EM 10 (1) (2021) 119-209

Educational Management

http://journal.unnes.ac.id/sju/index.php/eduman

Development of Integrative Thematic Learning Models Based on Scientific Approaches and 21st Century Learning Skills

Muhammad Muhammad ✉, **Suwito Eko Pramono, Kustiono Kustiono**

Universitas Negeri Semarang, Indonesia

Article Info

History Articlel:
Recived 30th December 2020
Accepted 02th March 2021
Published 30th April 2021

Keywords:
Integrative Thematic, Scientific Approach, 21st Century Learning Skills

Abstract

Referring to thematic learning that has not been optimized, this study aims to develop a quality and independent integrative thematic model, and to determine its effectiveness to improve learning outcomes and 21st century learning skills of elementary school students. This research was conducted using research and development designs (R&D) with preliminary study research stages, development stages, and evaluation stages. Model validation involves experts from academia and practitioners. The result of the effectiveness of the model is done through experimental activities using One Group Pretest-Posttest Design. The results of the model validation show that the integrative thematic learning component is valid with a percentage of 88.9% and 93%. The effectiveness of the product showed that an increase in learning outcomes can be seen in the average affective learning outcomes 89.1 and 85.4. The average psychomotor learning outcomes are 79.63 and 80.08. Then the results of the mastery test of the material (cognitive) after being treated with the results of 0.40 (medium category). Model effectiveness test showed an increase in learning outcomes after the use of thematic learning models based on scientific approaches with the value of Sig. (2-tailed) = 0,000. This shows that the model is effective in improving student learning outcomes and skills.

✉Correspondence:
Kampus Pascasarjana Unnes Jl Kelud Utara 3 Sampangan
Semarang, Indonesia
Email: tb.ammad@gmail.com

p-ISSN 2252-7001
e-ISSN 2502-454X

INTRODUCTION

Learning is a process of teaching and learning activities that play a role in the success of student learning. From the learning process a reciprocal activity will occur between the teacher and students towards a better goal. The learning process is a process that contains a series of actions and interactions between the teacher and students on the basis of reciprocal relationships that take place in educational situations to achieve learning goals (Rustaman, 2001).

Education in Indonesia has experienced many reforms from all aspects of education. One form of reform in the field of education is Kurikulum 2013. This curriculum emphasizes the scientific approach to learning and the development of integrative thematic learning models for elementary education. In appendix IV Permendikbud Nomor 81A tahun 2013 it was emphasized that learning in elementary schools was developed thematically, integration across subjects to develop attitudes, skills and knowledge and appreciate the diversity of local culture.

In order to produce this great generation as capital in anticipation of the 4.0 industrial revolution, it is very natural that the world of education will then apply 21st century learning. Why 21st century learning? This is due to offset the emergence of the characteristics of students who currently tend to be active and creative. 21st century learning is a learning that is characterized by learning skills and literacy. Learning skills, namely learning activities in which are characterized by cooperation, communication, and critical and creative thinking. In addition, the 21st century learning system is a learning in which the curriculum developed requires schools to change the learning approach. i.e. teacher centered learning becomes student centered learning.

The US-based Partnership for 21st Century Skills (P21, 2015) identified the skills needed in the 21st century, namely "The 4Cs" - communication, collaboration, critical thinking, and creativity. These skills are important taught to students in learning in class. Assessment and Teaching of 21st Century Skills (ATC21S) categorizes 21st Century skills into 4 categories, namely Way of thinking covering creativity, innovation, critical thinking, problem solving, and decision making. Way of working includes the skills to communicate, collaborate and work in teams. Tools for working include awareness as global and local citizens, life and career development, and a sense of responsibility as a person and socially. Whereas skills for living in the world are skills based on information literacy, mastery of new information and communication technologies, and the ability to learn and work through digital social networks (Griffin, 2012).

To support the learning achievement, the Kurikulum 2013 was applied. The learning process in the Kurikulum 2013 in elementary schools that is currently underway is carried out in the Integrated Thematic Learning Model. Integrative thematic learning is a learning approach that integrates a variety of competencies and various subjects integrated into a variety of themes (Kurniawan, 2014) conducted spontaneously or planned with a variety of learning experience activities, both in the classroom or outside the classroom so as to provide meaningful experiences to students (Azhar, 2018; Majid, 2014)..

Thematic learning is carried out with a view to efforts to improve and improve the quality of education, especially to balance the density of curriculum material (Suryosubroto, 2010; Trianto, 2011). The purpose of thematic learning is students' deeper understanding and memorable through learning using topics or themes. Moreover, it can save time because the material is delivered by combining several subjects.

Thematic learning also has limitations, especially in its implementation, namely in the planning and implementation of evaluations that require more teachers to evaluate the process, and not only evaluates the impact of direct learning (Daryanto, 2014; Prastowo, 2014). The implementation of integrative thematic learning is supported by using a

scientific approach. A scientific approach is an approach that places students into active subjects through scientific stages so that they are able to construct new knowledge or integrate with previous knowledge. This approach is designed through observation, reasoning, discovery, validation, and explanation of a truth (Kosasih, 2014).

In the process of implementing integrative thematic learning based on a scientific approach carried out through various stages (Kosasih, 2014) namely, observing, asking questions, trying/ collecting information, reasoning/ analyzing, and communicating.

In general there are two learning objectives, namely instructional goals (instructional) and accompaniment goals (nurturant). The impact of direct learning (Instructional effects) is a goal that will be directly achieved through the implementation of a teaching program (unit of study) carried out by the teacher after the completion of a teaching and learning event meeting. The results will be achieved with regard to the cognitive domain (knowledge) and psychomotor domain (skills). Indirect learning process is a learning process that is not designed in specific activities and it is hoped that changes will occur in students, as an accompanying impact of the direct learning process (Kosasih, 2014; Rachmawati, 2015). Indirect learning is related to the development of values and attitudes. The learning process does not directly produce a companion / accompaniment impact or what is called the nurturant effect. Usually the accompanying impact is related to the affective domain (attitude and values).

The results of a literature study conducted (Irene, 2013) indicate that teachers still lack understanding of the steps to map basic competencies with themes from several related subjects and lack understanding of learning design using thematic approaches. In addition, the lack of understanding of teachers in developing sub-themes that are in line with school conditions (Sulistiani dan Arya, 2014).

One of the problems faced in education today is the weakness of the learning process in the implementation of the Kurikulum 2013. Based on observations made by researchers, the Kurikulum 2013 learning process in Ambal District Primary School, Kebumen Regency is still not in accordance with the syntax of the scientific approach. Teachers still use conventional learning with varied lectures to deliver material in the learning process. Learning activities in the Learning Implementation Plan made by teachers are still not in accordance with the syntax of the scientific approach. The syntax of the scientific approach to the core activities is only observing.

In addition, the learning process applied by the teacher is only a direct learning process and does not pay attention to the indirect learning process. As a result of this situation, the implementation of the learning process is not in accordance with the Kurikulum 2013 contained in Permendikbud Nomor 22 Tahun 2016 tentang Standar Proses. Because the learning process in the Kurikulum 2013 must use a scientific approach.

Based on this, the researchers set an action to improve the quality of learning. Researchers used to develop integrative thematic learning models based on scientific approaches and 21st century learning skills in elementary schools. Implementation of integrative thematic learning in accordance with the provisions will improve student learning outcomes to the maximum (Haji, 2015).

The results of studies that strengthen researchers to conduct this research are the results of research on the implementation of a scientific approach explaining that scientific approach is effective for improving student learning outcomes (Firman, Baedhowi, dan Murtini, 2018), effective to improve polite character and responsibility, intrinsic motivation, and student achievement (Utami and Mustadi, 2017), improve social attitudes (Wartini, Lasmawan, and Marhaeni, 2014), and can have a pretty good influence on learning activities and outcomes students (Fanani and Rusijono, 2018).

This study aims to develop integrative thematic learning based on scientific approaches

and adapted to 21st century learning skills and analyze their feasibility to be implemented in learning in primary schools. The results of this study are expected to be a source of studies on integrative thematic learning in elementary schools according to the perspective of Krathwohl, Dyers, and Bloom & Anderson's theories. In addition, it can be a guideline for schools and teachers to apply learning models that are appropriate to Permendikbud No. 22 thereby increasing student learning outcomes in the cognitive, affective, and psychomotor domains and learning objectives can be achieved optimally.

METHOD

This research used Research and Development (R&D). Research and development aims to find, develop and validate a product (Sugiyono, 2015). According to Borg & Gall Educational research and development is a process used to develop and validate educational products. The procedure in this study used the design of the Dick and Carey model with research stages adapted from Borg & Gall in Sukmadinata (2010) which can be broadly summarized into three major stages. The first stage is the preliminary study stage which has two main activities, namely literature study (literature review and previous research results) and field studies to find out the integrative thematic learning process that has been carried out as a factual model. Second is the development stage by formulating and compiling the model, the results of the formulation of the model are then made into a draft model to be validated.

During the development process, the emphasis shifted to the quality criteria of validity, practicality, and eligibility. Validity is evaluated by experts (expert validity), practicality and effectiveness through testing (Van den Akker in Hidayah & Sugiarto. (2015). Model validation can be filled with content validity and construct validity that results in a hypothetical model. Hypothetical models are developed from conceptual models that obtained from the results of the exploration of factual models, the results of the development of a hypothetical model that has been validated by experts are the final model.

Third, the evaluation stage is conducted a feasibility test conducted to determine whether there is an increase in the learning process by applying one group pretest-post test design experiments (Sugiyono, 2015), namely research with one group of subjects who gave treatment / intervention that was measured before and after the treatment..

The subjects of this study were two (2) teachers, two (2) principals, two (2) supervisors and forty-nine (49) elementary school students in Kebumen Regency. Research subjects at the model validation stage are two (2) experts in education who are from Universitas Negeri Semarang academics. While the research subjects for the implementation of the developed model are the fourth grade students of SDN Pagedangan with a total of 28 students and the fourth grade students of SDN 2 Sinungrejo with a total of 21 students. The variables of this study are: (1) integrative thematic learning; (2) scientific approach; and (3) 21st century learning skills. Data sources from this study are learning documents and research subjects. While the research instruments used were interview guidelines, questionnaires, and tests. Data were analyzed descriptively narratively with simple quantitative calculations (percentages and averages).

The initial activity in data collection is to identify the need for development of learning in primary schools. Next is identifying the components of the model. Component models developed include: (1) academic supervision; (2) the planning stage; (3) implementation phase; and (3) evaluation phase. The model design developed refers to the conceptual model, the results of descriptive analysis of the implementation of integrative thematic learning, and the conditions of the supporting components. Model design validation is done through expert validation using the Delphi technique (Jakaria, 2009; Widjaya, 2004 in Hidayah & Sugiarto, 2015). The statistical test

of the results of expert validation is carried out on expert validation in stage two. The results of the revised model and the expert validation guidelines are the hypothetical model, which will be implemented in a trial.

Validation is carried out on the integrative thematic model component as a development material, and to support learning activities validation is also carried out on syllabus, lesson plans, teaching materials, student worksheets, pre-test and post-test questions, and questionnaires for 21st century learning skills.

To determine the validity of the integrative thematic learning model in this study, from the ideal score or criteria for each item in each instrument. The overall ideal score is the output of the highest score multiplication, the number of instrument items, and the number of respondents. While the ideal score of each item is the result of the multiplication of the highest score and the number of respondents (Sugiyono, 2015). Next, the overall validity is calculated by the following formula:

$$P = \frac{\sum \text{total score of respondents}}{\sum \text{criterion score}} X\ 100\%$$

Next, to observe the increase in the average effectiveness of the pre-test and post-test models are calculated using the normalized average gain formula, which is a comparison of the actual average gain with the maximum average gain. The actual average gain is the difference between the post-test score and the pre-test average score. The normalized gain formula referred to as the g-factor or Hake factor (Savinainen & Scott in Hidayah & Sugiarto, 2015) is as follows:

$$\langle g \rangle = \frac{\text{score post} - \text{pre score}}{\text{max score} - \textit{pre}\ \text{score}}$$

Where the <g> symbol represents the normalized average gain, sequentially state the average scores before and after. Student learning outcomes in integrative thematic learning are obtained by assessing when the teacher implements integrative thematic learning by using learning outcomes tests.

RESULTS AND DISCUSSION

The conceptual model of thematic integrative learning in the Kebumen Regency public elementary school before entering the effectiveness and practicality test stage, the model will be tested by expert validation to determine the feasibility of the model created before field testing.

Based on the percentage value (P) and referring to the criteria, it can be seen that the distribution of the percentage of respondents' answers as a whole for the expert validator indicator says that the component model meets the eligibility test element criteria by the expert to be used, included in the category of "strongly agree" with a percentage of 88.9 % with additional components of reasoning and communicating in the implementation phase. Meanwhile, the practitioner validator said that the components of the model met the criteria of the feasibility test element by the practitioners to be used, included in the category of "strongly agree" with a percentage of 93%. With this percentage value, the results of the analysis based on the passing grade that have been determined indicate that the design of integrative thematic learning models based on scientific approach and 21st century learning skills in public elementary schools in Kebumen Regency passed the test of experts and practitioners.

As a support in the implementation of the integrative thematic model, validation was also carried out on the learning components, namely syllabus, lesson plans, teaching materials, student worksheets, pre-test and post-test questions, and questionnaires for 21st century learning skills. Validation of the syllabus by experts shows the category of "very agree" with a percentage of 92% and by practitioners showing the category of "very agree" with a percentage of 93%. Validation of lesson plans by experts shows the category of "very agree" with a percentage of 94% and by practitioners showing the category of "very agree" with a percentage of 95%. Validation of teaching materials by experts shows the category of "very

agree" with a percentage of 93% and by practitioners showing the category of "very agree" with a percentage of 93%.

Validation of student worksheets by experts shows the category of "strongly agree" with a percentage of 90% and by practitioners showing the category of "strongly agree" with a percentage of 94%. Validation of pre-test and post-test questions by experts showed the category of "strongly agree" with a percentage of 89% and by practitioners showing the category of "strongly agree" with a percentage of 93%. Validation of the 21st century learning skills questionnaire by experts shows the category of "strongly agree" with a percentage of 92%. Thus the supporting components of integrative thematic learning according to experts and practitioners are valid for implementation in the field.

The results of testing the model to test its effectiveness can be seen in the results of the authentic assessment. The average affective score obtained by the fourth grade students of SDN Pagedangan is 89.1 so that it falls into the good category. Affective attitudes observed in learning 1 and 2, namely religious, disciplined, caring, responsible. In learning 1 obtained an average of 85.41 and learning 2 obtained an average of 92.82. While the average affective score obtained by students of grade IV SDN 2 Sinungrejo is 85.4 so that it falls into the good category. In learning 1 obtained an average of 80.57 and learning 2 obtained an average of 90.32.

Table 1. Affective Learning Outcomes

	Learning		Average (%)
	1	2	
SDN Pagedangan	85.41	92.82	89.1
SDN 2 Sinungrejo	80.57	90.32	85.4

The average psychomotor score obtained by the fourth grade students of SDN Pagedangan was 79.63 so that it was included in the good category. In learning 1 obtained an average of 78.89 and learning 2 obtained an average of 80.37. Whereas the average psychomotor score obtained by the fourth grade students of SDN 2 Sinungrejo is 80.08 so that it falls into the good category. In learning 1 obtained an average of 77.52 and learning 2 obtained an average of 82.64..

Table 2. Psychomotor Learning Outcomes

	Learning		Average (%)
	1	2	
SDN Pagedangan	78.89	80.37	79.63
SDN 2 Sinungrejo	77.52	82.64	80.08

While the cognitive learning outcomes of fourth grade students at SDN Pagedangan and SDN 2 Sinungrejo have increased. This can be seen from the average value of pretest and posttest which has increased. In SDN Pagedangan the average student pretest score was 64.26 while the posttest was 78.80, while at SDN 2 Sinungrejo the average student pretest value was 61.74 while the posttest was 80.40. The increase is also seen in the number of students who have completed and not completed in the pretest and posttest. The number of students who completed at SDN Pagedangan at the pretest was 12 students and the posttest number of students who completed as many as 18 students, while at SDN 2 Sinungrejo the number of students who completed at the pretest was 15 students and at the posttest the number of students who completed as many as 22 students. Mastery learning in SDN Pagedangan at pretest was 57.1% while in posttest was 85.7% and learning

completeness at SDN 2 Sinungrejo at pretest was 53.6% while in posttest was 78.6%. So there was an increase of 28, 6% at SDN Pagedangan and 25% at SDN 2 Sinungrejo. So it can be concluded that an increase in cognitive learning outcomes before and after learning by using scientific approach learning.

Then the n-gain test is performed to determine the significance level of material mastery between before and after being treated. The results of the n-gain test showed that there was an increase in mastery of the material after being treated with the results of 0.40 so it was categorized as moderate. To get the effectiveness of the model developed, an effectiveness test was conducted. The effectiveness test is done by comparing the pretest and posttest scores through the t test. T test data analysis in this study was conducted using SPPS Statistics with Paired Samples T Test analysis. The results of the t test can be seen in table 3.

Table 3. *Paired Samples Test*

	Paired Differences			T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean			
Pre – Post	-1.44	4.46	.858	-16.83	26	.000

Based on the data table shows that the value of Sig. (2-tailed) is 0,000. This means that 0,000 <0.05 with H1 is rejected and Ho is accepted because there is a difference in the average score obtained. So it can be concluded that an increase in learning outcomes after the use of thematic learning models based on scientific approaches. This shows that the model is effective. Based on the results of the validation and testing of the final model of integrative thematic learning based on scientific approaches and 21st century learning skills is shown in Figure 1.

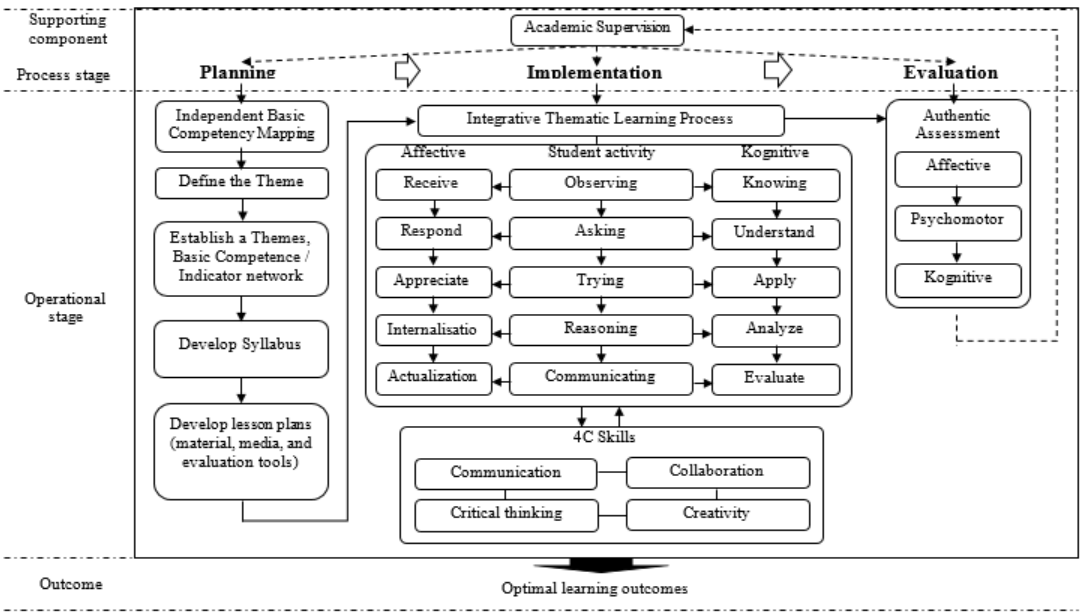

Figure 1. Final Model of Integrative Thematic Learning

Development of Integrative Thematic Learning Models

The concept of thematic learning is the development of the thoughts of two educational figures namely Jacob with the concept of interdisciplinary learning and Fogarty with the concept of integrated learning. Thematic learning is integrated learning that uses themes to link several subjects so as to provide meaningful experiences to students. The theme is the main thoughts or ideas that are the subject of discussion (Majid, 2014). The development of thematic learning outlines there are three stages, namely (1) the planning stage; (2) the implementation phase; and (3) evaluation phase.

Planning stage

This learning planning stage begins with the academic supervision carried out by the education supervisors at the basic unit level which is conducted periodically and training on how to plan for integrative thematic learning. Then before conducting teaching and learning activities, there are several learning plans that must be prepared by the teacher, namely: (1) Mapping basic competencies independently, this mapping activity is carried out to obtain an overall and complete picture of all core competencies, basic competencies and indicators of various subjects which can be integrated; (2) Determine the theme, the determination of the theme can be done by the teacher through general but productive conceptual themes can also be determined by negotiation between the teacher and students, or by way of discussing fellow students. Therefore, themes can be developed based on the interests and needs of students who move from the closest environment to students, then move to the farthest environment of students (Majid, 2014); (3) Establishing a theme network, basic competencies / indicators. After mapping, a theme network can be created, namely linking basic competencies with unifying themes, and developing performance indicators for each selected basic competency. With this theme network, the links between themes, basic competencies and indicators for each subject will be seen; (4) Developing a syllabus, syllabus is a reference in preparing learning plans, managing learning activities, and developing assessment of learning outcomes. With the basic component contains what will be learned, how to learn it, and how to know the achievement of the target being learned. There are principles in developing the syllabus, namely (a) scientific; (b) relevant; (c) systematic; (d) consistent; (e) adequate; (f) actual and contextual; (g) flexible; and (h) overall; (5) Developing a Learning Implementation Plan, in essence the development activities are the development of components, and the components of the substance are the learning components themselves. Thus, the development of a Learning Implementation Plan is the development of a learning system that will be conducted.

Implementation stage

At this implementation stage the researcher adjusts to Permendikbud No 22 about Standar Proses Kurikulum 2013. Student activities using a scientific approach that is adapted to the taxonomy of Dyer et al (2009) are observing, asking questions, gathering information/ trying, reasoning, and communicating (Jannah, 2017). Learning through a scientific approach is a learning process that is designed so that students actively construct concepts, laws or principles.

The impact of direct learning (Instructional effects) from student activity refers to Bloom's revised Anderson taxonomy (Prasetya, 2012), namely remembering (C1), understanding (C2), applying (C3), ability to analyze (C4), ability to evaluate (C5), and creating (C6). While the indirect learning effect (nurturant effect) refers to Krathwohl's taxonomy (Allen & Friedman, 2010), which is receiving, responding, appreciating, internalizing, and actualizing.

At the implementation stage in addition to using a scientific approach, the above student activities are supported by 21st century learning skills that are applied in the learning process. These skills are: (1) critical thinking, is the dominant skill that must be taught explicitly

(Zubaidah, 2016). Through critical thinking skills students are expected to be able to use systems of thought to make effective reasons, solve problems, calculate possibilities, make conclusions, and make decisions; (2) creativity, which are divergent, productive, creative ways of thinking heuristic and lateral thinking that can be taught explicitly in learning (Zubaidah, 2015); (3) communication, learning is a social activity that can fundamentally occur in schools, workplaces and other environments. Therefore, communication skills must be built from the beginning. Some communication skills that can be developed in learning include capable students (Arsad & Soh, 2011; Osman, Hiong, & Vebrianto, 2013): (a) conveying information and ensuring recipients of information understand the message conveyed; (b) communicating verbally and in writing; (c) choosing the most appropriate media and communication methods; (d) has the ability to manage and use technology and other digital resources in expressing ideas and opinions; and (e) interact cooperatively in a work group. (4) collaboration, in the learning process is a form of collaboration between students who help one another and complement each other to do certain tasks in order to obtain a predetermined goal. Collaborative learning also leads to the development of metacognition, improvement in formulating ideas, and discussion or debate with higher levels of thinking.

Evaluation stage

Based on the copy of the Permendikbud Nomor 23 tahun 2016 about Standar Penilaian by Educators in Basic Education and Secondary Education, Curriculum 2013 requires the use of authentic assessments, namely (1) attitude assessment, teachers can conduct attitude competency assessments through: observation or behavior observation with observation sheets, self-assessment, peer assessment and journals (Kunandar, 2015); (2) knowledge assessment, teachers can assess knowledge competency through: written tests using items, oral tests by asking students directly using a list of questions and assignments with specific worksheets that must be done by students within a certain period of time; (3) skills assessment, teachers assess skills competency through assessments in the form of: (a) Performance, which is an assessment that requires students to demonstrate a certain competency using a practical test (performance) using the observation sheet instrument (observation); (b) Projects using the project report document assessment sheet instrument; (c) Portfolio appraisal using the portfolio sheet document appraisal sheet and product valuation instrument using the product valuation sheet instrument. The instrument used in the form of a checklist or grading scale equipped with rubrics.

CONCLUSION

Based on the results and discussion, it was concluded that the integrative thematic learning model that can optimize student learning outcomes is a model that: (1) the planning stage implements the mapping of basic competencies independently, determines themes, establishes basic competency themes / indicators, develops syllabi, develops Implementation Plans Learning (material, media, and evaluation tools); (2) the implementation stage implements the scientific learning process (observing; asking; trying; reasoning; and communicating) as well as 21st century learning skills (communication; critical thinking; collaboration; and creativity); (3) evaluation stage, implementing authentic assessment (attitude assessment; skills assessment; and knowledge assessment). The n-gain model test results on learning outcomes indicate that an increase in mastery of the material after being treated with the results of 0.40 (medium category). Model effectiveness test shows an increase in learning outcomes after the use of thematic learning models based on scientific approaches with the value of Sig. (2-tailed) is 0,000. This shows that the model is effective.

REFERENCE

Allen, K.N. & Friedman, B.D. 2010. Affective Learning: a Taxonomy for Teaching Social Work Values. *Journal od Social Work Values and Ethics,* 7(2)

Arsad, N. M., Osman, K., & Soh, T. M. T. (2011). Instrument development for 21st century skills in Biology. *Procedia-Social and Behavioral Sciences*, 15, 1470-1474

Azhar. (2018). Penggunaan Pendekatan Saintifik Dalam Pembelajaran Tematik Di Sekolah Dasar. *PIONIR: Jurnal Pendidikan.* Vol *7,* No 1 hal 29-50

Daryanto. (2014). *Pembelajran Tematik, Terpadu, Terintegrasi (Kurikulum 2013).* Yogyakarta: Gava Media

Dyer, J.H., Gregersen, H., & Christensen, C.M. (2009). *The Innovator's DNA. Harvard Business Review*.

Fanani, Ahmad & Rusijono, Rusijono. (2018). The Effect of Scientific Approach Towards Students' Activity and Learning Outcomes. *Proceedings: Advances in Social Science, Education and Humanities Research.*

Firman, Baedhowi, & Murtini. (2018). The Effectveness of The Scientifik Approach to Improve Student Learning Outcmes. *Internatinal Journal of Active Learning, 3*(2), 86-91

Griffin, P., McGaw, B. and Care, E. (eds). (2012). *Assessment and Teaching of 21st Century Skills*. Dordrecht, NL, Springe

Haji, Sun. (2015). Pembelajaran Tematik Yang Ideal Di SD/MI. *Modeling: Jurnal Program Studi PGMI.* 3(1) 56-69

Hidayah, I., & Sugiarto. (2015). Model of Independent Working Group of Teacher and its Effectiveness towards the Elementary School Teacher's Ability in Conducting Mathematics Learning. Procedia - Social and Behavioral Sciences, 214, 43–50.

Irene, Childa. (2013). Implementasi Pembelajaran Tematik Pada Siswa Kelas Rendah di SD Negeri Balekerto Kecamatan Kaliangkrik. *Thesis (S1).* Universitas Negeri Yogyakarta

Jannah, M. dkk. 2017. Elemen Penting Kurikulum 2013 di Sekolah Dasar. *Prosiding TEP & PDs Transformasi Pendidikan Abad 21*. 6(31), 803–812

Kosasih, E. (2014). *Strategi Belajar dan Pembelajaran Implementasi Kurikulum 2013.* Bandung: Yrama Widya

Kurniawan, Deni. (2014). *Pembelajaran Terpadu Tematik (Teori, Praktik, Dan Penilaian)*. Bandung: Alfabeta

Majid, Abdul. (2014). *Pembelajaran Tematik Terpadu*. Bandung: Remaja. Rosdakarya

Osman, K., Hiong, L. C., & Vebrianto, R. (2013). 21st century biology: an nterdisciplinary approach of biology, technology, engineering and mathematics education. Procedia-Social and Behavioral Sciences, 102, 188-194.

Partnership for 21st Century Learning. (2015). *P21 Framework Definition*.

Prasetya, T.I. 2012. Meningkatkan Keterampilan Menyusun Instrumen Hasil Belajar Berbasis Modul Interaktif Bagi Guru-Guru IPA SMP N Kota Magelang. *Journal of Educational Research and Evaluation*. 1(2) 106-112

Prastowo, Andi. (2014). *Pengembangan Bahan Ajar Tematik*. Jakarta: Kencana

Rachmawati. (2015). Penguasaan ketrampilan membaca, menyelesaikan tugas, dan klarifikasi dalam pembelajaran oleh guru IPA SMP di Banyuwangi. *Thesis.* Universitas Negeri Jember

Rustaman. (2001). *Keterampilan Bertanya dalam Pembelajaran IPA*. Jakarta: Depdiknas.

Sugiyono. (2015). *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif dan R&D).* Penerbit CV. Alfabeta: Bandung

Sukmadinata, Nana Syaodih. (2010). *Metode Penelitian Pendidikan*. Bandung: Remaja Rosdakarya

Sulistiani, W., dan Arya, L. (2014). Model Pembelajaran Tematik Berbasis Kelautan dan Kemaritiman pada Anak Usia Dini di PAUD Non Formal. *Prosiding*. Seminar Nasional dan Temu Ilmiah Asosiasi Psikologi Pendidikan Indonesia IV. Universitas Hang Tuah

Suryosubroto. (2010). *Manajemen Pendidikan Di Sekolah*. Jakarta:Rineka Cipta

Trianto. (2011). *Mengembangkan Model Pembelajaran Tematik*. Jakarta: Prestasi Pustakaraya

Utami, K.N, Mustadi, A. (2017). Pengembangan Perangkat Pembelajaran Tematik dalam Peningkatan Karakter, Motivasi, dan Prestasi Belajar Siswa Sekolah Dasar. *Jurnal Pendidikan Karakter,* Tahun VII (1), 14-25

Wartini, I. A. K., Lasmawan, I. W., & Marhaeni, A. A. I. N. (2014). Pengaruh Implementasi Pendeatan Saintifik terhadap Sikap Sosial dan Hasil Belajar PKn di Kelas VI SD Jembatan Budaya, Kuta. *E-Journal Program Pascasarjana Universitas Pendidikan Ganesha*, *4*.

Zubaidah, S., Corebima, A.D., & Mistianah. (2015). Asesmen Berpikir Kritis Terintegrasi Tes Essay. *Prosiding Simposium on Biology Education*, Jurusan Biologi FKIP Universitas Ahmad Dahlan Yogyakarta, 4-5

Zubaidah, S. (2016). Keterampilan Abad ke-21: Keterampilan yang Diajarkan Melalui Pembelajaran. Seminar Nasional Pendidikan. Kalimantan Barat: STKIP Persada Katulistiwa Sintang