A conceptual model of the geography textbook 21st century in enhancing the higher order thinking skill

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Abstract. The quality of the geography textbook is substandard. The content of the geography textbook dominated by facts/data and concepts. The condition is not relevant to 21st-century learning that demanding students to be able to critical thinking and creatively. Therefore, this study aims to develop a conceptual model of geography textbook of the 21st century. By modifying the Borg and Gall (1989) model, this study creates a conceptual models of the geographic textbook. The model consists of two components namely content and evaluation sheets. Both of the components are developed based on higher order thinking skill and geo capabilities. This conceptual model suggests organized geographic textbook content used as a principal of geographical approach including spatial, environmental, and regional complexes. Evaluation sheets in geography textbooks are suggested to be designed based on problems and student-based activities. Each issue or case should be presented using a subheading and equipped with text aids in the form of illustrations and additional questions. This conceptual model provided important benefits to improve the quality of geography textbooks in Indonesia for the future.

1. Introduction
The geography textbook plays a significant role in learning [1]. In the other country, the geography textbook is a prime of teaching material [2]. It's have used by teachers and students to achieve learning goals. This is very reasonable because the content of textbooks had derived from the curriculum in a more specific and concrete form [3]. Hence, the geography textbooks cannot be replaced by other teaching materials [4].

Therefore, the geography textbook must be designed based on the requirement of the 21st century [5]. This aims to shape critical and creative thinking skills. These skills are the basic competence that students must master in facing global challenges in the 21st century [6]. In addition, geography textbooks must contain the geo capabilities consist of the use of the geographical imagination, ethical subjecthood with respect to the impacts of geographical processes, integrative thinking about society-environment relationships, spatial thinking and the structured exploration of places [7]. Geo capabilities are extremely important because geography learning not only memorizes places but also shapes student capabilities.

However, the condition of textbooks have been circulating in the field and used by teachers and students in learning is unable to improve higher order thinking skills and geocapabilities. Textbook content only presents facts/data and concepts so that it only shapes students' cognitive abilities in the realm of understanding. That have supported by the findings of previous research which reported most geography textbooks in Indonesia were categorized not close look at the problematic discussion
The condition has an impact on learning that takes place in schools only memorizing facts/data and concepts[9].

Based on these problems, this study aims to develop a conceptual model of geography textbooks to improve higher order thinking skills and geo capabilities to response 21st-century learning challenges. The findings of this study are expected to give suggestions for the Ministry of Education and Culture to improve the quality of geography textbooks in Indonesia. And also it can be a reference for geography teachers in developing textbooks.

2. Methods
This study uses research and development methods. The development procedure is carried out by modifying the Borg and Gall model consisting of 10 steps to 5 steps. The reason is that the purpose of this research is only to the stage of developing a conceptual model to be used as a guideline in writing and developing 21st century geography textbooks. The five steps of the development procedure are:

1. An analysis of geographic textbook content has used by teachers and students. And also to obtain comprehensive data, the findings of the previous research was carried out.
2. Design the conceptual model based on the findings of the previous study.
3. The development of conceptual models of geographic textbooks based on 21st-century learning needs which integrating higher order thinking skill and geo capabilities components.
4. The preliminary field test conducted in the form of Focus Group Discussion (FGD) which involved eight practitioners and geography education experts. In the FGD, specific suggestions from experts collected.
5. Revised conceptual model, this stage is carried out based on the suggestion from geography education experts.

The development stages can be seen in Figure 1.

![Figure 1. The development stage modifying the Borg and Gall](image)

3. Results and Discussion
3.1 The preliminary trial field
The preliminary trial field was designed by in the form of Focus Group Discussion (FGD). It begins with the explanations the researcher regarding the conceptual model. Then, the experts gave specific feedback.

Focus Group Discussion has contributed many ideas towards the conceptual models of geography textbooks. Experts of geographical education have recommended textbook organizing must providing problems in enhancing the ability to think critically and creatively. Experts also suggest the importance of including geography thinking skills within the conceptual model. This ability is needed by students in the 21st century. They assumed that the geography learning must be directed to implement in students' daily lives.

The advice is helpful for researchers in revising the conceptual model of geographic textbook. Feedback from practitioners and geography education experts is used as a guideline to revise the conceptual model. The revised components consist: content and evaluation sheets. The content integrates geography skills while the evaluation sheet is developed based on project-based learning.
3.2 The Conceptual Model of Geographic Textbooks of the 21st Century

The conceptual model emphasizes two significant components in textbooks, consist of content and evaluation sheets. Both of the components are developed based on higher order thinking skills and geocapabilities. Figure 2 represents the conceptual model.

![Diagram of the Conceptual Model](image)

**Figure 2.** The Conceptual Model of Geographic Textbooks of the 21st Century

Based on figure 2 seen that the organization of the geographic textbook content contain the main approach to geography namely spatial, environmental, and regional complexes. The spatial approach emphasizes synthesis analysis of variations in location differences on the earth's surface and what factors predominantly influence these differences[10]. The environmental approach emphasizes the relationship between humans and the physical environment. The region's complex approach is a combination of spatial and environmental. The analysis emphasizes a comprehensive study of an area covering physical and human aspects[11].

The integration of the three approaches must be adjust the theme of the study such as in disaster studies, the used of spatial approach emphasize the differences in types of disasters. For example the difference risk index of the earthquake in Indonesia. Based on data, the earthquake risk index in Sumatra Island is higher than in Kalimantan Island. Geography textbooks must explain what factors caused Sumatra to have a larger disaster risk index than Kalimantan.

Then, using an environmental approach, the geography textbook can present current environmental problems that are strongly influenced by human interaction. An example, the high risk of hydrometeorological disasters is inseparable from human activities in exploiting natural resources in
excess, which has an impact on environmental damage [12]. And also by using a complex regional approach, the geography textbook must present the results of a comprehensive disaster risk assessment coverage physical and social aspects [13].

Integrate a geographical approach in a textbook is extremely important. This aims to increase geo capabilities consist of the use of the geographical imagination, ethical subjecthood with respect to the impacts of geographical processes, integrative thinking about society-environment relationships, spatial thinking and the structured exploration of places.

Then, the evaluation sheets in a geography textbook are must be designed based on the problem. Each issue or problem should be presented using a separate sub-section and equipped with text tools in the form of illustrations and additional questions [14,15]. Its aims to facilitate students in analyzing problems, making alternative solutions and policies.

Evaluation sheets in geography books can also be designed based on student activities. For example, the teacher assigns the task to students to carry out disaster risk analysis in their immediate environment. This is done comprehensively covering physical and social aspects and is presented in the form of a disaster risk index map. This can train communicative skills and collaboration / fellow students. These two skills are demands that students must know and learn in the 21st century [16].

4. Conclusion
This conceptual model of geography textbook was developed based on the need for geography learning in the 21st century. Because of the current, the geography textbook has not been able to improve the ability of students such as creative dan critical thinking. Organizing of the content is recommended using the main geographic approach of spatial, environmental, and regional complexes. Then, this evaluation sheet of the conceptual model of geography textbooks is designed based on the case study that students must solve. The cases presented aim to improve higher order thinking skills.

The results of this research and development only limited to producing a conceptual model framework. Therefore, furthermore research it is necessary to produce geographic textbook products by referring to this conceptual model. Later the textbook products developed using this conceptual framework can be tested for effectiveness with experimental research.

This study also produces steps that benefit teachers in developing geography textbooks, namely: (1) determine the topic/theme of the study, (2) present data, facts, and generalization, (3) using spatial, environmental and regional complex approaches, (4) present examples of global, regional & local scale comparisons, (5) presenting useful learning materials for students to discuss problems. Finally, the hope of the results of this research can be useful in order to improve the quality of geography textbooks in the future.

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