

Guidelines for Digital Textbook

1. Principle 1: Perception	
1.1 To convert it to a format needed by the students, such as large print, Braille, voice, symbols, simple words, etc., by adding alternative text to the picture or photo.	<p>1.1.1 Adding text Text has been added to all of the photos, charts and graphs (figures), and images and videos.</p>
1.2 Alternative contents for the subtitles, etc., in the media that change in accordance with the passage of time in the videos are to be provided.	<p>1.2.1 Furnishing alternative contents The videos played in the digital textbook are to be provided with alternative content for the subtitles, and the contents of the video are to be made understandable in a different media.</p>
1.3 A textbook that can be provided in different ways (such as in a simpler layout) without compromising the contents or structure of the textbook is to be prepared.	<p>1.3.1 Changing the Layout The layout of the digital textbook can be changed without vitiating the value of contents so that it can be easily understood by the students.</p>
1.4 It should be easy for the students to see and hear. This also includes distinguishing the foreground from the background.	<p>1.4.1 Color Universal Design For the text used in the digital textbook, Color Universal Design, a color arrangement that avoids colors that cannot be read or distinguished by students with color blindness and other visual challenges, is to be considered.</p>
	<p>1.4.2 Black and white reversal The black and white colors should be reversible.</p>
	<p>1.4.3 Changing the display format The display format in the digital textbook should be made easy to view by widening the line spacing, highlighting, changing the fonts and colors, magnifying the text, etc. In addition, the display must show the entire page without having to scroll horizontally.</p>
	<p>1.4.4 Adjustment and eliminating sound For the speech and music used in the digital textbook, students with difficulties in hearing are to be taken into consideration. The textbook is to be designed so they have no difficulty in understanding the sound and can adjust the loudness, remove the sound running in the background, and make other changes.</p>
2. Principle 2: Operation	
2.1 Various methods of input such as a keyboard interface and mouse-compatible devices are to be provided.	<p>2.1.1 Variety of inputs The digital textbook can be operated not only through a particular input method but also through a mouse-compatible input method and through a keyboard interface.</p>
2.2 Sufficient time should be provided for the students to read and use the digital textbook.	<p>2.2.1 Changing the rate of progress The rate of progress of the digital textbook with respect to the passage of time should be changeable (for example, changing the speed of the recitation, stopping it at specific times, etc.) according to the students' pace and needs so that it does not move forward before the student understands the contents.</p>
2.3 A means for allowing the students to operate the digital textbook, search for the information needed, and confirm the current position in the digital textbook is to be provided.	<p>2.3.1 Confirming the current position The information to confirm the portion currently being dealt with in the digital textbook can be constantly obtained.</p>

3. Principle 3: Comprehension	
3.1 The contents of the text are to be made easy to read and understand.	3.1.1 Explanation of terms When a term or language that is being used in the digital textbook is difficult to understand, an explanation must be presented, and substitute text is to be provided.
	3.1.2 Placement of ruby character Ruby character should be placed according to the requirements of different school grades, and the students' dictionaries, etc., should be provided as contents.
3.2 Background knowledge or a provision for an activation option is to be provided.	3.2.1 Presenting the reference information If there is a lack of sufficient background knowledge to understand the contents of the digital textbook, there should be an option that can activate some related knowledge from the past.
3.3 An option to highlight the important matters, overall picture, and their relation is to be provided.	3.3.1 Change in display of important matters, etc. When important matters that must be learned are difficult to understand, or to know what portion of the overall matter they belong to and to understand easily the relationship between the items, a confirmation option has been provided (for example, changing the color and contrast of the sentence, changing the fonts, etc.)
3.4 The expressions and operation of the digital textbooks are to be made predictable by imparting a consistent identity, hence making them easy to understand.	3.4.1 Uniformity in the method of operation and design If the operation and design of the digital textbook varies for each unit or each subject, then different methods of operation must be learned, which will cause confusion. Hence the operation and display need to be consistent and identifiable.
3.5 Help the students avoid making mistakes, and correct their mistakes.	3.5.1 Correction function While working with the digital textbook, care must be taken to avoid unintended mistakes. When an operational mistake is made, it could be corrected by students themselves.
4. Principle 4: Compatibility and Robustness	
4.1 Supporting devices such as a screen magnifier and input equipment are already available, and their techniques are not expected to change significantly in the future.	4.1.1 Use of assisted technology Assisted technologies make it possible to enlarge the screen, enable speech functions, etc., in digital textbooks. Further, the method of use is to be made consistent so there are no significant changes to it in the near future.
	4.1.2 Text data samples All of the text in the digital textbook can be extracted as text data so that it can be converted to another format.

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