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# The analysis of the teaching habit effect based on conventional learning in empowering metacognitive skills and critical thinking skills of senior high school students in Malang, Indonesia

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**Abstract**
Teaching habit based on conventional learning is still maintained in learning activities at school. It becomes a problem that must be solved because a lot of research results report that conventional learning strategy has lower potential than innovative learning strategies in the empowerment of students' metacognitive skills and critical thinking skills. This study was conducted by comparing the potential of conventional learning strategy and that of innovative learning strategies including Reciprocal Teaching (RT), Think Pair Share (TPS) and RT integrated with TPS learning. The purpose of this study was to analyze the effect of teaching habits based on conventional learning in the empowerment of metacognitive skills and critical thinking skills of senior high school students in Malang, Indonesia. This study was conducted in the first semester of 2015/2016 academic year. The research subjects were the students of class X of State Senior High School (SSHS) 6 Malang and SSHS 9 Malang. The results of the study showed that the conventional learning had the lowest potential in empowering the students' metacognitive skills and their critical thinking skills. The increase of metacognitive skills in conventional learning was 60,582% lower than that of TPS learning strategy, 73,765% lower than that of RT learning strategy, and 112,886% lower than that of TPS integrated with RT learning strategy. Furthermore, the increase of critical thinking skills in conventional learning was 60,737% lower than that of TPS learning strategy, 81,373% lower than that of RT learning strategy and 133.898% lower than that of TPS integrated with RT learning strategy. The Information about the low potential of conventional learning should inspire teachers to eliminate the habit of conventional teaching and inspire the educational supervisors to carry out their supervisory duties properly and to ensure that the learning process have been implemented as well as possible using the appropriate and innovative learning strategies.

**Keywords:** conventional learning, critical thinking skills, innovative learning, metacognitive skills, teaching habit.

## Introduction

Education is a process to develop students' potential in accordance with the cultural values and norms in society. The Implementation of education will provide assurance to the nation's development because education can produce qualified human resources having the ability to face the challenges of life. Among the various subjects studied in the educational process, biology is one of the important subjects to be mastered by students. Wood (2002) [1]. dan Erdogan *et al* (2012) [2]. explained that biology learning aimed to equip the students with the concepts of biology that could be understood and applied in their lives in order to improve the ability to manage nature with a sense of responsibility and to improve the ability to cope with change in society**.**

The attainment of biology learning objectives as outlined earlier will occur if learning is not focused on empowering the students' ability in memorizing concepts but on empowering the other skills and abilities that will affect students' concept understanding, such as metacognitive skills and critical thinking skills. Metacognitive skills are related with the skills to plan, to monitor, and to evaluate the learning process, as well as to select the most appropriate control strategies (Livingston, 1997; Dawson, 2008) [3, 4]. While critical thinking skills are related with the use of the cognitive strategies in solving a problem (Halpern, 2013) [5].

Corebima (2006) [6]. and Dauphin (2013) [7]. explained that the optimization of the empowerment of metacognitive skills and critical thinking skills would ultimately determine the optimization of learning objective attainment. The empowerment of metacognitive skills in teaching done intentionally will enhance students' ability to recognize and to regulate their learning process independently and to improve their thinking ability (Hennessey, 1999; Livingston, 1997; Hollingwoth & McLoughlin, 2001; Dawson, 2008) [9, 3, 10, 4]. Furthermore, through the empowerment of the critical thinking skills, students will be able to analyze the problems encountered, to determine the alternative solutions that can best be done to resolve the issue, and to evaluate all their actions (Ennis, 1991; Fisher, 2001; Facione, 2013; Salmon, 2013) [11, 12, 13, 14].

An intentional empowerment of metacognitive skills and critical thinking abilities can be done through the implementation of cooperative learning strategies. Felder & Brent (2004) [15]. and Lord (2001) [16]. explained that by cooperative learning strategies, students were encouraged to learn actively in groups, so that they could work together with the other students, capable of taking decisions, and ultimately the their thinking skills as well as their understanding would increase. Among the various learning strategies, Reciprocal Teaching (RT) and Think Pair Share (TPS) learning can be implemented in learning. Previous studies have reported that the implementation of RT and TPS learning strategies, either implemented separately or implemented by combining both strategies, had great potential to empower students'

metacognitive skills and critical thinking abilities (Doolittle *et al,* 2006; Basith, 2012; Setiawan, 2013; Bahtiar, 2014; Vandalita, 2014; Ismiati 2011; Priyanti, 2012; Efendi, 2013 ) [17, 18, 19, 20, 22, 23, 24].

The abundant information about the potential of cooperative learning strategies eg RT and TPS, in fact, has not been able to inspire teachers to consistently implement cooperative learning strategies in order to improve the quality of learning. Priyanti (2012) [23], Yuwono (2014) [25]. and Ekoningtyas (2013) [26]. reported that the conventional learning was the most generally applied learning. The teachers thought that the conventional learning strategies were the right choice because the implementation took relatively short time, the range of material taught was wider, and through the implementation of conventional learning, the students could be equipped with the correct understanding of materials. The implementation of conventional learnings in the form of lecture, discussion, and administration of tasks also focused more on encouraging students to understand and to memorize the various concepts, principle as well as biological terms described by the teacher.

This study was conducted to analyze the disadvantages caused by the conventional based learning routines in the empowerment of metacognitive skills and critical thinking skills of senior high school students in Malang, Indonesia. The information about the disadvantages of these routines was analyzed by comparing the metacognitive skills and the critical thinking skills of students taught by using conventional learning and those of the students taught by using cooperative learning strategies namely RT, TPS and RT integrated with TPS.

## Methods

This study is a quasi-experimental research of pretest-posttest Nonequivalent control group design. The design of the study can be seen in Table 1.1

**Tabel 1.1:** Quasi-experimental design of Nonequivalent pretest-posttest control group design

| Group | pretest | Learning strategies | posttest |
|---|---|---|---|
| Reciprocal Teaching | $O_1$ | $X_1$ | $O_2$ |
| Think Pair Share | $O_3$ | X2 | $O_4$ |
| Reciprocal Teaching combined Think Pair Share | $O_5$ | X3 | $O_6$ |
| conventional learning | $O_7$ | X4 | $O_8$ |

Notes:
$X_1$ = *Reciprocal Teaching* learning
$X_2$ = *Think Pair Share* learning
$X_3$ = *Reciprocal Teaching* integrated with *Think Pair Share* learning
$X_4$ = conventional learning
O1, O3, O5, O7 = Score / value of pretest
O2, O4, O6, O8 = Score / value of posttest

This population of this study was all the students of class X senior high school in Malang in the first semester of the 2015/2016 academic year. The samples of this study were the class X students of state senior high school 9 Malang and of state senior high school 6 Malang which were taken using simple random sampling technique, after the equality test was performed. Three of the four selected classes were used as the experimental classes and the other class was used as the control class.

The instrument used to measure the metacognitive skills and critical thinking skills was an essay test, which was assessed using metacognitive skill rubric developed by Corebima (2009) [27], and critical thinking skill rubric developed by Zubaidah *et al* (2015) [28]. Data were obtained by pretest and posttest. The data obtained were then tested for the normality and homogeneity of the data, and further analyzed using Ancova test, followed by LSD test if needed.

## Results And Discussion

### Results

### A. Metacognitive Skills Data

The results of the hypothesis testing of students' metacognitive skills and the post hoc are presented in the following tables. Based on the Ancova test result and its' post hoc analysis as presented in Table 2 and Table 3 it is clearly seen that there is a difference in the metacognitive skills among the conventional learning strategies and the other three learning strategies. The difference can be clearly seen in the Table 3 showing that the conventional learning strategies has the lowest corrected mean score of 36,789. The score is 28,81% lower than that of the TPS learning strategy, 38,77% lower than that of the RT learning strategy and 50,04% lower than that of the RT integrated with TPS learning strategies. It can be seen too that the lowest increase of metacognitive skills is found in the conventional learning. The metacognitive skill increase of conventional learning is 60,582% lower than that of the TPS learning, 73,765% lower than that of RT learning and 112,886% lower than that of RT integrated with TPS learning.

**Table 2:** The Summary Table of AncovaTest on the Comparison of Students' metacognitive Skills

| Source | Type III Sum of Squares | df | mean Square | F | Sig. |
|---|---|---|---|---|---|
| corrected Model | 7929.408 [a] | 4 | 1982.352 | 53.578 | 0,000 |
| intercept | 11299.920 | 1 | 11299.920 | 305.406 | 0,000 |
| XMET | 1520.578 | 1 | 1520.578 | 41.097 | 0,000 |
| Learning strategies | 6534.894 | 3 | 2178.298 | 58.874 | 0,000 |
| Error | 5105.949 | 138 | 37,000 | | |
| Total | 330,651.972 | 143 | | | |
| corrected Total | 13035.357 | 142 | | | |

**Table 3:** The Summary of LSD Test of Learning Strategies on Students' metacognitive Skills

| Learning | Pretest | Postes | PosCor | Notation LSD |
|---|---|---|---|---|
| conventional learning | 18.071 | 36.839 | 36.789 | a |
| TPS | 17.939 | 47.347 | 47.388 | b |
| RT | 18.407 | 51.335 | 51.051 | c |
| RT + TPS | 17.442 | 54.812 | 55.198 | d |

### B. Critical thinking skills

The results of the hypothesis testing of the students' critical thinking and the post hoc test are presented in the following tables. Based on the Ancova test result and its' post hoc analysis as presented in Table 4 and Table 5 it is clearly seen that there is a difference in critical thinking skills among the conventional strategy and the other three strategies. The conventional learning has the lowest corrected mean score of 33,203. The score is 26,66% lower than that of TPS learning strategy, 35,98% lower than that of RT and 50,95% lower than that of RT integrated with TPS. It can be seen too that the lowest increase of the critical thinking skills of students is found in the conventional learning. The critical thinking skill increase is 60,737% lower than that of TPS learning strategy, 81,373% lower than that of RT learning strategy, and 133.898% lower than that of RT integrated with TPS learning strategy.

**Table 4:** The Summary Table of Ancova Test on the Comparison of Students' critical Thinking Skills

| Source | Type III Sum of Squares | df | mean Square | F | Sig. |
|---|---|---|---|---|---|
| corrected Model | 6924.083 [a] | 4 | 1731.021 | 27 870 | .000 |
| intercept | 12015.530 | 1 | 12015.530 | 193 455 | .000 |
| XCT | 2246.448 | 1 | 2246.448 | 36 169 | .000 |
| Learning strategies | 5190.337 | 3 | 1730.112 | 27 855 | .000 |
| Error | 8571.218 | 138 | 62 110 | | |
| Total | 269683.000 | 143 | | | |
| corrected Total | 15495.301 | 142 | | | |

**Table 5:** The Summary of LSD Test of Learning Strategies on Students' critical Thinking Skills

| Learning | Pretest | Postes | PosCor | Notation LSD |
|---|---|---|---|---|
| Conventional Learning | 16.079 | 33.579 | 33.203 | a |
| TPS | 15.737 | 42.158 | 42.055 | b |
| RT | 15.684 | 45.211 | 45.150 | b |
| RT + TPS | 14.724 | 49.414 | 50.120 | c |

### Discussion

The results of data analysis show that the conventional learning has the lowest potential in empowering students' metacognitive skills and critical thinking skills compared to the RT, TPS and RT integrated with TPS learning. In the conventional learning, the students have less opportunity to be actively involved in learning. Students are only encouraged to be able receiving all the explanations given by the teacher, answering the questions posed by the teacher, and performing tasks that are usually given when a teacher has finished giving the learning material. This condition is different from the steps carried out in RT, TPS, and RT integrated with TPS learning which encourage the students to be actively involved in the learning process.

The learning conditions in the conventional learning in this research is similar to the description of Rashty (2013) and ESU (2010) [30]. stating that in the conventional learning, the teacher had the authority to explain the learning materials without involving students actively, so that the students were only encouraged to memorize the whole explanation without a need to ask any questions. It was also explained that in the conventional learning, the task given to the students was not an inquiry based task or a problem solving based task, so that students were only encouraged to learn various concepts and principles related to learning materials. Students were not encouraged to understand and to apply the concepts and principles in solving problems encountered in the community.

The results of this research show that conventional learning strategy has the lowest potential in empowering students' metacognitive skills and critical thinking skills. It is also in line with the results of some previous studies reported by Priyanti (2012) [23], Bahtiar (2014) [20], Vandalita (2014) and Efendi (2013) [24]. The report results stated that the steps in the strategy of RT, TPS and RT integrated with TPS learning strategies had a greater potential to empower students' metacognitive skills and critical thinking skills. The activity of RT learning consists of summarizing, asking questions, predicting and clarifying. The activity of TPS learning consists of thinking, pairing and sharing; and the activity in the RT integrated with TPS learning is the combination of the activities of the RT and TPS learning. The activities in the RT, TPS, and the RT integrated with TPS are proved to be superior to the activity in the conventional learning which generally consists of lectures, discussion and administration of tasks.

The other research findings also show that the potential of the conventional learning strategy to empower critical thinking skills is lower than that of the other cooperative learning strategies (Chen, 2008; Ghaith, 2003) [32]. To reveal the

potential of cooperative learning strategies, Hasan *et al* (2013) [33]. conducted a research implementing STAD (Student Team Achievement Division), TGT (Team Games Tournament) and the combination of both strategies. He reported that compared with all the three cooperative learning strategies, the conventional learning strategy had the lowest potential in empowering critical thinking skills. It is associated with the strengths of the steps consisting of discussion and group work which encourage the students to improve their thinking skills through a process of interaction and exchange information with other students.

The facts related to the low potential of the conventional strategy in empowering metacognitive skills and critical thinking skills as revealed by this research findings and previous research findings have shown that conventional learning is disadvantageous and should be eliminated. Similarly, ESU (2010) [30]. explained that the less optimal achievement of learning objectives through the application of conventional strategy led to the criticisms from the educational actors. The most appropriately implemented learning strategies are those of student-centered instead of teacher-centered.

Research findings also confirmed that the underlying reason for the growing habit of conventional learning strategy facilitating the transfer of information in large quantities and in a short time is not quite right. Such habits would cause the students not to have the opportunity to develop their metacognitive skills and critical thinking skills (Khan, 2008). Furthermore, ESU (2010) [30]. explained that the implemented learning strategy should enable the students to learn independently and be responsible for the learning process they do. This is in line with Li (2016) [35], revealing that the learning process was not only about transfering information from the teacher to students, but it was also a process of presenting real problems encouraging students to seek information and creative ideas to solve the problem. Such learning strategy would place the teacher as a facilitator whose role is to provide the students' learning needs and not to controll the entire activity of students (Serbessa, 2006) [36]. Thus, learning activities become more meaningful and can empower students' metacognitive skills and critical thinking skills.

The other factor causes the conventional learning habit growing more and more is the lack of education supervision by both school principals and school supervisors. As long as this research was going on the school principals and school supervisors have not carried out their supervisory duties to directly monitor the learning process in the classroom. As a matter of fact, monitoring activity is a very important process to be done to ensure the quality of the learning process (Marks & Printy, 2003; Kotirde & Yunos, 2014; Hoojqan, 2015) [37, 38, 39]. Similarly, Wibowo (2009) [40]. explained that by monitoring the learning process in the classroom, teachers would be encouraged to improve the quality of the teaching and learning activity, because the advantages and disadvantages of the learning strategy could be observed, and the problems that might arise in the classrooms could also be observed. Moreover, the information obtained during the supervision can be the basis for teachers and supervisors to determine the appropriate follow-up in order to solve the problems.

Related to the lack of supervision by the supervisor of education, Sutarjo (2014) explained that the low supervision activities were caused by several problems such as the location of the school was very remote and difficult to be reached, the operational funds for these activities were inadequate, and the difficult in arranging the supervision schedule in a continual way. Such constraints become the reasons why the supervisors did not do their job thoroughly, whether it was to plan, to implement, or to follow up the results of the supervision. The supervision was also generally not carried out routinely and more focused on the administrative matters such as the learning media adequacy.

## Conclusion

The conventional learning habits are very disadvantageous for the empowerment of students' metacognitive skills and critical thinking skills. Related to this research the increase of the students' metacognitive skills in the class taught by using conventional learning is 60,582% lower than that taught by using TPS learning strategy, 73,765% lower than that taught by using RT learning strategy, and 112,886% lower than that taught by using TPS integrated with RT learning strategy; moreover, the increase of students' critical thinking skills in the class taught by using conventional learning strategy is 60,737% lower than that taught by using TPS learning strategy, 81,373% lower than that taught by using RT learning strategy, and 133,898% lower than that taught by using TPS integrated with RT learning strategy. The situation even become worse due to the low supervision process conducted by education supervisors, such as the school principals and school supervisors.

## Suggestion

The information about the disadvantages caused by the implementation of conventional learning should provide inspiration for the education actors, either teachers, school principals and school supervisors to carry out their duties and responsibilities well. Teachers should implement learning strategies which are more potential to empower students metacognitive skills and critical thinking skills. Furthermore, the school principals and school supervisors should carry out their duties properly and continually related to planning, implementation, evaluation and even follow-up of the supervision.

## References


1. Wood WB. Advanced High School Biology In An Era Of Rapid Change: A Summary of the Biology Panel Report from the NRC Committee on Programs for Advanced Study of Mathematics and Science in American High Schools, Cell Biology Education. 2002; 1:123-127.
2. Erdogan M, Bahar M, Usak M. Environmental Education in High School 9th - 12th Biology Course Curricula Started to be Implemented in 2007, Educational Sciences: Theory & Practice. 2012; 12(3):2230-2235.
3. Livingston JA. Metacognition: An Overview, 1997. http://gse.buffalo.edu/fas/shuell/cep564/metacog.htm. accessed on June 21, 2015
4. Dawson TL. Metacognition and learning in adulthood, 2008. https://dts.lectica.org/PDF/Metacognition.pdf. accessed on June 5, 2015

5. Halpern DF. Critical Thinking Workshop for Helping Our Students Become Better Thinker, 2013. https://louisville.edu/ideastoaction/-/files/featured/halpern/critical-thinking.pdf accessed on June 6, 2015
6. Corebima AD. Pembelajaran Biologi yang Memberdayakan Kemampuan Berpikir Siswa (Biology Learning which empowers Students' Thinking Skills). Paper presented at the metacognitive Strategy Training in Biology Learning for senior high School Biology Teachers in Palangkaraya, Indonesia, 2006.
7. Dauphin T. Critical Thinking: The Effect of Summary Writing Methods on Reading Achievement From A Global Perspective, 2013.
8. http://www.wesleyan.edu/qac/apprenticeship/media_posters/2013__pdfs/tdauphin.pdf accessed on July 7, 2015
9. Hennessey MG. Probing the dimensions of metacognition: Implications for conceptual change teaching-learning. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, Boston, 1999.
10. Hollingwoth RW, McLoughlin C. Developing science students metacognitive problem solving skill online. The University of New England. Australian Journal of Educational Technology. 2001; 17(1):50-63.
11. Ennis RH. Critical Thinking: A Streamlined Conception. University of Illinois, Champaign, 1991, 5-11.
12. Fisher A. Critical Thinking: An Introduction, Cambridge University Press, Cambridge, 2001, 7-8.
13. Facione AP. Critical Thinking: What It Is and Why It Counts, 2013. http://www.insightassessment.com/pdf_files/what&why2006.pdf accessed on June 20 2015
14. Salmon MH. Introduction to Logic and Critical Thinking. Edn. 6, Global Pre Media, Boston, 2013, 3-7.
15. Felder RM, Brent R. Cooperative Learning. National Effective Teaching, 2004. Institute.http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Papers/CLChapter.pdf accessed on June 6, 2015
16. Lord TR. 101 Reasons for Using Cooperative Learning in Biology Teaching in Biology Teaching. The American Teacher, 2001; 63(1):30-36.
17. Doolittle PE, Hick D, Triplett CF, Nichols WD, Young CA. Reciprocal Teaching for Reading Comprehension in Higher Education: A strategy for Fostering the Deeper Understanding of Texts. International Journal of Teaching and Learning in Higher Education, 2006; 17(12):106-118.
18. Basith A. Potensi Strategi Reciprocal Teaching untuk memberdayakan keterampilan metakognitif Siswa sekolah menengah berkemampuan akademik rendah pada Pembelajaran Biologi. (The Potential of Reciprocal Teaching Strategy in empowering metacognitive Skills of senior high School Students of low academic Ability in Biology Learning). Proceedings of the National Seminar on Biology, 2012; 9:84-89. ISBN No. 978-602-8580-51-9.
19. Setiawan DC. Pengaruh strategi pembelajaran Reciprocal Teaching (RT) dipadu Pemberdayaan Berpikir Melalui Pertanyaan (PBMP) terhadap kemampuan metakognitif, berpikir kritis dan pemahaman konsep biologi siswa SMA Islam al-Ma'arif Singosari Malang (The Effect of Reciprocal Teaching (RT) integrated with Thinking Empowerment by Questioning (TEQ) on metacognitive Skills, critical Thinking and Biology Concept Gaining of Islam Senior High School Students al-Maarif Singosari Malang (Unpublished Magister thesis), State University of Malang, Indonesia, 2013.
20. Bahtiar. Pengaruh Pembelajaran Think Pair Share (TPS) dan Reading Questioning Answering (RQA) terhadap Sikap Sosial, Keterampilan Metakognisi dan Penguasaan Konsep Biologi untuk Pendidikan Multietnis pada Siswa SMA di Ternate (The Effect of Think Pair Share (TPS) and Reading Questioning Answering (RQA) Learning Strategies on social Attitudes, metacognitive Skills and Biology Concept Gaining for multiethnic Education of senior high School Students in Ternate). (Unpublished Doctoral thesis), State University of Malang, Indonesia, 2014.
21. Vandalita MMR. Pengaruh Strategi Pembelajaran Berpola Pemberdayaan Berpikir Melalui Pertanyaan (PBMP) dengan Think Pair Share (TPS) terhadap Sikap Sosial, Keterampilan Berpikir Kritis, Pemahaman Konsep, dan Retensi Biologi Siswa Multietnis di SMP Kota Samarinda (The Effect of Thinking Empowerment by Questioning/TEQ and Think Pair Share/TPS Learning Strategies on the social Attitudes, critical Thinking Skills, Biology Concept Gaining and Retention of multiethnic Students in junior high school Samarinda city (Unpublished Doctoral thesis), State University of Malang, Indonesia, 2012.
22. Ismiati L. Pengaruh Strategi Belajar TPS, Reciprocal Teaching, dan Integrasinya terhadap hasil Belajar Kognitif dan Kemampuan Berpikir Kritis Peserta Didik Berkemampuan Akademik Berbeda di R-SMA-BI Batu (The Effect of TPS, Reciprocal Teaching Learning Strategies and their Integration on cognitive Learning Results and critical Thinking Skills of Students with different academic Ability in the R-SMA-BI Batu) (Unpublished Magister thesis), State University of Malang, Indonesia, 2011.
23. Priyanti WC. Pengaruh Strategi Pembelajaran Think Pair Share dipadu Reciprocal Teaching dan Kemampuan Akademik terhadap Keterampilan Metakognisi dan Hasil Belajar Kognitif Biologi Siswa Kelas X SMAN 1 Grati (The Effect of Think Pair Share integrated with Reciprocal Teaching Learning Strategy and academic Ability on metacognitive Skills and Biology cognitive Learning Results of grade X Students of State Senior High School 1 Grati. (Unpublished Magister thesis), State University of Malang, Indonesia, 2012.
24. Efendi N. Pengaruh Pembelajaran Reciprocal Teaching Dipadukan Think Pair Share terhadap Peningkatan Kemampuan Metakognitif Belajar Biologi Siswa SMA Berkemampuan Akademik Berbeda di Kabupaten Sidoarjo (The Effect of Reciprocal Teaching integrated with Think Pair Share Learning on the Students' metacognitive Skills in Biology Learning of senior High School with different academic Ability in Sidoarjo). Santiaji Journal of Education. 2013; 3(2):87-105.
25. Yuwono CMY. Peningkatan Keterampilan Metakognisi Siswa dengan Pembelajaran Kooperatif Jigsaw-Modifikasi (Improving Students' metacognitive Skills using cooperative Learning Jigsaw-Modification. Jurnal Santiaji Pendidikan. 2014; 4(1):1-21.

26. Ekoningtyas M. Pengaruh Pembelajaran Think-Pair-Share dipadu Pola Pemberdayaan Berpikir melalui Pertanyaan terhadap Keterampilan Metakognitif, Berpikir Kreatif, Pemahaman Konsep IPA dan Retensinya serta Sikap Sosial Siswa (The Effect of Think-Pair-Share integrated with Thinking Empowerment by Questioning on Students' metacognitive Skills, creative Thinking, Science Concept Gaining, Retention, and social Attitudes). Journal of Science Education. 2013; 1(4):332-342.
27. Corebima AD. Metacognitive Skills Measurement Integrated in Achievement Test. Paper presented at the Third International Conference on Science and Mathematics Education (Cosmed) Penang, Malaysia, 2009.
28. Zubaidah S, Corebima AD, Mistianah. Asesmen Berpikir Kritis Terintegrasi Tes Essay. Makalah disajikan pada Seminar Nasional Pendidikan Biologi (Critical Thinking Assessment integrated with Essay Test. Paper presented at the National Seminar on Biology Education, Biology Symposium on Education (Symbion) at the University of Ahmad Dahlan Yogyakarta, Indonesia, 2015.
29. Rashty D. Traditional learning vs. e-learning, 2003. http://click4it.org/images/f/f5/Traditional_Learning_vs_eLearning.pdf accessed on March 7, 2016
30. ESU. Student Centered Learning: An Insight Into Theory And Practice. European Students' Union, Brussels, 2010, 8-10.
31. Chen HC. Cooperative learning on second/foreign language education: Theory and practice. http://daa.knjc.edu.tw/ezfiles/6/1006/img/221/9.pdf accessed on March 7, 2016
32. Ghaith G. Effects of the Learning Together Model of Cooperative Learning on English as a Foreign Language Reading Achievement, Academic Self-Esteem, and Feelings of School Alienation. Bilingual Research Journal. 2003; 27(3):451-474.
33. Hasan S, Tumbel FM, Corebima AD. Empowering Critical Thinking Skills in Indonesia Archipelago: Study on Elementary School Students in Ternate. Journal of Modern Education Review. 2013; 3(11):852-858.
34. Khan SA. An Experimental Study to Evaluate the Effectiveness of Cooperative Learning Versus Traditional Learning Method. (Doctoral thesis International Islamic University, Pakistan), 2008. Retrieved from http://prr.hec.gov.pk/thesis/582s.pdf
35. Li YW. Transforming Conventional Teaching Classroom to Learner-centred Teaching Classroom Using Multimedia-mediated Learning Module. International Journal of Information and Education Technology. 2016; 6(2):105-112.
36. Serbessa DD. Tension between Traditional and Modern Teaching Learning Approaches in Primary Schools Ethiopian. Cicé Hiroshima University, Journal of International Cooperation in Education. 2006; 9(1):123-140.
37. Marks HM, Printy SM. Principal Leadership and School Performance: An Integration of Transformational and Instructional Leadership. Educational Administration Quarterly. 2003; 39(3):370-397.
38. Kotirde IS, Yunos JB. The Supervisor's Role for Improving the Quality of Teaching and Learning in Nigeria Secondary School Educational System. International Journal of Education and Research. 2014; 2(8):53-60
39. Hoojqan AR, Gharamani J, Safari SA. The Effect Of Educational Supervision On Improving Teachers' Performances In Guidance Schools Of Marand. Indian Journal of Fundamental and Applied Life Sciences. 2015; 5(S2):1731-1735.
40. Wibowo D. Pengaruh Supervisi Kepala Sekolah dan Kompetensi Pedagogik Guru Terhadap Kinerja Guru SD Negeri Kec. Kersana Kab. Brebes (The Effects of the Supervision by School Principal and Teacher pedagogical Competence on State Elementary School Teacher Performance in Kersana Brebes District.(Magister thesis, State University of Semarang), 2009.
41. Retrieved from http://lib.unnes.ac.id/16712/1/1103504003.pdf
42. Sutarjo. Supervisi Pengawas dan Kepala Sekolah Dalam Peningkatan Mutu Pembelajaran (Studi Kasus Pada SMA Negeri di Kabupaten Karawang) (Supervision of the Education Supervisors and School Principals in improving Learning Quality (Case study of State senior high Schools in Karawang regency). Jurnal Pendidikan Unsika. 2014; 2(1):105-117.