Development of social teaching materials based on geography literacy for increasing, critical, and creative thinking skills

Sugiyanto*, E Maryani, M Ruhimat

Department of Geography Education Universitas Pendidikan Indonesia, Jl. Dr. Setiabudhi 229, Bandung 40154, Indonesia
*gie_geo@yahoo.co.id

Abstract. Purpose of this study is to develop geographic literacy-based teaching materials, to improve 21st Century skills namely critical, creative, collaborative thinking skills. Researcher employs an approach namely ADDIE model (Analysis, Design, Development, Implementation and Evaluation). The feasibility assessment of the produced teaching materials is done by testing the product from experts, practitioners by the teachers and users by the students. Researcher collects data by using questionnaires, and product evaluation sheets. The results of the study show: 1) geography literacy based social studies modules for 21st century skills improvement, is stated as "worthy of use for learning" by experts with an average score of 90.67. Detail scores are as follows: aspects of the content scores 94.12, aspects of the presentation scores 90.38, and the geographical literacy aspect scores 87.5; 2) as much as 90.27% of students argue or give a positive statement that the geography literacy social study module is able to encourage high, critical, creative, collaborative thinking and further develop broader views to students.Conclusion: Social Study modules based on geographic literacy can be used to develop student 21st century skills primarily critical, creative and collaborative thinking skills.

1. Introduction

In the framework of the implementation of integrated learning in the 2013 Curriculum, social studies subjects for junior high school are expressly stated "Geography as a Social Study platform." At a glance the concept is meant that all places, objects, resources and events are bound by locations that aim to emphasize the importance of space as a place of life and resources for humans, recognizing the potential and limitations of space, connectivity between spaces to complement each other, developing a sense of love for the country, strengthening union and the unity of the NKRI [1][2] Contradicted to that, it is however the fact that the teacher's understanding of the concept is still low. [3] study shows that the teacher's understanding of the concept of "Geography as Social Study platform" is still low, indicated that most teachers (76%) says that they do not understand, and 80% have not applied the concept in social studies learning. Most teachers (75%) who have received Curriculum 2013 training stated that they did not understand the concept. This condition according to some teachers is due to: 1) the concept of the policy is relatively new for social studies teachers and argued that they have not received adequate training, 2) the concept has never been obtained while studying in graduate program including those
with a geography education background, 3) no written technical instructions for implementing the policy concept.

These problems must be solved immediately so that the learning objectives of Social Study can be achieved optimally. States that Geography can function as a vehicle in developing students’ thinking, inquiry and literacy skills. According to him, the effective way of geography learning in the 21st century learning framework is to use the latest geographic issues such as the content of environmental issues. One way is to develop social science-based social studies teaching materials [4]. Based on the above conditions, namely the not yet applied concept of "Geography as a platform in social studies learning", as well as unorientated 21st century skills in social studies learning, the research on the development of geographic literacy-based teaching materials is an effort to overcome these problems. More formally the problems formulated are:

a. How to develop geographic literacy based junior high school social studies teaching materials to implement the concept of "Geography as social study platform" that is able to encourage the development of 21st century skills (critical, creative and collaborative thinking)?

b. How is the feasibility level for developing geography literacy based social studies teaching materials as an implementation of the concept of the Geography of Social Sciences Learning Platform that is able to encourage the development of 21st century skills (critical, creative and collaborative thinking)?

One way to implement the concept of "Geography as Social Study Platform" is to use the concept of geographic literacy. Through literacy components, namely: interaction, interconnection and implications will be able to describe and frame the concept of Social Study concepts in a systematic, rational, critical, and encourage the development of 21st century learning skills, especially creative, and collaborative thinking. Geography as a vehicle in this study is to use geographic literacy (Interaction, Interconnection, and Implications) as a foundation, framework, connector, binder in compiling material and conceptual concepts of social studies that are integrated.

For this purpose, Social Study students’ handbooks (Student Books) are checked on concepts and substance, enriched with data, graphics, images and additional material. They are mapped and grouped based on geographic literacy components and rearranged in descriptions that logically flow. They are criticized, questioned, and challenged. The module books is enriched with up-to-date supporting data, accompanied by training assignments that encourage active, collaborative, critical, creative, and interactive students with information sources (internet) to always be contextual and meaningful. There are several geographic literacy concepts proposed by geography experts, including: [4][5][6]. The opinions of experts on geographic literacy can be grouped into two, namely, the first group, Martin, Edelson, tends to simplify the concept of geography in geographical perspectives in the component of geographic literacy, making it easier for most people to understand without being too bound by the concept of technical geography. for example Edelson mentions with 3 components of geographic literacy, namely: interaction, interconnection and implications. Meanwhile the second group represented by [6], uses a rather strict geographic concept of the concept of technical geography. For example, Kerski stated that geographical literacy must be supported by 3 supporting pillars, namely: core content, skills using geographic tools, and geographical perspectives.

In the context of providing an easier understanding of geographic frameworks for young children (elementary and secondary school), it is sufficient if the perceptive components / aspects or geographical imagination used to develop geographic literacy in this case use the Edelson concept consisting of 3 I (interactions , interconnection, and implications) as an instrument for implementing the concept of "Geography as Social Study Platform". Another substantial consideration that is quite important is related to the content in the 2013 IPS curriculum, students do not get sufficient map skills materials.

Conducts research in elementary schools which aims to develop geographic literacy learning in an integrated manner with other subjects [7]. The results of this study indicate (a) almost all students who
were taught GeoLiteration lessons showed an increase in reading achievement, (b) students in Grades 5, 6, 7, and 8 showed a significant increase in reading comprehension compared to students who did not use the program, and (c) students in the 7th grade who already had moderate reading skills showed a significant increase in reading comprehension compared to comparison students. In addition this research also shows how teachers can use specific strategies to creatively and thoughtfully integrate curricula, where standards in reading and social studies can be overcome while students get in both fields.

As already mentioned above, [4] states that Geography can function as a vehicle in developing students' thinking, inquiry and literacy skills. He further stated that the effective way of geography learning in the 21st century learning framework is to use the latest geographic issues such as the content of environmental issues. Teachers can use strategies that stimulate students through investigation in certain ways, including: activating investigations, enhancing investigations, and empowering investigations. Geography learning can use generic skills such as 1) finding material using search engines, 2) finding the most useful books in the library, 3) extracting relevant material from print and digital sources, 4) removing irrelevant information, 5) writing with clearly according to the style needed for the task, 6) organizing material logically, 7) making the most important and prominent points, 8) giving the right conclusions from the evidence. In each learning, it definitely requires teaching materials as the main menu in learning. This means that the availability of teaching materials is very important in the learning process. According to [8] the making of materials aims to: 1) help meet the needs of students for subject matter, 2) facilitate students and teachers in implementing learning, 3) help learning activities more, ready, interesting and efficient because they know ingredients that will be studied.

Teaching materials according to [9] are a set of targets or learning tools that contain learning material, methods, boundaries, and ways of evaluating that are designed systematically and interestingly in order to achieve the expected goals, namely achieving competence or sub-competence with all the complexity. Usually, teaching material is independent, meaning that it can be learned by students independently because it is systematic and complete.

According to [10] teaching materials differ from textbooks. The difference between teaching materials and textbooks not only lies in the format, layout and appearance, but also in the orientation and approach used in the preparation. There are three methods that can be chosen in designing instructional materials, namely: (1) self-writing (starting from scratch), (2) repackaging information (information repackaging or text transformation) and (3) organize information (compilation or wrap around text). In this study the main activities are to repackaging and organize information.

In order for teaching materials to be accepted by users, it must meet the quality requirements of teaching materials both substantively and formally. According to [8] there are seven components in each teaching material, namely: 1) title, 2) learning instructions, 3) basic competence or subject matter, 4) supporting information, 5) exercises, 6) assignments or work steps, 7) assessment. According to [11], the criteria for Textbooks and Non-Textbooks are appropriate to be used by the Education Unit as referred to in Article 2 paragraph (3), which must fulfill the following elements: a. book skin; b. the beginning; c. content section; and d. the final part. Particularly on the contents of the book both on the Text Book of the Non-Textbook Book must fulfill the material aspects, and can also add linguistic aspects, material presentation aspects, and graphic aspects. Meanwhile, according to [8] there are 4 main steps in the preparation of teaching materials, namely: 1) analyzing teaching material requirements, 2) understanding the criteria for learning resources, 3) compiling teaching material maps, 4) understanding the structure of teaching materials.

21st century skills require teachers to master and apply high thinking evaluation (HOTS), meaning that if the evaluation of HOTS (High Order Thinking Skill) level is not mastered it means that 21st century skills have not been able to apply in learning at school. In 2016, the Minister of Education and Culture of the Republic of Indonesia has issued guidelines for evaluating high-level thinking thinking (High Order Thinking Skill), therefore all stakeholders must understand these conditions, especially teachers. The results of the study of 4 documents in the RPP (Learning Implementation Plan) in the eyes of IPS learning from different schools and different levels (class VII, class VIII and Class IX) show that,
of the 25 RPPs containing 143 item items, there were only 22.4% of questions that enter the HOT level (analysis, evaluation and creation). Of the 22.4% included in the HOT category were mostly aspects of analysis, while evaluation and creative aspects did not yet exist [13].

Partnerships for 21st century skills identify six key elements for driving 21st century learning: 1) emphasizing core subjects, 2) emphasizing learning skills, 3) using 21st century tools to develop learning skills, 4) teaching and learning in context 21st century, 5) teaching and studying the content of the 21st century, and 6) using 21st century assessments that measure 21st century skills. Desired results in the 21st century learning framework are a combination of traditional school subjects and contemporary content themes with century-old interdisciplinary themes 21. The core subjects and themes that frame 21st century learning include traditional core subjects while emphasizing citizenship literacy, global awareness, financial literacy, health literacy, and environmental literacy [12].

2. Methods
The research approach used is research and development. The research method used is development research using the ADDIE model (Analysis, Design, Development, Implementation and Evaluation). Assessment of the feasibility of teaching materials is carried out by product testing from experts, testing by teachers practitioners and testing by students users. Data are collected using validation sheets and questionnaires. Research activities carried out until this stage are the analysis phase, the design stage and product development stage (product testing). For product validator test, the expert on social literacy based on geography literacy materials, in this study was Dr. Yasin Yusuf, M.Sc., a practitioner evaluator are 2 social studies teachers in junior high schools in Surakarta and 2 administrators of Social Sciences MGMP Surakarta, while users are Surakarta junior high school students. Data analysis uses both qualitative and quantitative analysis.

3. Results and Discussion
To answer the first problem formulation, how to develop social literacy based social studies teaching materials as an implementation of Geography-based social studies and encourage the development of 21st century skills, the main step is to determine the main concepts used in developing teaching materials, in this case using a geographic literacy framework as introduced by [13] which contains 3 components, namely: interaction, interconnection and implications. The three concepts of geographic literacy will stimulate critical and creative thinking. The procedural steps of preparing teaching materials are as follows:

a. The analysis phase, this activity is carried out before carrying out research by conducting a study of the compatibility between the 2013 Social Studies curriculum, textbooks used by students and teachers, learning tools, and student and teacher attitudes and responses to current Social Study textbooks;

b. The design phase, the activities are: mapping the needs of developing social studies teaching materials based on geographic literacy, determining the structure of teaching materials, determining the form of evaluation and assignments in teaching materials, compiling assessment instruments for validators, determining material validators and media validators.

c. Development phase, the activities are: making learning paths, writing instructional materials, validating by material experts, validating media experts, validating by practitioners, validating by users, and improving draft material based on input from validators.

Responding to the formulation of the second problem, namely how is the level of prototype feasibility of teaching materials on social literacy based on geography as the implementation of the concept of Geography as social study learning platform and encouraging the development of 21st century skills (critical, creative and collaborative thinking)? The product test results from material experts, practitioner teachers and student responses are as follows. The results of the evaluation of
material experts, namely by Dr. Yasin Yusuf, M.Sc. shows that "Social Studies Teaching Materials Based on Geographic Literacy Feasible to be Used with Several Revisions", with a score of 93.75 on a scale of 100. This means that the scores are quite high. For the presentation aspect it gets a score of 91, for the content aspect it gets a score of 94.2 and for the geographic literacy aspect it gets a score of 96.1, and for the 21st century skill aspects (critical, creative thinking, collaboration) the score is 92.2. There were some suggestions for improvements given by the Material Expert to improve the quality of the teaching materials, namely: (1) if it is possible the concept of geographic literacy in depth (2) in some images needs to be clarified, (3) readability of improved data, (4) bibliography, (5) equipped, in the matter of oil palm plantations there needs to be a comparison of positive and negative impacts, 6) the issue of healthy eating if it can be included.

The evaluation results from social studies teachers consisting of two Social Study – teachers forum (MGMP) administrators and two social studies teachers on the Social Sciences module developed, show that overall the Geography-Based Social Learning Materials developed had a score of 87 (out of a scale of 100), which meant that the teaching materials were very good and worthy of use with several revisions. For the presentation aspect the score is 83.7, for the content aspect it gets a score of 87.5 and for the geographical literacy aspect the score is 91, and for the 21st century skills aspect (critical, creative thinking, collaboration) the score is 92. While the teacher's suggestion is as the following: (1) if possible all images are colored, (2) the language is more simplified adjusted for junior high school students, because there are several long sentences and too many foreign terms, (3) make the practice questions easier.

The results of student assessment of social studies modules developed are very good, with scores / scores of 90.27. Based on the broad aspects of the scope of the material in the Social Study module based on geography literacy developed, students gives very good grades, with a score of 93.1. Based on the aspects of impulse critical and creative thinking, students gives very good grades, namely 95.3. For the coverage aspects of the concept of interaction, interconnection and spatial implications of students provide very good value, 88.1. Of the three aspects of geographic literacy, the interconnection component is rated as the lowest, namely 85.6. For linguistic aspects (ease to understand) students give good grades, 85 means easy to understand. For the aspect of encouraging collaboration students provide excellent grades, namely 91.9. Judging from the aspect of the appearance of the module, students give a very good score of 87.5. Based on the aspect of encouraging activities to solve problems students give very high scores, which is 90.6. Based on this student assessment it can be concluded that the module developed in this study is declared good or feasible to use in learning IPS indicated that the average value of almost all aspects is classified as very good with an average value of 90.27 (on a scale of 100).

The results of the teacher's assessment in accordance with the suggestions given, namely the aspect of linguistic presentation needs attention, because there are some terms that have not been understood by students and the existence of several long sentences, the use of somewhat foreign words and the use of less well-structured sentences has caused readers difficult to understand the content or meaning. Likewise, there are still unclear images, maps, graphics resulting in images, maps, graphics that cannot be read or cannot be interpreted, especially if they are colorless. In other words, on aspects of language, images, maps, graphics need to be improved.

The results of student evaluations are somewhat different from the teacher practitioner's assessment. Students consider the content of the concept of geographic literacy (interaction, interconnection and spatial implications) is the lowest, namely an average of 88.1 while material experts and teachers gave higher scores. This is because, first, this concept is still relatively new for students so that students' understanding of the concept of geography literacy is still low compared to material expert teachers, secondly, instructional items related to geography literacy are less accompanied by more concrete examples.

In the aspect of 21st century skills (critical thinking, creative thinking, problem solving and collaborative activities), students give very high scores, which is 95. This assessment is caused by students feeling “being challenged” by case descriptions, questions from several sections of presentation descriptions, questions and assignments contained in the module.
On the presentation aspect (how the module looks) the student gives a score of 87.5 (the lowest among the components of the evaluated model). The results of the assessment of this aspect are parallel with the results of the assessment of material experts and practitioner teachers, even practitioners' teachers gave lower scores than students, namely 83.7. In other words, this aspect needs to get the most attention.

Conclusion

Development of geographic literacy-based social studies teaching materials can be done by using 11 steps of activity by packing and rearranging information from existing social studies teaching materials plus the latest data and information, using the foundation of the concept of geography literacy as well as functioning for the development of 21st century skills. The results of validation and evaluation indicate that social literacy-based social studies teaching materials as the implementation of the concept of "Geography as Social Studies Learning Plans" to develop 21st century skills are "feasible to use" with some improvements mainly in the aspect of presentation. The average total score of material by experts is 90.67, by teacher 87 and by students 90.27. For each aspect is as follows: aspects of the content scores 94.12, the presentation aspect scores 90.38, and, the geographical literacy aspect scores 87.5.

References

[1] Kemendikbud 2017 Buku Guru Ilmu Pengetahuan Sosial Kelas SMP/MTs Kelas VIII edisi Revisi (Jakarta: : Pusat Kurikulum dan Perbukuan, Balitbang, Kemdikbud)
[2] Kementerian Pendidikan dan Kebudayaan 2017 Model Silabus Sekolah Menengah Pertama/ Madrasah Tsanawiyah (SMP/MTs) Mata PelajaranIlmu Pengetahuan Sosial (IPS) (Jakarta: : Pusat Kurikulum dan Perbukuan, Balitbang, Kemdikbud)
[3] Sugiyanto, Maryani E, Ruhimat M 2017 Studi Tingkat Kepahaman Guru IPS SMP Tentang Literasi Geografi JPIPS Volume 26 Nomor 2 Edisi Desember 2017
[4] Butler, Jhon 2015 Thinking, Inquiring and Literacy skills in Geography. (http://www.agta.asn.au/conf2015/presentations/Butler_J.pdf)
[5] Nagel, Paul 2008 Geography: The Essential Skill for the 21st Century. Social Education 72(7) pp 354–358 ©2008 (National Council for the Social Studies) http://www.literacyinlearningexchange.org/ sites/default/files/nagel_socialeducation.pdf
[6] Kerski Joseph J 2014 Sleep walking into the Future – The Case for Spatial Analys is Throughout Education (http://gispoint.de/fileadmin/user_upload/paper_gis_open/537510017.pdf)
[7] Hinde, R Elizabeth 2007 The Integration of Literacy and geography:The Arizona Geo Literacy Program’s Effect reading Comprehension Theory and Research in Social Education. Summer, 2007, Volume 35, Number 3 pp. 343-365.
[8] Prastowo, Andi 2012 Panduan Kreatif Membuat Bahan Ajar Inovatif (Jogyakarta)
[9] Lestari, Ika 2013 Pengembangan Bahan Ajar Berbasis Kompetensi (Padang: Akademi Permata)
[10] Suharjono 2008 Menyusun Bahan Ajar Agar Tujuan Perkuliahan Terciptai dengan Lebih Menyenangkan Makalah pada Workshop Penyusunan Bahan Ajar Hibah A2 Jurusan Sipil Fakultas Teknik Universitas Brawijaya, 26 Mei 2008
[11] Kemendikbud RI No 8 Tahun 2016 Peraturan Pemerintah Tentang Buku yang Digunakan oleh Satuan Pendidikan
[12] Partnershi p For 21st Century Skill (t.th). Framework for 21st Century Learning. https://wvde.state.wv.us/counselors/links/initiatives/21st-century-framework.pdf
[13] Edelson, c. Danilel. (t.th) *National Geographic Education, Geo-Literacy: Preparation for 21st Century Decision Making*. [http://www.esri.com/library/ebooks/geolearning.pdf](http://www.esri.com/library/ebooks/geolearning.pdf)