

Education Bureau's efforts in harnessing information technology to facilitate learning and teaching

The Audit Commission ("Audit") conducted a review of the Education Bureau ("EDB")'s efforts in harnessing information technology ("IT") to facilitate learning and teaching.

2. In line with the global trend of harnessing IT to facilitate learning and teaching, EDB has implemented a number of strategies on IT in education since 1998-1999 school year (unless stated otherwise, all years mentioned hereinafter refer to school years). In 2015-2016, EDB launched the Fourth Strategy on IT in Education ("ITE4"). The main initiatives under ITE4 include: (a) WiFi-900 Scheme;¹ and (b) a one-off grant to the Hong Kong Education City Limited for enriching e-learning resources. As at 31 March 2018, the actual expenditure on the implementation of ITE4 was \$99.5 million.

3. In addition, EDB has taken other measures to harness IT to facilitate learning and teaching, including: (a) the Composite Information Technology Grant ("CITG");² (b) professional development activities for education professionals;³ (c) an education portal operated by the Hong Kong Education City Limited; (d) a three-year Pilot Scheme on E-Learning in Schools; (e) E-textbook Market Development Scheme;⁴ and (f) the Scheme for Supporting Schools to Adopt E-textbooks. In financial year 2016-2017, the actual expenditure of the recurrent measures (items (a) to (c) above) was about \$390 million. As at 31 March 2018, the actual expenditure of the non-recurrent measures (items (d) to (f) above) was about \$150 million.

4. The Committee noted the following findings from the Director of Audit's Report:

¹ The WiFi-900 Scheme aims to enable schools to acquire mobile computing devices to tie in with their acquisition of WiFi services covering all classrooms.

² Under CITG, all public sector schools (i.e. government schools, aided schools, caput schools and special schools) are provided with an annual grant to meet their operational needs for implementing IT in education.

³ A range of professional development activities are organized by EDB for school leaders and teachers to enhance their knowledge and skills to promote e-learning as part of the on-going professional capacity building programmes. Courses are either organized by EDB or commissioned to local tertiary institutions.

⁴ The E-textbook Market Development Scheme was launched in 2012 to facilitate the development of e-textbooks in line with the local school curricula for use starting from 2014-2015.

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- under the WiFi-900 Scheme, EDB provided funding to 334 schools to improve their teachers' readiness and engagement of stakeholders for the implementation of e-learning. However, at the end of 2016-2017, only 224 (67%) of the 334 schools had enhanced their WiFi infrastructure, while 88 (39.3%) of these 224 schools considered themselves less than ready/not ready in the teacher development for integrating e-learning into their school curricula despite their commitment to improve their teachers' readiness as a condition of receiving funding for WiFi enhancement;
- according to the results of the annual school survey⁵ for 2016-2017 to assess the extent to which e-textbooks and e-learning resources were adopted across class levels and subjects in schools, the average usage rates of e-textbooks and e-learning resources on class-level basis were considerably lower than those on school basis (24% and 65% compared to 64% and 99.4% on school basis in primary schools, and 8% and 66% compared to 32% and 96.8% on school basis in secondary schools);
- Audit examination of implementation progress returns submitted by 50 participating schools under the WiFi-900 Scheme revealed that 11 (22%) schools had integrated the WiFi network with their existing networks, which was contrary to EDB's recommended practice of separating the WiFi network from the schools' existing networks for better IT security;
- although EDB had stipulated in its circular to schools and in CITG's website that schools were required to relate their IT budget to the annual School Development Plans,⁶ 6 (15%) of the 40 schools examined by Audit did not follow the requirement;
- Audit examined the provision of CITG to schools and the actual expenditure for the periods from financial years 2012-2013 to 2016-2017 for government schools and school years 2012-2013 to 2016-2017 for aided schools, and found that:

⁵ Since 2015-2016, EDB has conducted annual school surveys to collect information from public sector schools and schools under the Direct Subsidy Scheme on their implementation progress of IT in education.

⁶ According to EDB's explanation to Audit, schools are not mandated to relate their IT budgets to the annual school-based development plans as the requirements are only recommended procedures.

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- (a) as at 31 July 2018, eight aided schools of the 904 schools that received CITG in all the years over the five-year period had not submitted their audited accounts for 2016-2017 to EDB; and
 - (b) 517 (57.7%) of the 896 (i.e. 904 - 8) schools did not fully utilize the CITG allocation, including 131 (14.6%) schools that had unused funds representing more than 20% of the total allocation;
- as at April 2018, 479 sets of printed textbooks were available on the Recommended Textbook List covering 46 subject sets, whereas only 49 sets of e-textbooks were available on the Recommended Textbook List for e-textbooks ("eRTL")⁷ covering 20 subject sets. In particular, no e-textbooks were available on eRTL for Secondary 4 to 6;
 - Audit analysed the results of the annual school survey for 2016-2017, and found that the percentages of primary schools that adopted e-textbooks not on eRTL for Chinese Language, English Language and Mathematics ranged from 28% to 34%, which were lower than the corresponding percentages for secondary schools (ranged from 45% to 48%). The response rate of the annual school survey for 2016-2017 was only 72.7% (715 schools replied while the survey covered 984 schools), while 7.8% of the responding schools indicated that their progresses on implementing e-learning were behind the targets set in their three-year School Development Plans, and EDB had not ascertained why their progresses were behind targets and explored whether these schools would need any assistance from EDB;
 - 46 (22%) of the 205 schools that joined e-Resource Acquisition Project ("eREAP")⁸ in the first year (i.e. 2016-2017) did not participate in the second year. While the e-learning resources procured under eREAP did not cover Chinese Language, about 39% of the teachers from the 66 participating schools of eREAP indicated in a survey conducted by

⁷ To ensure the quality of e-textbooks adopted by schools, e-textbooks will be included in eRTL only if they have met specific requirements, e.g. relevance to the curriculum guides and accuracy of content.

⁸ eREAP aims to: (a) enrich the pool of high quality and readily available e-learning resources for use by both teachers and students; (b) establish a mechanism to coordinate evaluation, acquisition and licensing of e-learning resources to support large scale implementation in Hong Kong; and (c) lowering the overhead and achieving economy of scale for e-learning resources in the long run.

the Hong Kong Education City Limited in 2017 that Chinese Language should be covered in eREAP; and

- the percentage of events for commissioned courses with certificate award rate⁹ of more than 70% decreased from 74% (57 of 77 events) in 2015-2016 to 61.6% (45 of 73 events) in 2016-2017. Besides, EDB had not uploaded to its website materials of 10 of the 24 commissioned courses conducted in the period from 2015-2016 to 2017-2018 for access by teachers.

5. The Committee did not hold any public hearing on this subject. Instead, it asked for written responses regarding the implementation of the WiFi-900 Scheme, eREAP and annual school surveys; measures to encourage the adoption of e-textbooks and e-learning resources; measures to facilitate the future development of e-textbooks; measures to monitor schools' performance on the implementation of e-learning; measures to enhance teachers' participation and learning in training events; the effectiveness of ITE4; the utilization of CITG; and the adoption of eRTL. The replies from **Secretary for Education** are in *Appendix 41*.

6. The Committee wishes to be kept informed of the progress made in implementing the various recommendations made by Audit.

⁹ The service providers would issue a certificate to each participant who achieved full attendance and submitted the course-related work within two weeks after the last session of the event.