupational Therapist of Hong Kong Red Cross Princess Alexandra School



Hong Kong Red Cross Princess Alexandra School is a special school mainly takes care of students with physical disabilities. There are also some students with intellectual disabilities, visual impairment, or brain damage such as spastics. To take care of the needs of students with physical disabilities is not easy at all, because the degrees of their disabilities are different and the school needs to decide how to provide assistance based on individual situations. Now with the help of information technology, their conditions for learning are greatly enhanced.

Louisa, an Occupational Therapist of the school, said that the presence of screen reading software solved the difficulties of reading among their students. Students can surf the Internet, read ebooks or newspapers with the screen reading software. They can also read texts, sample articles and exam papers, etc.

in classes, and this improves their efficiency in learning. After the school joined the "Accessible E-Learning Support Project", NVDA screen reading software, provided free of charge by the Project, were installed to some of the computers in the school to facilitate the students' use.

Besides, Louisa finds that some students have improved a lot in learning after they started to use the ebook conversion service provided by the Project. Students can lighten their school bags by storing files of ebooks in tablets, which is a great convenience particularly to students with coordination disorder. Using ebooks also enhances their self-learning and self-care abilities. This is because, in the past, when they used printed books, they needed to spend great energy to take out the books from their school bags and read, now they can open ebook and review by themselves without much difficulty, and thus enhances their confidence in learning.

Louisa finds that ebooks are also helpful to the intellectually disabled students. They can more easily grasp the forms, pronunciations, and meanings of words through the voice output function of screen reading software and thus improve the language ability.



看得見不等於看得明 - 讀寫障礙學生面對的學習困難

被訪者：阿輝

阿輝早在小學六年級時已出現學習的困難，後來經診斷為讀寫障礙。由於他對於文字理解有障礙，所以上課時亦會感到特別困難，尤其是閱讀課本嘗試理解當中內容的時候。現時就讀中六的他，在閱讀文字的時候往往聯想不到那些字的讀音和其意思。他說：「我曾經花了三個小時以上也未能理解到一篇文章的大意。」

但是，阿輝如以聲音去理解文字內容是完成沒有問題的。所以，自從使用了讀屏軟件後，阿輝說學習輕鬆多了。現正準備文憑試的他，會等待學校準備好電子檔案後，便會利用讀屏軟件溫習。他說使用讀屏軟件就好像有人在身邊跟他講解課文內容一樣，可以隨時隨地按自己的需要和時間表來溫習，不像以前要請父母或同學協助，常常怕麻煩到別人。

阿輝使用讀屏軟件已有一段時間，他說：「用讀屏軟件溫習，不但可以理解到課文的內容，更可以幫我加深記憶。」

以往阿輝使用的讀屏軟件，往往覺得那聲音聽起來很不清楚。而且一般讀屏軟件開發商的更新速度往往追不上較新的作業系統及相關軟件的要求。阿輝透過學校參加了計劃後，嘗試使用協進會開發的NVDA(香港版)後，感覺到比其他的讀屏軟件好得多了。例如，他可以利用滑鼠操作，而且讀音比較清楚。除了學習外，令他在互聯網上搜尋一些課外文章及新聞也方便多了。阿輝最後說：「使用NVDA後，豐富了自己的見聞，對世界的了解也多了一些。」

Seen But Incomprehensible – The Learning Difficulties of Dyslexia Students

Interviewee: Ah Fai

Ah Fai was found having learning difficulties as early as in primary 6, and later diagnosed as having dyslexia. Because of this difficulty in comprehending texts, he felt frustrated during classes, especially when reading textbooks and trying to understand their content. Now at secondary 6, he often fails to associate their pronunciations and meanings when reading words. He said: "Once I spent longer than three hours but still couldn't figure out the general idea of an article."

Despite that, Ah Fai has no problem understanding text content through sound. So Ah Fai said that learning had been much easier since he used screen reading software. Currently preparing for HKDSE, he will use screen reading software for revision once the school produce the electronic documents. He said that using screen reading software was like having someone to explain the text right beside him, while he could review at any time and place according to his own need and schedule, and because of which he no longer had to ask for help from parents or classmates, and worried about giving troubles to others.



Ah Fai has used screen reading software for quite sometimes. He said: "Using screen reading software for revision does not only helps understanding text content, but also deepen my memory."

Ah Fai often found the sound of the screen reading software he used before unclear. And the frequency of updates from most screen reading software developers fail to keep pace with the requirements of newer operating systems and related software. After he joined the Project through his school and tried the NVDA (Hong Kong version) developed by Hong Kong Blind Union, Ah Fai found it far better than other screen reading software. For instance, he can control with mouse, and hear clearer sound. It also provides a more convenient way for searching extra-curricular articles and news apart from helping his learning. "After using the NVDA, my knowledge is enriched and I know more about the world," Ah Fai said at last.



照顧學生的特殊學習需要，
提昇學習效能。
被訪者：
炮台山循道衛理中學蔡志輝老師

炮台山循道衛理中學是專為有學習困難的學生提供教育服務。在教學過程中，面對學生不同的學習需要，學校希望能透過各種服務為他們提供支援。

於該校任教的蔡志輝老師指出，學生有特殊學習需要並不代表他們比一般學生遜色，只要家長和校方可以為他們提供足夠的協助及支援，他們也可以有理想的學習表現。以讀寫障礙學生為例，他們看印刷字時往往未能聯想到文字的讀音或其意思，因而令他們理解課文時出現困難。自從學校於2011年年底參加了協進會的「無障礙電子學習支援計劃」後，先後為全校3個電腦室內100台電腦安裝了NVDA讀屏軟件，令學生可以多一個渠道「閱讀」課文內容。透過電腦及讀屏軟件「收聽」筆記及教材，讓讀寫障礙學生更容易明白課文，有助他們溫故知新。

此外，蔡老師亦發現自從校內電腦安裝了讀屏軟件後，學生的學習態度也變得更主動。他們會主動利用課餘時間，如小息、午飯或放學後使用電腦溫習外，更會利用電腦上網尋找相關資訊，豐富他們的見聞。

這計劃除了替校內電腦安裝讀屏軟件外，亦會免費提供軟件予每位參與計劃的學生，令他們於家中也可以有效地溫習和做功課，減輕他們學習的煩惱。

Taking Care of Student's Special Learning Needs and Improving Learning Effectiveness Interviewee: Mr. Jason CHOI, Teacher of Fortress Hill Methodist Secondary School

Fortress Hill Methodist Secondary School is a secondary school which provides education service to the students with learning problems. In teaching, the school faces different learning needs of students, and hopes to support the students through a variety of services.

Mr. Jason CHOI, a teacher in the school, points out that the students with special learning needs are not necessarily weaker than ordinary students if the parents and schools are able to provide sufficient assistance and support, these students can perform very well in learning. For instance, dyslexic students usually fail to associate pronunciations and meanings to the printed words they see, which lead to difficulties in comprehending the texts. Since the school joined the "Accessible E-Learning Support Project" of Hong Kong Blind Union in late 2011, NVDA screen reading software has been installed to 100 computers in the 3 computer labs. It has created one more channel for students to "read" textbook content. "Listening to" notes and learning materials through computers and screen reading software allows dyslexic students to understand texts more easily, and



helps them acquire new knowledge as well as review old materials.

Moreover, Jason finds that students' learning attitudes have changed to be more active after screen reading software were installed to the school computers. The students voluntarily utilize their spare time after classes, such as recesses, lunch times or after school, to use the computers for revision and find related information on the Internet to broaden their horizons.

Other than using the screen reading software at school, the participating students also can obtain the software free of charge. This allows them to effectively review and work on assignments at home, reducing their worries about studying.



義工從不計較回報多少

被訪者：Tony

Tony在一間電訊公司工作了32年，於2011年退休。退休後，除了想照顧家庭外，還想為社會出一點力。由於Tony的外甥是一名失明人士，他深深感受到視障人士學習的困難，包括缺乏足夠的點字教材。

計劃義工的主要工作是協助製作電子書，性質可以說是比較沉悶。但Tony倒覺得這種模式的義務工作比較適合他，因為他覺得自己的性格比較文靜，又喜歡看書，對著學生的教材，也不會感到悶。

現時，Tony一星期會有大約4個上午到計劃的辦事處協助製作電子書。他表示製作電子書的過程中，圖片描述是比較困難的部份。主要是把課文中圖片以精簡的文字準確地表達出來，讓視障學生都可以了解到圖片的內容。

Tony認為製作電子書不僅幫助到有需要的人，亦可以令自己溫故知新。他說：「有些詞語我已經忘記了書面語的表達，例如『打糲鞦』和『盪鞦韆』。為了正確地表達，我會自行上網找多一些資料。」

當了本計劃的義工後，為人父親的他覺得自己的兒子十分幸福，因為兒子已經比很多學生擁有更多，不用擔憂沒有足夠教材而感到無助。這激發他做電子書時再做得好一點，幫助更多閱讀殘障的學生。

被訪者：Stella

Stella於兩年前退休。曾經當老師的她，很希望可以找到一些義務工作是幫助到在學的年青人。她年前亦曾為視障學生補習，但發現利用點字書學習實在有很大的困難。在補習期間，因為她完全不明白點字書的內容，往往要學生將書本內容讀給她聽，需時甚久，而可以真正溫習課文的時間變得很少。

Stella在朋友介紹下，認識到協進會及其下的「無障礙電子學習支援計劃」，並成為了計劃的義工。她現在的主要工作是把課文內的圖片轉譯成為文字，方便視障學生理解。面對這種比較沉悶的編寫工作，她倒認為比較適合她，因她不太喜歡大伙兒活動呢！

Stella親身體驗到電子書為殘疾學生在學習上帶來的莫大益處，她本人除了會繼續當製作電子書的義工外，最近更邀請了她的女兒一起參與這項具意義的工作，務求加快電子書的轉譯製作。



Volunteers Never Care about the Reward

Interviewee: Tony

Tony had worked in a telecommunication company for 32 years and retired in 2011. After retirement, he wanted to contribute to society apart from taking care of his family. Because his niece was blind, he deeply felt the difficulty of the visually impaired persons in learning, including the lack of adequate Braille learning materials.

The main duty of the Project volunteers is to assist the production of ebooks, which can be considered boring, but Tony finds it suitable for himself as he is quiet person and likes reading. He does not feel boring facing the learning materials for students.

At present, Tony goes to the Project Office four mornings per week to help producing ebooks. He thinks the most difficult part of the production process is adding descriptions to the images. The key is to describe images in textbooks precisely with concise language to help visually impaired students understand the image content.

Tony thinks that producing ebooks does not only help people in need, but also allow him to improve and consolidate his knowledge. He said: "Some words I forgot for a long time how to express literally, such as the exact wordings of 'playing on a swing' in Chinese. In order to express correctly, I will look for reference information on the Internet."

After becoming a Project volunteer, as a father,

he feels that his son is very fortunate, because he owns more than many other students, and does not need to worry about not having enough learning materials. This motivates him to do even better in producing ebooks so as to help more print disabled students.

Interviewee: Stella

Stella retired two years ago. Have worked as a teacher, she hoped she could find volunteer jobs that helped students. A year ago, she conducted tutorials for visually impaired students. She found that it was very difficult to study with Braille books. During tutorial sessions, because she could not understand the content of Braille books, her students often needed to read her the content. This took time and therefore the amount of time available for revision became limited.

Introduced by her friend, Stella got to know Hong Kong Blind Union and its "Accessible E-learning Support Project", and became a volunteer of the Project. Currently her main duty is to interpret images in textbooks with words to facilitate visually impaired students' understanding. She enjoys doing this kind of editing works as she is not really fond of joining social activities.

Stella has experienced the benefits of ebooks to the students with disabilities. Apart from continuing to assist in the production of ebooks, she asked her daughter to help as well, in order to accelerate the speed of conversing ebooks.

義工心聲 Sharing from Volunteers

認識到這個計劃，我認為它可以真正幫到視障人士學習。雖然這計劃只是試驗性質，但我認為需要大家的支持，使我們的教育制度得以改善。

After I've learned about the Project, I realized this programme can genuinely help visually impaired persons in the learning process. Although this is a pilot project, we should give it our support so as to improve our education system.

Benna

學習是公平的，任何學習障礙的學生都應該有同等的學習機會。

Learning should be equal to everyone. Students with learning disabilities should receive equal learning opportunities.

Sandy

失明同學在學習上有一定困難，隨著科技之配合，義工只需付出一點時間就可幫助他們，好有意義。知悉學生有實際得益及正面回應，希望有更多人可以參與此計劃作為義工。

Visually Impaired students have to overcome more difficulties in learning. By making use of information technology, the volunteers can help them by sparing a small amount of time for this Project. It's very meaningful. Knowing that the students can benefit, I really hope that more volunteers can participate in this Project.

Alan

其實我很佩服失明學生的學習態度，他們比平常人努力積極，我所幫助譯圖的工作只是很微小，希望能協助到失明學生更容易掌握課文的內容。

Actually, I am so impressed by the learning attitude of the visually impaired students as they work harder than ordinary students. My volunteering work involves mainly to provide text description for graphs and photos, which is only a tiny contribution. I hope that my work can help visually impaired students to better grasp the content of their textbooks.

Ellata

能夠成為計劃義工的一份子，使我對視力有一個新的體會，和人溝通時有更多的耐性和同理心，是一件既開心又有意義的工作。

I have a new understanding on sight vision after joining this Project as a volunteer. Being patient and empathy are important in communication. This is a delighted and meaningful volunteer work.

Henry

老實說，平時我對自己的工作都比較懶散及馬虎，自從加入義工行列後，一想到要幫助那些有需要的學生，就會有股力量驅使我要認真工作。在工作過程中更令我深深體會到學生們閱讀的困難，卻擁有堅毅不屈的精神。這份義工工作表面是我去幫助他人，而實際上卻是幫了自己！

Frankly speaking, I am a bit lazy and careless in my daily work. But I work more seriously after joining this Project as a volunteer. It is because I know that I am helping those students with special needs. I realized that the students with disabilities are facing a lot of difficulties but they are with great fortitude in learning. It seems that I am helping others but it helps myself indeed!

Jo

只要家中有電腦便可以協助這個計劃負責文字校對及圖片描述，我很樂意繼續參與這個計劃讓更多學生受惠。

All you need is to have a computer at home to join this Project by helping proofread and describe the pictures in textbooks. I am happy to continue participating in this Project so that more students can benefit.

Teresa

能夠參與「電子書」的製作，從中可以令我有機會接觸到現在的課程內容，感覺良好。

It is a nice experience to be able to participate in e-book production as I can be in touch with the current curriculum.

Sam



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計劃督導委員會成員

Project Steering Committee Members

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參與電子書製作之各位義工

Volunteers Helping Ebooks Production



聯絡我們 CONTACT US



無障礙電子學習支援計劃辦事處

Accessible E-Learning Support Project Office

電話 Tel : 3996 0760
 傳真 Fax : 3996 0759
 電郵 Email : AELsupport@hkbu.org.hk
 網址 Website : <http://AELsupport.hkbu.org.hk>
 辦事處地址 : 九龍觀塘巧明街97號旭日集團大廈12樓1202-04室
 Office Address : Rm 1202-4, 12/F, Glorious Sun Group Building,
 97 How Ming Street, Kwun Tong, Kowloon.



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