

A Preliminary Study on Developing Geography Literacy Based on Social Studies Learning Model to Improve Teachers 21st Century Skills

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Abstract. Geography education has become core teaching in 21st century skill oriented curriculum as it relates to globalization era and global awareness on prominent environment issues by century 21st. Geographical concepts in geography literacy that includes concepts of interaction, interconnection and its implications helps to understand global issues. Those concepts challenges students to critically and creatively solve problems as parts of skills in century 21st. This research is aimed to know a teachers understanding about geography literacy based on social science teaching to improve teachers skills century 21st. A survey to 13 junior high schools in Surakarta will be employed. Survey to social studies teachers in Surakarta in 2017, shows that mostly (92%) do not understand geography literacy and (70%) shows that they do not understand skills century 21st. Discovery-inquiry model and PJBL remain least used. Frequency of using laptop reach by 54% only. Internet as sources of study is used limitedly in learning process. Based on the conditions, a geography literacy social studies learning model to improve skills 21st century is in need to develop and tested to see its effectiveness.

1. Introduction

Economic life in 21 century converges from economics of “scarcity” towards economics controlled by information. Global economy in century 21st controlled by information technology, where most transactions are proceeded online, investment and capital market work without real life fterferences, rather by looking at numbers on the monitors. In these globalized markets, incidence in one country easily influences other countries. This collapse of the geographic barriers due to globalization agenda and the advancement of information technology has transformed the world into a giant village in which inhabitants are able to interact, communicate, transact easily whenever and wherever they are [1].

Although it is difficult to peek at the future to ensure what skills is important at 30 next years from now, but there are some factors that has changed labor demand and life in the past. Most these important factors are automatization, globalization, changes of workplaces and policies as well as the increase of personal responsibility [2].

In the information and communication technology era there are many successes that depends on abilities to communicate, share, and use information to solve complex problems, and abilities to adapt, innovate in responding to new demands and changing circumstances. Therefore, a new learning standard for students must be able to make changes on competencies, skills and expectations of basic knowledge



in the past. To meet these learning challenges, learning process need to be changed in order that students are able to acquire creative thinking, flexible problem solving, collaboration and the innovative skills. With those skills students are expected to be more success in their future work and life.

Trilling and Fadel stated that there are three skills and capabilities which are indeed needed in century 21st life. They are 1) life and career skills, 2) learning and innovation skills, 3) *Information, media and teknologi skills*. From the three groups of skills, learning and innovation skills are fundamental and need to be progressively developed at schools. These skills include critical learning and problem solving skill, communication and collaboration skills and, creative and innovative skills [3].

North Central Regional Educational Laboratory and the Metiri Group has developed a framework to learn 21st century, in which it illustrates skills that students need to thrive in today's global economy [4]. The skills are digital literacy, inventive thinking, effective communication and productivity. Educational Testing Service (ETS) in their publication on "Digital Transformation: A Literacy on ICT Literacy Framework" defines 21st century learning ability as an ability a) to collect and or to retrieve information, b) to arrange and manage information, c) to evaluate quality, relevance and the use of information, d) and to produce accurate information through the use of existing resources. This is in line with what Maryani stated [5, 6]:

"This information literacy must be put as focus of attention by teachers and students so that within large amount of information related to today's global life, they can utilize information appropriately and filter out useless information wisely. Abundance and easiness to get information is an important education and life resources, but in contrary they can mislead or give negative impact on social life." Literacy is needed to comprehend and place events at their proper places, filters, responds proportionally, and anticipate negative consequences that may arise.

Maryani's opinion above matches with the concept of Australia curriculum that defines literacy include knowledge and skill that students need to access, understand, analyse, and evaluate information, give meaning, revealed opinion and emotions, present ideas and opinions, interact with others and participate in the activities in schools and their lives [6-8]. Some concepts above show that literacy at present is not only capacity to read, write and count, rather they are wider than them. These recalls a new development of literacy including geography literacy.

In addition to information literacy, geography literacy is one of important literacies in the development of 21st century skills. In the context of 21st century skills, Geography is one of the core subjects taught to K-12 students. There are 8 important lessons given to students to support 21st century skills, namely: National Language, International Language, Mathematics, Science, Art, Geography, History, Government / Civics. In this case geography is related to globalization and global awareness and environmental issues that continue to stand out until the 21st century. Understanding global awareness and environmental issues such as global cooperation, global economy, resource scarcity, climate change, disasters requires concepts of geography to understand them, anticipate and overcome the emergence of such problems. Therefore Edelson stated, whether they realize it or not, every member of modern society makes far-reaching decisions in their everyday life [9]. A broad decision is one that has a good impact beyond the time and place where decisions are being made. While the impact of a certain far-reaching decision may be small, the cumulative impact of decisions made by millions or even billions of people becomes enormous. Furthermore, Edelson states the US Geographical Society believes that increasing geographical literacy will lead to a better protection of natural and cultural resources, less conflict, and more habitable communities [9]. Moreover, they believe that having geographical literacy population is also important to maintain national economic competitiveness and dynamic security in this interconnected and inter-dependent world. Yet they are concerned about low level of geographical literacy in the United States

According to the National Geographic Association of USA, geography literacy, refers to the use of geographic logics to understand the interactions, interconnections and implications of the various

systems that make the Earth's function optimally [10]. Having a geography literacy allows individuals to make choices about where to live, how to live and how to anticipate and survive from natural disasters in their area [11]. While Backler and Stolen also explain that geographical literacy needs to be based on five main concepts of geography (location, place, relationship, movement and region). A survey by the National Geographic Society Roper Poll in the United States of the youth age 18 to 24th concluded [12]:

"Some young Americans have lack of basic skills to identify current necessity for safety." (Roper Public Affairs 2006: One third (34 percent) of respondents do not have sufficient knowledge and skills on spatial areas to know the relative safety of the location against the threat of the eye of the storm. This group is most likely to suffer the toughest impact of the storm.

"The same proportion of respondents cannot choose the right route to evacuate the city after being given a cardinal route. These findings is serious as potential hazards may be posed by chemical poisons, dirt bombs, forest fires, or most other offspring that, at one time or another, threatened private property or safety of every citizen. It is not difficult to identify the danger or the threat of danger or other threats that locates the population without spacial skills and competence are at higher risks.

In the case of many disaster victims in Indonesia, such as the victims of the tsunami disaster in Aceh, the earthquake in Padang, and landslide in many parts of Indonesia, the fire and burning of the forest, floods indicate low knowledge and lack of critical thinking ability in responding to natural disasters. Until now there are still many people in disaster areas who think irrational and act fatalis. One prominent example is the community leaders on the slopes of Merapi volcano who have been victims of the eruption of Mount Merapi in 2010. They think, behave and act irrationally, despite they have been warned, they did not want to go from his residence because his residence was "believed" safe from the impact of the eruption. The passing of the Bantul residents towards Yogyakarta as well as the circulation of the tsunami issue in Yogyakarta due to the 2006 earthquake showed low spatial intelligence or geographical literacy.

Urbanc and Fridl wrote a trend that links spaces to modern lifestyles that it is necessary to train people to understand the space in where they live [13]. The acceleration of economic development and profit-making at any cost, population increase, consumptive mentality and individualism require not only environmental sectors but also the availability of places. Environmental issues such as drinking water, air pollution, biodiversity loss are of social concern but few people are aware that our activity reduces space. Awareness that space can not be renewed and must be managed responsibly still has no place in our thinking. Therefore, it is important for formal schools to link spatial values, spatial planning and active civic engagement.

Curriculum 2013 has brought a new policy in education in Indonesia that is the development of attitude and scientific behavior in learning through the application of scientific approach in all levels of education. Substantive use of science aims to encourage critical thinking skills and, student learning activeness or self-centered learning. There are five steps in the use of this scientific approach that is often abbreviated as 5 M, which is observing, asking, collecting data, analyzing data and communicating. With this scientific approach, students are expected to be a critical-innovative person, and encouraged to give question always in everything and try to answer it scientifically through data collection or evidences. In other words, the use of the scientific approach in the Curriculum 2013 is actually substantively oriented to skills 21st.

In the implementation of learning with the scientific approach, some teachers are still confused and difficult related to the substance of what is called scientific so that implementation in the field is conducted as 'immich' or formality by following the instructions and procedures in manuals. According to some teachers, it is not easy to encourage students to ask or ask questions that make the teacher becomes active again. It is understandable that if something is considered easy by students, they are lazy to ask as they considered nothing to be questioned. This means that Social Studies materials with least challenging presentation or does not contain problems makes it difficult to be questioned. It happens

because materials and methods are guided by books of teachers and books of students. Teachers may not encouraged themselves creative as creativity may lead them break teacher book instructions. However some teachers were found unpleasant if they see discussions less developed. They then initiate to teach students with many more instructions. According to Arifin in order to be able to teach 21st century skills to students, teachers needs to have a reliable skill, namely [14]: 1) master the subject content of the curriculum, 2) proficient and skilled in 21st century pedagogy, 3) understand the development of students, support and care about them, 4) Mastering skills of learning psychology, 5) having counseling skills, 6) Proficient on media usage and latest technology. In the context of IPS/ Social Studies learning Zevin states a good IPS/ Social Study teacher should be able to function and play a role in the dimensions of didactic, reflective and affective [15].

2. Methods

This study was conducted as a preliminary study in an effort to improve 21st century skills in geography based IPS/ Social Study learning. The problem statement in this research is "How is the level of understanding of 21st century skills and geographical literacy of teachers in IPS learning? Based on this problem statement, the subject of this study is capacity of teachers of IPS who have implemented both Curriculum 2013 and Curriculum KTSP (Curriculum of Education Unit Level). Survey method is applied in this research. Location of this study is Surakarta City, Central Java Province, Indonesia.

3. Results and Discussion

3.1. *Implementation of curriculum 2013 and KTSP at junior high school in Surakarta City*

In 2017 there are two curriculums used in Junior High School (SMP) namely KTSP (Curriculum Level of Education Unit) and K-13 (Curriculum 2013). Junior High School that has implemented the Curriculum 2013 there are 14 schools that are divided into 3 groups, namely: first group is junior high school which has applied K-2013 from class VII-IX (there are 6 schools, that is 3 SMP Negeri and 3 Private junior high school); The second group is the junior high school applying K-2013 junior high school in class VII and VIII (there are 8 schools, consisting of 5 public and private junior high schools); The third group is the junior high school applying K-2013 in class VII (there are 32 schools, 19 junior high schools and 13 private junior high schools, the rest still using KTSP (27 schools). The other considerations in taking the subject or sample of this study also consider the level of school quality based on the input of junior high school students in Surakarta City Referring to level of school quality in this sample there are SMPN 1 and SMPN 4 representing high school category of high quality school; SMP 2, Junior high school 3, junior high school 8, junior high school represents a rather high group; junior high school 6, junior high school 10, represents medium group; junior high school Al Irsyad, junior high school Al Islam, junior high school Al Ashar Siwa Budi represents private school group.

3.2. *Profile of social studies (IPS) teacher respondent in Surakarta*

Seeing from their educational background, majority (92%) of IPS teachers in Surakarta are educated in a discipline of Social Studies (IPS) education, with geographical education (46%), Historical education (23%) and Economic education (23%), and others (7%). This shows that IPS teachers in Surakarta have not come from Social Studies Education (IPS). As a result, almost all teachers experience difficulties (unstable) on IPS materials that originate outside the discipline of their study, for example, IPS teachers who come from the History and Economic Education finds difficulties in Geography, and vice versa. Among the IPS materials that most teacher considered difficult is geography material.

Viewed from teaching or teaching experience, most (68%) have taught about 15-20 years, and who teach <15 years are of 32%. This means that most of the IPS teachers in Surakarta are experienced. However, only 38% have taught class VII-IX, whereas (68%) have just taught class VII_ VIII.

In terms of teacher competency improvement, most of the teachers (92%) have received either training in IPS (92%), 69% of training profession training, related training and new curriculum, the 2013 curriculum of all teachers Training K-13. The training is supported both at the MGMP level and outside

the MGMP such as the District / City Education Office, the Ministry of Education and Culture, the Quality Assurance Institution of Education, and the Universitas. But for the training of ICT (Information, Communication and Technology) field as new media and learning resource 3 teachers (23%) of respondents have once received training. In other words, most teachers have never received learning ICT learning (77%).

Aspect of teacher training or the improvement of teacher competence is studied as the curriculum of 2013 has now been oriented to 21st century skills as introduced in a term of 4 C (Critical thinking, Creative, Communicative and Collaborative) or explicitly in a scientific approach. Similarly, ICT field training is studied as it is very important as part of 21st century skills.

3.3. Understanding of IPS teachers on geography as platform of IPS learning and geography literacy

Table 1 below shows that most teachers (92%) still do not understand the concept of Geography as a platform in Social Studies, even teachers with a geographical education background (46%) also stated that they have not understood related to the IPS 2013 curriculum which characterizes Geography as an IPS learning platform. This may be caused by curriculum 2013 which is not getting adequate portion in learning. Similarly, when concepts and components of geographical literacy (in table 2) are to be asked. Teachers who stated not understood are (69%) and as many as 92% stated not yet apply it in social studies lessons.

To some geographical literacy concepts, there are 69% who understand about the concept of interaction in geography, about the concept of interconnection in geography there are 54% of teachers who already understand, and about the concept of implications in geography there are only 48% of teachers who understand. This data shows that the concept of geographical literacy is not understood by IPS teachers. There are two explanation to these, first the concept of geographic literacy is a relatively new concept for them; second, geography learning has been more focused on understanding of content of knowledge aspect than attitude, skill or aspect of implication aspect [16]. If geography literacy is seen from the aspect of knowledge the condition is relatively good, except in the United States [17-20]. Furthermore, more detailed data can be seen in table 1 below.

Table 1. Teacher understanding on geography as platform of social study learning.

Teacher Education	Level of Teacher Understanding on Geography as Platform of Social Study Learning							
	Mastering	%	Low level understanding	%	Least Understanding	%	Number	%
History Educat			1	8	3	23	4	31
Geography Educat	1	8	3	23	2	15	6	46
Economy Educat			1	8	2	15	3	23
Sociology-Antr Educat	-		-		-	-	-	-
Others Educat	-		-		-	-	-	-
	1	8	5	39	7	53	13	100

Table 2. Teacher understanding on geography literacy.

Geography Literacy Concept	Social Study Teacher Understanding on Geography Literacy Concepts							
	Easy to Undesrtand	%	Little Understand	%	Least Understand	%	Number	%
Interaction	9	69	4	31			13	100
Interconnection	7	54	1	8	5	38	13	100
Implication	6	46	4	31	3	23	13	100

3.4. Geography master's understanding of 21st century skills

The teacher's understanding of the concept of 21st century skill shows that most of IPS teachers in Surakarta have low understanding (below 50%). The result of the survey shows the understanding of critical thinking concepts only 31% of teachers who already understand, about the creative concept there are 46% of teachers who already understand, about the concept of collaborative new 15% of teachers

who already understand, about the concept of communication there are 23% who already understand, about consciousness Global there are 15% who already understand, and about the concept of environmental issues there are 15% of teachers who already understand. Based on these data show that the IPS teacher's understanding of the concept of 21st century skills in learning is still low. More detailed data can be seen in table 3 below.

Table 3. Level of teacher understanding on century 21st skills.

Concepts on Skills Century 21st	Level of Teacher Understanding on Skills Century 21st							
	Understand	%	Little Understand	%	Least Understand	%	Number	%
Critical Thinking	4	31	6	46	3	23	13	100
Creative	6	46	4	31	3	23	13	100
Collaborative	2	15	7	54	4	31	13	100
Communicative	3	23	7	54	3	23	13	100
Global Awareness	2	15	6	46	5	39	13	100
Environmental Issues	2	15	7	70	2	15	13	100

Table 4. Level of teacher understanding on century 21st skills based on training they have received.

Teacher experience on Curriculum 2013 Training	Level of Teacher Understanding on Skills Century 21st							
	Understand	%	Little Understand	%	Least Understand	%	Number	%
Experienced in MGMP			1	8			1	8
Experienced outside MGMP			2	15	4	31	6	46
Both in MGMP and outside MGMP			1	8	2	15	3	23
Never			-		3	23	3	23
			4	31	9	69	13	100

Level of understanding of IPS teachers on skills 21st when associated with their experience of training in the 2013 curriculum shows unsteady conditions, despite they have received training on Curriculum 2013 they are mostly less understood (69%), whereas in curriculum 2013 aspects Critical and Creative take emphasis learning especially related to scientific approach. It may be also caused by late introduction of the concept of 21st century skills introduced with the new C (critical thinking, creative, communicative and collaborative) 4 C components which was officially introduced in June 2017. When introduced it was not acknowledged as 21st century skill. Beside, teachers are likely less to follow the direction of international educational development. Therefore, this condition needs to be studied further especially to focus on main concept of development of critical and creative thinking because it is fundamental for the improvement of learning. More detailed data can be seen in table 4.

3.5. Teachers' model, methods and teaching media implemented by teacher

21st Century Skills as well as the Curriculum 2013 requires the use of specific learning models to achieve the expected results. All recommended or recommended models are models based on the constructivist philosophy of encouraging students to actively study, explore and develop and solve problems independently both individually and in groups. Judging from the understanding and application of the learning model by IPS teachers in Surakarta shows that the condition is quite satisfying although not yet optimal. IPS teachers who use the Discovery_Inquiry Learning model with frequent frequencies (54%) and with frequencies 'sometimes' 23%. Similarly, using Problem Based learning model reached 46%, while the Cooperative Learning model is 69%. However, in the model of Project Based learning is still very little (8%), and that sometimes reaches 54% despite Project Based learning is the most recommended model. The data in more detail can be seen in the table below.

Table 5. Frequently learning model used by teacher.

Learning Model	Tingkat Frekuensi Penggunaan Model Pembelajaran					
	Sl	%	Sr	%	Kdg	%
Dscover_Inquiry Learning	2	15	5	38	3	23
Project Based Larning			1	8	7	54
Problem Based Learning	2	15	4	31	5	38
Cooperative Learning	3	23	6	46	1	8

The use of media in learning by IPS teachers in the city of Surakarta shows a fairly good condition as most 85% of teachers stated always and often use power point slides, and 62% using image presentation. This shows that most IPS teachers are already able to use their laptops / computers in their learning, even when viewed from the challenging use of media and learning resources such as video usage, the use of artificial models and usage is low. More detailed data on media usage can be seen in the table 7.

If it's seen from the use of media resources or devices ICT (Information, Communications and Telecommunications) IPS teachers in the city of Surakarta quite encouraging. Viewed from the experience of IT training and the use of Laptops and the Internet shows that, most IPS teachers in Surakarta (85%) have never received training in information, technology and communications fields. However, it's seen from the use of Laptop and Internet in learning shows enlightening conditions, it is shown that IPS teachers who have never received ITK training but in learning 'always' uses the laptop has reached 38% and still with the frequency 'sometimes' reaches 31%. Similarly, IPS teachers who have never received ITK training but in learning 'sometimes' use the internet has reached 70% although the entry category 'always' use only 8%. This condition shows that IPS teachers in Kota Surakarta have a good mental attitude that they always try to adapt to the progress of science and technology and do not want to be left behind. More data can be observed in the table and table below.

Table 6. Type and frequency of using medias in teaching social studies.

Media of Learning	Frequency of using							
	Always	%	Often z	%	Sometimes	%	Number	%
Picture/Image Slides	1	8	7	54	5	38	13	100
Video show			2	15	11	92	13	100
Artificial model			6	46	7	54	13	100
Power point Slides	3	23	8	62	2	15	13	100

Table 7. The use of study resources and their frequency in social science class.

The use of IT	Frequency of use							
	Always	%	Often	%	Sometimes	%	Numbers	%
The use of laptop	7	54	-		6	46	13	100
The use of internet	1		-		12	92	13	100
Environment around / Direct resource persons	-		3	23	10	83	13	100

Table 8. The use of laptop and internet based on ICT training experiences.

IT Training Experiences	The Use of Laptop						The Use of Internet					
	Always	%	Oft	%	Somt	%	Alw	%	Oft	%	Somt	%
Never	5	38			4	31	1	8	-		8	85
Once in MGMP	-				-		-		-			
Once ouside MGMP	2	15			2	15	-		-		4	31

Table 9. Availability of learning facilities.

Learning Facilities at School	Level of Facility Availability							
	SM	%	M	%	KM	%	SKM	%
Text Book	3	23	10	77				
Supporting Books	1	8	5	38	6	46	1	8
Visualization tools			12	92	1	8		
WIFI/ Internet Network	1	8	10	77	2	15		
Laptop/ Computer	2	15	7	54	3	23	1	8
In focus	2	15	10	77	1	8		
Other Facilities			3	23	10	77		

Results and learning process of students can not be separated from the availability of learning facilities and infrastructure available in schools for both teachers and students. The 21st century skills-oriented learning model that requires students to actively study independently requires the availability of adequate infrastructure, such as textbooks, supplementary or auxiliary books, internet network, infocus, sufficient laboratory, and so on.

To be seen from the availability of SMP learning facilities in Surakarta shows an exciting condition, it can be seen from the textbook that is available 100% of teachers claimed to be sufficient to the extent sufficient. For more supporting books the school says it is insufficient (54%); Enough tools (92%). For most internet networks it is sufficient (85%) to say sufficient, as well as for in focus, and most computers claimed as sufficient. This condition is very supportive for the improvement of 21st century skills for students.

4. Conclusions

Understanding of teachers about geographical literacy is still not solid, especially on component of the implications so that geography as a platform in IPS learning has not been applied optimally. Whereas aspect on content / knowledge of geography remains the main focus compared to attitude and skills aspect. The teacher's understanding of the concept of 21st century skills is still relatively low despite these skills have been put as orientation in 2013 curriculum. Consolidation of the concept for teacher is still urgent regarding the application of it in school. Moreover, this policy is still relatively new despite substantively already introduced earlier in the curriculum 2013. To be seen from understanding of the concept of learning models that support the skills of geography literacy and 21st century skills, it is relatively good enough as indicated from the knowledge and design of RPP IPS teachers. This condition becomes a good foundation, for the improvement of 21st century skill learning based on geography literacy. The use and readiness of teachers in using of media / equipment based on ICT media is relatively good for improving 21st century skills learning based on geography literacy. This can be seen from the availability of learning facilities and infrastructure in the most of schools in the areas of study.

The conclusion above shortly suggest that understanding of geography literacy concept and skills century 21st by teachers is still at low level. However, teacher's understanding on teaching model that support an increase of skill century 21st and understanding on IT based teaching medias have been apparently good. Availability of infrastructure for teching and learning has also shown its sufficiency.

Based on the condition, Geography Literacy Based Social Study Learning Model Development to increase skills century 21st can be continued with preliminary socialization and perceptions moderation on geography literacy and skills century 21st to Social Science teachers.

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