

e-Textbook Writing Guidelines for the Technology Education Key Learning Area Curriculum (Secondary 1-3) – Information and Communication Technology (Knowledge Context)

1. Introduction

The purpose of this set of guidelines is to familiarise interested e-textbook publishers with the curriculum aims and objectives, structures and learning topics, guiding principles for writing e-textbooks, etc. of the Technology Education Key Learning Area (TEKLA) curriculum (S1-3) – Information and Communication Technology (ICT) (Knowledge Context) in a bid to ensure that the e-textbooks are written in accordance with the specific requirements of the curriculum and “The Seven Learning Goals for Secondary Education” (www.edb.gov.hk/en/curriculum-development/7-learning-goals/about-7-learning-goals/secondary.html) (For details, please refer to *Secondary Education Curriculum Guide* (2017)). For the general principles and requirements for writing textbooks, publishers should refer to the latest edition of the *Guiding Principles for Quality Textbooks* available from the Education Bureau’s Textbook Information website (www.edb.gov.hk/textbook).

2. Curriculum Aims and Objectives

2.1 Curriculum aims

Technology Education (TE) aims to develop the technological literacy in students through the cultivation of technological capability, technological understanding and technological awareness.

2.2 Learning objectives of the TEKLA curriculum (S1-3) - ICT (Knowledge Context) are:

- Choose the appropriate hardware and software to perform specific tasks
- Be aware of the approaches used in solving problems
- Develop skills to solve problems systematically
- Know how to develop simple programmes to solve problems
- Understand basic concepts related to the use of information technology and the computer
- Develop the capability to process and present information independently or collaboratively with peers
- Be aware of the validity and reliability of information, and be able to verify and evaluate the accuracy and reliability of information
- Develop skills to perform a variety of Internet activities

3. Guiding Principles

3.1 Content

- The *Technology Education Key Learning Area Curriculum Guide (Primary 1 – Secondary 3)* was published in 2002 and has been implemented in schools since then. It has been reviewed and the learning elements at junior secondary level were enriched in 2017 for schools' reference. For details, please visit the Education Bureau website at <http://www.edb.gov.hk/en/curriculum-development/kla/technology-edu/curriculum-doc/index.html>.
- The TEKLA curriculum comprises six knowledge contexts. Selection of materials should be done with a view to attaining the aims and objectives stated in the TEKLA curriculum and covering the contents under the Information and Communication Technology knowledge context; the learning elements under the six knowledge contexts could be connected or integrated to enhance students' learning. Information/data included should be accurate, systematic and relevant.
- In order to arouse students' interest in learning the subject and to facilitate effective learning, the learning and teaching materials should, as far as possible, be linked to real life situation in local and/or global contexts, technological applications, social issues, and students' daily experiences so as to help students in realising the importance and relevance of the concepts being discussed. Furthermore, local examples should be cited wherever appropriate.
- Bias and discrimination should be avoided in the selection of contents, examples, illustrations, activities, etc. Furthermore, information should be provided to help students in understanding and analysing an issue from different perspectives.
- All core learning element modules (K1 Computer Systems, K2 Programming Concepts, and K16 Information Processing and Presentation) and extension learning element module (E1 Computer Networks) of ICT (Knowledge Context) should be covered.

3.2 Learning and Teaching

- The curriculum emphasises on learning through real-life situation, such authentic learning experiences facilitate the study of technological applications and to develop students' generic skills such as problem solving skills, effective communication skills, creativity, etc.
- Practical works and learning activities should be included to facilitate the development of fundamental computer concepts, application of Information Technology and ideas of programming.

- Practical works such as project should offer “hands-on” experience and opportunities for the application of knowledge and skills. Projects should provide challenging questions or problems for students to explore local and global issues on latest developments in technology and their applications. They should also allow students to construct and connect knowledge, skills, values and attitudes through an in-depth study on a topic of interest.
- Learning activities such as discussion, role-play, debate, investigation, survey, library search, Internet search, etc., should be included as appropriate.
- Learning activities and exercises should be designed to develop various skills including higher order thinking skills such as application and creative thinking which are vital elements for students in solving problems logically and making sense of the environment. Student-centred and interactive approaches are highly recommended, as they are useful in providing suitable learning experience for stimulating and developing higher level thinking. The skills to be developed in particular activity should preferably be identified for teachers’ reference.
- Exercises should help students learn to locate and process important information from the text. They should help students focus on important learning objectives and check their own progress. Stimulus materials in the form of newspaper cuttings, extracts from articles, flow-charts, photos, diagrams, statistical tables or graphs, Internet web sites, etc., should be provided so that students can have some concrete materials to base on.

3.3 Structure and Organisation

- The organisation of curriculum should facilitate teachers to have a better grasp on the coverage of learning elements in order to provide a broad and balanced TE curriculum for students.
- The learning and teaching materials should be arranged in an appropriate sequence, e.g. from easy to difficult, from concrete to abstract.
- The clarity of concept explanation is an important aspect affecting students’ learning. New concepts should be introduced at an appropriate pace and when needed during the development of the text. Efforts should be made to help students connect new concepts with concepts already learned.
- Structure of text should be clear to students as evidenced by chapter titles, headings, outlines, introductions and conclusions.
- The text should be coherent at a local level. Pronouns should have a clear referent and the relationship between ideas should be explicit and obvious.

3.4 Language

- Publishers should refer to the Computer Education Glossary available from the Education Bureau website (www.edb.gov.hk/en/curriculum-development/kla/technology-edu/resources/computer-edu/glossary.html).
- The language used should be clear, fluent, accurate and easy to understand.
- Pinyin should be adopted for Chinese names and places.
- The interspersing of languages (e.g. English followed by its Chinese translation or vice versa) in the text is undesirable.

3.5 Pedagogical Use of e-Features

- Appropriate multimedia - video, audio and/or animation, should be included in layout according to the aforesaid requirements, and with captions / labels / synopsis where available. For the general principles and requirement for writing e-textbooks, publishers should refer to the latest edition of the *Guiding Principles for Quality Textbooks* for the relevant requirements.

3.6 Technical and Functional Requirements

- Refer to the latest edition of the *Guiding Principles for Quality Textbooks* for the relevant requirements.

4. Others

- 4.1 When writing e-textbooks, publishers have to ensure that the contents and information provided in the materials should be correct, complete, up-to-date, objective and impartial. The source and the date of the information should be provided as appropriate. The information in the illustrations and images should avoid showing brand-names of commercial items unless it is necessary.
- 4.2 Publishers should avoid putting excessive hyperlinks in the e-textbooks so as not to violate the self-containment principle. The contents of the hyperlinks should be placed in the teacher's handbooks or the publisher's online learning platforms as far as possible for teachers and students' reference. The hyperlinks should link to the websites with high credibility, such as the official websites and the websites of academic institutions, and avoid linking to commercial or social media platforms.
- 4.3 It is incumbent on the publishers to ensure that all proof-reading work, including the electronic functions, language, information, punctuation,

illustration, pagination, etc., is completed and accurate before submitting the e-textbooks for review.

- 4.4 Publishers should clear all copyright issues of the e-textbooks as appropriate.
- 4.5 Publishers should pay attention to the curriculum time allocation suggested in the curriculum documents of this subject to ensure that the learning contents are designed with an appropriate quantity and level.
- 4.6 If publishers submit other versions (such as Chinese version or printed version) of the same textbook title for review at the same time, they should duly check the consistency of the contents among all the versions. If another version will be submitted at a later stage, the suggestions in the review reports for the previous submitted version should be thoroughly followed before submission.

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