

SOCIAL STUDIES LEARNING APPLICATIONS BASED ON SCIENCE, TECHNOLOGY AND SOCIETY APPROACHES IN THE CONTEMPORARY ERA

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Abstract

This paper is based on the author's analysis that the future trend of developing science and technology requires people willing to learn in an integrative and innovative way. Therefore, social studies education, as the main subject for students in Junior High School, must always be responsive and improve themselves to keep up with the times. This study aims to examine the application of science, technology, and society approaches in social studies learning in junior high schools in the contemporary era. The method uses library research by collecting data from various journals and books relevant to the problem. The discussion method uses a descriptive-analytical method by explaining and elaborating the main ideas related to the problems discussed. Then present, it critically through primary and secondary library sources related to the problem. The results of the study found that the application of the science, technology, and society approach to social studies learning in junior high schools in the contemporary era can be applied in five stages, namely: (1) introduction to the issue of the problem, (2) concept formation, (3) application of concepts in life, (4) consolidation of concepts and (5) assessment. The implication of this research going forward is that it can improve students' competence and problem-solving abilities; for example, technological progress is positive and negative effects on the environment.

Keywords: Social Studies Learning, Science, Technology, and Society Approach.

Preliminary

It is responding to changes in learning paradigms that can meet the demands of the times and can solve various learning problems in Social Studies Education with a learning culture that still tends to be conventional. This phenomenon follows the mandate of the competency-based curriculum in social studies subjects so that students master various concepts, events, and applications in technology (Depdiknas, 2002). Changes in learning must follow the demands of society in the context of science and technology. One of the learning approaches that can be applied by social studies teachers in social studies learning is constructivism by applying science and technology in learning.

The science, technology, and society approach is based on constructivist understanding, meaning that there is a relationship between the actual situation outside the classroom and the benefits of the concept to be developed so that it is easier for students to construct their knowledge. Social studies teachers must have learning strategies that can arouse students to

think, act, and be responsive to their activities (Poedjiadi, 2005; Watkins & Mazur, 2013). This fact is in line (Supriatna, 2020) that creativity is the ability to support and develop life and career skills, learning and innovation skills, and utilizing media and information technology. Creativity is an individual's ability to create new concepts as a result of their interaction with the environment based on the manifestation of ideas, innovative theories, and concepts that have been known previously through experiences that individuals have had during their lifetime (Budiarti, 2015; Munandar, 2015; Semiawan, 2009).

The position of social studies subjects clearly shows that social studies are learning approaches to Science, Technology, and Communication. Through these activities, from the beginning, students can take advantage of technology and their environment in social studies learning, so that they are motivated to learn. It is relevant (Wiriatmadja, 2007) that the learning process of Social Studies Education can act as a vehicle to increase student learning motivation by means teachers must constantly develop themselves to meet the demands of their duties as educators so that students are motivated to learn. The collaboration between materials and creative learning methods is expected to be able to develop student's potential in the learning and teaching process (Hasni & Said, 2020).

Meaningful learning will produce high abilities for students and have meaning to make discoveries (Susanto, 2014b). Vygotsky (Hidayati & Senen, 2008) that adults can enhance a child's developmental progress by engaging them in challenging and meaningful activities. The development of science and technology often has an impact on changing society. This is because the progress of science and technology is often not accompanied by the readiness of the community, including students, and even to a certain extent, it can cause culture shock. Science and technology have positive and negative impacts; therefore, people must have sufficient knowledge and understanding of technology (Susanto, 2014b).

This research is based on the writing (Arnie, 2005) that social studies learning can be used to provide an understanding of science and technology in human life. The role of IPS here is not to produce scientists or technology producers but rather to think about how to deal with the social impacts of the development and application of science and technology and society. This article also refers to the results of research (Pranita, 2013) about the use of science and technology in science learning in elementary schools can improve learning. Applying the science, technology and society approach to environmental pollution can improve thinking skills and learning outcomes (Afni et al., 2017). Research conducted (Melisa et al., 2020) showed that the application of contextual-based Community Science Technology in social

studies learning to improve class student learning outcomes shows an increase in learning outcomes through test results.

Based on the above background and previous research that has not revealed the application of science, technology, and society in social studies learning in junior high schools, previous research has been widely applied in elementary schools, so this research is very urgent to do.

Method

The method uses library research by collecting data from writings (literacy) related to the topics discussed. The researchers took the data from documentation in the form of books, research journals, and supporting articles.

The discussion method uses the descriptive-analytical method to explain and elaborate the main ideas related to the topics discussed. Then present, it critically through primary and secondary library sources related to the problem (Sugiyono, 2005; Sukmadinata Nana, 2010; Trianto, 2009).

Results and Discussion

The term science, technology, and society were first coined in 1990 by John Ziman in his book "Teaching and Learning About Science and Society" (Hidayat, 1996). Ziman tries to reveal that the concepts and processes of science should be in accordance with students' daily lives. Based on the literature review results, various definitions of science, technology, and society were found. For example, The Nation Science Teachers Association views technology society as "the teaching and learning of science in the context of human experience" (Asy'Ari, 2006; Mansour, 2009; National Science Teacher Association, 1990).

Community science and technology are seen as a learning model that consistently follows the context of human experience. In this model, students are invited to increase creativity and scientific attitude and use concepts and scientific processes in everyday life. (Dagun, 2005) Science can be defined as an orderly (systematic) science that can be tested for truth. Whereas (Poedjiadi, 2007) said that the STS approach means using technology as a liaison between science and society. In Indonesia, the science technology society is translated into the science technology society.

So it can be understood that the scientific approach underlies technology development. As for technology to support the development of science, it is mainly used for discovery activities to obtain explanations about natural phenomena, but also for discovery activities.

The Science, Technology, and Society (STS) approach, in the view of social sciences and humanities, basically provides an understanding of the relationship between science and

technology and society, trains students' sensitivity to the assessment of environmental impacts as a result of the development of science and technology (Poedjiadi, 2007). Changes in the learning paradigm adapted to advances in science and technology strongly support the birth of teacher-creative pedagogy in the 21st century (Supritana, 2020). This is in line with the aim of the learning approach to technology and society, which is so that students have sufficient knowledge so that they can make important decisions about problems in society and at the same time can take action regarding the decisions that Rumansyah makes in his life (Poedjiadi, 2007; Susanto, 2014a).

From the objectives of the science, technology, and society learning approach mentioned above, it can be represented as one of the goals of social studies education itself if studied in depth. The objectives of Social Studies Education have three categories, namely (1) the development of students' intellectual abilities, (2) the development of the ability to take responsibility as members of society and the nation, (3) the development of students' self as individuals (Hasan, 1996). In addition, there are three characteristics of social studies goals: Humanitarian Education, Civic Education, and Intellectual Education (Depdiknas, 2002). The objectives of social studies education are relevant to the dimensions of comprehensive social studies learning, namely the dimensions of knowledge, the dimensions of skills, the dimensions of attitudes, and the dimensions of action (Sapriya, 2009).

In applying the science, technology, and society approach, several principles must be raised, as shown in table 1 below:

Table 1. Principles of the science, technology and society approach

Number	Principles
1	Students identify problems with problems and the impacts that arise from these problems appear in their environment
2	Using local resources to find information that can be used in solving problems that have been identified
3	Focusing on learning has consequences caused by science and technology for students
4	Understanding that science content is more valuable than just being able to do problems
5	There is an emphasis on process skills that students can use to solve their own problems
6	There is an emphasis on career awareness, especially careers related to science and technology
7	Provide opportunities for students to gain experience about the rules of social life that can be used to solve problems that have been identified

Sources: National Science Teacher Association (1990)

This principle in practice connects two essential things, namely science and science. A social studies teacher in interactions in the education world should own these two things. Art, behavior, and learning activities involve intuition, creativity, inspiration, and talent. The teacher carries out the science, technology and society approach in social studies learning through topics discussed by connecting science and technology. Applying a science, technology, and society approach in social studies learning can be done through five stages by referring to (Poedjiadi, 2007).

First, the introduction: initiation/investment/perception/exploration of students. At this stage, the teacher makes an apperception by linking events that have been known to students with the material to be discussed so that there appears to be a balance of knowledge, for example, exploring the problem of traditional tools related to technological developments. In this introduction, the teacher can also explore students by giving assignments to carry out field activities, for example, taking students to museums.

The second stage is the concept formation process. At this stage, the teacher must have the art of teaching by carrying out various approaches and methods. The approaches that can be applied are the process approach, the historical approach, the demonstration method, experiments in the laboratory, group discussions, and role-playing. In comparison, the media that can be used is reading books and watching TV news.

The third stage of concept application. Concepts that students have understood are then used to solve problems or analyze issues that have been raised at the beginning of learning. Again, the goal is to analyze a phenomenon or solve a problem. In this stage, students can also carry out concrete actions based on their concern for the surrounding environment.

The fourth stage of concept consolidation is an activity carried out by social studies teachers to straighten out the possibility of conceptual errors made by students during learning (misconceptions). At this stage, it can be done simultaneously with the second and third stages; for example, students carry out group discussions while observing the implementation of discussions. Again, teachers can intervene if there are conceptual errors among students.

The fifth stage is the assessment stage. At this stage, it should be carried out continuously and cover various aspects. Again, using portfolios or student personal data is highly recommended because personal data helps evaluate students, including the cognitive, affective, and psychomotor domains, including student concerns and actions.

Applying social studies learning through a science, technology, and society approach with these five stages will improve students' scientific and technological literacy if the social studies teacher can apply it correctly and appropriately. Scientific literacy provides students

with provisions to understand their environment, while technological literacy is implementing technology based on identification abilities and being aware of the effects of technology results. With this technological literacy, students can behave and be able to use tools safely, precisely, efficiently, and effectively. Thus, it can be understood that scientific technology literacy is the ability to solve problems using scientific concepts and recognizing existing technology and its impacts. Using technology products and maintaining them, creative in making simple technology products, and able to make value-based decisions.

Conclusion

Based on the results of research and discussion, it can be concluded that by applying social studies learning through science, technology, and society approach with five stages, students are expected to be more aware of the benefits learned for their environment. Therefore, students play an active role in solving problems if difficulties occur around them. This attitude is fostered by the activities that students carry out during the learning process with models of science, technology, and society. In the end, students will be actively involved in their environment.

Bibliography

- Afni, N., Khairil, K., & Abdullah, A. (2017). Penerapan Pendekatan STM (Sains Teknologi Masyarakat) Pada Konsep Pencemaran Lingkungan Untuk Meningkatkan Hasil Belajar Dan Kemampuan Berpikir Kritis Di Sma Negeri 4 Wira Bangsa Meulaboh. *BIOTIK: Jurnal Ilmiah Biologi Teknologi Dan Kependidikan*, 2(2), 77–82.
- Arnie, F. (2005). *Portofolio dalam pembelajaran IPS*. PT. Remaja Rosdakarya.
- Asy'Ari, M. (2006). *Penerapan Pendekatan Sains Teknologi Masyarakat dalam Pembelajaran Sains di Sekolah Dasar*. Universitas Sanata Dharma.
- Budiarti, Y. (2015). Pengembangan kemampuan kreativitas dalam pembelajaran IPS. *Jurnal Pendidikan Ekonomi UM Metro*, 3(1), 61–72.
- Dagun, S. M. (2005). *Kamus Besar Ilmu Pengetahuan; cet. ke 2*. Jakarta: Lembaga Pengkajian Kebudayaan Nusantara (LPKN).
- Depdiknas, P. K. B. (2002). *Ringkasan Kegiatan Belajar Mengajar*. Balitbang Depdiknas.
- Hasan, H. (1996). *Pendidikan Ilmu Sosial*. Departemen Pendidikan dan Kebudayaan, Dirjen Dikti.
- Hasni, H., & Said, M. (2020). IMPLEMENTASI MODEL PEMBELAJARAN IPS BERBASIS KEARIFAN LOKAL DI SMP NUSANTARA MAKASSAR. *SUPREMASI: Jurnal Pemikiran, Penelitian Ilmu-Ilmu Sosial, Hukum Dan Pengajarannya*, 15(1), 82–86.
- Hidayat, E. M. (1996). Pendidikan dan Pembelajaran Sains yang Bagaimana yang Cocok dan Berguna untuk siswa-sekolah di Indonesia. *Majalah Pendidikan IPA: Khazanah Pengajaran IPA*. IMAIPA.
- Hidayati, M., & Senen, A. (2008). Pengembangan Pendidikan IPS SD. Jakarta: Direktorat Jenderal Pendidikan Tinggi Departemen Pendidikan Nasional.
- Mansour, N. (2009). Science-technology-society (STS) a new paradigm in science education. *Bulletin of Science, Technology & Society*, 29(4), 287–297.
- Melisa, T. P. G., Jailani, S., & Siregar, N. (2020). *PENERAPAN PENDEKATAN SAINS TEKNOLOGI MASYARAKAT (STM) UNTUK MENINGKATKAN HASIL BELAJAR*

- ILMU PENGETAHUAN ALAM (IPA) DALAM PEMBELAJARAN TEMATIK SISWA DI SEKOLAH DASAR NEGERI 18 KABUPATEN TANJUNG JABUNG TIMUR*. UIN Sulthan Thaha Saifuddin Jambi.
- Munandar, U. (2015). *Mengembangkan Bakat dan Kreativitas Anak SekAfni*, N., Khairil, K., & Abdullah, A. (2017). Penerapan Pendekatan STM (Sains Teknologi Masyarakat) Pada Konsep Pencemaran Lingkungan Untuk Meningkatkan Hasil Belajar Dan Kemampuan Berpikir Kritis Di Sma Negeri 4 Wira Bangsa Meulaboh. *BIOTIK: Jurnal Ilmiah Biologi Teknologi Dan Kependidikan*, 2(2), 77–82.
- National Science Teacher Association. (1990). *STS. A New Effort for Providing Appropriate for All*. <http://www.nsta.org/positionstatement>.
- Poedjiadi, A. (2005). *Sains teknologi masyarakat model pembelajaran kontekstual bermuatan nilai*.
- Poedjiadi A. (2007). *Sains Teknologi Masyarakat*. Remaja Rosdakarya.
- Pranita, T. (2013). PENGGUNAAN PENDEKATAN SAINS TEKNOLOGI MASYARAKAT DALAM PENINGKATAN PEMBELAJARAN IPA DI SEKOLAH DASAR. *KALAM CENDEKIA PGSD KEBUMEN*, 4(4).
- Sapriya, S. (2009). *Pendidikan IPS Konsep dan Pembelajaran*. PT Remaja Rosda Karya.
- Semiawan, C. R. (2009). *Memupuk Bakat dan Kreativitas Siswa Sekolah Menengah*. Gramedia.
- Sugiyono, P. (2005). Memahami penelitian kualitatif. *Bandung: Alfabeta*.
- Sukmadinata, S & Nana, S. (2010). Metode Penelitian Pendidikan. *Bandung: Remaja Rosdakarya*.
- Supritana, N. (2020). *Pedagogi Kreatif, Menumbuhkan Kreativitas dalam Pembelajaran Sejarah dan IPS* (Adi Asmara (ed.); Cet Pertama). PT Remaja Rosdakarya.
- Susanto, A. (2014a). *Pengembangan pembelajaran IPS di SD*. Kencana.
- Susanto, A. (2014b). *Pengembangan Pembelajaran IPS di Sekolah Dasar*. Prenada Media Group.
- Trianto, M. P. (2009). Mendesain model pembelajaran inovatif-progresif. *Jakarta: Kencana*.
- Watkins, J., & Mazur, E. (2013). Retaining students in science, technology, engineering, and mathematics (STEM) majors. *Journal of College Science Teaching*, 42(5), 36–41.
- Wiriatmadja, R. (2007). *Metode Penelitian Tindakan Kelas, Untuk Meningkatkan Kinerja Guru Dosen*. Cet III. PT. Remaja Rosdakarya.