Science Learning Strategies in Madrasah Ibtidaiyah Using the STM Approach Model

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ABSTRACT: Education today requires students to be more active, not only book material, but also extensive knowledge of environmental issues. Thus, environmental problem solving skills to achieve a better future life so students must have a high environmental awareness. Therefore, in effective learning, it is necessary to apply modeling strategies and approaches, namely science-based learning, community technology and science education. Since the study of natural sciences and environmental studies are interrelated, it is important to approach it with the study of environmental problems. The purpose of this study is to identify the right steps or strategies for science learning in MI using the STM approach model. The method used in this article is literature research, or commonly called literature research, which examines sources that have been researched in relation to the questions asked in this study, and analyzes a book or other literature, such as newspapers and reports, which also examines the questions asked. The results of the study explain the understanding, strategy, advantages and disadvantages of the learning model according to the STM approach. Therefore, by paying attention to the advantages and disadvantages of this STM approach model, teachers can use the STM approach model in MI science learning activities.

KEYWORDS: Learning Strategy, Science, STM Approach Model

INTRODUCTION

Education plays an important role in improving the quality of human resources. Education can be used as a tool to survive in the midst of progress and development of science and technology. The government has made efforts to improve the quality and quantity of education and learning in schools through various activities such as changes in the national education system, government regulations, national education system, school facilities and infrastructure, and learning orientation. With the existence of the Manpower Law, other efforts are made to improve work professionalism, for example the application of subject mastery, learning understanding. In the field of curriculum, periodic and continuous additions were made, for example innovative efforts were made to improve the 1994 curriculum into a competency-based curriculum (KBK). The curriculum was continued and refined in the Education Unit Level Curriculum (KTSP), even KTSP was again refined into the curriculum (K13) (2013) and is now being refined again with the Merdeka curriculum.[1]

Education plays an important role in educating the nation's generation. Education is closely related to learning, formal education in learning usually takes place in schools. Science education is a subject that appears at every level of education and provides information about the world and its content, which has undergone serious development in modern times , especially in science education which focuses on environmental awareness. The main goal of science education today is to understand the essence science, technology and its interaction in society. Science education will be more environmentally friendly when aligned with learning models and approaches. It can be more effective in conveying understanding to students. The models and approaches used in this study are tools or elements for designing each policy milieu.

The objectives of this study are first, knowing the implementation of learning using the STM (Science Technology Society) learning model with a science education approach to continue to improve environmental care attitudes in students. Second, knowing the activities of students during learning using the STM (Science Technology Society) learning model with a science

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[1] Markus Palobo dan Yonarlianto Tembang, "ANALISIS KESULITAN GURU DALAM IMPLEMENTASI KURIKULUM 2013 DI KOTA MERAUKE," *Sebatik* 23, no. 2 (1 Desember 2019): 307–16, https://doi.org/10.46984/sebatik.v23i2.775.

education approach to diversify. Third, knowing the influence of the STM (Science Technology Society) learning model with a science education approach to continue in improving environmental care attitudes in students.

Learning in the 21st century requires students to be more active in learning not only involving knowledge in the material books, but also requires extensive knowledge directly from existing environmental problems. Thus, they can have the skills to respond to and solve environmental problems that occur in order to achieve a better future life. In this case, students who have a low environmental care attitude will tend not to pay attention to their own hygiene. Many students do not realize how important it is to protect the environment to avoid dangerous diseases and can also keep the earth awake from environmental pollution. The learning model in environmental materials so far has not varied and still looks conventional because it only explains the material. Thus, an effective model strategy and approach to learning is needed to be applied is community science-technology-based learning.

Some of the difficulties identified as factors causing the lack of science learning outcomes are teacher-centered learning and lack of physical activity of students in the learning process.[2] In learning, students are often faced with a lot of material that must be memorized without being given the opportunity to understand the material, so that even though students learn a lot, they are not able to provide meaning from the learning.[3] This resulted in low learning achievement in the field of science. Many students simply memorize concepts, record what the teacher lectures, are passive, and rarely use prior knowledge as a basis for lesson planning. Previous research shows that there are still several obstacles that prevent teachers from making changes to conventional learning patterns consistently.[4] These obstacles include material that is too dense and benchmarks for educational success in schools that are more focused on the final results. Many teachers are reluctant to use innovative learning models and still often use conventional methods. Based on the above problems, it is necessary to update the learning system applied in the classroom. The learning system must be designed in such a way that the learning process can take place conducively so that there is an increase in student learning outcomes, especially in science subjects. To apply good learning, contextual learning is needed, which can improve the quality of thinking, thinking attitudes, personal qualities, and the ability to apply concepts or applications of concepts and knowledge to everyday situations. Science Technology Society (STM) is an alternative learning model that can be used in classroom management and learning.[5]

Learning Science Technology Society is an inseparable part of human life, both as individuals and groups. Almost every aspect of the life of ultramodern society today is in direct contact with problems that contain issues of science, technology, and society. According to previous research, the advantage of the STM model in science learning is the enactment of the constructivist learning model. This learning model emphasizes the process of gaining knowledge and is student-based active and practicing higher-order thinking skills. The STM learning model will recognize issues in society that are adjusted to the progress of science and technology that can make students think comprehensively and critically in finding solutions and ideas in solving problems that will affect students' abilities.[6] As one of the constructivist learning models, the application of the STM learning model requires learning strategies based on constructivism as well.

Based on the above problems, it is necessary to update the learning system implemented in the classroom. The learning system should be designed in such a way that the learning process can take place conducively so that there is an improvement in student learning outcomes, especially in science subjects. To be able to apply good learning, contextual learning is needed, which can provide improvements in the quality of thinking, thinking attitudes, special qualities, and the ability to apply concepts or

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[2] Kerri Donohue, Gayle A. Buck, dan Valarie Akerson, "Where's the Science? Exploring a New Science Teacher Educator's Theoretical and Practical Understandings of Scientific Inquiry," *International Journal of Research in Education and Science* 6, no. 1 (8 November 2019): 1, https://doi.org/10.46328/ijres.v6i1.571.

[3] Ii Bidayah, "UPAYA MENINGKATKAN KEMAMPUAN BELAJAR SISWA MELALUI PENDEKATAN KETERAMPILAN PROSES," *Jurnal Educatio FKIP UNMA* 5, no. 2 (11 Desember 2019): 107–14, https://doi.org/10.31949/educatio.v5i2.21.

[4] A Muspikawijaya, Iswari, R., & Marianti, "Analisis Kesulitan Peserta Didik SMA/MA Kabupaten Luwu Timur dalam Memahami Konsep pada Materi Metabolisme Sel.," *Journal of Innovative Science Education* 6, no. 2 (2017): 252–63, https://journal.unnes.ac.id/sju/index.php/jise/article/view/15439.

[5] Anggit Grahito Wicaksono, "PENYELENGGARAAN PEMBELAJARAN IPA BERBASIS PENDEKATAN STEM DALAM MENYONGSONG ERA REVOLUSI INDUSTRI 4.0," *LENSA (Lentera Sains): Jurnal Pendidikan IPA* 10, no. 1 (25 Mei 2020): 54–62, https://doi.org/10.24929/lensa.v10i1.98.

[6] E. R. Annisa., "Pengaruh Model Pembelajaran STM terhadap kemampuan berpikir kritis dan sikap peduli lingkungan," *Jurnal Pendidikan Matematika Dan Sains* 4, no. 2 (2017): 98–105, https://doi.org/10.21831/jpms.v5i2.14409.

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applications of concepts and knowledge in everyday situations. Science Technology Society (STM) is a learning model that can be used as a alternative in classroom management in learning.[7]

Learning is also evident between the STM learning model and the conventional learning model has a different character. This difference in character will have consequences on the activities and results of mastering the concepts owned by students, and this is thought to affect student learning outcomes. However, the STM learning model in science learning on learning outcomes cannot be disclosed. Therefore, this study aims to analyze learning strategies with the Community Science Technology (STM) learning model on the results of student learning.[8]

RESEARCH METHOD

This research method uses library research methods, in this research studies or documents are taken from various sources such as journals, books, and articles related to problems that need to be solved. This activity is carried out systematically to collect, process, and conclude data using certain methods or techniques to find answers to problems.[9]

Data collection techniques used in this study are through journals and books related to research literature. The data analysis used is content analysis. Data collection techniques are used to document by studying data related to things or variables in the form of records, books, scientific articles, journals and others. While data analysis techniques through data reduction, data visualization and conclusions.[10]

RESULT AND DISCUSION

1. Based on the results of research from Atikah, Rahmah[1]*, Wirawan, Fadly[2], Rahmi Faradisya Ekapti[3], Titah Sayekti[4], Ulinnuha Nur Faizah[5] with the title of the article The Influence of Community Science Technology Models and ESD Approaches in Increasing Environmental Awareness states that the STM learning model with an ESD approach is known to be able to facilitate student activities in an attitude of environmental concern. This is seen in terms of the application of integration between the STM learning model and the ESD approach in this study is said to have been in accordance with the planned results. Based on the results of research conducted by Atikah Rahmah et al, obtained data on the average value of environmental concern attitudes distributed by the N-gain test, namely the average experimental class of 48.4 and the average control class of -4.48. This average result shows that the attitude of environmental concern of students in using the STM learning model with the ESD approach and with the conventional learning model there are differences. Thus, it is said that there is an increase (Suarni et al., 2021) in environmental concern attitudes in students. Based on the output results of the Man-Whitney Test, the significance value of Asymp. Sig. (2-tailed) which is $0.000 < 0.05$ thus based on the previous exposure it can be seen that the hypothesis taken is H0 rejected and Ha accepted. With this statement, it can be seen that there is a difference in the average increase in environmental awareness attitudes among students in using the STM learning model with an ESD approach and using conventional models in MTs Negeri 1 Ponorogo.[11]

2. Based on the results of research and journal discussions from Made Gautama Jayadiningrat[1]*, I Wayan Widiana[2], Nyoman Wiraadi Tria Ariani[3], Ni Komang Widiani[4] with the title of the article Learning Model of Community Science Technology (STM) AND Authentic Assessment of Student Learning Outcomes in 2022 shows that STM learning models and authentic assessments have a significant positive influence on science learning outcomes. The STM learning model integrated with project assessment gives the best results. This combination is very suitable to be applied to science subjects in elementary schools because the model accommodates the characteristics of science education. The STM learning model can explore students' curiosity towards science and technology issues through the stage of extracting science and technology issues.

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[7] Grahito Wicaksono, "PENYELENGGARAAN PEMBELAJARAN IPA BERBASIS PENDEKATAN STEM DALAM MENYONGSONG ERA REVOLUSI INDUSTRI 4.0."

[8] Made Gautama Jayadiningrat dkk., "Model Pembelajaran Sains Teknologi Masyarakat (STM) DAN Penilaian Autentik terhadap Hasil Belajar Siswa," *Jurnal Pedagogi dan Pembelajaran* 5, no. 3 (2 November 2022): 394–402, https://doi.org/10.23887/jp2.v5i3.50268.

[9] A Sari, M., & Asmendri, "Penelitian Kepustakaan (Library Research) Dalam Penelitian Pendidikan Ipa. Natural Science: Jurnal Penelitian Bidang Ipa Dan Pendidikan Ipa," *Jurnal Penelitian Bidang Ipa Dan Pendidikan Ipa* 6 (2020).

[10] M. Zed, *Metode Penelitian Kepustakaan*, 2 ed. (Jakarta: Yayasan Obor Indonesia, 2008).

[11] Rahmah1* Atikah dkk., "Pengaruh Model Sains Teknologi Masyarakat dan Pendekatan ESD dalam Meningkatkan Kepedulian Lingkungan," *Jurnal Tadris IPA Indonesia* 1, no. 2 (2021).

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While project assessment allows children to assimilate and accommodate stimuli from their environment, interact with objects, observe, research, and think so as to improve their cognitive abilities.[12]

3. Based on the results of research and journal discussion from Renold, Mohammad Jamhari, and Amran Rede, students of the In-Service Teacher Program, Faculty of Teacher Training and Education, Tadulako University with the title of the article Improving Student Learning Outcomes through a Community Science Technology (STM) Approach in Science Lessons The Subject of Water Cycle of Class V Students of SDN 2 Dataran Bulan It can be concluded that: the use of STM approach can improve students' learning ability. This can be seen from the observation indicators of teacher activity and student performance where in cycle I it was included in the less category, but in cycle II it increased to the good category. Based on the results of the study, it shows that the use of the STM approach can improve the learning outcomes of grade V students at SDN 2 Dataran Bulan Tojo una-una Regency. This can be seen in classical completeness in cycle I only reached 45%, increased to 90% in cycle II and classical absorption in cycle I only amounted to 62.50%, increased to 81.50% in cycle II. Therefore, it has met the predetermined completeness standard of 80%.[13]

4. Based on the formulation of the problem, research results, and discussion in research conducted by Tya Pranita1. Warsiti2 . Moh. Chamdani3 FKIP student, PGSD Universitas Sebelas Maret, Surakarta with the title of the article Use of Community Science Technology Approach in Improving Science Learning in Elementary Schools in 2013 it can be concluded that: (1) The use of the STM Approach which is implemented appropriately in accordance with the learning implementation plan by applying the 5 steps of the STM approach, namely invitation, concept formation, concept analysis, concept solidification and research can improve learning Science students of grade V SD Negeri 5 Bumirejo; (2) The use of STM learning approach can improve science learning for grade V students of SD Negeri 5 Bumirejo Kebumen for the 2012/2013 school year[14]

Strategy comes from the Greek word strategos which means an effort to achieve a victory in a war. Initially the strategy was used in the military environment, but the term strategy is now used in various fields that have relatively the same essence, including being adopted in a learning context, which is known as a learning strategy. Strategy is an effort to gain success and success in achieving goals. In the world of education, strategy can be interpreted as a plan, method, or series of activities designed to achieve a particular educational goal. That is, strategies are plans, methods and series of activities designed for learning purposes. Learning itself is defined as a two-way communication process, teaching is carried out by the teacher as an educator, while learning is carried out by students or students. Kozna in Hamzah generally explains that learning strategies can be interpreted as any selected activity, namely those that can provide facilities or assistance to students toward achieving certain learning objectives. Gropper in Hamzah said that learning strategy is the selection of certain types of exercises that are in accordance with the learning objectives to be achieved. Referring to the several opinions above, learning strategies can be interpreted narrowly and broadly. Narrowly, the strategy has similarities with the method, which means a way to achieve the learning objectives that have been set. Broadly speaking, strategy can be interpreted as a way of determining all aspects related to achieving learning objectives, including planning, implementation and assessment.

The word science comes from the Latin word scientia which means "I know". In English means knowledge (natural sciences). Whereas in Indonesian it is called Natural Sciences or briefly known as IPA. Science can be interpreted as science that studies the causes and effects of events that occur in nature. But there are many events that IPA cannot explain. Natural Science (IPA) is basically related to a systematic way of exploring nature, so that Natural Science is not just mastering a body of knowledge in the form of facts, concepts or principles but also a process of discovery. Therefore, it can be concluded that science is a collection of knowledge about natural objects obtained in certain ways. As Tatik Suharingrum quoted from Carin explained that "natural science is a collection of knowledge that is arranged systematically and which is learned for someone's use is generally limited to natural phenomena". Natural Science (IPA) is the result of human activity in the form of organized knowledge, ideas and concepts about the natural environment obtained from experience through a series of scientific processes which include investigation, preparation and testing of ideas. Science education is intended as a way for students to learn about themselves and the environment, and develop it further by applying it in everyday life. The learning process emphasizes providing direct experience to develop skills in scientific exploration and understanding of the natural environment. Science education aims to help students better understand the natural world around them. Science is needed in everyday life to meet human needs by solving identifiable

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[12] dan Amran Rede Renold, Mohammad Jamhari, "Meningkatkan Hasil Belajar Siswa Melalui Pendekatan Sains Teknologi Masyarakat (STM) Pada Pelajaran IPA Pokok Bahasan Daur Air Siswa Kelas V SDN 2 Dataran Bulan," *Jurnal Kreatif Tadulako Online* 1, no. 2 (2013).

[13] Tya Pranita1 dkk., "PENGGUNAAN PENDEKATAN SAINS TEKNOLOGI MASYARAKAT DALAM PENINGKATAN PEMBELAJARAN IPA DI SEKOLAH DASAR," 2013.

[14] Zainuddin Desi Suryani, Rosnita, "PENGARUH PENDEKATAN SAINS TEKNOLOGI MASYARAKAT TERHADAP HASIL BELAJAR SISWA PADA PEMBELAJARAN IPA DI KELAS IV," *FKIP, UNTAN, Pontianak*, 2015.

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problems. The application of IPA must be done carefully so as not to have a negative impact on the environment. At the SD/MI level, it is hoped that the focus will be on learning Salingtemas (Science, Environment, Technology and Society) to learn from experience in designing and creating works through the rational application of scientific concepts and scientific work skills. .

Scientific learning emphasizes the provision of direct learning experiences. In this learning process, students are facilitated to develop several process skills and scientific work to gain scientific knowledge about themselves and the natural environment. These process skills include: observing skills with all senses, using tools and materials correctly, always paying attention to work safety, asking questions, classifying data, interpreting data, communicating achieving results in various ways and digging and filtering relevant factual information to test ideas or solve day-to-day problem solving This. There are six characteristics of effective science learning, including:

1. Facilitating students' curiosity.
2. Providing opportunities to present and acquire scientific experiences and knowledge.
3. Providing means to demonstrate abilities.
4. Providing operational options.
5. Providing opportunities to explore the natural environment.
6. Providing opportunities to discuss observations.

In scientific learning, teachers need to be open-minded, highly creative, have reliable methodological skills, high self-confidence, and the courage to present and develop materials. Students themselves need to have relatively good academic and creative abilities. Because science learning emphasizes analytical skills (breakdown), associative skills (connection), and discovery and construction skills (finding and exploring).

According to the 2013 Curriculum (Kurtilas), science learning in Elementary Schools (SD) and Madrasah Ibtidaiyah (MI) is integrated with other subjects, especially Indonesian language, science, social studies, civic education, and character education through a thematic learning approach. In the 2013 Curriculum, the concept of science is presented as a means of systematic exploration of nature, not only as a body of knowledge consisting of facts, concepts, and principles, but also as a process of discovery.

Functions and Objectives of Science The function of science subjects in elementary schools and madrasah ibtidaiyah is to master the concepts and benefits of science in daily life, with the following objectives:[15]

1. Instilling knowledge and scientific concepts that are useful in daily life.
2. Instilling curiosity and a positive attitude towards science and technology.
3. Developing process skills to investigate the surrounding environment, solve problems, and make decisions.
4. Participating in the preservation and conservation of the natural environment.
5. Developing awareness of the interrelationships between science, the environment, technology, and society.
6. Appreciating nature and its orderliness as one of God's creations.
    The objectives of science learning are for students to have the following abilities:[16]
1. Acquiring belief in the greatness of God Almighty based on the beauty and orderliness of His creation.
2. Developing knowledge and understanding of scientific concepts that are beneficial and applicable in daily life.
3. Developing curiosity, a positive attitude, and awareness of the interrelationships between science, the environment, technology, and society.
4. Developing process skills to investigate the surrounding environment, solve problems, and make decisions.
5. Increasing awareness to participate in the preservation and conservation of the natural environment.
6. Increasing awareness to appreciate nature and its orderliness as one of God's creations.
7. Acquiring knowledge, concepts, and skills in science as a basis for continuing education to junior high school.

STM Approach Model The STM (Science, Technology, and Society) approach is a learning approach that focuses on understanding the curriculum by considering the issues and problems faced by students or society in their daily lives, involving elements of science and technology. This approach emphasizes discovery/inquiry and problem-solving methods as the process of explaining natural phenomena and solving problems faced by humans in adapting to the environment/nature. The explanations generated from this approach will raise new questions that need to be answered again, and problem-solving solutions can create new problems that need to be solved again. The characteristics that distinguish the STM approach from other approaches include starting with relevant issues/problems related to the content of the subjects and students' interests, involving students in decision-

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[15] Sari, M., & Asmendri, "Penelitian Kepustakaan (Library Research) Dalam Penelitian Pendidikan Ipa. Natural Science: Jurnal Penelitian Bidang Ipa Dan Pendidikan Ipa."

[16] Grahito Wicaksono, "PENYELENGGARAAN PEMBELAJARAN IPA BERBASIS PENDEKATAN STEM DALAM MENYONGSONG ERA REVOLUSI INDUSTRI 4.0."

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making and considering information about scientific and technological issues, integrating learning from various curriculum scopes, and developing scientific, technological, and social literacy. The goal of science education with the STM approach is to prepare students to become citizens and members of society who have the ability to investigate, analyze, understand, and apply scientific and technological concepts, principles, and processes in real situations, make changes, make appropriate decisions regarding issues/problems involving science and technology, plan.

The learning approach with STM (Science, Technology, and Society) begins by introducing science through questioning nature or posing questions about nature, while technology starts by solving problems faced by humans in adapting to nature. Some strategies that can be used include:

1. Inviting students to compare and differentiate between science and technology.[17]
2. Presenting real-life examples of how scientific knowledge and technology can be used by society and individuals.
3. Explaining the global perspective on the interaction between science, technology, and society.
4. Presenting knowledge about science and technology in the context of students' daily lives.
5. Introducing decision-making strategies and providing opportunities to use them in STS (Science, Technology, and Society) issues.
6. Presenting comprehensive science and technology materials, such as facts, laws, theories, and simplified assumptions.
7. Giving students opportunities to learn how to access and disseminate relevant information for decision-making processes.
8. Involving team teaching that includes various disciplines, such as community members.
9. Using complementary learning strategies to enlighten values, ideas, and rational thinking, involving peers, parents, and experts.
10. Helping students self-motivate in exploring values, emotions, data, and skills related to scientific events.
11. Selecting learning strategies and assessment techniques that can help students develop their skills and knowledge.

In science learning using the STM approach, there are several aspects that need to be emphasized and integrated proportionally, namely:[18]

1. Students' ability to ask questions to nature and find answers.
2. Students' ability to recognize issues or problems faced by society and seek solutions.
3. Mastery of scientific knowledge in science and skills in technology and the ability to apply them in daily life.
4. Paying attention to values and social-cultural contexts of society.
5. Having knowledge of local, personal, and global social-cultural attitudes and values.

The STM approach aims to activate students in activities of solving identified issues or problems so that students can:[19]

1. Connect what they learn with what they discover or encounter in daily life.
2. Pay attention to the development of science and technology based on discovered facts and see the relevance between technological benefits and scientific concepts.
3. Pose unexpected questions.
4. Identify possible causes of what is observed and the effects of something on what is observed.
5. Continuously generate new ideas or concepts.
6. Become more interested in what is being learned.
7. Gain a deeper understanding of science as the physical world.
8. Consider the teacher as a facilitator rather than an informant.
9. Regard science as a tool for solving problems, including problems in daily life.
10. Consider the scientific process as a skill that can be used.
11. Recognize the need to develop the scientific process to tackle the problems encountered.
12. View the scientific process as a necessity.

The aspects emphasized in students through the STM approach are as follows:

1. Scientific knowledge, including understanding facts, concepts, laws, principles, theories, and hypotheses used by scientists.
2. Scientific processes, including how scientists think and work, such as observing and explaining, classifying and organizing

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[17] Fina Fakhriyah, Siti Masfuah, dan F. Shoufika Hilyana, *TPACK dalam Pembelajaran IPA* (Penerbit NEM, 2022).

[18] Izzatin Kamala, "Pembiasaan Keterampilan Berpikir Kritis Sebagai Sarana Implementasi Sikap Spiritual Dalam Pembelajaran IPA Tingkat Sekolah Dasar," *Al-Bidayah : Jurnal Pendidikan Dasar Islam* 11, no. 1 (30 Juni 2019): 1–30, https://doi.org/10.14421/al-bidayah.v11i01.187.

[19] Reza Martani Surdia dkk., "Inisiasi Pemanfaatan Teknologi Informasi Geospatial dalam Penyusunan Peta Desa Berbasis Partisipatif Masyarakat," *E-Dimas: Jurnal Pengabdian kepada Masyarakat* 13, no. 2 (29 Juni 2022): 312–17, https://doi.org/10.26877/e-dimas.v13i2.5724.

data, measuring and graphing, understanding and communicating, concluding and predicting, formulating and testing hypotheses, identifying and controlling variables, interpreting data/information, creating simple instruments and tools, and modeling.

3. Creativity, including visualizing and producing mental images by combining objects and ideas in new ways, providing alternative explanations or using extraordinary objects/ideas, solving problems with appropriate/unique actions, designing tools and machines, generating extraordinary ideas, and testing new tools for the explanations created.

4. Attitudes, including developing a positive attitude towards science, self-confidence, motivation, sensitivity, responsiveness, empathy, personal expression of feelings, and making decisions on environmental and social issues.

5. Application/relevance, including demonstrating examples of scientific concepts in everyday life.

CONCLUSION

Finally, we can conclude that science learning with the STM approach is learning that connects science with technological and societal issues or problems and involves students directly and proactively in efforts to solve these issues or problems faced in daily life. Learning that can align individual and societal needs for progress and survival, thus the STM approach is directed towards scientific (science) and technological literacy for all.Based on the results of the conducted research, there are several recommendations as follows the implementation of the STM approach can be used in the teaching and learning process because it can improve the quality of science learning. Students can develop their potentials such as creativity, curiosity, independence, and collaboration. Schools should introduce more innovative approaches such as the STM approach and others to teachers.

REFERENCE

1) Annisa., E. R. "Pengaruh Model Pembelajaran STM terhadap kemampuan berpikir kritis dan sikap peduli lingkungan." *Jurnal Pendidikan Matematika Dan Sains* 4, no. 2 (2017): 98–105. https://doi.org/10.21831/jpms.v5i2.14409.

2) Atikah, Rahmah1*, Fadly2 , Wirawan, Rahmi Faradisya Ekapti3, Titah Sayekti4, dan Ulinnuha Nur Faizah5. "Pengaruh Model Sains Teknologi Masyarakat dan Pendekatan ESD dalam Meningkatkan Kepedulian Lingkungan." *Jurnal Tadris IPA Indonesia* 1, no. 2 (2021).

3) Bidayah, Ii. "UPAYA MENINGKATKAN KEMAMPUAN BELAJAR SISWA MELALUI PENDEKATAN KETERAMPILAN PROSES." *Jurnal Educatio FKIP UNMA* 5, no. 2 (11 Desember 2019): 107–14. https://doi.org/10.31949/educatio.v5i2.21.

4) Desi Suryani, Rosnita, Zainuddin. "PENGARUH PENDEKATAN SAINS TEKNOLOGI MASYARAKAT TERHADAP HASIL BELAJAR SISWA PADA PEMBELAJARAN IPA DI KELAS IV." *FKIP, UNTAN, Pontianak*, 2015.

5) Donohue, Kerri, Gayle A. Buck, dan Valarie Akerson. "Where's the Science? Exploring a New Science Teacher Educator's Theoretical and Practical Understandings of Scientific Inquiry." *International Journal of Research in Education and Science* 6, no. 1 (8 November 2019): 1. https://doi.org/10.46328/ijres.v6i1.571.

6) Fakhriyah, Fina, Siti Masfuah, dan F. Shoufika Hilyana. *TPACK dalam Pembelajaran IPA*. Penerbit NEM, 2022.

7) Grahito Wicaksono, Anggit. "PENYELENGGARAAN PEMBELAJARAN IPA BERBASIS PENDEKATAN STEM DALAM MENYONGSONG ERA REVOLUSI INDUSTRI 4.0." *LENSA (Lentera Sains): Jurnal Pendidikan IPA* 10, no. 1 (25 Mei 2020): 54–62. https://doi.org/10.24929/lensa.v10i1.98.

8) Jayadiningrat, Made Gautama, I Wayan Widiana, Nyoman Wiraadi Tria Ariani, dan Ni Komang Widiani. "Model Pembelajaran Sains Teknologi Masyarakat (STM) DAN Penilaian Autentik terhadap Hasil Belajar Siswa." *Jurnal Pedagogi dan Pembelajaran* 5, no. 3 (2 November 2022): 394–402. https://doi.org/10.23887/jp2.v5i3.50268.

9) Kamala, Izzatin. "Pembiasaan Keterampilan Berpikir Kritis Sebagai Sarana Implementasi Sikap Spiritual Dalam Pembelajaran IPA Tingkat Sekolah Dasar." *Al-Bidayah : Jurnal Pendidikan Dasar Islam* 11, no. 1 (30 Juni 2019): 1–30. https://doi.org/10.14421/al-bidayah.v11i01.187.

10) Muspikawijaya, Iswari, R., & Marianti, A. "Analisis Kesulitan Peserta Didik SMA/MA Kabupaten Luwu Timur dalam Memahami Konsep pada Materi Metabolisme Sel." *Journal of Innovative Science Education* 6, no. 2 (2017): 252–63. https://journal.unnes.ac.id/sju/index.php/jise/article/view/15439.

11) Palobo, Markus, dan Yonarlianto Tembang. "ANALISIS KESULITAN GURU DALAM IMPLEMENTASI KURIKULUM 2013 DI KOTA MERAUKE." *Sebatik* 23, no. 2 (1 Desember 2019): 307–16. https://doi.org/10.46984/sebatik.v23i2.775.

12) Pranita1, Tya, . Warsiti2, . Moh. Chamdani3, dan . "PENGGUNAAN PENDEKATAN SAINS TEKNOLOGI MASYARAKAT DALAM PENINGKATAN PEMBELAJARAN IPA DI SEKOLAH DASAR," 2013.

13) Renold, Mohammad Jamhari, dan Amran Rede. "Meningkatkan Hasil Belajar Siswa Melalui Pendekatan Sains Teknologi Masyarakat (STM) Pada Pelajaran IPA Pokok Bahasan Daur Air Siswa Kelas V SDN 2 Dataran Bulan." *Jurnal Kreatif Tadulako Online* 1, no. 2 (2013).

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14) Sari, M., & Asmendri, A. "Penelitian Kepustakaan (Library Research) Dalam Penelitian Pendidikan Ipa. Natural Science: Jurnal Penelitian Bidang Ipa Dan Pendidikan Ipa." *Jurnal Penelitian Bidang Ipa Dan Pendidikan Ipa* 6 (2020).

15) Surdia, Reza Martani, Budi Heri Pirngadi, Apriadi Budi Raharja, dan Luky Sutansyah. "Inisiasi Pemanfaatan Teknologi Informasi Geospatial dalam Penyusunan Peta Desa Berbasis Partisipatif Masyarakat." *E-Dimas: Jurnal Pengabdian kepada Masyarakat* 13, no. 2 (29 Juni 2022): 312–17. https://doi.org/10.26877/e-dimas.v13i2.5724.

16) Zed, M. *Metode Penelitian Kepustakaan*. 2 ed. Jakarta: Yayasan Obor Indonesia, 2008.