For discussion
on 14 January 2008

LEGCO PANEL ON EDUCATION

The Third Strategy on Information Technology in Education

Right Technology at the Right Time for the Right Task

Purpose

This paper reports on the outcome of the consultation on the Third Strategy on Information Technology (IT) in Education (Third Strategy) and consults Members on the funding proposal for implementing the Third Strategy.

Background

2. At the Panel meeting on 12 November 2007, Members discussed the consultation document on the Third Strategy which was released by the Education Bureau (EDB) on 26 October 2007 for a one-month public consultation. During the consultation period, the EDB held nine fora, which were attended by over 900 teachers, school principals, parents, and IT industry representatives. EDB received 45 written submissions which have been uploaded onto the website of EDB. A summary of the views expressed at the nine fora and in written submissions is at **Annex**.

Summary of feedback

3. The majority of respondents support the theme of the Third Strategy, i.e., the right technology at the right time for the right task, and the general direction of focusing on the human factor rather than the technical factor in further integrating IT into learning and teaching. They also support the proposed actions in the consultation document and propose constructive ways to refine the proposals. In particular, the school sector welcomes the idea of establishing the on-line depository of teaching modules to lessen teachers' workload in integrating IT into learning and teaching though they suggest that the scope be expanded to cover more

key learning areas and more learning stages than proposed in the consultation document. The publishing industry asks for more direct dialogue with the Hong Kong Education City Limited to build up a collaborative relationship so that digital resources provided by the public sector and private sector are complementary with each other to maximize the benefits to teachers and students.

4. Respondents from all sectors welcome the proposal to enhance support for parental guidance on e-learning at home and suggest allocating more resources to mount a larger scale of support scheme. Some respondents suggest that schemes to provide economically-disadvantaged students with recycled computers should continue. It would be desirable if telecommunications companies can offer these students Internet connection service at a concessionary rate.

5. The school sector recognizes the value of school-based IT in education development plan and continuous professional development to sharpen teachers' pedagogical skills in using IT in education. Principals suggest that the school-based plan should not add burden on schools and there should not be assessment requirements for benchmarking teacher's skills in pedagogical application of IT in education.

6. The school sector welcomes the one-off grant for upgrading and replacing IT facilities in schools. They however consider that the proposed amount is inadequate and there should be government funding for such a purpose at regular intervals. Some small schools consider that the amount they received, which is based on the number of classes, may not be adequate for replacing IT facilities. Regarding technical support, the school sector believes that the establishment of a permanent post of school IT technician would help address the problem of high turnover of IT technicians in schools. The school sector also opines that the ITeHelp call centre service should be discontinued because schools need on-site support to solve day-to-day technical problems rather than remote back-up technical service.

7. Although the public understands that IT in education is about integrating IT into learning and teaching, not the teaching of IT skills as part of the school curriculum, many respondents consider that students' information literacy is an area that should not be neglected. Information literacy refers to students'

capacity to manage and use information intelligently to solve problems and assist critical thinking. This includes the ability to be critical of information obtained from the Internet rather than accepting the information at face value.

Responses to the outcome of the consultation

8. Our vision is to advance from e-learning to c-learning which refers to collaborative, contributory and creative learning. The term "c-learning" captures our ideas of enabling teachers and students to use the right technology at the right time for the right task and focusing on the human factor rather than the technical factor.

9. As pointed out in the consultation document, Web 2.0 applications and mobile learning are two trends shaping the future learning environment. Web 2.0 applications and mobile learning are not about cutting edge technologies. They are about more versatile interaction among participants of a learning community in which all contribute, collaborate and share, inside or outside school. IT can enable the emergence of such a collaborative, contributory and creative learning environment in which knowledge is not inculcated but acquired through peer-to-peer collaborative and inquisitive activities. During the process, IT enables students to create to learn and learn to create. We envisage a scenario that a teacher leads students to question if the definition of a concept in wikipedia is authoritative; a teacher makes reference to strategic plans in the proposed on-line depository to help students with weaker English standard to strengthen their basic reading skills and learn phonics through free-of-charge interactive games at www.starfall.com and guides students with good English standard to read free English e-books and listen to human voice reading out the text at www.gutenberg.org in a school library or at home; students form study groups to improve Putonghua by listening to news reports and reading out the scripts of the reports at www.cri.cn; parents guide their children to download photos legally from openphoto.net and use the free software *Scratch* developed by MIT Media Lab to create multimedia projects on various subjects from Liberal Studies to Physics; and teachers and students will share with their peers their originally produced educational resources containing open source materials. More importantly, the website of HKEdcity will provide a depository of teaching modules with lesson plans to facilitate teachers and students to use the open source materials mentioned above as well as acquired digital resources in a structured and collaborative manner

to achieve positive learning outcomes according to the curriculum. And schools can use their financial resources efficiently to acquire necessary IT facilities and digital resources to complement available open source materials.

10. After considering the outcome of the consultation, we have slightly adjusted the proposed actions to be included in the Third Strategy:

(a) to provide a depository of curriculum-based teaching modules with appropriate digital resources

11. As suggested in the consultation document, the depository is meant to provide practical advice on pedagogical application of IT in learning and teaching to achieve positive impact on learning outcomes, to support curriculum and pedagogical innovations as well as assessment for learning. The lesson plans will serve as exemplars on how to use IT as a tool to make learning and teaching more efficient in the classroom environment or outside classroom. Each lesson plan will provide links to available online open source materials and acquired or self-developed digital resources.

12. The depository serves multiple purposes. First, it reduces teachers' workload in searching for appropriate digital resources and integrating them into a lesson plan. Second, the IT-empowered pedagogy is designed to help develop students' information literacy. Third, it encourages sharing of quality learning and teaching materials produced by teachers and maybe students.

13. We will actively involve teachers in developing the depository to ensure that the deliverables meet their needs. We are aware of the school sector's high expectation of the depository and strong wish that the scale of the depository could be larger than proposed. We however maintain that quality takes precedence over quantity. Building up a depository that embraces lesson plans, IT-empowered pedagogy to nurture students' information literacy, and appropriate digital resources is a challenging task that requires intensive professional input and project management. We maintain a budget of $25 million to launch the project at a manageable scale of developing teaching modules for Chinese, English, Mathematics and Science (and General Studies in primary schools) for primary 1 to secondary 3 levels in five years as proposed in the consultation document. This project will be one of the priorities of HKEdcity which will also be responsible for

regular updating of the contents. We will consider expanding the scale of the project according to feedback of the education sector in the second phase of development.

(b) to continue to sharpen teachers' IT pedagogical skills

14. We will actively engage teachers in the implementation of this proposed measure to ensure that the professional development programmes address their needs. We will task schools that excel in certain areas of pedagogical application of IT to further develop and actively disseminate their practices to other schools and teachers. Apart from IT pedagogical skills, we will also focus on practical skills and strategies to use IT to help a class of students with a diversity of learning abilities.

15. We will organise the IT in Education symposium annually. This year, we will invite renowned overseas educationalists who have put IT in education in practice with noticeable positive impact on learning outcomes to share their experience with the local education sector. We will continue to sponsor school teachers to attend international conferences on IT in education held in overseas countries wherever appropriate so as to expose teachers to pedagogical innovations and provide a chance for teachers to share frontline experience with their overseas counterparts.

16. We have no plan to introduce any assessment for benchmarking teachers IT pedagogical skills. We believe that using IT to teach can reduce teachers' workload. There is inherent incentive for teachers to sharpen their IT pedagogical skills.

(c) to assist schools to draw up and implement school-based IT in education development plans

17. As highlighted in the consultation document, we are mindful of the workload on principals and teachers created by our proposed actions. We are also convinced that good planning reduces the workload of school principals and teachers. As proposed in the consultation document, we will collaborate with tertiary educational institutions to develop an IT in education roadmap with a sample action plan and associated templates for schools' reference. In addition, we

will provide on-site support and organise sharing workshops to help school management develop and implement their plans according to their needs and priorities. On capacity building, we will design new e-leadership programmes for school heads and senior teachers to enhance their capacity to manage IT in education development plans.

18. In some advanced jurisdictions, annual school resources and strategic planning for integrating IT into learning and teaching is a mandatory requirement. We will invite overseas speakers to attend our IT in Education symposium to share with the local education sector the advantages of such planning in improving resources utilization and reducing the workload of school management and teachers.

(d) to enable schools to maintain effective IT facilities

19. In order to facilitate schools to maintain effective IT facilities, we plan to set aside $203 million for providing a one-off grant to schools for procuring necessary IT hardware and software conducive to learning and teaching. Schools need to commit themselves to drawing up and implementing their school-based IT in education development plans having regard to their needs and priorities. The proposed amount includes contingency for assisting individual schools who require additional resources for replacing IT facilities on a justifiable basis.

20. The recurrent block grants aim at providing schools with more flexibility in the deployment of resources for educational purposes. Furthermore, schools can retain surplus balance of these grants up to twelve months' provision. Schools are therefore encouraged to make flexible and strategic use of these grants to meet their operation and development needs, including the funding required for upgrading and replacing IT facilities as well as other worthwhile initiatives for supporting IT in education they have prioritized. In addition, we will expand the scope of the recurrent Composite IT Grant (CITG) to cover IT hardware to further enhance flexibility in the use of the grant.

(e) to strengthen technical support to schools and teachers

21. IT personnel is currently sought after by all industries, resulting in a high turnover of such personnel. While we recognize the temporary disruption of

technical support caused by the turnover, we do not believe that the establishment of a permanent post of IT technician in schools will solve the structural problem. In fact, the existing arrangement allows schools to use their block grants and CITG to flexibly adjust the pay package for school IT technicians. In view of the school sector's feedback, we will discontinue the ITeHelp call centre service. The $5 million set aside for this service will be redeployed for a pilot scheme of procuring on-site technical services on a term-contract basis by EDB to assist schools which are temporarily affected by the turnover of IT personnel. In addition, we will organize specialized training on technical issues commonly encountered in the school environment for school IT technicians, especially new recruits, to enhance their productivity.

(f) to raise parents' information literacy and assist them in guiding children to use IT at home

22. The measures in this respect focus on two fronts. First, we will collaborate with IT companies, schools and the Home-School Cooperation Committee to help parents use the built-in parental control features in operating systems. Second, we will collaborate with voluntary organisations to raise parents' awareness of the role of IT in the emerging learning environment, the availability of quality open source educational materials and the need to use them legally (e.g. not to infringe copyright), and the risk of using IT to learn without appropriate parental guidance. In addition, we will design specialized programmes to assist parents who are information illiterate to acquire the basic IT skills. Some IT companies and voluntary organizations have already developed resources in this respect. We will leverage their existing resources and expertise in reaching out to the parents in need of assistance. In view of wide support received during the consultation, we propose to increase the budget from $1 million to $5 million for our measures in this area.

(g) to continue with the Computer Recycling Scheme

23. We recognize that the public is still concerned about the digital divide among students although at present 96% of primary and secondary school students in Hong Kong have access to a computer at home. We will collaborate with the Environmental Protection Department (EPD) to continue the Computer Recycling Scheme (CRS), aiming to provide refurbished computers plus one year free Internet

service to needy students. The EPD will work with non-governmental organizations to provide refurbished computers while the EDB will arrange for the one year free Internet service to the beneficiaries. We aim to secure agreement with telecommunications companies joining the CRS to offer students under this Scheme Internet connection service at a concessionary rate after the initial year of free connection. The unspent balance for the Recycling Scheme under the Second IT in Education Strategy will be deployed for continuing the Scheme.

(h) Students' information literacy

24. During the consultation, the public is obviously interested in developing students' information literacy as a result of or one of the goals of promoting IT in education. We have commissioned the University of Hong Kong to evaluate the information literacy of primary and secondary students in Hong Kong. The evaluation report will be available by the end of January 2008. We propose to allocate $2 million for collaborating with tertiary institutions to launch projects to enhance students' information literacy such as the development of voluntary information literacy self-evaluation tools for reference by teachers and students. However, we do not propose to introduce any assessment to measure students' information literacy in general so as to avoid creating unnecessary burden on teachers and students.

Financial implications

25. The estimated non-recurrent funding required for the Third Strategy to commence in this financial year till 2013-14 is $240 million. The Secretary for Education has already earmarked sufficient provisions within the Operating Expenditure Envelope of the EDB for funding the non-recurrent items. Subject to the comments of Panel members, we will seek the Finance Committee's approval for deploying the funds at its meeting on 1 February 2008. EDB will absorb other resources requirements arising from monitoring the implementation of the measures under the Third Strategy.

Advice sought

26. Members are invited to support our application for the Finance Committee's funding approval to implement the Strategy.

Education Bureau
January 2008

Annex

Summary of Responses to Consultation on The Third Strategy on Information Technology in Education

<u>Action 1</u>: To provide a depository of curriculum-based teaching modules with appropriate digital resources

- Respondents in general supported the establishment of the digital depository to help teachers locate on-line resources useful for learning and teaching. Teachers hoped that the depository could serve as a collaborative platform for sharing good teaching practices and enhancing their teaching capacity.
- Some teachers suggested expanding the scope of the depository to cover more subjects, like Liberal Studies and Personal, Social & Humanities Education, in particular for those New Senior Secondary (NSS) subjects of which existing resources were limited. They were concerned that the proposed amount of $25 million was insufficient for developing a high quality depository.
- The school sector commented that teachers in different schools had been developing digital teaching resources. The EDB should focus on facilitating the sharing of good practices and existing quality digital resources.
- Many teachers agreed that the existing resources hosted at the website of the Hong Kong Education City (HKEdCity) were useful but they should be better organised to facilitate retrieval by teachers.
- Teachers also hoped that the EDB could speed up and involve front-line experienced teachers in the development of the depository.
- Parents also hoped to be able to access the depository.

<u>Action 2</u>: To continue to sharpen teachers' IT pedagogical skills

- Teachers generally welcomed the proposal of making IT training pedagogically oriented and centred on the integration of IT into learning and teaching, but the training should remain non-mandatory. The programmes should be designed in line with local school settings.
- IT tools to be introduced in training programmes should be made easily accessible to school teachers.
- School sector participants were concerned that teachers were required to meet certain prescribed IT competence standards.
- Teachers wanted to be involved in planning and organising future IT in education

professional development programmes.

- Teachers also suggested paid training opportunities to sharpen their IT pedagogical skills, e.g., paid leave to attend in-service training in tertiary institutions with duration up to a few weeks.
- Teachers commented that measures to empower them to educate students on ethical use of IT and copyright issues were not explicitly spelt out in the Third Strategy.
- Teachers remarked that the workshops organised by the EDB focused too much on emerging software that school teachers could not access in schools. It was hoped that open-source software would be introduced in training programmes.
- The IT sector suggested that fresh graduates should be required to attain certain level of IT competence before they joined the teaching profession. They also wished to play a more prominent role in collaboration with the Government in organising training programmes for teachers, particularly in areas related to the skills of using emerging technologies. Some shared the view that teachers' information literacy should be cultivated as top priority and sharing of good practices among schools should be encouraged.

<u>Action 3</u>: To assist schools to draw up and implement school-based IT in education development plans

- Schools' major concern was the workload arising from drawing up school-based IT in education development plans, which might involve evaluation work. They generally wished that templates and tools would be available to lighten schools' administration burden on applying for funds. They expressed that all related administration work should be simplified. Schools would only need to use the templates and tools provided with adaptations made for school-based ideas. Teachers should not be expected to use a lot of time and effort to write up plans and apply for funds. Some proposed that tertiary institutions which would be responsible for developing related templates and tools should take into account the actual practices in secondary and primary schools.
- Some suggested that schools' sponsoring bodies should be involved in the development of school-based IT in education development plans.
- Some parents indicated that they would like to know more clearly their role in developing such plans, and also wanted to play their part in school-based planning related to IT in education. They looked forward to contributing their ideas to schools which might in turn have positive impact on students' learning.
- Respondents agreed that better students' learning outcomes could be achieved

with a school-based IT development plan.

- Some suggested that schools should provide a safe learning environment for students. They commented that the IT in education roadmap should include technical guidelines so as to facilitate schools' selection of compatible IT equipment and software for different platforms. They also suggested that experience sharing sessions on preparing and implementation of school-based IT development plans should be conducted.
- The IT sector suggested that IT professionals could act as IT consultants to assist schools in drawing up detailed and appropriate IT in education development plans. They considered that schools should be given autonomy in deciding and prioritising the initiatives to take IT in education forward.

<u>Action 4</u>: To enable schools to maintain effective IT facilities

- The school sector generally welcomed the proposal of providing schools with extra funding to procure IT facilities and direct disbursement of the related grant, not by matching grant arrangement.
- Many opined that the proposed budget of $200 million was insufficient because each school could only receive about $200,000 on average. They also suggested that the ambit of the grant should be flexible and the grant could be used over a longer span of time so that schools were not under time pressure to procure IT-related resources without serious planning.
- Schools expressed difficulty in planning ahead without recurrent funding for regular upgrading and replacement of their IT facilities. They suggested that there was a genuine need to increase subsidy for IT-related expenses. Alternatively, the Government should provide schools with a special one-off grant at least every five years.
- Furthermore, teachers from small schools worried about the calculation of the grant sum for each school. If it was solely based on the number of operating classes, small schools would receive only a small amount which would definitely be inadequate for meeting imminent needs to upgrade and replace IT facilities. Some criticised that such calculation method would hamper the development of IT in education in small-sized and special schools as they could only get a tiny sum. They hence suggested adding a basic provision for all schools in the calculation.
- Many teachers were concerned about the possible increase of workload arising from the application for this grant. In this respect, the Government should consider simplifying the procurement procedures and providing schools with a

suppliers list.

- Many teachers asked for more resources to meet schools' needs to purchase IT facilities while some suggested the idea of providing each teacher with a computer.
- Many opined that some commonly used IT facilities such as interactive whiteboards, LCD projection systems, and visualisers should be included as basic requirements of a standard classroom.

***Action 5*: To strengthen technical support to schools and teachers**

- Many schools reported the problem of high turnover of technical support services (TSS) staff resulting in increased workload for teachers in-charge of IT. The school sector suggested that the EDB should include TSS staff in schools' establishment with salary increments similar to the arrangements for laboratory technicians in secondary schools.
- School heads pointed out that different grants disbursed to schools were for prescribed purposes. It was not practical to re-allocate resources from these grants to augment remuneration for retaining IT talents in schools. They also hoped that there were measures to ease the heavy workload of teachers-in-charge of IT.
- The "hire of services" model could not solve the problem of shortage of TSS.
- The school sector suggested that the ITeHelp call centre service should be discontinued because it did not serve the intended purpose of providing technical support to schools. School heads opined that the service could not help teachers solve day-to-day technical problems in schools. They suggested that the EDB should reconsider the operation mode of the ITeHelp. Some suggested that regional technical support centres should be set up to provide prompt on-site support to solve technical problems in primary and secondary schools.
- Another kind of technical support to be considered was the concept of "School IT Manager". This type of in-house IT support staff in schools not only could provide routine IT support, but also contribute to quality school IT planning and resource deployment. The "School IT Manager" could also assist teachers and students in selecting the right tools at the right time for the right tasks.
- Some schools pointed out the difficulties in managing different platforms/systems such as WebSAMS, ESDA and Learning Management Systems from different vendors. They hoped that the EDB could help schools resolve all related "cross-platform" issues so as to facilitate their IT management.
- The EDB should prevent Learning Management Systems/e-Learning platforms

from being monopolised by a few companies.

- IT should be used to reduce teachers' daily administrative work such as taking students' attendance and extra-curricular activities records, etc.

<u>Action 6</u>: To raise parents' information literacy and assist them in guiding children to use IT at home

- Parents and schools welcomed support to parents to guide their children in using IT to learn at home. However, they considered that the funding was insufficient for long-term sustainable support.
- Schools expected that they should have more resources for conducting programmes related to parental guidance on IT in education.
- Some suggested that funds should be directly disbursed to schools while programmes and activities could be organised by the media instead of non-governmental organisations (NGOs).
- Some expressed that despite the increasing use of IT in learning at home, there was no proposal for helping disadvantaged students and their parents.
- Many supported providing clear guidelines and regular training to parents on proper and ethical use of IT in learning, such as Internet security, data protection, intellectual property and the like.
- Some suggested that the Government should provide a platform or an on-line forum for parents to obtain the latest IT knowledge and updates to facilitate their guidance to children at home.
- The IT sector pointed out that their position and role in the Third Strategy were not clearly spelt out in the consultation document. Some suggested using a two-way video teaching system (視頻教學系統), like video-conferencing, to reinforce teacher-student-parent communication and encourage on-line learning at home.
- Many pointed out the importance of information literacy of students. Although the "Information Literacy Framework for Students" was completed under the Second Strategy, the Government lacked detailed implementation plan or clear guidelines in this respect.

<u>Other Comments</u>:

<u>Concerns about proper use of IT by students</u>

- The school sector suggested that teaching students to use IT appropriately and ethically was a priority. They commented that there were no specific measures dedicated on nurturing students' "21st century" skills and ethical use of IT in the

digital world. Apart from mastering the use of technology, positive moral values in students should be developed so that they would make intelligent use of on-line resources and respect intellectual property rights.

Concerns about learning with "Web 2.0" applications

- Some remarked that Web 2.0 applications, such as blogs, wikis and RSS feeds, should be employed to enhance teaching and learning through peer-to-peer collaboration and knowledge sharing. They suggested that the Government could promote educational use of such applications to encourage collaborative learning. Using the applications might help reduce paper consumption and promote environmental protection in the long run.

Concerns about digital divide

- Some teachers expected specific measures, such as the Digital Bridge Project and the Computer Recycling Scheme, to help needy students and eliminate the digital divide. They also commented that the Internet connection fee was too high. They suggested that the Government should provide Internet connection subsidies to economically-disadvantaged students or negotiate with Internet Service Providers (ISPs) to provide these students with service at concessionary rate. Using of open source software was also considered another effective means to help these students.

Concerns about competition between the HKEdCity and the private sector

- The private sector was worried that the HKEdCity would become their major competitor in the market. Some also queried if any quality assurance mechanism to assess the effectiveness of the HKEdCity.
- Some representatives of publishers commented that their contribution to and role in promoting IT in education were not mentioned.

Concerns about communication channels between the private sector and the EDB

- It was suggested that the EDB should organise more discussion groups / sharing sessions with the private sector so that further views on IT in education regarding the Third Strategy could be shared. Also, the EDB could consider inviting a representative amongst the publishers to be one of the Steering Committee members.

Concerns about a gap in IT standard among students of different schools

- Parents opined that secondary schools might not accord priority to IT in education given that their priorities are the language standards of students and preparing

students for public examinations. They also pointed out that there was a gap in IT competency among students of different schools.

- Some parents wondered if IT in education should be integrated into pre-primary education.

Community-wide IT education

- The Government should widen the scope of promoting IT in education in schools to community-wide IT education to enable our citizens to effectively engage in life-long learning to maintain our competitive edge.