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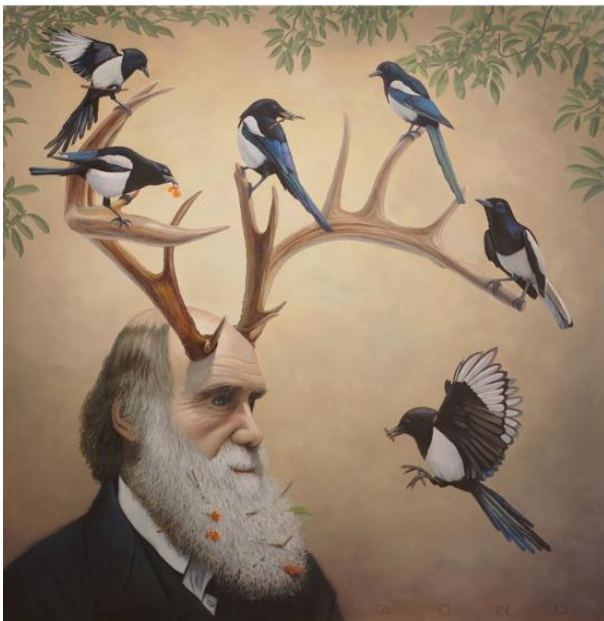
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The Comparison Of Study Results In Accounting Learning Through Inside Outside Circle (Ioc) And Two Stay Two Stray (Tsts) Teaching Method

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Abstract

This study aims to (1) analyze the difference between students' exam results in accounting subject using cooperative learning model Inside Outside Circle (IOC) type and Two Stay Two Stray (TSTS) type, and (2) to evaluate which of the corresponding methods yields better result. The method used was quasi-experimental research with control group; all two classes of eleventh-grade students of SMK Negeri 3 Balikpapan as subjects of the study of which method was cluster random sampling; the data were collected through test and observation, and the instruments' validity, reliability, differential strength, and difficulty level received decent result; prerequisite tests including the average balance, normality, and homogeneity adhered to the proper criteria; the data analysis technique used for determining the difference between TSTS and IOC models in learning results was the z test, while the t-test was implemented to prove the effectiveness of the TSTS model compared to the IOC model. The research result shows that (1) there are significant differences in students' learning results between the implementation of the IOC and TSTS models in accounting learning, indicated by the value of $Z_{score} = 2.090 > Z_{table} = 1.960$ and (2) students' learning results with the TSTS model are better than the IOC model, indicated by the value of $t = 2.090 > t_{table} = 1.960$. To sum up, there are differences in learning results between the IOC and TSTS models in accounting learning. The TSTS model is more effective than the IOC model in improving students' learning results in accounting learning.

Keywords: Accounting Learning Results, two stay two stray, inside outside circle

La comparación de los resultados del estudio en el aprendizaje de contabilidad a través del método de enseñanza Inside Outside Circle (IOC) y Two Stay Two Stray (TSTS)

Resumen

Este estudio tiene como objetivo (1) analizar la diferencia entre los resultados de los exámenes de los estudiantes en materia de contabilidad utilizando el modelo de aprendizaje cooperativo tipo Inside Outside Circle (IOC) y el tipo Two Stay Two Stray (TSTS), y (2) para evaluar cuál de los métodos correspondientes produce mejores resultados. El método utilizado fue la investigación cuasiexperimental con grupo control; las dos clases de estudiantes de undécimo grado de SMK Negeri 3 Balikpapan como sujetos del estudio cuyo método fue el muestreo aleatorio por conglomerados; los datos fueron recolectados a través de pruebas y observaciones, y la validez, confiabilidad, fuerza diferencial y nivel de dificultad de los instrumentos recibieron un resultado decente; pruebas de requisitos previos que incluyen el equilibrio promedio, la normalidad y la homogeneidad adheridas a los criterios adecuados; La técnica de análisis de datos utilizada para determinar la diferencia entre los modelos TSTS e IOC en los resultados de aprendizaje fue la prueba z, mientras que la prueba t se implementó para demostrar la efectividad del modelo TSTS en comparación con el modelo IOC. El resultado de la investigación muestra que (1) existen diferencias significativas en los resultados de aprendizaje de los estudiantes entre la implementación de los modelos IOC y TSTS en el aprendizaje de contabilidad, indicado por el valor de $Z_{score} = 2.090 > Z_{table} = 1.960$ y (2) los resultados de aprendizaje de los estudiantes con el modelo TSTS son mejores que el modelo IOC, indicado por el valor de $t = 2.090 > t_{table} = 1.960$. En resumen, existen diferencias en los resultados de aprendizaje entre los modelos IOC y TSTS en el aprendizaje de contabilidad. El modelo TSTS es más efectivo que el modelo IOC para mejorar los resultados de aprendizaje de los estudiantes en el aprendizaje de contabilidad.

Palabras clave: Resultados del aprendizaje contable, dos permanecen dos extraviados, dentro del círculo exterior

1. INTRODUCTION

Learning is an interaction process between students and teachers and study

material in a learning environment (Permendikbud No. 22, 2016). In a learning process, a teacher plays a role as both an instructor and an educator. Students are expected to have particular characteristics in terms of knowledge, ability, attitude, and values in that the learning process may run effectively and efficiently. Generally, it can be said that education is certain activities which may stimulate learning and development (Rahim, Syaifudin, & Nery, 2017: 40).

Accounting is one of the subjects taught in Vocational High School. It is crucial to master accounting as it is the main subject in finance administration. Students who learn accounting will be able to make financial accounting of an organization. Students must master the subject as a prerequisite to be awarded for exceptional achievement at graduation.

Ideally, accounting learning should be carried out in compliance with the 2013 Curriculum which emphasizes active learning concept. The highlighted learning model is actually based on constructivist learning theory. Learning models that can be implemented to teach accounting include discovery learning, problem-based learning, project-based learning, and inquiry learning. Learning can also be done with a scientific approach and other relevant learning models.

In fact, the implementation of active learning models in schools seems not to have satisfied the expected learning result yet. The learning result data shows that accounts receivable card material with the Cooperative learning model of Inside Outside Circle (IOC) type at SMK Negeri 3 Balikpapan only reached 55% of accomplishment. The students mostly said that the disinclination for accounting was based on an impression that it is difficult and frightening.

According to this context, it is necessary to choose other effective learning models for future improvement. Teacher can implement the Two Stay Two Stray (TSTS) cooperative learning. According to Huda (2011), the model emphasizes the concept of reciprocal visits to exchange information and knowledge that will increase students' understanding. The TSTS model was chosen as a comparison based on recommendations from the research conducted by Widiyastutik (2011) and Ulfah (2010). The TSTS learning model is also in compliance with the concept of active learning outlined in the 2013 curriculum and is in line with constructivist learning theories which emphasize interaction in learning (Schunk, 2015: 331)

This study would solve the following problems: (1) Are there any differences between the IOC type cooperative learning model and the TSTS type on students' learning results? (2) Which of the IOC type cooperative

learning model and TSTS type would give better learning result in learning accounting? This study focuses on (1) analyzing the differences in learning results between students using the cooperative learning model type IOC and TSTS type and (2) evaluating which characteristics of the two learning models generated better outcomes if applied in accounting learning.

The theoretical benefit of this research is to contribute to the development of the scientific field, particularly learning models. The practical benefits include motivating students to enjoy learning, inspiring teachers to apply innovative learning, and being referred to by schools which intend to improve their learning process, especially in accounting subjects.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Accounting Learning

Suprijono (2010:3) stated that learning is a psycho-physio-socio activity towards complete personal development. However, some people understand that learning is a process of gaining knowledge. This opinion is not entirely wrong because in learning there is a process of knowledge transfer from teachers to students.

According to Baharudin and Wahyuni (2012: 16), learning involves abstraction as it can only be observed if any change is identified in someone's behaviour including three areas namely attitudes, knowledge, and skills. The changes in students' attitudes or behaviours are characterized by positive attitudes in social and spiritual aspects; changes from not knowing to knowing and from unskilled to skilled according to the competencies in the subject.

Accounting is a subject taught in school. Accounting lessons require students' ability to count. Counting is anything related to the pattern of rules and how the rules are used to solve various kinds of problems (Ismayani, 2010: 20). Jannah (2011: 17) argued that arithmetic is the exact science of calculating numbers to count various objects or others, which is a simple form of accounting used in daily life. This definition explains that counting is the link between things and the concept of numbers, starting from one.

Based on the above opinions, it can be concluded that accounting learning is an activity carried out by the teachers to students in a planned and systematic way so as to obtain better attitudes, knowledge, and skills. The results of accounting learning actually focus on the ability to count and, in a broader sense, to make financial statements of companies or organizations.

2.2 Learning Result

Dimiyati and Mudjiono (2009: 3) stated that learning result is the result of the learning process. This definition shows that the learning result is obtained from the learning process, which carried out by teachers to students. Some results that are measurable include abilities, behaviours, and certain skills.

Sudjana (2010: 1) said that learning result is assessed through behavioural changes covering cognitive, psychomotor, and affective aspects. Learning process research is an attempt to give value to teaching and learning activities of students and teachers in achieving teaching objectives. Therefore, research into learning outcomes and learning processes are interrelated with one another because results are not without process.

Hamalik (2010: 31) argued that learning is a change of competence after participating in learning activities. The analogy is that if someone has learned, there will be a change in behaviour of the person: for example, from not knowing to knowing, and from not understanding to understanding. The scope of learning result is categorized into three, namely cognitive, affective and psychomotor.

Based on the opinions of three experts above, it can be explained that learning is any change that occurs in each of the students after following the learning process. The main learning result will be in the attitudes, knowledge, and competencies.

2.3 IOC Learning Model

The IOC type of cooperative learning model is, according to Lie (2008: 6) and Ningsih & Andriani (2017: 90), a learning model developed by Spencer Kagan to give students the opportunity to share information at once. This approach can be used in several subjects, such as social science, religion, accounting, and language. The concept of the IOC model according to Shoimin (Muyaroah, 2018: 101) is learning with a system of small and big circles where it begins with the formation of large groups in the class consisting of inner circle groups and outer circle groups. The Members of outer circle group stand facing inward, while the members of inner circle do the opposite. Thus, the members of the inner and outer circles pair and face each other.

The procedures of IOC type cooperative learning models are as follows: (1) dividing students into groups consisting of 4-5 people; (2) each group gets the task of finding information based on what the teachers have in-

structed; (3) each group seeks information based on the given tasks; (4) following completion, all students gather to mingle with each other (not based on groups); (5) half class then stand in a small circle and face out; another half of the class form a circle outside the first circle, facing inward; (6) two students who are in pairs of small and large circles share information; this exchange of information can be done by all students in pair at the same time; (7) students in a small circle remain in place, while students in a large circle shift walk one or two steps clockwise; (8) then students in large circles share information and so on, until all students have finished sharing information; and (9) the next movement is stopped if they meet their first pair again (Widiyastutik, 2011: 23; Yuliana, Barlian, & Jaenudin 2018: 20).

The strengths of the IOC learning model include: (1) different information for each of the students at once; (2) increase in motivation and activity of every individual, having confidence to assess their own abilities; (3) clear structure and possibility that students share with different pairs in a short and regular manner; and (4) lots of opportunities to process information and to improve communication skills. The weakness of the IOC model is that it requires large classrooms. Moreover, the learning process takes more time so that it is not concentrated and misused for jokes; also it is complicated to do.

2.4 TSTS learning model

The TSTS type of cooperative learning model is a two-stay and two-stray method developed by Spancer Kagan in 1990. This model provides an opportunity for groups to share the results of information with other groups. This is done by visiting members from the other groups who are willing to share information (Huda, 2013: 140). Furthermore, Huda (Rahim, Syarifudin, & Nery, 2017: 41) stated that the two stay two stray learning model (TSTS) is a group learning system aiming at making students work together, take responsibility, help each other for problem solving, and encourage each other to get achievement. According to Rhiantini, Sunarya, & Iswara (2017: 122), the TSTS model also trains students to take responsibility, work together, and socialize well.

Students in the TSTS type of cooperative learning model is obliged to be more active in learning activities. Learners are faced with the activities of hearing, listening, and filtering information while also relaying other information they have acquired. Thus, students unconsciously acquire various kinds of skills in learning activities.

The steps in learning through TSTS according to Fitriyah (2010: 27) and Herawati (2015: 99) are as follows: (1) Students work together in groups of four, as usual, (2) the teacher gives assignments to each group to be discussed and done together, (3) after finishing, two members from each group are asked to leave then visit two members from other groups, (4) two people who “live” in the group should share information and results of their work to their guests (5) the guests excused themselves and returned to their original group and reported what they found from other groups, and (6) each group then compare and discuss the results of their works.

The benefits of the TSTS learning model include: (1) applicability to all classes/levels, (2) more meanings in students’ learning tendencies, (3) students that are more active, (4) boldness in students in expressing opinions, (5) better cohesiveness and confidence in students, (6) improvement in students’ speaking ability, and (7) assistance in developing interest and learning achievement (Sumarni, Sapri, & Alexon, 2017: 28). The disadvantages are as follows: (1) it takes a long time, (2) for teachers, it requires a lot of preparation including material, money and energy, and (3) teachers tend to face difficulty in classroom management.

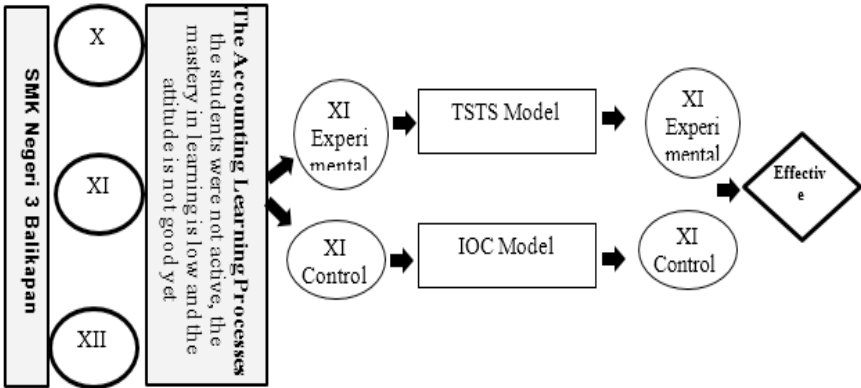
2.5 Previous Relevant Researches

The findings of Widiyastutik (2011) namely the IOC type of cooperative learning model may improve the results of accounting learning. The similarity is the use of experimental research design by applying the IOC model in count-oriented learning. The difference is the object in this study is bill of accounts receivable.

A TSTS-related study conducted by Ulfah (2010) found a strong influence in improving accounting learning results. The similarities with this research are in the use of the TSTS model in count-based learning. The difference is shown from the object in this study, which focuses on applied counting, while the previous one was accounting.

Indriwati (2014) found that the TSTS method is more effective in learning than the IOC method. The similarity with this research is the development of the TSTS method and the IOC method. The difference can be seen from the subjects used for the implementation, which was social science. This research is conducted on accounting subject.

2.6 Thinking Framework



Accounting learning with active learning has not been able to engage students, resulting in low completeness and changes in attitude that have not been seen. The IOC model has been implemented but has not been effective, so another model, TSTS, is chosen to find an effective model to improve students’ results in accounting learning. The TSTS model is in compliance with the 2013 curriculum and constructivist learning theory which emphasizes interactions in knowledge acquisition. This model is also in line with some previous researches.

2.7 Hypothesis

The research hypotheses are as follows: (1) there are different results in students’ accounting learning results taught by using the IOC type cooperative learning model and the TSTS type, and (2) the application of the TSTS type cooperative learning model can improve students’ accounting learning results better than the IOC type cooperative learning model.

3. RESEARCH METHODS

This research was designed in a quasi-experimental type with control group. The control group is the IOC model and the experimental group is the TSTS model. Both of them will be compared prior to—and following—the implementation of both models to find out their effectiveness.

The populations in this study were all eleventh-grade students of SMK Negeri 3 Balikpapan which were divided into six classes (216 students). The sampling technique uses cluster random. In practice, two classes are sampled randomly in order to find the average value, undergo balance testing, and obtain two samples of experimental classes namely XI-Ak (A) Accounting Department and XI Ak- (B) Accounting Department consisting of 36 students.

The data were collected through tests and observations. The instrument was in the form of description and observation sheets developed through validity, reliability, differential strength, and difficulty level tests. The result of validity test through product-moment correlation (r_{xy}) was at the level of $\alpha = 5\%$ and $N = 38$ so that $r_{table} = 3.16$ known the value of $r_{xy} > r_{table}$, which means 27 out of 40 items are valid. The reliability test resulted in $0.598 > 0.316$ or classified as reliable. The instrument was already fulfilled as well with differential strength and blurring level tests that make it suitable for the research.

Prerequisite tests included average balance, normality, and homogeneity. The result of the calculations using the Z test obtained $Z_{count} = -0,750 < -Z_{table} = -1,960$ which indicated the experimental and control groups had the same ability. Based on the results of the Chi-Square analysis of learning achievement in the experimental group obtained $\chi^2_{Count} 1,41 < \chi^2_{table} 9.35$, indicated that the experimental group was normally distributed. The obtained homogeneity Fcount test result was $1.24 < F_{table} (0.05; n_1-1; n_2-1)$ of 1.88, which signified that the two groups were homogeneous. In conclusion, all the requirements are fulfilled.

The data analysis technique used the z test and t-test to prove the two hypotheses. The first hypothesis test was conducted to find out the different learning results after the treatment in the experimental group. The difference test was performed by the Z test method which was formulated as follows:

$$Z = \frac{(\bar{X}_1 - \bar{X}_2) - d_0}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} \sim N(0,1)$$

| | | |
|--------------|---|--|
| \bar{X}_1 | : | The average final score of TSTS model experimental group |
| \bar{X}_2 | : | The average final score of IOC model control group |
| σ_1^2 | : | Variance of TSTS model experimental group |
| σ_2^2 | : | Variance of IOC model control group |
| n_1 | : | Students amount in TSTS model experimental group |
| n_2 | : | Students amount in IOC model control group |
| d_0 | : | The average difference of population 1 and population 2 |

The H_0 test criteria is rejected if $Z > Z_{((\alpha/2))}$ or $Z < -Z_{((\alpha/2))}$, which means if H_0 is rejected, there are differences and vice versa (Budiyo, 2004: 151).

The second hypothesis test was done by t- test formulated as follows:

$$t = \frac{(\bar{X}_1 - \bar{X}_2) - d_0}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} \sim N(0,1)$$

| | | |
|--------------|---|--|
| \bar{X}_1 | : | The average final score of TSTS model experimental group |
| \bar{X}_2 | : | The average final score of IOC model control group |
| σ_1^2 | : | Variance of TSTS model experimental group |
| σ_2^2 | : | Variance of IOC model control group |
| n_1 | : | Students amount in TSTS model experimental group |
| n_2 | : | Students amount in IOC model control group |
| d_0 | : | The average difference of population 1 and population 2 |

H_0 is rejected if $> t_{((\alpha/2))}$, meaning the TSTS model experimental group is better than the IOC model control group

4. RESULTS AND DISCUSSION

4.1 Results

4.1.1 The Difference Students' Learning Results Taught Using the IOC Type Cooperative Learning Model and the TSTS type

| Class Group | Average | Z _{count} | Z _{table} | Criteria |
|---------------------------|---------|--------------------|--------------------|-------------------|
| Experimental Group (TSTS) | 68.90 | 2.090 | 1.960 | Variation appears |
| Control Group (IOC) | 63.33 | | | |

Source: Primer Data, 2019

The calculation of Z test obtained $Z_{count} = 2,090 > Z_{table} = 1,960$ so that H_0 was rejected which could be concluded that there was any difference between the IOC type of cooperative learning model and the TSTS type.

4.1.2 Which One Has a Better Learning Result between IOC Type Cooperative Learning Model and TSTS type

The second hypothesis calculated with t-test resulted as presented in the following Table 2:

| Class Groups | Average | T _{count} | t _{table} | Criteria |
|---------------------------|---------|--------------------|--------------------|-------------------------------|
| Experimental Group (TSTS) | 68.90 | 2.090 | 1.960 | TSTS model is better than IOC |
| Control Group (IOC) | 63.33 | | | |

Source: primer data, 2019

The calculation of t test obtained $t_{count} = 2,090 > t_{table} = 1,960$ so that H_0 was rejected which could be concluded that the TSTS type is better than the IOC model.

4.1 Discussion

4.1.1 The Difference Students' Learning Results Taught Using the IOC Type Cooperative Learning Model and The TSTS type

The calculation of the Z test obtained $Z_{count} = 2.090 > Z_{table} = 1.960$ so that H_0 was rejected which can be concluded that there was any difference between the IOC type of cooperative learning model and TSTS type. This finding shows that the IOC type cooperative learning model is different from the TSTS type. The result is in line with Indriwati's (2014).

The accounting learning process with the IOC model is carried out according to Kagan's concept (Lie, 2008: 6) which emphasizes cooperative information and knowledge exchange. Accounting learning emphasizes the ability to calculate very precisely with the IOC model. The main concept of the IOC model is learning with the collaboration of large and small circle groups in learning. The two groups face each other and exchange information. This concept is able to provide confidence and ease students' understanding of information and knowledge together.

The implementation of the TSTS model in accounting learning is based on Kagan's opinion namely visiting and exchanging information. Students are given the opportunity to share information thoroughly with other groups. This concept is reinforced by the opinion of Huda (2013: 140), namely the exchange of information carried out through visiting makes students happy as well as having a meaningful learning process. Hence, activities and students' learning results have increased (Selvianti, Ali, & Helmi, 2015: 22) and students' appreciation and creation are enhanced (Sumarni, Sapri, & Alexon, 2017: 27).

The stages in implementing the IOC model are based on Widiyastutik (2011: 23). Teachers divide students into groups to which assignments are given based on the available material. Each group is asked to find information and gather back after they have finished. Most students form a large circle and smaller groups make a small circle. Then the two groups face each other and exchange information and change pairs in clockwise direction.

The procedure for implementing the TSTS model is in line with Fitriyah (2010: 27). The students learn in groups of four, and they are asked to find information. Two students are left into another group to share their knowledge and two other students returned to their original groups. This process is carried out continuously until all information is obtained and shared so they can get complete knowledge of all students. Moreover, a process of comparing information from the discussion will construct their new knowledge.

The two concepts of learning in the IOC and TSTS cooperative learning models are actually almost the same. The difference can be seen from the concept of information and knowledge exchange applied. The IOC model tends to have a higher gap for students not to deeply explore the material taught by their teacher. The TSTS model has the privilege of having

two visiting students and two being left students to exchange information which enables interaction and deepening of the material taught by the teacher. This is in line with constructivist learning theories developed by Skunk (2015: 331).

4.1.2 Which One Has a Better Learning Result between IOC Type Cooperative Learning Model and TSTS type

The calculation of t- test obtained $t_{count} = 2,090 > t_{table} = 1,960$ so that H_0 was rejected which could be concluded that the TSTS type is better than the IOC model. This study justifies the findings of Indriwati (2014) who proved that the TSTS method is better in increasing activity and learning results.

Unlike the IOC method, the TSTS method has advantages when it is applied in accounting learning. This method provides meaningful learning experiences for students through a group visit process. All students can be actively involved in the process of acquiring knowledge. The process of learning between fellow students increases self-confidence so that there are no barriers to communicate effectively. The activity of the students in totality and overall manner makes the process of acquiring knowledge seem enjoyable and the learning results are also maximal.

These findings affirm TSTS application method in accounting learning. This is because of the characteristics of calculation-oriented in accounting learning. This finding is in accordance with the recommendations of Ulfah's research (2010) in using the TSTS model to study calculations in accounting subjects.

5. CONCLUSION

The conclusions of this study are: (1) there are significant differences in students' learning results due to the implementation of the IOC and TSTS models in accounting learning, shown from the calculated Z value $= 2.090 > Z_{table} = 1.960$ and (2) students' learning results taught by TSTS model are better than the IOC model, seen from the value of t count $= 2.090 > t_{table} = 1.960$.

Based on the results of the study the writer suggests that: (1) teachers should apply the TSTS method in accounting learning and other lessons according to the characteristics of the material and students, (2) schools can encourage teachers to be innovative by applying the TSTS method and other methods, and (3) further researchers can review this study by developing or collaborating IOC and TSTS methods into new methods that are effectively used in learning



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