

## Summary

Hong Kong has been promoting e-Learning for 20 years. With the advancement in technology, focus of e-Learning gradually developed from hardware devices to usage in learning and teaching. By making learning more flexible and interesting, the ultimate aim of e-Learning is to develop students' self-directed learning abilities , integrating technology into learning and achieve life-long learning<sup>1</sup>.

E-learning is an open and flexible learning mode. Learning goals can be achieved by using different electronic tools to develop student-centric learning strategies. The HKSAR Government has been actively promoting e-learning in Hong Kong through different measures. For example, "E-Textbook Market Development Scheme" was launched in 2012 and 2013 to encourage development of e-textbooks and to strengthen wireless networks (Wi-Fi) in schools to support the implementation of e-learning<sup>2</sup> .

As a result of COVID-19 pandemic , all primary and secondary schools in Hong Kong were closed since February 2020. E-learning became an important way for students' continuous learning during this period. In the past, traditional face-to-face teaching model has an irreplaceable place in Hong Kong education. Even though e-learning has been encouraged for many years, the latter still acts as a supporting role . The sudden suspension of classes resulted in a large-scale experiment for testing teachers and students' abilities for implementation of e-learning , perhaps there are some insights for transition of teaching model.

E-Learning is imperative under the new normal. It is meaningful to review e-Learning experience and difficulties to foster future development . In view of this, this study aims to understand the current implementation model of e-learning in schools , teachers and students thoughts on e-Learning and explore whether Hong Kong society was equipped with the conditions for implementing e-Learning. At last, we hope to provide suggestions for the future improvement of e-Learning.

The study collected information through three aspects, including literature review, Student questionnaire with 1,039 respondents aged 12-19, School questionnaire with 122 principals or teachers respondents in March-May and also interviews with 5 experts in education sectors in June-July.

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<sup>1</sup> Education Bureau (2009). Report of Task Force on the Development of Textbook and E-Learning Resources.

<sup>2</sup> Education Bureau (2015).The Fourth Strategy on IT in Education

## Discussion

**1. E-learning is the future trend. Students and schools should adjust their mindsets and master the future development trend of technology, be well-prepared for blended learning mode integrating face-to-face teaching and e-Learning in the future.**

According to survey results, for school respondents, average frequency of using e-Teaching on normal school day is 4.9 . During the suspension of class, average frequency increased drastically to 9.34. (Rate from 0-10 , 10 = very common use) , which is doubled. For student respondents, average hours of using e-Learning increased by 2.5 times from 1.88 hours on normal school days to 4.72 hours during suspension of classes. Survey result also showed that both schools and students respondents agreed that the biggest outcome of e-Learning is to encourage self-directed learning of students. At the same time, , 80.3% school respondents and 53.5% student respondents thought that e-Learning cannot replace face-to-face teaching , meaning that both methods are important.

In the future, e-Learning can be combined with face-to-face teaching to maximize learning effectiveness. Students and teachers need to adjust their mindsets, master the use of electronic tools and pay attention to the future technological development of e-learning, such as big data and artificial intelligence , applying blended learning model integrating face-to-face teaching and e-Learning.

**2. Teacher plays an important role in improving effectiveness of e-Learning by effective use of e-learning technology , incorporate the characteristics of e-learning when designing and planning pedagogy.**

According to survey results, while schools are actively promoting e-learning, use of e-Learning during suspension of classes has resulted in pressure on teachers, with an average score of 6.43 (Rate from 0-10 , 10 = very large pressure). The overall evaluation of the performance of implementing e-learning in schools was also average, with an average score of 5.62 (Rate from 0-10 , 10 = very satisfactory). Survey results reflected that teachers faced challenges and pressures when implementing e-learning.

When it comes to the statement on "Staffs have no difficulty in using electronic tools for teaching" , most schools respondents (45.1%) filled in "half half". On the issue of " Staffs cannot effectively manage students' learning progress in e-learning", most schools respondents answered "half half "(35.2%). School survey results implied that there was room for improvement in the use of e-Learning tools and students' progress management by teachers. In addition, schools interviewees considered the

most important support in the implementation of e-learning was to increase teachers' training(69.7%).

Teachers play an important role in promoting students' self-directed learning. If teachers can make good use of various e-Learning tools such as data analytics platform, teachers can better assess students' learning progress , encourage students' personalized learning and take care of students' learning differences. If teachers use appropriate pedagogy , students can be stimulated to learn independently rather than teacher-oriented teaching model , achieving lifelong learning in the long run. Therefore , it is important to relieve teachers' pressure of e-learning and give them appropriate training and support .

### **3. Students' confidence in using e-learning is low . Students were more concerned about that e-learning will decrease the depth of teaching and slow down learning progress. There were needs to create suitable learning atmosphere to ensure learning effectiveness .**

School survey respondents generally have confidence with their teachers for using e-teaching effectively , with an average score of 6.61 . While students surveyed self-evaluated on the confidence in using e-learning , resulted with an average of 5.63 points which is a bit low. (Rate from 0-10 ,10 = very confident )

At the same time, the study also reflected the challenges and difficulties in e-Learning. Students were more concerned about that e-learning will decrease the depth of teaching and slow down learning progress. 35.2% of the schools surveyed and 42.3% of the students surveyed agreed that e-Learning will reduce the depth of teaching. 42.6% school respondents and 44.2% students respondents disagree that the progress of their studies would not be slowed down by e-learning.

In addition, largest number of students surveyed (60.4%) identified the lack of learning atmosphere as a challenge in e-learning, followed by difficulties concentrating in learning (56.7%) and **deteriorated** learning effectiveness(46.8%). Therefore, how to maintain a good learning atmosphere , improve learning content design to raise students' concentration , and maintain students' learning motivation to achieve learning goals are the key elements of successful implementation of e-learning.

### **4. Teachers' workload and examination system limit the development of e-learning.**

According to school survey result, schools generally believed that implementation of e-learning during class suspension period would put pressure on teachers. Past research on e-Learning in Hong Kong has also found that teachers believed that "More time for teachers to prepare e-Teaching materials and familiarize with e-Learning devices " is the best way to promote sustainable development of e-

Learning<sup>3</sup>. As teachers play an important role in promoting students' independent learning, it is important to reduce teachers' workload so that teachers can receive up-to-date e-Learning training and have sufficient time to prepare e-learning materials that can achieve better learning outcomes of students.

Experts from the education sector pointed out that if schools could plan the e-Learning blueprint in details at an early stage and promote e-learning at a whole-school basis, it would be more conducive to the overall development of e-Learning in schools. In addition, experts said that the current examination system limits the development of e-Learning. As students can easily access to online information nowadays, examination system can focus less on memorizing knowledge, but more on continuous assessment model, including using online assessment methods to promote students' self-directed learning and motivation. However, the new assessment model requires changes in traditional teaching methods, redesign teaching materials and content. It is worth to explore how to integrate the elements of e-Learning in future assessment system.

## **5. Different parties can help with the needs and learning differences of grassroot students**

Basic hardware devices and stable network connection are required for e-Learning. Respondents of school survey were more worried about the influence of students' family background on intensifying learning differences. 83.6% of the schools surveyed and half of the students surveyed agreed that family background would affect the effectiveness of e-Learning. 61.5% of school respondents thought that e-learning would exacerbate the learning gap between students. Also, more than 10 % of student respondents mentioned that they lacked the conditions for e-Learning. Therefore, it is important to take care of the needs and learning differences of grassroot students.

The society can help to minimize the digital gap and learning gap by providing resources for grassroot students. For example, hardware device and guidelines on how to use it properly for e-Learning. Long-term measures should be considered by different parties to avoid grassroot students being excluded from e-learning because of the lack of resources.

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<sup>3</sup> Hong Kong Federation of Education Workers (2016). Implementation and Effectiveness of E-Learning. Retrieved from <https://www.hkfew.org.hk/listdetail.php?cid=160&aid=2047>

## Suggestions

Based on the above discussion points, we suggested to plan the Fifth Strategy on IT in Education (ITE5), reduce teachers' lesson periods to improve training, make good use of e-learning platforms. The ultimate goal is to achieve self-directed learning of students to promote sustainable development of e-learning.

### **1. The Education Bureau is suggested to plan on Fifth Strategy on IT in Education (ITE5)**

The study recommended The Education Bureau (EDB) set up a task force to conduct a comprehensive review of the existing curriculum and examination assessment system, in particular the compatibility of the New Secondary School curriculum (NSS) with e-learning . EDB can plan on ITE5 and to provide direction for the continuous implementation of e-learning in the light of the development of innovative technologies.

### **2. The Education Bureau can reduce the existing teacher lesson periods to improve teachers' training**

The study proposes EDB to reduce teachers' existing lesson periods to allow more time for e-learning training and pedagogy planning, so as to raise the level of e-Learning from "how to use" to "how to use it well".

On the other hand, EDB can set a minimum requirement for e-learning training hours of teachers, which is at least 10% of the required hours for teachers' elective training section. In this way, government can show its determination on developing e-Learning in Hong Kong.

### **3. The Education Bureau is suggested to create new headcount for IT coordinator in schools to promote e-Learning in school-based level**

The study recommended EDB to set up IT Coordinator in schools by increasing headcount. IT coordinator should devote at least 70% of the time to lead the development of e-Learning in schools. Different from IT technician who focuses on hardware technical issues, the main responsibility of IT Coordinator is to develop long-term planning of e-Learning , research on e-Learning pedagogy and coordinate e-Learning related training for teachers.

The Government can provide cash allowance of about \$560,000 per year to school , which is equivalent to annual mid-point salary of Graduate Masters/Mistresses (GM)<sup>4</sup>. The amount can be used to hire additional teacher so that IT coordinator can focus on to e-Learning development in schools .

#### **4. Schools can use e-Learning platforms to enhance interaction and communication with students, make good use of the platform's functions to analyze student learning data and evaluate learning outcomes**

Teachers can regularly use the e-Learning platform to collect students' views on existing e-learning models, such as using online questionnaires to understand students' learning interests and needs, preference modes of learning so that teachers can adjust and review current e-learning methods. Teachers can also allow students to learn through online collaboration so as to increase student interaction and establish a good learning atmosphere.

Schools with sufficient resources can also use the advanced e-learning platforms with students' personalized assessment capabilities, such as online assessment systems combining big data and artificial intelligence to analyze student learning data, to customized e-learning for students individual needs and to take care of learning differences.

#### **5. Different parties can help to support the development of e-learning in Hong Kong, particularly for students with financial difficulties.**

##### **A. School aspect**

Schools should provide early identification and support to students in need for e-Learning. If schools have adequate electronic devices, they can lend the devices to students and educate them to use the devices carefully. At the same time, schools can strengthen students' digital literacy. Schools can also maintain close communication with parents, to provide parents with clear information, including how to deal with students' disciplinary problems in e-Learning , such as explaining the functions of the mobile device management system in details so that parents can understand and empower their children to use e-learning with confidence.

##### **B. Government aspect**

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<sup>4</sup> Education Bureau (2017). Community Care Fund “Provision of Funding for Ordinary Schools to Arrange Special Educational Needs Coordinators” Pilot Scheme Evaluation Report. CCF provides each participating secondary schools with an annual cash subsidy equivalent to the mid-point salary of Graduate Masters/Mistresses (GM). The cash subsidy is adjusted annually with regard to the mid-point salary of GM

The Education Bureau can further encourage schools to implement BYOD policy to enable students in need to obtain essential mobile devices through the Community Care Fund Scheme. The Education Bureau can also collect information through various channels, such as school visits and questionnaires, to understand the doubts of schools in considering the implementation of BYOD policy and continue to study and optimize support e-Learning strategies.

#### C. Corporate aspect

Technology enterprises can extend the free trial version of e-Learning software for schools and continue to develop more advanced software for schools to purchase according to the needs of the education sector.

#### D. Non-governmental organization aspect

Non-governmental organizations can continue to act as facilitators and coordinators of e-Learning, such as collecting external resources and uniformly allocating them to students in need, supporting students' learning needs outside the classroom, and providing emotional and social support during the suspension of the class.