ISSN 2303-0992
ISSN online 2621-3176
Matematika dan Pembelajaran
Volume 9, No. 1, June 2021, h. 31-42

APPLICATION OF THE ASSURE LEARNING MODEL ON GEOMETRY

Patma Sopamena[1], Ayani Lifumangau[2], Syafruddin Kaliky[3], Fahruh Juhaevah[4], Nurlaila Sehuwaky[5], Nurlaila Sopamena[6]
[1,2,3,4,5,6] *Institut Agama Islam Negeri Ambon*

Patma.sopamena@iainambon.ac.id

Abstract

This study aims to describe the activities carried out by students and teachers in the learning process and improving student learning outcomes after the learning process through the ASSURE model. This research classifies as a classroom action research with a mixed-method approach, namely, descriptive qualitative and quantitative approaches. The research subjects were 30 students of class VII-5 MTs Negeri Ambon. The problem that occurs in MTs Ambon, teachers have not utilized the IT facilities in the school to the maximum and there is still teacher-centered learning that has a low impact on students' activities and learning outcomes. This research was conducted in II cycle, because from the results of reflection of cycle II, in the learning process there are no more significant weaknesses and have met the established indicators of success, namely 75%. The results showed that student learning activities before the cycle action had not been seen, such as not paying attention to the teacher's explanation, embarrassed to ask or answer, and the work results to solve the questions given still relying on the answers of their friends. After the cycle action showed an increase in student activity, among others, students focused more on listening to the teacher's explanation, began to dare to ask questions, opinions, or answers, and began to be confident in their work. Also, there was an increase in student test results. Before the action of the pre-test results, the mean score of the students was 25.90. After the action, the students 'average score in the first cycle was 62.07, and in the second cycle, the students' average score was 89.99.

Keywords: aplication; ASSURE learning model; geometry.

Citation: Sopamena, P., Lifumangau, A., Kaliky, S., Juhaevah, F., Sehuwaky, N., Sopamena, N. 2021. Application of the Assure Learning Model on Geometry. *Matematika dan Pembelajaran*, 9(1), 31-42. DOI: http://dx.doi.org/10.33477/mp.v9i1.1725

INTRODUCTION

Education in the era of industrial revolution 4.0 currently very much depends on the quality of human resources, both students and educators, as a component of education. Technology, as one of the media in delivery information to the public, is not new anymore. Therefore its use needs to be balanced with the knowledge of the people who use it. The use of technology is also felting in remote areas, especially information technology. ICT is an essential medium in

today's learning process. However, many teachers still lack technology. Gogot Suharwoto, as Head of the Center for Information and Communication Technology for Education and Culture (Kapustekkom) of the Ministry of Education and Culture, only 40% of teachers are ready with technology other than technology information and communication (TIK) teachers (http://jejakrekam.com/2019/03/19/hasil-survei-pustekkom-60-persen-guru-di-indonesia-gagap-teknologi-informasi/). Aspects of teacher competence that must be possessed apart from ICT are pedagogical competence and social competence.

Furthermore, the success of students in learning is the obligation of the teacher. Therefore, teachers should be able to make a systematic learning design from planning to implementation. The development of science and technology at this time should be used as an opportunity to realize more effective and efficient learning.

Based on observations made that in Ambon State MTs, teachers have not utilized the IT facilities in the school to the maximum and there is still teacher-centered learning that has a low impact on students' activities and learning outcomes. One of the learning designs that can be done to solve this problem that has systematic planning and involves current technology media is the ASSURE learning model.

The ASSURE model (**A**nalyze learner characteristic, **S**tate standard, and objective, **S**elect method, technology, media, and materials, **U**tilize media and materials; **R**equires learner participation and **E**valuate, and revise) is a procedural learning model that is building to create an effective and efficient learning program (Heinich, Molenda, Russell, & Smaldino, 2002); (Sidiroglou et al., 2009). This ASSURE model was developed by Sharon Smaldino et al. (Heinich et al., 2002; (Sharon E. Smaldino, Deborah L. Lowther, Clif Mims, 2010). This model is orienting towards the use of media and technology in creating expected learning activities. The utilization of media and technology appropriately and adequately will encourage students to learn effectively. The ASSURE model is a generic model that has stood the test of time. However, to strengthen its existence,

it needs to be proven empirically to test the effect and differences in student learning outcomes.

Teaching design is also known as "art" because it deals with creativity and demonstrates a designer's talents and abilities. *Instruction design is a set of rules or procedures, you could say, for creating training that does what it is supposed to do* (Piskurich, 2016). Based on the practitioner's point of view, according to Daesang Kim & Steve Downey, the ASSURE model is a practical and easy-to-implement approach to integrating technology into classroom instruction (Kim & Downey, 2016). Each model provides a substantial contribution and guidance in the teaching process, depending on the needs, goals, and teaching settings (Ibrahim, 2015).

Furthermore, studies on the application of the ASSURE learning model that has been carrying out include several categories, including: first, the type of mathematical communication skills (Faryadi, 2007; Sezer, et al., 2013; Sundayana, et al., 2017). Sundayana said that the increase in students' mathematical communication skills using the ASSURE learning design was better than using conventional learning designs. The ASSURE model is very learner-centered. Unlike many other design models, the ASSURE model uses cognitive learning theory as its foundation. The objectives of the ASSURE model are to characterize learners, obtain stated goals, and select the best media and materials for the teaching program (Sezer, Karaoglan Yilmaz, & Yilmaz, 2013).

According to the ASSURE Instructional Design Model, the designer must follow the following essential criteria: (1). Analysis: the instructor must study the students before designing a conception. Learners' skills, prior knowledge, attitudes, age, class, and learning style must be considering. (2). Statement of the Objectives: Learning objectives must be clear and sound. The instructor must state what the learner will achieve in the end.

The most important objectives can be summarized as follows: goals about the target audience, their learning behavior, learning conditions such as tools, maps, dictionaries, note-taking, and the level of proficiency of the learner to

qualify for the next. (3). Selection of Media: Relevant media and content such as sound, graphics, text animation, and video must be selected for effective learning outcomes. (5). Require Learners Performance: involves the participation of students in learning. (6) evaluation and revision: evaluation and revision (Sharon, et al., 2010). Furthermore, this study uses class action research, as the research conducted by (Capobianco & Ní Ríordáin, 2015; (Mandouit, 2018).

Studies on instructional design and its use, such as the use of UDL, have been widely researched (Rappolt-Schlichtmann et al., 2013)(Park, 2019). Several researchers have also examined the ADDIE design (Molenda, 2003); (Schott & Seel, 2015). Another learning design used is Design Heuristics (Bray & Tangney, 2016). Based on these studies, no one has researched the application of learning design using ASSURE to improve students' learning outcomes.

This study aimed to describe student learning outcomes through the application of the ASSURE model. The mathematical material discussed in this study is rectangular material. Description of student learning outcomes through the use of the ASSURE model, including:

1. Activities were carried out by students and teachers in the learning process
2. Improved student learning outcomes after the learning process through the ASSURE model

This study's basic assumption is that there is an increase in student learning outcomes using the ASSURE learning model.

METHOD

This study begins with a question: Can the ASSURE teaching model's application improve student learning outcomes in rectangular material?. So the purpose of this research is to describe the activities carried out by students and teachers in the learning process and improve student learning outcomes after the learning process through the ASSURE model.

This research was conduct at MTs Negeri Ambon. MTs Negeri Ambon was chosen because the authors found several problems, such as low student

learning outcomes. teachers have not utilized the IT facilities in the school to the maximum and there is still teacher-centered learning that has a low impact on students' activities and learning outcomes. The implementation of ASSURE learning model is very possible to minimize problems in the MTs Negeri Ambon.

This can be seen when completing the practice questions as an evaluation of the end of the material. Most of the students have not been able to complete it. Some students are unable to explain their answers well because they are not answers themselves. Also, the teacher's learning has not attracted students' attention; that is, when the learning process takes place, some students are not enthusiastic about learning.

This research is classifying as a classroom action research. This research follows the characteristics or characteristics of classroom action research, namely, a collaborative study between researchers and teachers in the classroom with qualitative and quantitative approaches (Creswell, 2012). Classroom action research is practical research intended to improve classroom learning. This improvement effort is carrying out by taking actions to solve problems raised from teachers' daily activities in their classes. There are four steps in implementing this research, namely, planning, action, observing, and reflection (Creswell, 2012) and technical action research (Kemmis 2009).

This research's primary instrument is the researcher himself, who is equipping with supporting or complementary instruments in observation guides, camcorders, and cameras. The design of this research refers to the creation of classroom action research by taking several steps, including 1) identifying problems, 2) inviting teachers to research the problems found, 3) jointly observing and experiencing field notes, 4) collect research data, 5) analyze data, 6) develop action plans, 7) implement plans and reflections (Creswell, 2012).

The subjects in this study were 30 students of class VII-5 MTs Negeri Ambon, consisting of 17 female students and 13 male students. The data of this study were obtained from the results of observing actions and student learning outcomes. Data analysis was performed at the end of each cycle by comparing the

observation data and learning outcome tests, which then used to plan further actions. This research has two cycles (cycle I and cycle II). This study stopped at cycle II because based on the results of the reflection of cycle II has shown an increase in both teacher and student activity and student learning outcomes reached more than 75%, so it does not have to proceed to the next cycle. Quantitative data were analyzed using descriptive statistics. Meanwhile, qualitative data in the form of observations were analyzed using logical reasoning.

The design of this study refers to the design of class action research by doing several steps, among others: 1) identifying problems, 2) Inviting teachers to jointly conduct research on the problems found, 3) Conducting observations and field notes (experiencing), 4) collecting research data, 5) Analyzing data, 6) Developing action plans, 7) Implementing plans and reflections (Creswell, 2012). Data analysis is performed at the end of each cycle, by comparing observation data and test learning results, which are then used to plan their next actions. The research stopped when there has been an increase in teacher and student activity and student learning outcomes have reached 75%.

RESULT AND DISCUSSION

Pre Cycle Activities

In pre-cycle activities, the researcher made preliminary observations on the learning activity and the pre-test, which were intended as data to compare learning activities and student test results before and after the action. In this pre-test, the researcher gave one question, and from the results of the students' problem solving, the students' qualifications were as follows.

Table 1 Percentage of Pre-Test Score Qualifications

Value Interval	Frequency	Percentage (%)	Alphabet	Category
80 – 100	2	6,67	A	Very well
66 – 79	2	6,67	B	Well
56 – 65	-	0	C	Enough
40 – 55	1	3,3	D	Less

Value Interval	Frequency	Percentage (%)	Alphabet	Category
0 – 39	25	83,3	E	Failed
Total	30			

Based on the table above, there are 2 (6.67%) students who score very good (A), 2 (6.67) students get good category scores (B), 1 (3.3%) students get low grades (D), and 25 (83.3%) students obtained a failing degree (E) and not students who received a good quality (C). From the test results of all students, it was found that the students' average score was 25.90.

The implementation of learning with the ASSURE model, which has six steps, is divided into four stages based on classroom action research sets: **planning**, including the Analyze learner characteristic step, State standard and objective, and Select method, technology, media, and material. **Implementation**, including Utilize methods, media, materials, and requires learner participation. **Observation and reflection**, including the evaluation and production step. The description of the two cycles is as follows.

a. Cycle I

Based on the data from the implementation of cycle I obtained the findings that Students tend to be passive in learning, do not focus on listening to teacher explanations, are embarrassed to ask or answer, work results rely on peer answers. Researchers provide learning experiences by involving students using question and answer methods and exercises with PowerPoint media. Then proceed with the post-test I. with the results of the post-test students as follows.

Table 2. Presentation of Qualification for Post-Test Scores I

Value Interval	Frequency	Percentage (%)	Alphabet	Category
80 – 100	9	30	A	Very well
66 – 79	5	16,67	B	Well
56 – 65	5	16,67	C	Enough
40 – 55	6	20	D	Less
0 – 39	5	16,67	E	Failed
Total	30			

Based on the table above, there are 9 (30%) students who score very good (A), 5 (16.67) students get good category scores (B), 5 (16,67%) students get good category scores (C), 6 (20%) students get good category scores (D), and 5 (16,67%) students obtained a failing degree (E). From the test results of all students, it was found that the students' average score was 62.07.

Furthermore, based on observations and focus group discussions (FGD) in cycle I. Almost all of the teacher and student activity plans in the lesson plans were carried out well. The media and methods used to attract students' attention in learning, such as students who look enthusiastic during learning activities in the form of accepting the material presented, asking and answering direct questions, and working on the exercises given. Also, students are allowing asking questions about things that have not been understanding. From the student test results data at the end of the first cycle, it was obtained that the students' average score was 62.07. From this value, it can be said that there is an increase in student acquisition scores when compared with the previous students' average scores on the pre-test scores. This is in line with what previous research findings (Kim & Downey, 2016).

Based on the results of observations and FGD with collaborators found also some weaknesses as follows.

a. Researchers need to pay more attention to students when learning because some students are still less focused on learning.
b. In answering questions, students tend to answer together
c. The background on the PowerPoint slides uses too bright colors so that it looks dazzled by the students.
d. Researchers need to pay attention to or control some students who get shallow scores during the learning process.
e. From this cycle test data, it was obtained that the students' average score was 62.07. However, some students have not experienced an increase in learning outcomes tests.

From the results of the above reflections, this research is continuing to cycle II, which is intended to improve student learning outcomes further and improve things that are weaknesses in cycle I.

b. Cycle II

The implementation of the cycle I is the same as cycle II. However, in cycle II the researchers paid more attention to the weaknesses in cycle I. Based on the data from the implementation of cycle II obtained the findings that student like the appearance of attractive visual media, trying to convey questions, answer, or opinions, begin to be confident with their answers. Researchers provide learning experiences by involving students through question and answer methods and exercises with PowerPoint media. Then proceed with post-test II. The results of the students' post-test are as follows.

Table 3. Presentation of Qualification for Post-Test II Scores

Value Interval	Frequency	Percentage (%)	Alphabet	Category
80 – 100	24	80	A	Very well
66 – 79	4	13,3	B	Well
56 – 65	1	3,3	C	Enough
40 – 55	1	3,3	D	Less
0 – 39	-	0	E	Failed
Total	30			

Based on the table above, there are 24 (80%) students who score very good (A), 4 (13.3) students get good category scores (B), 1 (3,3%) students get good category scores (C), 1 (3,3%) students get good category scores (D), and not students who received a failing degree (E). From the test results of all students, it was found that the students' average score was 89.99.

Furthermore, based on the statements in cycle II, all teacher and student activity plans in the lesson plans can be implemented well. Researchers also pay attention to deficiencies in cycle I. Learning progresses well. Researchers encourage student activity in learning. The interaction between students and

researchers in education also looks better than previous cycle activities and a material presentation or learning according to time allocation. Also, from the data on student test results conducted at the end of the second cycle with the average overall score of 89.99, it can be said that there was an increase in the students' acquisition scores from the first cycle, namely the average score of the students was 62.07. Also, if viewed individually, there has been an increase in the test results' acquisition score. This is in line with what research findings from Daesang Kim & Steve Downey (Kim & Downey, 2016).

Based on the results of observations that have been made, some weaknesses in cycle I can be adequately resolved, as follows.

1) Students look more focused during learning and look more orderly in providing answers or opinions than cycle I.
2) The PowerPoint slide background has been improving with various dark colors, so it does not look glare.
3) Although not all students answered correctly on the given post-test II questions, their work results, on average, were able to use the concept as taught.

From the cycle II test data, the students' mean score was 89.99. When compared with the score of the cycle I, it can be said that there is an increase in the acquisition score of student test results. This is in line with what previous research findings (Kim & Downey, 2016). Similarly, in the learning process with the ASSURE learning model, the learning stages have been understood by the teacher when designing the learning. This is in line with research conducted by (Bayaga, Fountain, Young, DeMarte, & Bossé, 2019).

CONCLUSION

From the results of research and discussion, it can be concluding that the application of the ASSURE model (Analyze learner characteristic, State standard, and objectivity, Select method, technology, media, and material, Utilize method, media, and materials, Requires learner participation, and Evaluate and revise) on

rectangular material can improve student learning outcomes class VII MTs Negeri Ambon. The increase in learning outcomes is seen from the increase in activity and student test results before and after the action.

Before the action, students who show an active attitude towards learning are less visible, such as not paying attention to the teacher's explanation, embarrassed to ask or answer, and the work results in the form of solving the questions given still rely on the answers of their friends After the action shows an increase in student activity, students focus more on listening to the teacher's explanation, begin to dare to ask questions, opinions or answers and start to be confident with the results of their work. There was also an increase in student results. Before the action of the pre-test results, the mean score of the students was 25.90. After the action, the students 'average score in the first cycle was 62.07, and in cycle II the students' average score was 89.99.

REFERENCES

Bayaga, A., Fountain, C., Young, E. S., DeMarte, A., & Bossé, M. J. (2019). Mathematics Learning Through the Lens of Language Acquisition. *Lnternational Electronic Journal of Elementary Education*. https://doi.org/10.26822/iejee.2019155342

Bray, A., & Tangney, B. (2016). Enhancing student engagement through the affordances of mobile technology: a 21st century learning perspective on Realistic Mathematics Education. *Mathematics Education Research Journal*. https://doi.org/10.1007/s13394-015-0158-7

Capobianco, B. M., & Ní Ríordáin, M. (2015). Navigating layers of teacher uncertainty among preservice science and mathematics teachers engaged in action research. *Educational Action Research*. https://doi.org/10.1080/09650792.2015.1045537

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research. In *Educational Research*. https://doi.org/10.1017/CBO9781107415324.004

Heinich, R., Molenda, M., Russell, J., & Smaldino, S. (2002). The ASSURE Model. In *Instructional Media and Technologies for Learning*.

Ibrahim, A. A. (2015). Comparative Analysis between System Approach, Kemp, and ASSURE Instructional Design Models. *International Journal of Education and Research*.

Kim, D., & Downey, S. (2016). Examining the Use of the ASSURE Model by K–12 Teachers. *Computers in the Schools*. https://doi.org/10.1080/07380569.2016.1203208

Mandouit, L. (2018). Using student feedback to improve teaching. *Educational Action Research*. https://doi.org/10.1080/09650792.2018.1426470

Molenda, M. (2003). The ADDIE model. *Encyclopedia of Educational Technology, ABC-*

CLIO.

Park, K. (2019). *Digital equity and accessible MOOCs : Accessibility evaluations of mobile MOOCs for learners with visual impairments*. *35*(6), 48–63.

Piskurich, G. M. (2016). What Is This Instructional Design Stuff Anyway? In *Rapid Instructional Design*. https://doi.org/10.1002/9781119207528.ch1

Rappolt-Schlichtmann, G., Daley, S. G., Lim, S., Lapinski, S., Robinson, K. H., & Johnson, M. (2013). Universal design for learning and elementary school science: Exploring the efficacy, use, and perceptions of a web-based science notebook. *Journal of Educational Psychology*. https://doi.org/10.1037/a0033217

Schott, F., & Seel, N. M. (2015). Instructional Design. In *International Encyclopedia of the Social & Behavioral Sciences: Second Edition*. https://doi.org/10.1016/B978-0-08-097086-8.92032-4

Sezer, B., Karaoglan Yilmaz, F. G., & Yilmaz, R. (2013). Integrating Technology into Classroom: The Learner-Centered Instructional Design. *Online Submission*.

Sharon E. Smaldino, Deborah L. Lowther, Clif Mims, J. D. R. (2010). Instructional technology and media for learning. *Revista Mexicana de Investigación Educativa*.

Sidiroglou, S., Laadan, O., Perez, C., Viennot, N., Nieh, J., & Keromytis, A. D. (2009). ASSURE. *ACM SIGARCH Computer Architecture News*. https://doi.org/10.1145/2528521.1508250

Sundayana, R., Herman, T., Dahlan, J. A., & Prahmana, R. C. I. (2017). Using ASSURE learning design to develop students' mathematical communication ability. *World Transactions on Engineering and Technology Education*.