For discussion
on 4 July 2025

**Panel on Education**
**Latest Progress of Promoting Digital Education in Schools**

## Purpose

This paper briefs Members on the latest progress and implementation strategies of the Education Bureau (EDB) in promoting digital education in primary and secondary schools.

## Background

2. As the process of global digitalisation continues to deepen, digital education has become a key factor in enhancing competitiveness and cultivating talents. In 2022, our country kicked start the strategic initiatives for digital transformation of education. Released in early 2025, the 2024-2035 master plan on building China into a leading country in education promulgated by the country clearly sets out the goals to leverage the support of education to technology and talent, build a learning-based society and open up a new path of development through digitalisation of education. The "White Paper on Smart Education in China" released by the Ministry of Education in May 2025 further outlines the development strategies, ways of implementation and future directions for smart education, which include, among other things, strengthening the application of artificial intelligence (AI) in education. The country emphasises the "3C" development philosophy (Connection-first, Content-based, and Cooperation-oriented) in achieving the related goals, focusing on the "3I" (Integrated, Intelligent and International) strategic directions. In response to the rapid advancement of AI, the country will drive the in-depth and systemic reform in education to pursue "New stage", "New standard" and "New ways" ("3N").

3. To further complement the national development of digital education and nurture innovation and technology (I&T) talents, the Chief Executive announced the formation of the Steering Committee on Strategic Development of Digital Education (SCSDDE) in the 2024 Policy Address to harness collective wisdom and contribute insights on promoting digital transformation of school education in Hong Kong.

**Take forward the implementation of digital education on the established foundation**

4. Since the 1998/99 school year, the EDB has launched four strategies on Information Technology in Education, covering aspects from information technology (IT) infrastructure, teacher training, resource integration to the establishment of Wi-Fi campuses, with a view to progressively enhancing our education environment and promoting the integration of IT with education, thus laying a solid foundation for the digital transformation of education in Hong Kong. The establishment of Wi-Fi campuses in all public sector schools was fully completed by 2020 with the hardware upgraded to ensure that a comprehensive e-learning environment is in place for all schools in Hong Kong to effectively support teaching innovation. During the COVID-19 epidemic, the EDB launched a series of initiatives to assist schools in using various electronic tools to support students to learn at home, with a view to achieving "suspending classes without suspending learning". The school sector also took the opportunity to expedite the development of e-teaching and enhance the effectiveness of e-learning. Since then, the blended mode has become a new normal in teaching and learning in Hong Kong.

5. We have all along been encouraging schools to make good use of IT and I&T in teaching in the Key Learning Areas/subject curriculum guides, in which concrete teaching exemplars and suggested learning and teaching resources are also provided, so that teachers can give suitable guidance and feedback to students flexibly according to different learning contexts. The objectives are to cultivate students' abilities of using digital technology, and enable them to foster the values and attitudes in using technology ethically. Overall speaking, schools have responded positively to the use of information and digital technologies in teaching and

generally agreed that it can help enhance students' learning effectiveness (please see Annex 1).

**Focuses and directions of digital education**

6. Digital education is integral to the high-quality development of education. In light of this, the SCSDDE, which was officially established by the EDB in January 2025, has identified four key focus areas and directions for the promotion of digital education in Hong Kong, drawing on the experiences in the Mainland and overseas countries:

- to enhance students' digital literacy and skills so that they can use digital technologies effectively and ethically, becoming responsible citizens and lifelong learners;

- to strengthen professional training in digital education for teachers and encourage schools to use innovative technologies, particularly AI, to assist teaching, encourage teaching innovation and enhance learning and teaching effectiveness;

- to optimise digital education ancillary infrastructure and create an intelligent learning environment, including smart education platforms, to ensure equal opportunities for all students to use digital technologies for learning, promote personalised learning, and facilitate resource sharing; and

- to strengthen ties between local, Mainland or international I&T institutions, tertiary institutions, and relevant sectors to enhance synergy and promote high-quality development of digital education.

7. Under the leadership of the SCSDDE, we continue to optimise the curricula, strengthen relevant professional training for teachers, and encourage teaching innovation. In tandem, we optimise digital education ancillary infrastructure, provide resource support for schools, and strengthen ties between local, Mainland or international I&T institutions, tertiary institutions and relevant sectors so as to promote the high-quality development of digital education. In view of the rapid advancement of

AI, we will also actively promote AI learning, using, innovation and protection, making reference to the national and overseas strategies, and explore the strategies and options in relation to the teaching, learning, assessment, research and management using AI.

**Latest progress**

8. In line with the key focus areas and directions defined by the SCSDDE, the implementation and progress of the related measures are as follows:

**(I) Curriculum renewal to cater for the era of AI**

9. The disciplines of science, mathematics, technology and engineering are the foundation for the learning of AI knowledge and skills. To strengthen the learning and teaching of AI, we continue to optimise related curricula to promote AI learning with the use of AI-assisted teaching and enhance learning effectiveness with the approach of "learning through using and using to achieve learning". In tandem, we encourage teaching innovation to help nurture students' digital literacy and skills.

<u>Optimising the curricula for science, mathematics and technology</u>

10. Based on the guidance and recommendations of the Curriculum Development Council, its Standing Committee on STEAM Education and respective committees on science, mathematics and technology, we will continuously optimise and update the curricula of basic subjects such as IT, science and mathematics at the primary and secondary levels, and promote the integration of AI into learning and teaching, with a view to laying a foundation to prepare students for their living in the innovation era in future, learning in the technology discipline at the tertiary level and application across disciplines.

11. On technology education, the EDB launched the "Module on Artificial Intelligence for Junior Secondary Level" and the "Enriched Module on Coding Education for Upper Primary Level" in 2023, which cultivate students' computational thinking more systematically and enhance students' understanding of the foundation and application of AI.

The module for junior secondary level covers AI basics, AI ethics, computer vision, computer speech and language, AI and future of work, etc. The module for upper primary level aims to develop students' computational thinking skills, which will help primary school students further study the basics (e.g. data, algorithm) and applications of AI later in secondary schools. At present, almost all publicly-funded primary and secondary schools have implemented the enriched coding education and AI education at the upper primary level and the junior secondary level respectively.

12. Considering the increasing prevalence of AI in daily life and learning, in respect of AI learning, the EDB will enrich the learning contents on the understanding and application of AI at the primary level on the existing basis of coding education. In addition, we are actively exploring how to optimise AI education at the primary level so as to facilitate better articulation with relevant curriculum at the junior secondary level.

13. On science education, the Primary Science curriculum to be implemented in the 2025/26 school year incorporates contents that help students be aware of the development of some innovative technologies (e.g. AI, big data, the Internet of Things) and their applications in the society. As for the junior secondary Science, which is being updated, the curriculum will also encourage the application of AI to support teaching. Examples include the use of generative AI in science journal reading, using AI tools to construct, revise, and evaluate scientific models, and using AI chatbot in adaptive science learning. The Primary Science Curriculum Guide and the junior secondary Science curriculum framework will set out the principles, with illustrative examples, to elaborate on the application of digital technologies (e.g. generative AI) in supporting learning and teaching.

14. On mathematics education, the use of mathematical modelling in the Mathematics curriculum will be continuously enhanced to dovetail with the advancement in AI, which includes fostering students' ability to use AI, coding and various applications in building mathematical models, and enriching their digital literacy and knowledge of AI. Moreover, we will review the Mathematics curricula at primary and secondary levels to

explore ways to effectively integrate mathematical modelling into the learning of mathematics according to the characteristics of different learning stages.

AI-assisted learning

15. On promoting AI education, the EDB's medium to long-term goal is to harness AI to assist in the teaching and learning of all subjects in primary and secondary schools (i.e. AI for ALL subjects). For the learning at different levels of study, we will introduce students to AI progressively starting from the upper primary level. At the junior and senior secondary levels, we will gradually raise the requirements such that students are able to make good use of AI for learning.

16. We will also incorporate AI into the learning and teaching of other subjects. Schools are encouraged to deploy information and innovative technologies (including AI) in various aspects, such as using e-learning resources/tools to set diversified assignments, promoting more personalised self-directed learning among students and implementing e-assessment to further enhance learning and teaching effectiveness.

**(II) Promote teaching innovation by empowering teachers**

Empowering teachers to pursue teaching innovation

17. The EDB organises professional development programmes and learning circles to enhance the capabilities of teachers in applying innovative and digital technologies. The Digital Education Centre of Excellence (CoE) of the EDB is staffed by in-service teachers from schools with successful experiences in digital education. Apart from offering on-site support services to the school sector, these schools also conduct I&T teaching demonstrations and lesson observation activities on their campuses to share good practices in using digital technology for teaching (including the application of AI in learning and teaching) with other schools. From the start of the 2024/25 school year to the end of May 2025, the CoE has provided about 210 relevant professional development programmes with over 12 500 training places. In addition, various sections in the EDB responsible for different Key Learning Areas/subjects

also provide subject-related training in digital education (including AI education) for teachers. From the start of the 2024/25 school year to the end of May 2025, different sections have offered some 60 programmes with more than 7 500 training places (see Annex 2 for the examples of these programmes).

"AI for Science Education" Funding Programme

18. To expedite the use of AI in Science teaching, the EDB announced the introduction of "AI for Science Education" Funding Programme at the end of 2024 to implement AI-assisted teaching in the junior secondary Science subject on a trial basis. The pilot programme has received overwhelming response, with more than 220 publicly-funded schools participating. Supported by the Quality Education Fund (QEF), each participating school of the programme will receive a one-off funding of $100,000. The programme was rolled out in June this year, and teachers have started to receive training and trial lessons have been conducted. The EDB will continue to organise teacher network activities to collect exemplary practices and summarise schools' practices. We will conduct sharing sessions and workshops on an ongoing basis to promote the use of AI in teaching to the school sector.

AI + subjects

19. To achieve the long-term goal of "AI for ALL subjects", we will adopt the "AI + subjects" approach to encourage teachers to make good use of AI to assist teaching in their respective subjects, and explore good application scenarios, such as lesson planning, designing higher-level learning, marking papers, and applying AI to enhance students' learning outcomes. Our CoE has strengthened its on-site support for the application of AI in education. Besides, contents concerning integration of AI technologies in learning and teaching in relevant professional development programmes have also been enriched to ensure that teachers can use AI tools effectively in learning and teaching.

Teachers' professional training

20. We launched the Training Programme on "AI Unleashed - Exploring the Depths for Educators" in the 2024/25 school year. Through three talks and a four-day study tour to the Greater Bay Area, the programme enabled the participating teachers and principals to learn more about the applications and latest developments of AI across different fields, enhanced their AI literacy as well as deepened their understanding of AI technologies. As for pre-service teacher training, teacher education universities (i.e. the Education University of Hong Kong, the Chinese University of Hong Kong and the University of Hong Kong) are also enriching the contents on the learning of AI and its application in teaching in their programmes for equipping prospective teachers with competencies in these areas, in order to strengthen their use of I&T to support teaching and enhance students' learning effectiveness.

**(III) Enhance teachers' and students' digital literacy**

Updating the "Information Literacy for Hong Kong Students" Learning Framework

21. The core mission of education is cultivating values and nurturing people. In the era of AI, we need to uphold the importance of values education. Therefore, while cultivating students' basic abilities and skills, we also need to foster their high order thinking skills and future literacy. Improper use of AI may not only lead to adverse impacts such as distortion of values, moral and ethical controversies, academic integrity issues, but may also give rise to data security risks, legal and regulatory risks, etc.

22. Nurturing students' media and information literacy is an important part of values education in schools. It was also one of the key amendments made in the Values Education Curriculum Framework (Pilot Version) promulgated in 2021, which set out proposed learning expectations of students at different learning stages. The EDB launched the updated "Information Literacy for Hong Kong Students" Learning Framework in 2024, with a new literacy area "recognise the ethical issues arising from the application of emerging and advanced information

technologies" which includes the understanding of issues relating to laws and regulations, academic integrity and excessive dependence arising from I&T such as AI technologies. The aims are to nurture students to become ethical IT users and help them cope with the challenges brought by new technologies.

Strengthening support for teaching

23. The EDB also provides teachers with relevant professional development programmes as well as learning and teaching resources. Examples include courses on information literacy (IL) education (basic level) for new teachers and relevant advanced courses for teachers of different subjects, so as to support schools in promoting school-based IL education. The EDB has, in collaboration with the Hong Kong Police Force and the Journalism Education Foundation, launched the learning and teaching resources on Cyber Security and Technologies Crimes Related Information and Media and Information Literacy respectively, which include contents to strengthen the protection of personal privacy, enhance students' ability to discern the authenticity of information and promote the proper use of social media. We also regularly organise seminars for parents to assist them in helping their children develop proper attitude towards using IT in daily life and learning. The above measures can guide students in the proper use of AI and nurture their positive values and attitudes towards the application of I&T.

Use of AI for good and smart teaching

24. The EDB is planning to prepare a document on the proposed principles and examples of good practices for implementing AI-assisted teaching in primary and secondary schools for the reference of schools and teachers, with a view to empowering education with AI. The EDB will continue to make reference to the latest developments and experiences of the country and other places, adhere to the use of AI for good in renewing and optimising the curriculum, and while improving teaching efficiency and effectiveness, maintain the security of AI and technology education, and guard against challenges and risks related to laws and regulations, ethics, authenticity of information and privacy protection. Our objective is to facilitate students in harnessing I&T including the proper use of AI to

support learning.

## (IV) Optimise education ancillary infrastructure

Support for needy students

25. To promote educational equity and narrow digital divide, the EDB reserved $1.5 billion through the QEF to implement a three-year programme starting from the 2021/22 school year for lending mobile computer devices and Internet access facilities to needy students through their schools. The programme has been well-received by the school sector, with around 700 schools signing up for the programme in each school year since its launch. The total number of students benefitted reached some 88 000 in the first four school years of its launch (from 2021/22 to 2024/25 school year). The school sector agrees that the programme has yielded good results in catering for the learning needs of needy students. After reviewing the effectiveness of the programme, the QEF has decided to extend the programme for three years to the 2026/27 school year, so that the Government can collect more comprehensive data in future for planning long-term measures to support the e-learning of needy students.

Ecosystem for AI teaching

26. As a professional collaborative partner working closely with the EDB, the Hong Kong Education City (HKEdCity) provides continued support for the implementation of digital education in primary and secondary schools. Its priority tasks include, among others, the setting up of a super shelf for electronic teaching tools, an online platform providing users with various kinds of learning resources and solutions. The HKEdCity will also serve as a super-connector to closely link up users with various resources and platforms and work with different stakeholders to create an AI education ecosystem for implementing digital education.

27. The EDB continues to strengthen collaboration with the HKEdCity to further provide teachers and students with an online learning platform for AI and computational thinking, roll out relevant courses, and launch a webpage featuring expert lecture videos. Meanwhile, the

HKEdCity will continue to link with the EDB's one-stop e-learning portal to provide quality and diversified learning and teaching resources as well as self-learning materials to facilitate resource sharing.

28. In addition, the HKEdCity has been providing schools, teachers and students with one-stop resource and services on e-learning, e-reading, e-assessment, etc. It has also been actively promoting AI education such as establishing professional teaching communities for teachers, encouraging students to make good use of the online interactive learning platform to build self-directed learning habits, and assisting parents in becoming peers in their children's growth and learning for fostering the whole-person development of students. The HKEdCity provides schools with multimedia resources through the Educational MultiMedia website, and procures or assists in the procurement of quality e-learning resources both locally and from overseas via the e-Resources Acquisition Project (eREAP) for schools' use. In respect of e-reading resources, the HKEdCity helps promote extensive reading in schools by providing e-resources related to reading through the eRead Scheme. As for e-assessment resources, the Online Student Assessment System (STAR) launched by the HKEdCity supplies assessment tools and assignments on subjects including Chinese Language, English Language and Mathematics at the primary and junior secondary levels. The HKEdCity also organises the Coding Olympics to encourage students to use AI for data analysis.

Financial support

29. Starting from the 2004/05 school year, the EDB has been disbursing the Composite Information Technology Grant (CITG) to all public sector schools. In the 2024/25 school year, the rate of CITG for each school ranges from $275,355 to $898,390, subject to the school type and the number of classes. Separately, starting from the 2017/18 school year, the EDB has been providing the recurrent Information Technology Staffing Support Grant for all public sector schools on an annual basis. The amount of funding received by each school in the 2024/25 school year is $338,819. Schools may deploy the grant flexibly, having regard to their school-based pedagogical needs, to procure and enhance various kinds of teaching hardware and software (including AI-assisted teaching equipment), pay the subscription fees for Wi-Fi services and strengthen

their IT staffing support.

## (V) Ongoing support for quality e-Learning projects on the application of innovative education technologies in schools

e-Learning Ancillary Facilities Programme

30. The QEF has allocated $500 million for the implementation of the e-Learning Ancillary Facilities Programme to develop e-learning ancillary facilities (including learning platforms and resources) that meet local learning and teaching needs through co-operation among schools, tertiary institutions, the education and business sectors. A total of 22 projects have been funded under the Programme and have commenced at the beginning of the 2023/24 school year, involving a funding amount of around $240 million. Innovative technologies such as big data and AI are deployed to enhance learning and teaching effectiveness in a wide array of subjects/areas (the list of projects is at Annex 3). As at end-March 2025, a total of around 400 schools participated in the development projects, involving around 31 000 students.

31. The deliverables of the aforementioned projects will be released in four batches (once every six months) starting from mid-2025 for use by schools to help teachers improve their teaching designs. "LingoTask: An AI-Powered English Teaching and Learning System", "Intelligent DEsign-Aware Learning analytics empowered 21C L&T System (IDEALS)" and "Use Innovative technology to make assessment paper interactive, collect learning data and generate analysis automatically" are among the first batch of project deliverables released in June 2025. Schools may subscribe to these projects through the dedicated page of the HKEdCity, and use the deliverables from the 2025/26 school year onwards. Furthermore, funding is provided by the QEF to sponsor public-funded schools to subscribe and use these deliverables for a period of three years.

32. The QEF has also set up various funding schemes to provide additional resources for schools to finance their developments in STEAM education and IT education. In the past five school years, the QEF has approved more than 1 400 relevant projects, involving a total sum of funding of over $800 million. The QEF is going to include "STEAM

Education and Digital Education" as one of its priority themes to support schools in implementing school-based projects on IT and I&T education.

33. To complement the development of IT and digital education, e-textbooks have offered another option of quality learning and teaching resource for schools in addition to printed textbooks. The E-textbook Market Development Scheme launched by the EDB in 2012 encouraged aspiring e-textbook developers to develop e-textbooks for various subjects in line with the local curricular for adoption by schools. The submission of e-textbooks for review has become a regular practice since 2016. Currently, the Recommended e-Textbook List contains 59 sets of e-textbooks, covering a wide range of subjects at the primary and secondary levels. Furthermore, the EDB continues to provide schools with free and diverse e-learning resources to support learning and teaching.

**(VI) Coalesce efforts to implement digital education**

Strengthening ties with the school sector and I&T institutions to enhance synergy

34. We have been working with tertiary institutions and I&T-related institutions to co-organise various projects and activities, enabling school leaders and teachers to stay abreast of the latest developments in science and I&T (including AI). Examples include the "Exchange cum Training Programme for Hong Kong STEAM Education Leaders", which was co-organised with the Teacher Education Centre under the auspices of United Nations Educational, Scientific and Cultural Organization; the "Professional Development Programme on Innovation and Technology", which was co-organised with Cyberport; and the "Future Hong Kong" International STEM Education Forum, which was co-organised with relevant professional bodies. In the Forum, AI and science education experts and scholars from the Mainland and overseas were invited to share with the school sector their insights under the theme of "Smart Future: Artificial Intelligence Innovation and Science Education".

Enhancing collaboration with relevant stakeholders to broaden students' horizons

35. The EDB will further collaborate with the Hong Kong Academy for Gifted Education (HKAGE) and different organisations to improve the gifted education services for primary and secondary students and provide gifted students with more high quality and challenging off-school advanced learning opportunities, including courses on science and mathematics and I&T (including AI education). We will also continue to collaborate with the HKAGE, I&T organisations, tertiary institutions, and professional bodies (such as Cyberport and engineering professional groups) to provide students with I&T-related activities beyond the classroom, such as lectures, integrated practice, training, experiential learning, and competitions (e.g. International Olympiad in Informatics, China Adolescents Science and Technology Innovation Contest, Greater Bay Area Technology Study Tour), so as to enrich students' experience in learning I&T.

36. To further widen students' horizons, we actively arrange for them to have exchanges with Mainland research experts so that the younger generations can gain an in-depth understanding of the latest developments and achievements of our country in the I&T area. Such exchange activities can not only enrich the professional knowledge of students, but also help increase their sense of national identity, thereby nurturing a new generation of talents who are equipped with digital literacy, innovative thinking and a national perspective for Hong Kong.

Deepening international exchanges and co-operation to promote digital education

37. We will actively deepen international exchanges and co-operation by joining and promoting different professional exchange activities, so as to learn from and share practical experiences. For instance in May this year, a Hong Kong delegation, headed by the Permanent Secretary for Education and comprised member representatives of the SCSDDE and relevant stakeholders, participated in the 2025 World Digital Education Conference held in Wuhan, Hubei Province. They shared with guests and experts from countries around the globe the latest policies and practical experiences on digital education reform, with a view to promoting the

internationalisation of digital education in Hong Kong. Also, the Secretary for Education attended the 7th Asia-Pacific Economic Cooperation Education Ministerial Meeting held in Jeju in May. The theme of the meeting was "Bridging Educational Gaps and Promoting Sustainable Growth in the Era of Digital Transformation". The Secretary spoke at the thematic sessions to share Hong Kong's achievements in the development of digital education.

38. We also collaborate with the Mainland and overseas institutions (such as the Teacher Education Centre under the auspices of UNESCO) to hold professional exchange activities for STEAM leaders. These activities, covering the area of I&T (including AI), can help broaden the perspectives of the Hong Kong education sector and bring in new ideas.

39. In collaboration with the HKEdCity, the EDB is organising the first Digital Education Week from 30 June to 7 July 2025. Flagship events include the Learning & Teaching Expo, and the International Summit on the Use of AI in Learning and Teaching Languages and Other Subjects & Post-Summit Workshop Series jointly hosted with the Standing Committee on Language Education and Research and the Hong Kong Polytechnic University. The events will invite local, Mainland and overseas experts to share insights on I&T education (including the application of AI in teaching) so as to facilitate international exchanges, and at the same time promote the integration of AI in education in the local school sector as well as encourage in-depth exploration and application of AI and frontier technologies in the sector.

40. Under the leadership of the SCSDDE, we will continue to improve our policy measures and work closely with the school sector, I&T sector and relevant stakeholders, so as to gauge their views and wisdom for enhancing the quality of digital education in Hong Kong. In addition, the EDB continues to collect information from schools through different channels, such as focus group meetings and school visits, to understand the implementation of digital education in schools and review the effectiveness of various support measures.

## Advice sought

41. Members are invited to note the latest progress of digital education in schools, and comment on the support measures as stated in this paper and the future development of digital education.

**Education Bureau**
**July 2025**

Annex 1

**Summary of the Survey on Digital Education for the 2024/25 School Year**

In the 2024/25 school year, the Education Bureau (EDB) conducted the "Survey on Digital Education" (the Survey) online to collect schools' views on the development of digital education and related information. The major findings of the Survey are summarised below:

[Note: A survey on e-learning in schools was conducted in the 2023/24 school year.]

- According to the Survey for the 2024/25 school year, each school is equipped with nearly 270 mobile computer devices on average for learning and teaching purposes, more than double the average of about 133 in the 2018/19 school year before the epidemic. The provision has significantly facilitated students in using mobile computer devices for e-learning, enabling learning and teaching to go beyond the boundaries of traditional classrooms.

- In respect of students' learning effectiveness, according to the Survey for the 2024/25 school year, more than 99% of the schools indicated that the implementation of digital education has strengthened teacher-student and student-student interactions. About 98% of the schools observed that students have been more motivated to learn through active knowledge construction and were able to master abstract concepts and complicated issues more easily, and students' creativity has also been enhanced. About 96% of the schools indicated that students' computational thinking and coding capability and understanding of the foundation and application of artificial intelligence (AI) has been strengthened, and students have shown a higher level of problem-solving ability and become more interested in learning about innovation & technology education (e.g. coding and AI).

- On pedagogical transformation, good progress was observed in the professional development and innovative practice of teachers. More than 98% of the teachers have shown confidence in using e-tools to enhance teaching effectiveness and were able to make use of different e-tools to support students in unleashing their creativity and use technology to solve real-life problems. Also, nearly 99% of the schools approved of the digital transformation of pedagogy, indicating that digital strategies have already been integrated into daily teaching.

- Regarding information literacy (IL) education, according to the Survey, all schools have already implemented IL education since the 2023/24 school year. The results of the Survey for the 2024/25 school year further shows that IL elements have been incorporated into the teaching activities of various subjects in all schools. It reflects that schools have attached importance to IL education, and have promoted the ethical and effective use of information technology among students in the teaching of different subjects. Furthermore, all teachers agreed with the newly added contents of the "Information Literacy for Hong Kong Students" Learning Framework, which is related to the literacy area of "recognising the ethical issues arising from the application of emerging and advanced information technologies".

Annex 2

## Digital Education Related Professional Development Programmes Provided by EDB (Examples)

* With AI-related content

(Remarks: Covering Digital Education e-Leadership, Technological Programmes, Media and Information Literacy, Digital Education Pedagogy in Different Subjects/ Areas (including STEAM Education, Coding Education , AI Programmes, Chinese, English, Mathematics, Science, Primary Humanities, Design and Technology, Physical Education, Visual Arts, Music, Citizenship and Social Development, Geography, Ethics and Religious and etc.)

| Professional Development Programmes | Secondary | Primary |
|---|---|---|
| * Use of AI Technologies to Facilitate Learning and Teaching: Professional Teaching Practices with AI | ✓ | ✓ |
| * Use of AI Technologies to Facilitate Learning and Teaching: Integrating AI into Different Disciplines | ✓ | ✓ |
| * Use of AI Technologies to Facilitate Learning and Teaching: Diverse AI Applications in Learning and Teaching | ✓ | ✓ |
| * Use of AI Technologies to Facilitate Learning and Teaching: AI Applications for Special Education and Inclusive Learning | ✓ | ✓ |
| * Strategies, Processes and Solutions for Planning and Promoting STEAM Education | ✓ | |
| * Sharing on the Curriculum Planning and Teaching of Module on Artificial Intelligence for Junior Secondary Level | ✓ | |
| * Training Programme on "AI Unleashed : Exploring the Depths for Educators | ✓ | ✓ |
| Successful Practice of Implementing "Bring Your Own Device" (BYOD) Policy | | ✓ |
| * The Evolution of Generative AI - Using AI Tools in Learning and Teaching | ✓ | ✓ |
| Using Drones for the Learning Activities | | ✓ |
| * Unlocking Generative AI Safely and Responsibly | ✓ | ✓ |
| Application of Internet of Things (IoT) Technology in Maker Education | ✓ | ✓ |
| * Using AI Chatbots as Teaching Tools to Enhance Learning and Teaching Effectiveness | ✓ | ✓ |
| Using an Interactive Presentation Platform to Enhance Learning and Teaching Effectiveness | ✓ | ✓ |
| Using Internet of Things (IoT) Platform in STEAM Learning Activity | ✓ | ✓ |

| | Professional Development Programmes | Secondary | Primary |
|---|---|---|---|
| | Innovative Teaching with Virtual Reality | ✓ | ✓ |
| | Using e-Learning Tools for Augmented Reality (AR) Book Production | ✓ | ✓ |
| | Using Online Game Creation Platforms to Enhance Learning and Teaching Effectiveness | ✓ | ✓ |
| | Management, Security and Maintenance of School IT Facilities－Management of Active Directory (AD) in Schools | ✓ | ✓ |
| | Management, Security and Maintenance of School IT Facilities－Mobile Device Management (MDM) in Schools | ✓ | ✓ |
| | Using Robot Kits and Unplugged Activities to Cultivate Students' Computational Thinking | | ✓ |
| | Using Robot Kits to Enhance Students' "Hands-on and Minds-on" Ability | | ✓ |
| * | Integrating AI into a Cross-disciplinary Chinese Cultural Project (with Class Observation) | | ✓ |
| | Using Integrated Control Boards in STEAM Learning Activities | ✓ | ✓ |
| * | Applications of AI Tools in Teaching and School Administration | ✓ | ✓ |
| * | Utilising AI and the Metaverse to Foster Primary School Students' Speaking and Self-Directed Learning Skills | | ✓ |
| | Using e-Learning Tools to Facilitate Self-directed Learning and Differentiated Teaching in General Studies for Primary Schools | | ✓ |
| | Using e-Learning Tools to Enhance Learning and Teaching Effectiveness of Visual Arts in Primary Schools | | ✓ |
| * | Enhancement of Learning and Assessment in Ethics and Religious Studies through Artificial Intelligence Applications | ✓ | |
| * | Applications and Challenges of AI tools in Learning and Teaching Geography | ✓ | |
| | Sharing on Visual Arts Learning and STEAM Education | ✓ | ✓ |
| * | 善用資訊科技促進中國語文科的學與教 (Chinese only) | ✓ | ✓ |
| * | Workshop on Using Artificial Intelligence (AI) in Music Learning and Teaching | ✓ | ✓ |
| * | Exploring Artificial Intelligence: Enhancing Students' Self-directed Learning Capabilities and English Listening and Speaking Skills | ✓ | ✓ |
| * | Exploring Artificial Intelligence : Enhancing Students' Self-directed Learning Capabilities and English Reading and Writing Skills | ✓ | ✓ |
| * | Integrating AI in the Learning and Teaching of Design and Technology Subjects | ✓ | |
| * | Using Micro:bit, App Inventor and AI extension for developing Coding Education | | ✓ |

| | Professional Development Programmes | Secondary | Primary |
|---|---|---|---|
| | Effective Use of GeoGebra in Mathematics Lessons | ✓ | |
| * | The Mathematics of Generative AI | ✓ | |
| * | Enquiry Learning for Primary Humanities: The Latest Development of Our Country (Workshop) | | ✓ |
| * | Seminar on "Application of Artificial Intelligence on Humanities Subjects" | ✓ | |
| | Planning, Implementation and Evaluation of School-based IL Curriculum in Whole School Approach | ✓ | ✓ |
| | Developing Students' Ethical and Positive Use of Emerging and Advanced Information Technologies | ✓ | ✓ |
| * | Responsible Use of Artificial Intelligence (AI) in Learning and Teaching | ✓ | ✓ |
| * | Workshop on Fact-checking and Obtaining Reliable Information | ✓ | ✓ |
| * | Information Identification in Digital World | ✓ | ✓ |
| * | Smart Use of Digital Devices and Mitigating Online Risks | ✓ | ✓ |
| * | Workshop on Creating Content Using AI Tools | ✓ | ✓ |
| | Supporting Parents in Facilitating e-Learning and Healthy Internet Use | ✓ | ✓ |
| | Information Evaluation and Prevention of Cyberbullying | ✓ | ✓ |
| * | Cyber Security and the Ethical Issues in Emerging and Advanced IT | ✓ | ✓ |
| * | SS Citizenship and Social Development Curriculum: Promoting Information Literacy through Board Game | ✓ | |

Annex 3

# QEF e-Learning Ancillary Facilities Programme

## List of Projects

| No. | Project Title | Grantee | Project Profile | Beneficiaries |
|---|---|---|---|---|
| 1 | Intelligent DEsign-Aware Learning analytics empowered 21C L&T System (IDEALS) | The University of Hong Kong, Faculty of Education - Centre for Information Technology in Education | To develop an AI system for learning design and analysing learning by teachers. | Primary school<br>Secondary school |
| 2 | E-Learning Platform of Chinese Art History and 3D Paintings | Department of History, Hong Kong Baptist University | To establish a learning platform themed on ancient Chinese paintings to support students in studying the history of art development and Chinese history. | Primary school<br>Secondary school |
| 3 | Using Big Data to 「Teach precisely, Learn efficiently」to further Develop One-stop Learning Management System and e-Learning resources to cater for different learning needs | Sam Shui Natives Association School Fund Limited | To develop a learning platform for students with special educational needs and a set of games to support students with dyslexia in learning English. | Primary school<br>Special school |
| 4 | The use of Algorithms and AI technologies to enable Adaptive learning in Mathematical Education | The Chinese University of Hong Kong - Department of Mathematics | To set up an adaptive e-learning system for secondary Mathematics education. | Secondary school |
| 5 | EduVenture® Self-directed Learning Resources Programme: General Studies in Primary Education and Citizenship and Social Development in Secondary Education EduVenture® | Centre for Learning Sciences and Technologies (CLST), The Chinese University of Hong Kong (CUHK) | To incorporate AI technology into the EduVenture e-learning platform and develop relevant courseware to support field trip learning for General Studies (including the Primary Science subject | Primary school<br>Secondary school |

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|---|---|---|---|---|
| | | | and Primary Humanities subject to be implemented soon) as well as the Citizenship and Social Development subject at senior secondary level. | |
| 6 | Geography E-learning Package about Climate Change, Version 2.0 | Ho Koon Nature Education cum Astronomical Centre | To develop learning and teaching resources related to climate change with augmented reality (AR)/virtual reality (VR) technologies. | Secondary school |
| 7 | Enhancing Literacy Education with Artificial Reality Neo-platform (eLEARN) 2.0 | The University of Hong Kong, Faculty of Education - Centre for Information Technology in Education | To develop an immersive learning platform aided by VR to facilitate the learning of Chinese Language, English Language and the General Studies (including the Primary Science subject and Primary Humanities subject to be implemented soon) in primary schools. | Primary school |
| 8 | Apply AI teaching and classroom management skill practice for pre-service teachers in Field Experience | Department of Special Education and Counselling, The Education University of Hong Kong | To develop a platform which uses AI to help pre-service teachers enhance teaching and classroom management skills. | Primary and secondary pre-service teachers |
| 9 | Digital Physical Quotient and Learning Platform | Department of Rehabilitation Sciences, The Hong Kong Polytechnic University | To establish an AI platform which can collect and analyse data on children's gross motor and fine motor for assessing the development of their kinesthetic intelligence. | Kindergarten<br>Primary school<br>Special school |
| 10 | Metaverse English Learning World - AI Companion Robot and Virtual Environment to foster Students' English Speaking Skills | Chinese Young Men's Christian Association Of Hong Kong | To develop a learning platform which uses chatbot technology to train students' English listening and speaking skills. | Primary school<br>Secondary school |

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| 11 | Dissemination of Borderless Lab365 platform to secondary and primary students | Department of Applied Physics, Hong Kong Polytechnic University | To develop a platform for remote-controlled experiments so that students can conduct science experiments free from time and place constraints. | Primary school<br>Secondary school |
| 12 | Animation, Coding, Cognitive Tool as Pedagogies for Subject Learning, Self-Regulated Learning, and Computational Thinking Development: Coding, Chinese Language, English Language, and Mathematics | Department of Mathematics and Information Technology, The Education University of Hong Kong | To develop an e-learning platform which uses tools such as coding to facilitate students' learning of relevant subjects and cultivate their self-learning and computational thinking skills. | Primary school |
| 13 | Revitalizing Open English Materials Through Multimedia Components and Creation of a Mobile Application to Support LTI: Facilitating Blended Learning and Self-Directed Learning for Primary 1 to Secondary 6 | Hong Kong Metropolitan University - Office for Advancement of Learning and Teaching | To develop a set of open source English textbooks complemented with multimedia materials and interactive functions to support the learning and teaching of English in primary and secondary schools. | Primary school<br>Secondary school |
| 14 | AI-assisted Virtual Reality English Speaking Program for Secondary Students | Center for Language Education, The Hong Kong University of Science and Technology | To develop an AI system for training English speaking, including VR software to provide immersive learning. | Secondary school |
| 15 | Use innovative technology to make assessment paper interactive, collect learning data and generate analysis automatically | Xianggang Putonghua Yanxishe | To develop a conversion system which can electronically convert paper-based assessment materials for automatically marking | Primary school |

| No. | Project Title | Grantee | Project Profile | Beneficiaries |
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| | | | and analysing student learning with feedback. | |
| 16 | Learning Management System and Knowledge Management with Artificial Intelligence and Big Data | The University of Hong Kong - Department of Electrical & Electronic Engineering | To develop a learning and teaching platform to provide teaching resources and databases, and analyse students' learning progress with AI. | Primary school<br>Secondary school |
| 17 | Developing e-Content for Robotics Education: Using Learning Management System to Promote Blended Learning Model and Content Sharing | Department of Curriculum and Instruction, The Education University of Hong Kong | To develop an e-course related to robotic making and a learning management platform to provide learning resources and allow students to share their learning outcomes through the platform. | Primary school<br>Secondary school |
| 18 | Programming e-Learning and Assessment Platform | Hong Kong Young Women's Christian Association (HKYWCA) | To develop a learning and assessment platform for coding to support teachers in teaching the Information and Communication Technology Curriculum updated recently. | Secondary school |
| 19 | LingoTask: An AI-Powered English Teaching and Learning System | Stanley Ho Big Data Decision Analytics Research Centre, the Chinese University of Hong Kong | To develop an AI platform for learning and teaching English which can automatically assess students' performance in listening, speaking, reading and writing. | Primary school<br>Secondary school |
| 20 | 'Learning & Teaching' Made Easier | Sik Sik Yuen | To develop an e-platform for promoting adaptive learning to facilitate teachers in implementing learning and teaching activities and assessing student learning. | Primary school<br>Secondary school |

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| 21 | A New Learning Era of Learning, Evaluation and Teaching | Yan Chai Hospital Board of Directors | To develop an e-learning platform for Senior Secondary English Language, using AI to assess and analyse students' learning performance with immediate feedback. | Secondary school |
| 22 | Knowledge Overlord - A self-sustaining AI game-based online platform to enhance student's literacy ability and 21st century skills | Hong Kong Metropolitan University - School of Nursing and Health Studies | To develop an e-learning platform which promotes reading with the application of AI and games, and establish an online reading community to enhance students' language proficiency. | Primary school Secondary school |