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Enhancing Students' Learning Ability Through the Picture and Picture Method in Teaching Information and Communication Technology

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A B S T R A C T

This study aims to improve students' learning outcomes in Information and Communication Technology (ICT) through the Picture and Picture learning model. The subjects of this classroom action research were 21 tenth-grade students of SMA Nasrani 3 Medan as recipients of the action, the ICT teacher as the implementer, a peer teacher as the observer, and the school principal as a data source. Data were collected through tests, observation, and documentation. The research was conducted in two cycles, each consisting of planning, action, observation, and reflection stages. The results showed that the application of the Picture and Picture model effectively improved students' ICT learning outcomes. This is evidenced by the increase in the average score from 70.88 before the action to 74.80 in the first cycle and 85.37 in the second cycle. In addition, the percentage of students achieving learning mastery increased from 34.28% before the action to 74.80% in the first cycle and 94.28% in the second cycle. The findings indicate that the Picture and Picture model encourages students to think more critically and engage more actively in solving learning problems.

1. Introduction

Learning is an interactive process involving students, teachers, and learning resources within a structured learning environment. According to Kumalasari (2013:3), learning is a method or process of facilitating students to learn, which is designed, implemented, and analyzed systematically so that learning objectives can be achieved effectively and efficiently. Sanjaya (2011:13–14) views learning as a complex system whose success can be measured from two perspectives: the product and the process. The product perspective emphasizes students' learning outcomes regardless of the learning process, while the process perspective values the educational experiences and development gained during the learning activities.

The implementation of the 2013 Curriculum in Indonesian high schools, including SMA Nasrani 3 Medan, has shifted the learning approach from teacher-centered to student-centered. While this shift is beneficial in encouraging active and independent learning, not all students are equally prepared or able to participate actively in the classroom. One of the key factors influencing learning success is the selection of an appropriate instructional model. Suprijono (2010) states that a learning model serves as a conceptual framework used to guide the planning and implementation of learning in the classroom.

Similarly, Joyce and Weil in Rusman (2014:144) describe learning models as plans or patterns that can be used to shape curricula, design learning materials, and direct classroom instruction or other learning environments.

Initial observations in a tenth-grade class at SMA Nasrani 3 Medan revealed that students' knowledge of computer hardware was still low. More than 50% of the 21 students had not met the minimum passing criteria (KKM), indicating that the current teaching methods were not effective. Additionally, the use of information technology-based learning media was still limited, reducing student engagement and understanding.

To address this issue, there is a need for innovation in delivering ICT learning materials, especially in the topic of computer hardware introduction. One proposed solution is the use of educational games as an interactive learning medium. Educational games have gained popularity in recent years because they combine entertainment and learning elements, making them a powerful tool to enhance student motivation and comprehension.

Based on this background, the researcher aims to design and implement an educational game as a learning medium for introducing computer hardware in ICT lessons for tenth-grade students at SMA Nasrani 3 Medan. By ensuring that the game is engaging, simple, and contains practical learning content, it is expected to improve students' understanding and positively impact their academic performance.

2. Research Methods

This study is a Classroom Action Research (CAR), which is a form of reflective inquiry conducted by teachers in their own classrooms with the aim of improving the quality of teaching and learning processes (Arikunto, 2010:130). The research was conducted at SMA 3 Nasrani Medan over two meetings, encompassing two cycles. Each cycle consisted of four stages: planning, action implementation, observation, and reflection.

The subjects of this study were 21 tenth-grade students in the first semester at SMA 3 Nasrani, consisting of 10 male and 11 female students. The students served as the recipients of the action, while the researcher acted as the teacher implementing the intervention. A peer teacher served as the observer, and the principal functioned as a key data source.

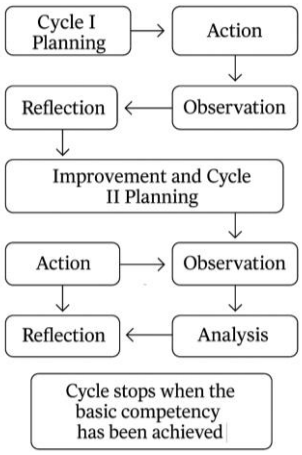

Figure 1. Classroom action research

Data collection methods included tests, observation, and documentation:

1. Tests were used to obtain data on students' learning outcomes in Information and Communication Technology (ICT) before, during, and after the implementation of the action.

2. Observations were conducted systematically by the observer using structured observation sheets to monitor the teaching process, student engagement, and the effectiveness of the Picture and Picture learning model.
3. Documentation was used to gather supporting data such as photos, class notes, and students' academic records, which contributed to the reflection and evaluation process.

The research instruments consisted of: (1) teacher and student observation sheets, (2) learning achievement test questions, and (3) documentation formats. The observation sheets were used as guides to systematically observe and record classroom activities, ensuring the action was implemented according to the planned procedures. The achievement test was used to measure students' mastery of the ICT concepts taught during the Picture and Picture model implementation. The test results were analyzed to evaluate the effectiveness of the instructional model in enhancing students' learning outcomes. The success indicators of this study were as follows:

1. the average test score of students reached a minimum of 80.00, and
2. at least 90% of students achieved scores equal to or higher than the Minimum Mastery Criteria (KKM), which was set at ≥75.00.

3. Results and Discussion

The preliminary observations conducted on Grade X students of SMA 3 Nasrani showed the following results in their final test.

Table 1. Pre-cycle data results

No	Type of research	Research results
1	Number of students	21
2	Complete	8
3	Incomplete	13
4	Completeness	32,40%
5	Average	59.99

Based on the pre-cycle learning outcomes of 21 students, only 9 students (34.28%) achieved the Minimum Mastery Criteria (KKM) score of 75, while 12 students (65.71%) did not meet the criteria. The class average was 70.88. During this phase, the teacher primarily used a lecture-based model, where students were only required to listen and take notes. The learning activities were conducted according to the Lesson Plan (RPP) over two meetings (2 × 90 minutes). The basic competency addressed in Cycle I was the topic of developed and developing countries in the world.

The lesson began with an introductory phase followed by the delivery of material using the Picture and Picture cooperative learning model. The steps of the Picture and Picture model were as follows: (1) Introduction – the teacher greeted the students, set the classroom atmosphere, checked attendance, conveyed the learning objectives, and motivated students; (2) Core activities – the implementation of the Picture and Picture model in which the teacher provided an individual quiz and rewarded groups based on the improvement of individual scores from the baseline to the quiz. The teacher also informed students of the material for the next meeting and concluded the lesson with a closing prayer.

Observations showed that the teacher conducted the lesson fairly well, with clear direction and objectives. However, during the implementation of the Picture and Picture model, some students were still not paying full attention and were engaged in off-task activities. Moreover, not all groups were able to engage in effective discussion. Despite these challenges, the evaluation results in Cycle I showed an improvement in student learning outcomes. The average score increased to 78.38, with 13 students (74.80%) achieving the KKM and 8 students (25.71%) still falling below the mastery criteria.

3.1. Results of Cycle I Research

Preliminary observations conducted on Grade X students of SMA 3 Nasrani revealed the initial research results on the students as follows.

Table 2. Results of cycle I research

No	Type of research	Research result
1	Number of students	21
2	Completed	13
3	Not completed	8
4	Completion	75%
5	Average	70,88

Based on the results of the observation, the overall implementation of the actions in Cycle I showed an improvement in students' learning outcomes. In this meeting, many students were able to answer the given questions correctly and accurately. Compared to the pre-cycle phase, only a portion of the students demonstrated increased participation, while others remained passive. Reflections on the factors contributing to the lack of student participation revealed: (1) Some students were still unable to follow the steps of the Picture and Picture cooperative learning model; (2) Group collaboration during discussions was not yet optimal; (3) Only certain students were able to understand the material and propose solutions to the problems given to each group. Learning activities were carried out according to the lesson plan over two sessions (2 x 90 minutes). After the perception phase, the material was delivered using the Picture and Picture model. In the implementation of Cycle II, the learning activities proceeded as follows: (1) The teacher briefly reviewed the previous material, then continued with the new topic using the same Picture and Picture cooperative model as in Cycle I. Based on observation results, the implementation of Cycle II indicated further improvement in student learning outcomes. In this session, many students could answer the questions accurately, and several actively asked questions and shared their ideas. Students also showed a good understanding of the material, which was evident in the way they completed the given tasks. The evaluation results in Cycle II demonstrated a notable improvement in students' academic performance, with an average score of 82.28. A total of 19 students (96.88%) achieved the minimum mastery criteria (KKM), while only 2 students (3.13%) did not meet the criteria.

3.2. Results of Cycle II Research

The observation results following the second cycle of research conducted on Grade X students at SMA 3 Nasrani indicate a significant improvement in student learning outcomes. The data collected from the second cycle of the study revealed that students showed better understanding of the subject matter and were more actively engaged in the learning process.

Table 3. Results of cycle 2 research

No	Type of research	Research result
1	Number of students	21
2	Completed	1
3	Not completed	2
4	Completion	95%
5	Average	80,00

Based on the observation activities, the implementation of actions in Cycle II showed a general improvement in students' learning outcomes. During this meeting, many students were able to answer the questions correctly and accurately. Several students actively asked questions and expressed their ideas. Students also demonstrated a better understanding of the material, as reflected in how they completed the exercises.

The evaluation results of Cycle II revealed a significant increase in student learning performance. The average score in Cycle II was 85.37, with 19 students (94.28%) achieving the Minimum Mastery Criteria (KKM), and only 2 students (5.71%) not reaching the KKM.

In comparison, after Cycle I, only a portion of students showed improved participation, while others remained passive. Reflections on the factors contributing to the lack of participation included: (1) Some students still struggled to follow the steps of the cooperative learning model "Picture and Picture"; (2) Group collaboration during discussions was not optimal; (3) Only certain students were able to fully comprehend the material and find solutions to the problems assigned to each group.

The learning activities were carried out following the Lesson Plan (RPP) over two sessions (2 x 90 minutes). After the perception-building phase, the teacher continued delivering the material using the "Picture and Picture" cooperative learning model. During the implementation of Cycle II, the learning process followed these steps:

1. The teacher briefly reviewed previously taught material and continued with new content using the same learning model applied in Cycle I.
2. The teacher provided practice questions utilizing the "Picture and Picture" cooperative model, followed by similar steps as conducted in Cycle I.

Overall, based on observation activities, it was found that students' learning outcomes improved significantly during Cycle II. Many students could correctly and confidently answer the questions, participate actively in class, ask questions, and express their ideas. Their ability to understand the lesson content was clearly seen through their performance in solving problems.

The evaluation results of Cycle II confirmed this progress, with an average class score of 85.37. A total of 19 students (94.28%) achieved the KKM, while only 2 students (5.71%) did not meet the required standard.

3.2. Student Learning Outcomes

The results of the overall research scores that have been conducted on class X students of SMA 3 NASRANI will be shown in the following graph.

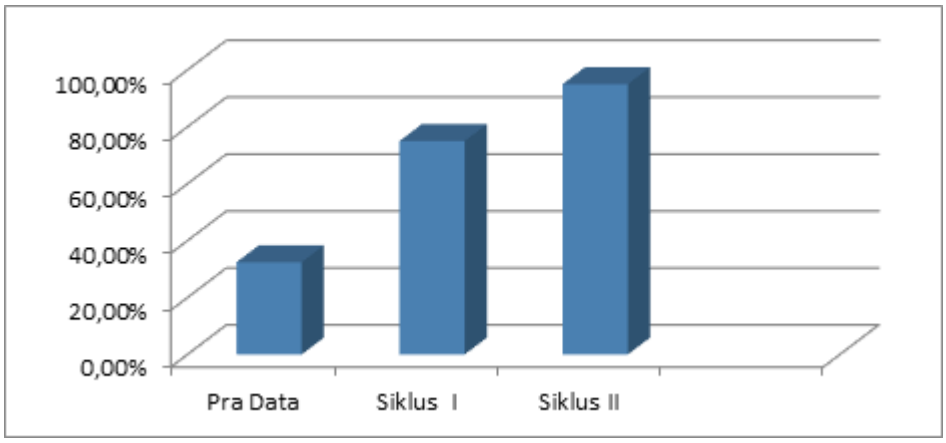

Figure 2. Student learning outcome graph

According to Kurniasih, Imas, and Berlin Sari (2015:44), Picture and Picture is a cooperative learning model that emphasizes collaboration among students through the use of images as instructional media. The application of an appropriate learning model is essential to encourage students to be more active, creative, and skilled during the learning process. Moreover, it enables teachers to effectively provide motivation to their students (Pratama, 2018).

4. Conclusion

The use of the cooperative learning model Picture and Picture has proven effective in improving the ICT learning outcomes of Grade X students at SMA 3 Nasrani. This is evident from the increase in the average student achievement scores, from 70.88 before the action, to 74.80 in Cycle I, and then to 85.37 in Cycle II. In addition, the percentage of students who achieved the minimum mastery criteria also showed a significant increase, from 34.28% before the action, to 74.80% in Cycle I, and finally to 94.28% in Cycle II. Based on these results, it is recommended that teachers at SMA 3 Nasrani apply the Picture and Picture learning model in ICT lessons to enhance student achievement. Students are also encouraged to be more active during the learning process, both individually and in groups, especially when participating in ICT classes using the Picture and Picture model. Moreover, the school is advised to support the implementation of innovative and engaging learning strategies by establishing policies that encourage teachers to consistently use creative models to improve students' academic outcomes.

References

Ariana, K. M., Agustini, K., & Sindu, I. G. P. (2019). Penerapan model pembelajaran kooperatif tipe Picture and Picture untuk meningkatkan motivasi dan hasil belajar pada mata pelajaran TIK di SMP Negeri 3 Seririt. *Jurnal Nasional Pendidikan Teknik Informatika* (JANAPATI), 8(2), 119–128.

Arikunto, S. (2005). *Manajemen penelitian*. Jakarta: Rineka Cipta.

Arikunto, S. (2013). *Dasar-dasar evaluasi pendidikan (Edisi revisi)*. Jakarta: PT Bumi Aksara.

Darwis, A. (2020). Improving social science learning outcomes by using the learning model Think Pair Share VIIB class students SMP 4 Tolitoli. *Jurnal Madako Education*, 6(1).

Darmadi, H. (2011). *Metode penelitian pendidikan*. Bandung: Alfabeta.

Golzar, H., Jamalong, A., Marlianto, F., & Kom, S. (2015). Penerapan model pembelajaran kooperatif tipe Picture and Picture pada materi menu dan ikon perangkat lunak pengolah kata untuk meningkatkan hasil belajar siswa kelas VIII MTs Muhammadiyah Tamang Sagang Kabupaten Sambas (Doctoral dissertation, IKIP PGRI Pontianak).

Gunadi, I. K. (2012). Pengaruh penerapan model pembelajaran kooperatif dengan teknik tutor sebaya berbantuan Picture and Picture terhadap hasil belajar TIK siswa kelas VII semester ganjil SMP Negeri 1 Sukasada. *KARMAPATI*, 1(3), 376–387.

Huda, M. (2011). *Cooperative learning*. Yogyakarta: Pustaka Belajar.

Indra, M. (2009). Pengertian dan definisi hasil belajar. Retrieved from http://indramunawar.blogspot.com/2009/06/hasil-belajar-pengertian-dan-definisi.html

Isjoni. (2010). *Cooperative learning: Efektivitas pembelajaran kelompok*. Bandung: Alfabeta.

Lenggogeni, L., & Ruqoyyah, S. (2021). Penggunaan media video animasi berbantuan Scratch melalui model pembelajaran Picture and Picture terhadap kemampuan berpikir kreatif siswa pada mata pelajaran IPA materi daur hidup hewan kelas IV. *COLLASE (Creative of Learning Students Elementary Education)*, 4(2), 249–256.

Malik, A. R. (2019, August). The influence of Instagram and auditory learning style on German language mastery in students of SMAN 1 Maros. In International Conference on Cultural Studies (Vol. 2, pp. 279–283).

Malik, A. R., & Asnur, M. N. A. (2019). Using social media as a learning media of foreign language students in higher education. *Bahtera: Jurnal Pendidikan Bahasa dan Sastra*, 18(2), 166–175.

Malik, A. R., Emzir, E., & Sumarni, S. (2020). Pengaruh strategi pembelajaran mobile learning dan gaya belajar visual terhadap penguasaan kosakata bahasa Jerman siswa SMA Negeri 1 Maros. Visipena, 11(1), 194–207.

Pratama, A., & Arga, H. (2020). Penerapan model pembelajaran Problem Based Learning untuk meningkatkan prestasi dan keaktifan belajar peserta didik pada mata pelajaran komputer dan jaringan dasar kelas X TKJ 1 SMK Negeri 1 Kemusu Boyolali. *Jurnal Pendidikan*, 3(c), 1–8.

Pustaka. (n.d.). Sunartombs: Faktor-faktor yang mempengaruhi hasil belajar. Retrieved from http://sunartombs.wordpress.com/2011/10/10/faktor-yang-mempengaruhi-hasilbelajar/html

Putera, P. C. C., Agustini, K., & Sugihartini, N. (2016). Studi komparatif penggunaan model pembelajaran Picture and Picture dan Example and Non Example terhadap minat dan hasil belajar siswa (Studi kasus: Kelas VII pada mata pelajaran TIK SMP Negeri 1 Sawan tahun pelajaran 2015/2016). *KARMAPATI*, 5(2), 420–429.

Sulfemi, W. B., & Minati, H. (2018). Meningkatkan hasil belajar peserta didik kelas 3 SD menggunakan model Picture and Picture dan media gambar seri. *JPsd (Jurnal Pendidikan Sekolah Dasar)*, 4(2), 228–242.

Suyono, & Hariyanto. (2011). Belajar dan pembelajaran. Bandung: Remaja Rosdakarya.

Trianto. (2007). *Model-model pembelajaran inovatif berorientasi konstruktivistik*. Jakarta: Prestasi Pustaka.