



# COMPETENCIES AND STUDENT LEARNING OUTCOMES IN SOCIAL LEARNING IN THE MGMP IPS WEST JEMBER REGION

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**Abstract**—This research aims to determine the effect of using Science, Technology, and Society methods on the learning process. This refers to forming 4C competencies and learning outcomes, especially in social studies learning. The targets of the IPS MGMP in West Jember include SMPN 1 Rambipuji, SMPN 1 Bangsalsari, SMPN 1 Semboro, SMPN 4 Tanggul, and SMPN 1 Sumberbaru. This research uses quantitative methods in the form of an experimental design. This research uses two sample classes, namely the control class and the experimental class. The experimental section uses a Science, Technology, and Society learning model approach. Meanwhile, part of the control class does not use Science, Technology, and Society. So, the assessment given is a test assessment, namely in the experimental class and control class. Based on the results of data analysis, the average score of students before using the Community Science Technology (STM) learning approach was 67, and the average score of students after being taught the Community Science Technology (STM) learning method was 77. Based on these results, it can be interpreted that H<sub>0</sub> is rejected and H<sub>1</sub> is accepted, with a confidence level of 95%. It is said that the average value of learning outcomes for class VIII students before implementing the Community Science Technology (STM) learning approach is different from the average value of student learning outcomes after implementing the Community Science Technology (STM) learning model ). The results of this research show that the use of the Community Science technology approach is effective in developing 4C skills and learning outcomes in the two classes, which are the experimental classes. In the experimental class, the researcher gave treatment with a value <0.05, so H<sub>0</sub> was rejected, and H<sub>a</sub> was accepted.

**Keywords**—STM, 4C Skills, Learning outcomes.

## I. INTRODUCTION

Education is the process of a person consciously realizing a generation that can inherit culture. This can be in the form of a learning atmosphere and learning process in order to develop the active potential of students both from religious spirituality, personality, self-control, noble character, intelligence, and skills needed by themselves and society [1]. From this process, there are changes based on one's efforts while following the existing education system.

At the stage of Education, it must have a purpose, as explained in the purpose of national Education, which is to

develop the potential of students to produce individuals who are intelligent, spiritual, pious, active, creative, and responsible, where every citizen has the right to follow the existing Education system. Therefore, the implementation of Education needs to get a design that is to current conditions in order to make a quality system for students.

Over time, in the learning process, teachers are informative or just a transfer of knowledge to students. This causes the creativity of students to avoid appearing during the learning process. In the learning process, an individual is expected to experience changes in knowledge, attitudes, and skills. Therefore, teachers need to vary teaching methods appropriate to the material taught so that the variations designed by teachers can later provide a good response in training students' skills and dare to face obstacles in the future.

The influence felt by students will cause a positive climate in producing students who can follow the challenges of the times and can compete in a broader scope because increasingly rapid changes require humans to be able to analyze increasingly complex life problems, where changes occur in various aspects of our lives both in terms of social, economic, political, educational, and so on as in one of the current fields of Education that needs to be developed, namely the 4C skills of students, such as critical thinking, communication, collaboration, and creativity as well as learning outcomes that meet the criteria.

Learning outcomes are changes that occur caused by the learning process. When a human being experiences changes in behavior, attitudes, and experiences they get so it is called learning. Because the essence of learning is not just remembering but also giving experiences that shape his mental and psychic [2]. This requires preparation, one of which is the use of learning methods. In the success of the a learning process, teachers need to have the ability to use learning methods that can reflect 21st century learning so that learning can achieve 4C skills and learning outcomes that meet the criteria.

We can see this in MGMP IPS in the west Jember region, where, according to the information we get, teachers have used various learning methods. However, the technique still leads to lecture techniques, thus making learning saturated because the teacher is the center of attention and the students only listen. This leads to the

formation of 4Cs, and student learning outcomes become hampered.

Therefore, there is a need for an appropriate approach to produce effective learning, one of which is choosing an appropriate learning approach. One learning approach appropriate to the current era is the science, technology, and society (STM) approach. The science, technology, and society approach is a renewal movement in science and technology society education (STM). This reform began in England and America; now, it has spread to other countries. In addition, the community science and technology approach is an innovation that is oriented towards a field of science that is inseparable from the reality of everyday community life by actively involving students.

From the problems experienced, it is necessary to create the proper learning solutions to improve student achievement because, in the learning process, teachers still use many lecture methods. Hence, there needs to be an effective variety. Therefore, researchers want to see the effectiveness of Science, Technology, and Society learning methods in the social studies learning process on 4C skills and learning outcomes at the IPS MGMP in the west Jember region.

#### A. 4C skills

##### 1. Critical Thinking Skills

Critical thinking skills are an essential part of future generations; this is necessary for our students. In addition to critical thinking, students are also invited to be able to solve problems that are occurring. Because many individual components only know it, only some can solve specific problems.

As stated by Mr. Anies Baswedan, critical thinking is the ability to think critically through disclosure, reasoning, analyzing, and solving problems. Because the ability to think critically can minimize irrational thinking, if an individual examines an issue or phenomenon that is considered out of sync, they will see it from various points of view to find a position that feels ideal according to their point of view.

Critical thinking is one of the higher-order thinking skills (HOTS), followed by the ability to solve problems. This critical thinking is process-improving and independent. Therefore, critical thinking is an essential part of building students' character as a young generation when facing the future.

##### 2. Communication Skill

Communication is the process of exchanging language at a particular time. Where humans become creatures that cannot live alone.[3] Therefore, this communication involves at least two humans, groups, and masses. Communication skills are now an essential part of realizing life goals. This can be either orally or in writing.

As in the learning process at school, teachers must accustom their students to communicate with friends and teachers, both about the subject matter and other things. This communication skill begins child development and the learning process that follows.

##### 3. Collaboration Skill

In education, there are many efforts to improve the learning model. One of them is to develop a collaborative learning model as a need of the current generation.

Collaboration is the skill of working together in groups. This is an essential part of facing an

increasingly complex future life.[3] For example, collaborating with institutions, communities, and other communities outside the school environment. This can be seen in the form of cooperation carried out by various institutions to strengthen the development of their institutions.

Apriono stated that cooperation ability can be interpreted as the ability carried out by several students to help each other create togetherness and cohesiveness to achieve common goals. Cooperation ability has several aspects that are used in learning activities by Eggen and Kauchak in Apriono, namely:[4]

- a) Be polite when listening to the other person speak until the end, then only speak after the other person has finished speaking.
- b) Interrupted politely,
- c) Respect other people's ideas
- d) Capture other people's ideas appropriately before expressing disagreement and
- e) Support any group member participation

##### 4. Creative thinking skill

Mc. Pherson in Hubeis states that creativity is the merging of knowledge gained by generating new things and producing ideas that surprise others in producing valuable things. Another definition is that creativity is the unification of knowledge from different fields of experience to produce better ideas.

Creativity is an inseparable part of human life. Because creativity is usually able to improve the quality and standard of life of individuals. According to Nasrul Aidi et al., creativity is part of the mental activity that a person has. Creativity is an idea or action from which action produces a change in life by discovering new things. So, the role of a teacher in the learning process is to guide or facilitate students to bring out or develop student creativity.[5]

The aspects that must be met in creative thinking, among others:

- a. Open attitude
- b. The courage to be different from usual.
- c. Mastering one area very well
- d. Buying low, selling high: Seeing something that many people do not like, then processing it and resurfacing it into something different at the right time so it is of high value.

Based on the description above, student creativity is the ability possessed by students or students to create something valuable for themselves and others.

#### B. Science Technology and Society Approaches

The learning method of science, technology, and society is a learning method that varies the situation of daily life, where its application is through solving problems related to everyday life.[6] Science in question is science that comes from the fields studied. At the same time, technology is a manifestation of scientific concepts that have been studied, from products created by the community to increase efficiency in carrying out daily activities.

This science and technology learning model is a learning model that relates to everyday life or in the surrounding

environment and is also suitable to be applied to lessons that solve problems related to everyday life, where during the process, students better understand the function of what the teacher assigns. In using the science-technology learning model, society must be balanced with students' previous knowledge so that students can relate the material taught by their teachers to everyday life. The components possessed by the science, technology, and society learning methods, among others

#### 1. Skills

This is demonstrated through arguments and examples that encourage scientific reasoning—increased student motivation through emotional exploration and values in the relationship of data and facts. The strategy offerings on offer give a fundamental understanding of the thinking patterns of peers and others.

The relationship between these sections is the relationship between science and technology, the relationship between technology and society, and the relationship between science and society, namely:[7]

##### 1. The relationship of science with technology

The existence of science and technology has an important role, especially in the world of education. This can be seen by the existence of a scientific basis that explains the concept. At the same time, technology is a person's skill because of the concept that technology appears. Therefore, with technology, one needs to understand science concepts.

##### 2. The relationship of technology with society,

Individual creativity provides essential things related to the results of their creation in the form of technology. This can be seen from the socio-economic influence of the community that offers all technological advances. Moreover, and vice versa, technology changes people's behavior, namely lifestyle, politics, and welfare caused by technology.

##### 3. The relationship of science with society

Science is a guide for humans regarding their contribution to creating the welfare of society. The steps of this STM learning approach, among others:[8]

1. The apperception stage begins with presenting actual issues or problems in society, and students can observe them.
2. Then, the concept formation stage, where students can build their knowledge by making observations, experiments, discussions, and others.
3. The problem-solving stage analyzes the issues or problems described at the beginning of learning based on previous concepts.
4. The stage of strengthening concepts, namely, educators can reinforce concepts that have been put forward to avoid misunderstandings.
5. Evaluation stage: At this stage, the use of portfolio or personal data of students is highly recommended.

### C. Learning Outcomes Concept

Learning outcomes are experiences that students have gained after they receive learning. Febryananda's statement that learning outcomes are mastery obtained by a person or student after students absorb the learning experience.[11]

According to Hamalik, learning outcomes appear as changes in behavior in students, which can be observed and measured in the form of changes in knowledge, attitudes, and skills. These changes can be interpreted as improvements and better development than before, for example, from not knowing to knowing, impolite attitude to polite, and so on.[9]

Bloom's view provides a broad opinion in the form of learning outcomes that are behavior change, which includes three domains, namely cognitive, affective, and psychomotor. The cognitive domain includes learning objectives related to knowledge, intellectual development, and skills. The affective realm includes learning objectives that explain changes in attitudes, interests, and values. The psychomotor realm includes behavioral changes that indicate the student has learned specific physical manipulative skills.[10] In the national education system, the formulation of educational goals, both curricular goals and instructional goals, uses the classification of learning outcomes from Benjamin Bloom.[11]

According to Nasution, learning outcomes are experiences gained by students, including the cognitive domain, affective domain, and psychomotor domain. Meanwhile, according to Eko Putro, Widoyoko said that changes resulting from learning can be divided into output and input. Output is a skill mastered by students that can be immediately known after following a series of learning processes, or it can be referred to as short-term learning outcomes. Learning outputs can be divided into hard skills and soft skills.[12]

Hard skills are learning outcomes that are relatively easy to measure through assessment. Hard skills are divided into two, namely academic skills and vocational skills. Academic skills are the ability to master various concepts in the fields of science studied, such as the ability to define, calculate, explain, describe, classify, identify, describe, predict, analyze, compare, distinguish, and draw conclusions from various concepts, data, and facts related to the field of study or subjects studied. Vocational skills are often referred to as vocational skills, which are skills related to specific fields. For example, in the field of art and wood carving crafts, the field of screen printing includes vocational skills, including the ability to move images onto transparent materials according to the number of colors used, the ability to apply light-concentrated drugs on the screen to produce images with good results, and so on.[13]

Soft skills are strategically needed to achieve success in life and life in society. This skill is quite difficult to measure compared to academic and vocational skills. Soft skills can be divided into two, namely, personal skills and social skills. *Personal skills* are skills that are necessary for students to exist and be able to take positive opportunities in rapidly changing life conditions. Personal skills include speed of adaptation, speed of critical and creative thinking, problem-solving skills, high morale, honesty, toughness, and so on. *Social skills* are skills needed to live in a multicultural society, a democratic society, and a global society full of competition and challenges. Social skills include the ability to communicate with empathy, both orally and in writing, and the ability to cooperate with others.[13]

Based on the above opinion, it is concluded that learning outcomes are the impact obtained from the learning process. The results obtained are short-term in class and long-term in life. Learning outcomes can be students' knowledge, attitudes, and skills in the field they understand. These three aspects will change if the learning process is carried out correctly, with examples from not knowing to know.

II. METHOD

The method in this study used by researchers is experimental research. Experimental research is research that has the aim of knowing the success of "something" to investigate a subject by examining whether there is a causal relationship. Causal relationship. The way this is done is to compare one or more experimental group data that were treated with one or more comparison groups that did not receive treatment.[14]

Based on the problem studied, the experimental design used is Pre-Experimental. The population used is five schools located in each sub-district in the western part of Jember Regency, including SMPN 1 Semboro, SMPN 1 Bangsalsari, SMPN 1 Sumberbaru, SMPN 4 Tanggul, and SMPN 1 Rambipuji. The class that researchers take as an experiment is class VIII. Then, the population in this study was 1 class from each school, including SMPN 1 Semboro, SMPN 1 Bangsalsari, SMPN 1 Sumberbaru, SMPN 4 Tanggul, and SMPN 1 Rambipuji.

Table 1. Research Population

No.	Kelas/sekolah	Jumlah
1.	SMPN 1 Semboro	32
2.	SMPN 1 Bangsalsari	28
3.	SMPN 1 Sumberbaru	30
4.	SMPN 4 Tanggul	32
5.	SMPN 1 Rambipuji	32
	Total	154

Sampling in this study uses purposive sampling techniques, namely sampling by determining specified criteria so that only some population members have the opportunity. The criteria taken with the highest average score and from both classes are active and responsive when learning are in Tables 2 and 1.

Researchers collect through documentation. The documentation is in the form of the number of participants, learning outcome tests, and report card scores. Then, researchers use instrument validation in two ways, namely rational validity and question item validity.

III. RESULTS AND DISCUSSION

Researchers carried out this research to determine the effectiveness of the Community science technology model in developing 4c competencies and student learning outcomes in social studies learning at MGMP IPS in the west Jember region. The schools consist of SMPN 1 Semboro, SMPN 1 Bangsalsari, SMPN 1 Sumberbaru, SMPN 4 Tanggul, and SMPN 1 Rambipuji. So, at this stage, the researcher initially looks at the value obtained by students to see whether they have met the KKM value. The KKM scores obtained by students, especially in social studies learning, still look less fulfilling, and students' 4C skills still need to be achieved.

Table 2. Distribution of Populasi Student Report Card Value

No	Nilai	A	Nilai	B	Nilai	C	Nilai	D	Nilai	E
1	75-77	9	75-77	9	75-77	8	75-77	8	75-77	10
2	78-80	7	78-80	7	78-80	7	78-80	6	78-80	5
3	81-83	8	81-83	3	81-83	5	81-83	7	81-83	7
4	84-86	3	84-86	6	84-86	6	84-86		84-86	6
5	87-89	4	87-89	0	87-89	2	87-89	3	87-89	3

Information:

- SMPN 1 Semboro : A
- SMPN 1 Bangsalsari : B
- SMPN 1 Sumberbaru : C
- SMPN 4 Tanggul, : D
- SMPN 1 Rambipuji : E

In the 21st century, the learning model has criteria for integrating technology in the learning process and community skills, thus creating an active learning climate and developing students' potential. Moreover, therefore, the variables used in this study are independent and dependent. The independent variable in this study is the Community Science Technology Learning Model STM) (X), and the dependent variable is 4C and learning outcomes.

If the instrument is declared valid, it will be tested in one of the classes. Then, if it has been tested, it can be interpreted that the instrument is feasible and can be used in the control and instrument classes.

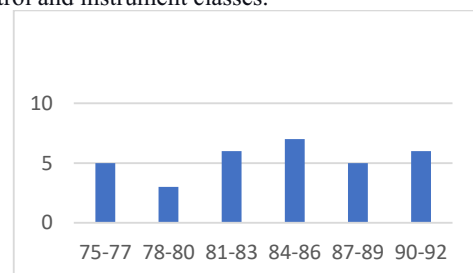


Figure 1. Learning outcomes diagram

In the next stage, in the experimental class using the science technology model, the community was given treatment, showing that the value obtained was increasing.



This is shown in the diagram of the increasing number of students who get scores above KKM.

Groups	Count	Sum	Average	Variance
kelas kontrol	4	315	78,75	8,916667
kelas eksperimen	4	336	84	58

Figure 2. Hypotesis Results

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	55,125	1	55,125	1,647572	0,246631	5,987378
Within Groups	200,75	6	33,45833			
Total	255,875	7				

Figure 3. Anova Test Results

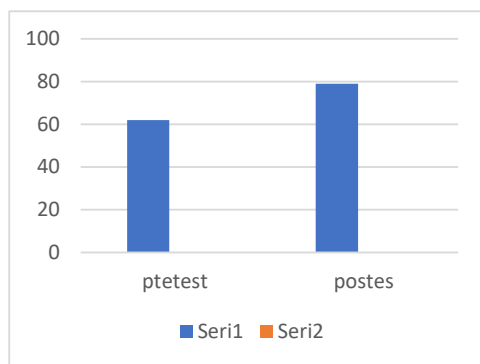


Figure 4. 4C Skills

Therefore, the use of the Society's science and technology approach is effective in developing 4C skills and learning outcomes in two classes that become experimental classes. In the experimental class, researchers gave treatment with a value of  $<0.05$ , then  $H_0$  was rejected, and  $H_a$  was accepted. The results of the analysis above show differences.

In the table, the experimental class treated with the Community Science and Technology approach made students more active because each team worked together. The results of the community's science and technology approach produce wise actions to develop 4C skills and learning outcomes that meet the KKM.

#### IV. CONCLUSION

Based on the results of data analysis and discussion, several conclusions can be drawn. Namely, there is an increase in learning activities when students get treatment such as a good response from them, which can be shown from the active activities of students. Because students are not just listening, but there is development in themselves. Therefore, the treatment applied above can develop 4C skills and learning outcomes.

Then, the results of hypothesis testing regarding the average difference in student learning outcomes between the

control class and the experimental class are evidenced by the difference, which means that the scientific technology and community approaches provide improved learning outcomes.

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