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Application of the Kumon Learning Model with Active Learning Strategies to Improve Learning Outcomes in Simulation and Digital Communication

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ABSTRACT

The application of the Kumon learning model with Active Learning Strategy aims to improve learning outcomes for students of class X AXIOO SMK N 5 Surakarta on simulation and digital communication. The research began because some students experienced difficulties in learning. This research took place in two cycles, data collection techniques which consisted of tests, observations, interviews, and documentation. Data validity test techniques which used data source triangulation techniques and triangulation methods. Quantitative descriptive analysis model was used to analyse the data. The improvement can be proven by the values of cognitive, affective and psychomotor aspects in each cycle. In the first cycle, the cognitive value of students reached 75% completeness, the completeness of students in the psychology value was 60.71%, while affective value reached 72% completeness, and final score 75 could be categorized as good. In the second cycle, the cognitive value increased 82.14% of completeness, while the psychomotor completeness was 85.71% and the affective value increased to 84% completeness and final score 90 can be categorized very well.

Keywords: active learning, classroom action research, kumon, learning outcomes, simulation and digital communication

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1. INTRODUCTION

In the process of teaching and learning in schools, the characteristics of various students can be found. There are students who are fluent in the learning process, succeed without experiencing difficulty, but on the other hand, there are also students who experience various difficulties in the learning process. Students' difficulties in learning are shown by the obstacles in achieving learning outcomes, and these obstacles can be sociological, physiological, or psychological (Agustin & Mubair, 2011), some examples can be taken, students have not optimized their potential, they are not confident yet in doing assignments, students are still passive in learning, moreover they have lack of focus in following the learning process. The lack of student focus in learning occurs because of things outside the lesson such as personal problems that make students feel uncomfortable to learn, besides there are students who do other activities outside of learning such as students who sleep in class and play cellphones during teaching and learning activities. Of the several factors that cause these problems, can trigger a lack of effectiveness in achieving learning achievement and the purpose of implementing learning.

Based on the results of preliminary observations carried out in SMK 5 Surakarta class X AXIOO on Digital Communication and Simulation subjects, student scores were still not maximal. It can be seen from the number of students who have a score under the KKM (Minimum Completion Criteria) that was determined, namely 76. Based on the conditions of pre-Cycle showed affective aspects or attitudes of students that 66,66% completeness and final score 70 can be categorized as less. Whereas for psychomotor or skill aspects, students' completeness scores were 48.15% or as many as 13 students who achieved KKM, while for class averages

75.92, on cognitive or knowledge aspects, student completeness values were 59.26% or as many as 16 students who reach KKM while for the class average 72.44 (Source: Observation Researcher, 2019).
The purpose of the Kumon learning model is to help children feel the experience, joy in learning and advancing with their own abilities. The Kumon learning model also aims to help the development of children to have a high spirit of learning and build strength to deal with problems that will be faced in the future (Global, 2018). The Kumon learning model is learning by linking within concepts, individual work, skills, and maintaining a comfortable-pleasant atmosphere (Himawati, 2014). By learning independently, the child's academic foundation will be strong, have a high level of work agility, increased perseverance and ability to concentrate or focus on the learning process. Besides that, the Kumon learning model will foster a sense of initiative within the child so that they can increase their creativity (Global, 2018). Ahmad Tafsir in (Sinar, 2018) Active Learning is referred to as a way of teaching and learning that optimizes student activity. Thus active learning (Active Learning) is a learning process with the intention to empower students to be able to learn using various methods or strategies actively.

Therefore, needs to make students more interested, active and skilled in learning Simulation and Digital Communication. More varied teaching strategies are needed, to improve student activity and the appropriate learning model is needed, one of the reference learning models that can be used by teachers is to use a combination of Kumon models with Active Learning Strategies

2. RESEARCH METHOD

This research is a classroom action research. This research is based on the model (Arikunto, 2006), was conducted in two cycles consisting of four stages: planning, implementation, observation, and reflection. Data collection techniques used in the form of tests, observations, interviews, and documentation. The data validity test technique uses data source triangulation techniques and method triangulation. The data analysis technique uses a quantitative descriptive analysis model. The study was conducted in class X AXIOO of SMK Negeri 5 Surakarta with 28 students in 2018/2019 academic year. Research performance indicators are measured by the value of affective, psychomotor and cognitive students, the number of students according to the action ≥ 80% of the total number of students. The action of the first cycle was carried out on February 20, 2019. At the stage of implementation of the action carried out the Kumon learning model with a mix of Active Learning Type Learning Starts with A Question (learning begins with questions) strategy as a learning model. The learning was done by teacher giving a bit of material and conducting question and answer with students. The students also got a worksheet and shall look for references from other sources. In the execution of duty every finish one point, the teacher would see the results of students. If it was appropriate, students might proceed to the next stage. From the planning agreed upon by the researcher and the teacher, the second cycle had three meetings; 6, 13, 20 March 2019. At the stage of implementing the action, the researcher was applying the Kumon learning model with the combination of the Active Learning Strategy type of Learning Starts with A Question (learning begins with questions) and Question Student Have.

Concept

Learning is effectiveness or psycho-physical activity that causes complete personal change, both changes in cognitive, affective, and psychomotor as a result of his own experience in interaction with his environment (Sardiman, 2004). Learning is the process, method, action of making people or living things learn. Previous def initiation states that a human person can see change happening but not learning itself (Robbin, 2007). The learning model is a conceptual framework that describes systematic procedures to achieve learning goals and as a guide for teachers in designing and implementing learning effectiveness (Malinda, 2018).

The Kumon learning model is an individual learning program, according to the abilities of each student, which allows students to develop their abilities to the fullest and explore their potential (Yuliasih, Widodo, & Makruf Akbar, 2018). According (Winarno, 2009) the syntax (steps) of the learning model with the Kumon model are 1) Submission of learning objectives and preparing students. 2) Briefly present the concept of initial knowledge. 3) Provide a worksheet or Student Worksheets (LKPD) carried out by individual students. 4) Educators immediately correct the worksheet that has been done by students, if the students' answers are correct then the educator provides a worksheet advanced which is more difficult than a worksheet Previously, if the student's answer was not correct, the educator would provide a worksheet with the same as the worksheet before until students work on a worksheet that correctly. Because there are so many students in correction worksheet assisted by students who have finished working on the worksheet by referring to the settlement book. 5) Five times wrong, educators then provide guidance. 6) Provision of expansion of independent training. Silberman in (Trianto, 2011) stated the application of active learning strategies can be classified into 3 parts, namely (a) how to help active students from the beginning of learning, for example by sudden assessment, with

constructive strategies, as well as direct involvement. (b) how to help students acquire skills, knowledge, and abilities to play an active role, such as classroom learning strategies, collaborating, class discussions and peer teaching, (c) how to make memorable or unforgettable lessons, such as self-assessment, review, and planning for the future. Active learning (Active Learning) is learning that directs students to actively learn. When they follow learning actively, it means they dominate activities in learning. Students actively use their brains to find the main idea from their subject matter, solve existing problems and apply what they have learned into a problem in real life (Hisyam, 2008). One strategy that can be used is using the type of Learning Starts with A Question (learning begins with questions). (Riswani & Widayati, 2012) this technique is possible to increase the activity of students in learning. According to (Silberman, 2013) the Active Learning type Question Student strategy Have is a way that doesn't make students afraid to learn what they need and expect.

Learning outcomes are a process to see the extent to which students can master learning after following the activities of the teaching and learning process, or the success achieved by a student after a learning process characterized by certain letters, numbers and symbols that have been agreed upon by the education authorities (Dimyanti & Mudjiono, 2006).

Simdig stands for Simulation and Digital Communication. Simdig is one of the subjects in Vocational High Schools (SMK). Simdig teaches how to explore ideas for solving problems related to products or services, looking for alternative solutions and communicating in the form of collaboration, so that Simdig becomes one life skill (SEAMOLEC).

3. RESULT AND ANALYSIS

3.1. RESULT

Pre-Cycle Data

Before carrying out the research activities, first make an initial observation to find out the learning in Simulation and Digital Communication subjects in class X AXIOO SMK N 5 Surakarta. This pre-cycle data will be used as a reference in planning actions to be taken by researchers and teachers. Pre-cycle conducted in the form of subject teacher interviews and some students of class X AXIOO who aimed to obtain information related to the situation of learning Digital Simulation and Communication in the class, as well as conducting classroom observations aimed at knowing student learning outcomes from cognitive, affective and psychomotor fields.

Based on the analysis of student learning outcomes from the cognitive, affective and psychomotor domains, it can be found that class conditions are not conducive, students are less active in learning, students are less enthusiastic about the teacher's learning, and student independence and learning outcomes are not maximal. From the results of affective domain observations, there are still many students who are not independent in working on individual test questions and are less independent in completing assignments. The results of observations in the affective domain of students carried out in pre-cycle, the final score of students' affective observations on pre-action students affective completeness 67% and final score students 70 can be categorized as less. The pre-cycle test results showed that from the psychomotor domain, students who scored above the KKM were 13 students (48.15%), from the cognitive domain there were 16 students (59.26%) scored above the KKM (Minimum completeness criteria), which is ≥ 76 while 11 students (40.74%) get scores under the KKM, student learning completeness can be presented in Table 1.

Student learning outcomes that are less than optimal in simulation and digital communication subjects need efforts to improve the value of affective, psychomotor and cognitive students. Efforts that can be applied to increase the potential and activeness of students are using learning media to attract students' attention in learning as well as applying the Kumon model and active learning strategies.

Table 1Completeness of Learning Outcomes on Pre-Cycle

Criteria	**Complete (%)**	**Uncomplete (%)**
Affective	67	33
Psychomotor	48	52

Cognitive	59	41

Result of Cycle 1

The application of the Kumon learning model with the Active Learning strategy begins with the teacher applying the Kumon model syntax, namely giving the material concisely, the teacher applies the Active Learning strategy, namely the type of Learning Starts with A Question students look for material references from other sources, the teacher provides worksheets to students. Every point from the worksheet that has been completed by the student will be checked by the teacher, if it is correct the student can continue to the next stage. For students who have completed the project can present the results in front of the class. In the first cycle students' attitudes are good, but in terms of activity need to be improved, students only answer the questions posed by the teacher, there are still many students who have not dared to ask independently about the difficulties experienced during the learning process. The value of students affective domain in the first cycle is 72% and final score 75. Although the value is good, It does not achieve the determined research indicators yet. Psychomotor learning outcomes are measured in three aspects, namely preparation, implementation and results of the project. In cycle I students who scored above KKM increased to 17 students and 11 students scored under KKM with percentages of completeness 60.71%. The teacher used media in the form of DSLR cameras and students could use alternately, students shall take a picture using their own most mastered technique. Even though it took a long time in learning, students were very enthusiastic and excited toward the learning process. First cycle, using quizzes, students are required to work on the questions independently, by working on questions based online that look like games, so students are more enthusiastic in working on test questions. Quizizz has motivational words and provides grades and rankings that are done in each question after it is answered. Those features can encourage students to do the questions seriously. Cognitive aspects of student learning outcomes increase to 75% of students who reach KKM. Although the number of students who completed it had increased, it had not reached the research performance indicators that had been determined yet, namely if the number of students who reached KKM was ≥ 80% of the total number of students.

The application of the Kumon learning model with the combination of Active Learning in the first cycle needs improvement. Some efforts to improve the process of further learning activities are: (1) Teachers need to explain the basic features of media being used before practice and help to guide students who have difficulty in using media. (2) Providing reinforcement, motivation and reward to encourage students to actively participate in expressing their opinions. (3) Optimizing the implementation of the Strategy for Active Learning type student questions and Learning Starts with A Question to make students dare to convey difficulties in learning. (4) Optimizing the potential of students by using student worksheets, as well as monitoring students periodically in project work. Completeness of learning outcomes cycle I can be presented in Table 2.

Table 2Completeness of Learning Outcomes on Cycle 1

Criteria	**Complete (%)**	**Uncomplete (%)**
Affective	72	28
Psychomotor	61	39
Cognitive	75	25

Result of Cycle 2

To correct deficiencies found in the first cycle, it is necessary to continue learning Digital Simulation and Communication in the next cycle, namely cycle 2. The second cycle has been done in two active learning strategies, namely Learning Starts with A Question (learning begins with questions) and Question Student Have. Those strategies make students brave to learn what they need and expect. This technique created participation through more writing rather than oral or conversation. Students' affective completeness was 84% and students' final score was 90. In the second cycle, the completeness of students has reached the determined research indicators. Based on the results of the second cycle of observation, the level of honesty, responsibility, discipline, activity, and student politeness can be categorized very well. In the second cycle, 24 students received grades above the KKM while 4 students received scores under the KKM with a percentage of

completeness of 85.71% in the second cycle as many as three meetings, students practice video editing using Vegas pro, so it was necessary to learn basic editing to manufacture. In cycle II, students are directed to learn from the new easy stages of the advanced editing process. Students begin to develop the skills of each meeting, because students should not only learning from the teacher but students are required to develop video editing skills by looking at the tutorial on the internet. Consequently, it will increase students independence in learning and can improve students' abilities in learning. The cognitive learning outcomes of students in the second cycle also used quizizz media for cognitive tests of students, and the results of the cognitive domain test f in the second cycle were 82.14% of students who reached KKM. It has fulfilled the determined success indicators so that the action is sufficient until cycle II. This shows the results of affective, psychomotor and cognitive learning Digital Simulation and Communication in class X AXIOO SMK N 5 Surakarta through the application of the Kumon learning model with a combination of Active Learning strategies increases, these can be presented in Table 3.

Table 3Completeness of Learning Outcomes on Cycle 2

Criteria	**Complete (%)**	**Uncomplete (%)**
Affective	84	16
Psychomotor	86	14
Cognitive	82	18

Comparison of Cycle Results

Based on the results of observation and data analysis, it can be concluded that there is an increase in student learning outcomes in each cycle. Comparison of student learning outcomes in learning Digital Simulation and Communication from pre-Cycle, cycle 1 and cycle 2 are presented in Table 4 and Graph 1.

Table 4Graph Improved Results Complete Action

Indicator observed	**Percentage Completed Learning Students (%)**		
Affective	**Pre-Cycle**	**Cycle 1**	**Cycle 2**
Affective	67%	72%	84%
Psychomotor	48%	61%	86%
Cognitive	59%	75%	82%

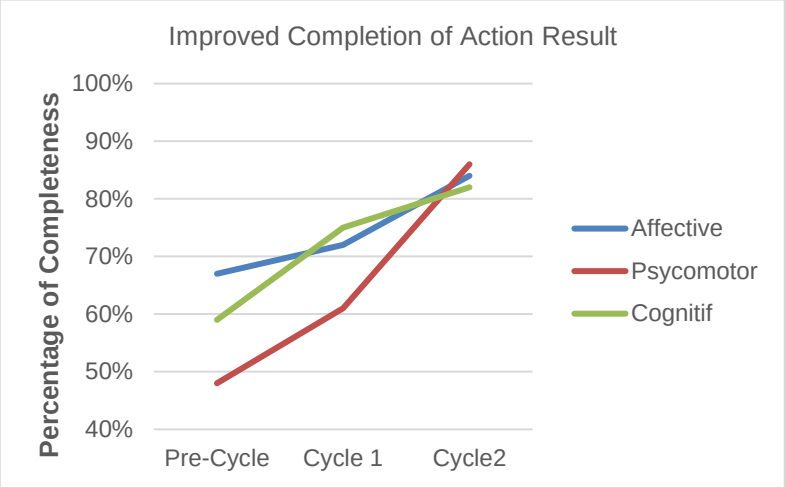

Figure 1Graph Improved Results Complete Action

3.2. ANALYSIS

After applying the Kumon learning model and the Active Learning strategy, student learning outcomes from the affective, psychomotor, and cognitive fields of students are increased. Students also pay more attention to the learning process because the learning process is coherent and provides more activity for students, so students have no time to do anything other than learning. As well as students may explore their potential and optimize their abilities because the use of appropriate learning media can increase students' enthusiasm in learning. Students are not only answering questions given by the teacher, but students also have the courage to express their opinions and the difficulties they experience so that the learning problems experienced by students can be solved by asking the teacher.

Student learning outcomes from the affective domain are measured by five aspects of attitude, namely honesty, responsibility, discipline, active, polite. In the first cycle, students' attitudes are classified as good, but in terms of activeness need to be improved because they are only answering the questions posed by the teacher, there are still many students who did not dare to ask independently about the difficulties experienced during the learning process. The value of students affective domain in the first cycle increased with the completeness 72% and final score 75, the value is classified as good, but it has not achieved the determined research indicators yet. For the second cycle, the active learning strategies are Learning Starts with A Question (learning begins with questions) and Question Student Have. It is a way to make students brave to learn what they need and expect. This technique created participation through more writing rather than oral or conversation. The value increased with the completeness 84% and the average final score of students is 90. In the second cycle, the completeness of students has reached the determined research indicators, Research by (Pratiwi, 2013) the results of the study indicate an increase in the activeness and learning achievement of students in mathematics learning. This can be seen from the indicators, namely: (1) asking questions before the action of 6.66%, after the action 50.00%, (2) working on the questions in front of the class before the action of 16.66%, after the action becomes 46.66 %, (3) answered the question before the action of 13.33%, after the action became 56.66%, (4) expressed the idea before the action of 3.33%, after the action became 16.66%, (5) the learning achievement of mathematics the final test increased from 30% to 76.66%.

Student learning outcomes from the psychomotor realm or skills are obtained from the practice value of students in the pre-cycle, cycle I, cycle II. Psychomotor learning outcomes are measured in three aspects, namely preparation, implementation and results of the project. In the practice, the percentage of students' psychomotor learning completeness was 46.43% with 13 students getting scores above the KKM and 15 students getting scores under the KKM. In the initial conditions, students were less interested in the learning media being used, so students were less enthusiastic in learning. In the first cycle students who scored above the KKM increased to 17 students and 11 students scored under the KKM with a percentage of completeness of 60.71%. In the cycle of 2 students who scored above KKM 24 students while 4 students got scores under KKM with a percentage of completeness of 85.71%. In cycle II, students are directed to learn from the new easy stages of the advanced editing process, students begin to develop skills at each meeting. Students should not only learn from the teacher but they are required to develop video editing skills by looking at the tutorials

on the internet. Consequently, it will increase students' independence in learning and can improve students' abilities in learning.

Student learning outcomes from the cognitive domain obtained from the results of the Pre-cycle test, cycle 1 and cycle 2, have improved through the application of the Kumon learning model and the Active Learning strategy. In the subject of Digital Simulation and Communication of SMK N 5 Surakarta, the minimum completeness criteria (KKM) 76 was set, the level of completeness of students at pre-cycle was still low at 59.26%. After carrying out the first cycle, using quizizz media, students are required to work on the questions independently. The cognitive learning outcomes of students in the first cycle increased to 75% of students who achieved KKM. In cycle 1, even though the number of students who completed it had increased but had not achieved the determined research performance indicators yet, namely the number of students who reached the KKM was ≥80% of the total number of students. In the second cycle, to measure the cognitive learning outcomes of students also used quizizz. The results of cognitive domain tests in the second cycle were 82.14% of students who achieved KKM. When associated with the research conducted by (Nanda, 2015) the results of the study show that the average learning outcomes of students using the Kumon learning model on subjects of class X Accounting KKPI of Self-Reliance Vocational Schools in Semarang City show the average student learning outcomes in the experimental group of 89.1764 while for the control class has an average learning outcome 73.

4. CONCLUSION

Based on the results of classroom action research conducted in two cycles by applying the Kumon model and the Active Learning strategy in Digital Simulation and Communication subjects in class X AXIOO SMK N 5 Surakarta outcomes in Cycle I, the final score of affective observation is 75 categorized as good, the percentage of student completeness became 72%. Aspects that are valued are honest, responsible, disciplined, active and polite. The activeness aspect still needs to be improved. Cycle 2 applies two types of Active Learning strategies, namely Learning Starts with A Question and Question Student Have, the students affective value increases to 90, can be categorized very well. The percentage of student completeness became 84%. The percentage of psychomotor domain mastery or pre- cycle skills was 48.15%, the percentage of student completeness is 60.71% in cycle 1, while in cycle 2 the percentage of completeness of students' psychomotor values became 85.71%. Cognitive or knowledge learning outcomes, in the pre-cycle the percentage of students completing 59.26%. The percentage of student's completeness was 75% in cycle 1 and the second cycle became 82.14%. Because of the significant improvement in the second cycle, so the research is enough until this cycle. Learning with the Kumon model and the Active Learning Strategy requires more time in learning so that further research is expected to more attention to research time. The time of research is expected not to be carried out during solid school activities and the need for time management in learning. Further research can also combine the Kumon model with other learning strategies.

REFERENCES

[1] Agustin, & Mubair. (2011). *Permasalahan Belajar dan Inovasi Pembelajarn: Panduan untuk Guru, Konselor, Psikolog, Orang Tua, dan Tenaga Kependidikan*. Bandung: PT Refika Aditama.

[2] Arikunto. (2006). *Prosedur Penelitian*. Jakarta: Rineka Cipta.

[3] Dimyanti, & Mudjiono. (2006). *Belajar dan Pembelajaran* (3 ed.). Jakarta: Rineka Cipta.

[4] Global, K. (2018). *Apa Itu Metode Kumon? (online)*. Retrieved from www.id.kumonglobal.com

[5] Himawati, H. (2014). Peningkatan Hasil Belajar Siswa Kelas X A pada Kompetensi Dasar Jurnal Umum Perusahaan Jasa Melalui Metode Pembelajaran Kumon Berbantuan Modul "General Journal Training Module" Di SMK NU Wahid Hasyim Talang Kabupaten Tegal Tahun Ajaran 2013/2014. *Economic Education Analysis Journal, 3*, 52-59.

[6] Hisyam, Z. (2008). *Strategi Pembelajaran Aktif*. Yogyakarta: Pustaka Insan Madani.

[7] Malinda. (2018). *Penelitian Tindakan Kelas (PTK) Guru Ekonomi SMA Versi 01: Penerapan Model Pembelajaran Problem Based Learning (PBL) Mata Pelajaran Ekonomi Kelas XII SMA*.

[8] Nanda. (2015). *Implementasi Pembelajaran Kumon Sebagai Upaya Peningkatan Hasil Belajar Siswa pada Mata Pelajaran KKPI Kelas X Akuntansi SMK Swadaya Kota Semarang.*,

[9] Pratiwi, M. (2013). *Penerapan Strategi Pembelajaran Question Student Have Sebagai Upaya Meningkatkan Keaktifan dan Prestasi Belajar Peserta Didik dalam Proses Pembelajaran Matematika (Ptk Kelas Viib Mts Al-Ishlah Pulokulon Semester Genap Tahun Ajaran 2012/2013).* Universitas Muhammadiyah Surakarta, Surakarta.

[10] Riswani, E. F., & Widayati, A. (2012). Model Active Learning Dengan Teknik Learning Starts With A Question Dalam Peningkatan Keaktifan Peserta Didik Pada Pembelajaran Akuntansi Kelas Xi Ilmu Sosial 1 Sma Negeri 7 Yogyakarta Tahun Ajaran 2011/2012. *Jurnal Pendidikan Akuntansi Indonesia, X*.

[11] Robbin, S. (2007). *Perilaku Organisasi, Buku I* (D. Angelica, Trans.). Jakarta: Salemba Empat

[12] Sardiman, A. (2004). *Interaksi dan Aktivitas Belajar Mengajar*. Jakarta: Grafindo Persada

[13] SEAMOLEC. *SIMDIG*. Retrieved from https://www.seamolec.org/simdig

[14] Silberman, M. L. (2013). *Active learning : 101 cara belajar siswa aktif*. Bandung: Nusamedia & Nuansa Cendekia

[15] Sinar. (2018). *Metode Active Learning*. Yogyakarta: Budi Utama. Trianto. (2011). *Mendesain Model Pembelajaran Inovatif-*

Progresif. Jakarta Kencana Prenada Media Group
[16] Winarno, A. N. (2009). *Pengembangan Model Pembelajaran Langsung dengan Metode Kumon Pokok Bahasan Komposisi, Fungsi, dan Invers Fungsi di MA Kabupaten Ngawi Surakarta.* UNS, (34)
[17] Yuliasih, R., Widodo, S. E., & Makruf Akbar, M. P. (2018). Evaluation of Implementation Kumon Method. *International Journal of Advanced Engineering and Management Research*, *3*(3), 210-226