EFFECTIVENESS OF DIRECT INSTRUCTION LEARNING STRATEGY ASSISTED BY MOBILE AUGMENTED REALITY AND ACHIEVEMENT MOTIVATION ON STUDENTS COGNITIVE LEARNING GEOMETRY RESULTS

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ABSTRACT
The study aims are to determine whether there is a difference in the average learning outcomes between students who are subject to Direct instruction model aided by mobile augmented reality and Direct instruction model supported by non mobile augmented reality. The presence or absence of significant differences in cognitive learning outcomes between groups of students with high achievement motivation, moderate achievement motivation, and low achievement motivation group. There is no interaction between learning strategies and achievement motivation toward cognitive learning outcomes.

Population in this research is all student of semester 1 academic year 2016/2017 Sample is taken by using sampling cluster random sampling technique in mathematics education study of Universitas PGRI Semarang. Methods of data collection in this study are obtained by using interview methods, test methods, and method documentation. The results showed that: (a) There were significant differences in cognitive learning outcomes between groups of students treated with direct instructional strategies with MAR and group of students who were treated with direct instruction learning strategies with non-MAR. (B) There is a significant difference of cognitive learning outcomes between groups of students with high achievement motivation, moderate achievement motivation and low achievement motivation group. (C) There is an interaction between learning strategies and achievement motivation toward cognitive learning outcomes.
Keywords: Direct instruction, Mobile Augmented Reality, Achievement motivation, cognitive learning results

INTRODUCTION

In producing a good learning process require a variety of learning strategies appropriate with the conditions in the classroom, if students are less active then they are given the model student learning center that is able to make them more active, if students understanding on the subject are not too much then they are given the model of a teacher center learning so that students can easily understand the Material. (Sunandar, 2016), in the learning process at PGRI University of Semarang, especially the subject matter of the students' geometry siubject had experienced many difficulties in understanding the material because the geometry material needs procedural capability by mastering the definition, theorem, axiom, postulate and so on therefore required model or Strategies that can fit the characteristics of students and the conditions of learning in the classroom, one of the appropriate learning model is direct instruction model or direct instruction because it can focus in guiding students in mastering the material (Arends, 1997)

Direct Instruction model demands and assists students in improving their learning capabilities. This is reinforced by Reynold's (1996) study which found that one of the factors that led to differences in student learning outcomes in both the UK and Singapore is the use of whole-class interactive teaching which is one of the main factors of Direct Instruction (DI). This contradicts Hanafiah (2010) which mentions the difference between teacher-centered and student-centered classes, where the classroom taught by the teacher makes the student less active, while the class taught by the active student model makes the class more active and creative , This is well responded by Magliaro (2005) explaining that the revised direct instruction model is able to integrate computer-assisted learning when the classroom practice process is helpful in understanding the concept of learners and making the class more active and interactive. This is reinforced by Ozdemir (2017) that shows that direct learning can be applied in learning with the help of technology, teachers in Turkey is greatly helped by the computer media in explaining the material to the students.

In choosing learning media that match the characteristics of learning geometry, one of such is augmented reality media because this media is able to display two-dimensional objects into three-dimensional objects that enable students to understand the material geometry interesting and attractive, the number of renewable media today has an impact or effect Which is significant in the learning process, because learning acts occur when interacting with the media (Degeng, 2013), in the process of learning mathematics in schools and colleges the effects of technology or renewable media such as mobile phones, tablets and other communication media greatly affect the way they learn. (Herrington, 2009). One of them mobile learning media that can be used to solve the problems of traditional learning systems that are usually face to face which makes the learning process more flexible. (Sarrab, 2012)

Mobile learning media that can be selected and in accordance with the characteristics of the geometry course is a mobile augmented reality media. This is because with mobile augmented reality is able to add the existing reality becomes more interesting and easy to understand by the students in adding or completing the reality of a material. (Shearer, 2016). Mobile media augmented reality is the combined learning media of print technology and computer / mobile (Craig, 2013). Augmanted Reality or also called embedded reality is a technology used to combine 2D / 3D objects in the virtual world into the real world in real-time (Kauffman, 2000). Mobile Augmented Reality is a technology that combines two-dimensional and three-dimensional virtual objects into a real three-dimensional environment and projects those virtual objects in real time with mobile phones (Azuma, 1997).

Basically geometry has a greater opportunity for students to understand compared to other branches of mathematics. This is because geometric ideas have been known by students since before they entered school. Nevertheless, the evidence in the field shows that the learning outcomes of geometry are still low and need to be improved (Budiarto, 2000) In fact, among the various branches of mathematics, geometry occupies the most apprehensive position (Sudarman, 2000). In Muin's research (1997) shows that mastery of geometry concept of new student of FPMIPA IKIP, FKIP University, and STKIP of State and Private in East Java ranged from 7,14% to 80% meaning that the mastery of student geometry concept is still not maximal. Further strengthened by research by Suparyan (2007) indicates that the mathematics students in Semarang State University is still weak in the mastery of geometry subject material especially its spatial learning results

To produce the maximum result of geometry subject learning require a maximum student achievement motivation, this as shown by Keller (1987) that with the achievement motivation then the student will follow the learning with earnest and get the desired target with maximal, in which is supported by according Supraswati (2016) and Yulistian (2013) shows that achievement motivation is divided into 3 kinds of high achievement motivation, moderate and low, in order to facilitate to map motivation learners. Which student learning outcomes will be influenced by their achievement motivation personally.

From the support of these theories it can then be formulated how the effectiveness of the use of direct instruction learning strategy with mobile augmented reality media and achievement motivation to the cognitive learning outcomes of students in geometry courses.

METHODOLOGY AND DATA

Type Of Research

This research uses quasi experimental design method (quasi experiment), is a form of experimental design development from true experimental design (Sugiyono, 2009). The experimental design in this study was posttest Only Control Design, in which there were three groups, each selected randomly, the first and second group were treated and called the experimental group and the third group which was not treated was called the control group (Setyosari, 2013). The research design can be seen in the following table:

Tabel 1. Research Design

Group	*Treatment*	End Result
Experiment	Direct Instruction learning model with mobile augmented reality	Post test
Control	Direct Instruction learning model with non mobile augmented reality	Post test

Subject

The subject to try of this research is student of mathematics education of (FPMIPATI) of University PGRI Semarang on their first semester, in the course of Geometry which consists of 245 students, and then use a randomly selected sampling from 1E class experiment of 32 students and 1C class control of 32 students.

Instrument Data Collectors

The method of data collecting are thru Interview, test and documentation developed by the researcher.

Data analysis

Data analysis techniques in this study includes: 1) analysis of cognitive learning outcomes test data; 2) initial data analysis (homogeneity and normality test); 3) learning effectiveness analysis (one way anova test, t test).

RESULT AND DISCUSSION

After fulfilling the prerequisite test analysis, it can then be continued with the parametric analysis, that is the analysis of hypothesis test research. Results obtained as follows :

a) Learning Outcomes of Cognitive Learning by Direct Instruction Learning with MAR and students Taught by Direct Instruction Learning with non MAR.

Table 2. One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Control_Class	32	65.94	12.144	2.147
Experiment_Class	32	68.44	8.930	1.579

From the data above, it can be seen that the student's cognitive learning outcomes that are taught using Direct Instruction learning with MAR (experimental class) are higher than those taught using Direct Instruction learning strategy with non MAR (control class), with mean at 68,44> 65 , 94. For more details can be seen in the graph below :

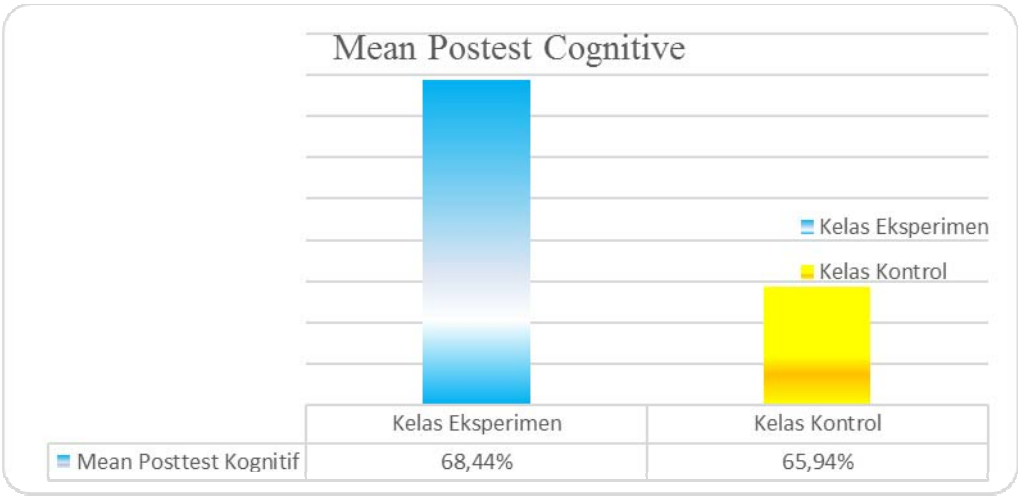

Figure 1 Mean Learning Outcome of Student's Cognitive Learning by Direct Instruction Learning With MAR and Students Taught by Direct Instruction Learning with non MAR

Figure above are then followed by t test, shows that there is a difference of learning result of cognitive learning result between student taught by Direct Instruction learning strategy with MAR and Direct Instruction learning with non MARH_1 is accepted and H_0 is rejected, because from the t-test data for Equality of Means obtained t_hount of 2.189 and t_table with (df) 64 and alpha 5% is about 2,000. This means that There is a difference in

cognitive learning outcomes between students taught using Direct Instruction learning with MAR and Direct Instruction learning with non MAR", because 2,189> 2,000

Table 3. Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.286	.261	-2.189	62	.032	-8.057	3.680	-15.413	-.701
Equal variances not assumed			-1.949	18.113	.067	-8.057	4.134	-16.739	.624

The findings of this study, in accordance with the results of previous studies conducted by Fitzgerald (1998) who use learning with hypermedia-assisted direct instruction as a research variable. Showed that instructional strategies with direct instruction improve cognitive learning outcomes. Also supported by research by Frieberg (2000) that learning with problems improve the results of better cognitive learning of concepts and solutions so that there is an increase in the structure of meaningful materials in professional development. The results of cognitive and spatial learning are influenced by the learning strategies as reported by previous researchers (Gersten, 2001), and the results of Viadero's (2002) study suggest that there is an increase in the students' cognitive learning outcomes in mathematics learning.

Subsequent research, conducted by Schunk, (2000) suggests the regularity of both cognitive and spatially-minded media consciousness has increased significantly from the first year to the second year and the third year. Furthermore Swanson (2001). In his research revealed that 80% of respondents of disabled children experience improvement in cognitive learning outcomes with direct instruction instruction significantly and significantly different with groups that follow the conventional learning.

Magliaro (2005) explains that understanding in the domain is an absolute requirement for higher cognitive learning outcomes such as: application, analysis, evaluation, and creativity. So Buchori et al (2016) Learning outcomes-cognitive learning outcomes with the understanding include: critical thinking, creative, decision-making, and problem solving. So, to improve the thinking skills needed learning that can improve understanding of the concepts being taught.

b) Differences in cognitive learning outcomes of students who have high achievement motivation, moderate and low achievement motivation

From the result of spss obtained shows that H_1 received and H_2 is rejected, because from the t-test data for Equality of Means obtained t_hitung of 2.177 and t_tabel with (df) 63 and alpha 5% is about 2,000. This means "There are differences in cognitive learning outcomes of students who have high achievement motivation, moderate and low achievement motivation", because 2.177> 2,000

Tabel 4. Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.214	.645	2.177	62	.033	6.623	3.042	.542	12.703
Equal variances not assumed			2.379	23.927	.026	6.623	2.783	.877	12.369

Several research results, showing that the application of learning strategies with modified direct instruction gives a better effect on cognitive learning outcomes found by Gujjar (2007); This proves that the direct instruction learning strategy with the media is one of the efforts to familiarize and assist the students in using their cognitive and spatial learning outcomes. Improving the results of cognitive learning will certainly have an impact on student learning outcomes.

The results of this study show that learning strategies Direct Instruction by MAR can improve student learning outcomes in cognitive and spatial learning result achievement better because the learning process provides an opportunity to the process actively and creativity where students can build their knowledge and skills, students are encouraged to able to solve problems. This is in consistency with the results of research conducted previously by some experts Ewing (2002) stated that learning with direct instruction has the potential to improve cognitive learning outcomes and results of spatial learning of students, as well as the attachment of class by combining the interests of students with a variety of challenges, tasks solving An authentic problem.

Similarly, proposed by Bessellieu (2001) that learning by direct instruction, for example modified develop essential skills of critical thinking, problem solving strategies, self-regulated learning, and collaboration within the team. Correspondingly, Farkota (2003) states that learning with direct instruction develops cognitive learning outcomes. Learning by direct instruction can help to overcome the deficit in the reasoning of students (Flores, 2007) and it is also consistent with the statement and the views of various experts that Arends (2008) suggested that learning with direct instruction modified is an approach to learning that uses real-world problems as a context for students To learn about spatial thinking.

c) There is an interaction between learning strategies and achievement motivation toward cognitive learning outcomes

From the results if the spss obtained: H_1 accepted and H_0 rejected. This means "There is an interaction between learning strategies and achievement motivation toward cognitive learning outcomes", because 0.008 <0.05

Table 5. Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power[c]
	Cognitive_ Learning Results	2461.687[a]	5	492.337	4.207	.002	21.034	.942
	Spatial_Learning Results	2534.528[b]	5	506.906	3.167	.014	15.834	.850
	Cognitive_ Learning Results	279016.976	1	279016.976	2384.085	.000	2384.085	1.000
	Spatial_Learning Results	307650.810	1	307650.810	1922.024	.000	1922.024	1.000
	Cognitive_ Learning Results	1327.646	2	663.823	5.672	.006	11.344	.845
	Spatial_Learning Results	2038.608	2	1019.304	6.368	.003	12.736	.886
	Cognitive_ Learning Results	47.645	1	47.645	.407	.526	.407	.096
	Spatial_Learning Results	203.504	1	203.504	1.271	.264	1.271	.198
	Cognitive_ Learning Results	1221.428	2	610.714	5.218	.008	10.437	.812
	Spatial_Learning Results	312.304	2	156.152	.976	.383	1.951	.212
	Cognitive_ Learning Results	6787.922	58	117.033				
	Spatial_Learning Results	9283.831	58	160.066				
	Cognitive_ Learning Results	300175.000	64					
	Spatial_Learning Results	341725.000	64					
	Cognitive_ Learning Results	9249.609	63					
	Spatial_Learning Results	11818.359	63					

a. R Squared = .266 (Adjusted R Squared = .203)

b. R Squared = .214 (Adjusted R Squared = .147)

c. Computed using alpha = .05

Findings mentioned above according to the results of research by Hempenstall (2004). Reveals that modified direct instruction learning strategies have a better effect on improving students' spatial skills compared to ordinary straightforward learning strategies. In line with Magliaro (2005) which states that learning with modified direct instruction can also encourage spatial learning outcomes and lifelong effect in students motivation. So he can try to understand all the material form given by the lecturer, as well as stimulate their thinking patterns to be able to develop in accordance with the circumstances so that all forms of problems that can be solved.

This is in line with the opinion of Arends (2008) which explains that direct instruction learning can help students develop cognitive and spatial thinking skills, problem-solving skills, and intellectual skills as well as student understanding outcomes. In addition Marchand (2004) also outlined some of the benefits of direct instruction learning such as: encouraging students to focus more on relevant knowledge, encouraging to understand, critical thinking, and reflective, building teamwork, leadership and social skills, building learning skills, and can motivate student learning. Similarly, with the results of research conducted by Snider (2004) on the application of learning with direct instruction with the media can improve students' spatial learning outcomes.

In addition to the results of this study, also in accordance with the results of research conducted by Stein (2006) on "The use of learning with direct instruction in improving students' spatial learning outcomes in learning mathematics" found that after learning with MAR media students become increasingly critical in issuing opinions, ask , Identify problems and provide solutions to problems presented by lecturers. In line with that statement, the instructional strategy with direct instruction can make the students progressively become more responsible for their education and make the students grow independent in learning against the dominance of lecturer's role (Stotsky, S.: 2006).

The results show that Direct Instruction learning strategy with MAR is superior to Direct Instruction non MAR learning strategy, it is possible, because in Direct Instruction learning with MAR there is a serious effort to involve students actively in solving problems related to context Learning geometry. Wilson (2006) states that learning involving students can earnestly develop students' cognitive learning outcomes to understand the mathematical material in detail. Various studies show that learning with problems has a very positive impact on learning outcomes both cognitive learning outcomes and spatial learning outcomes, some of which are conducted by Wood (2006) which explains that learning with problems has an effect on students having average results Higher learning compared to non direct instruction instruction MAR.

CONCLUSION

In conclusion, the results of this study are divided into two conclusions as follows :

a. There were significant differences in cognitive learning outcomes between groups of students treated with direct instructional strategies with MAR and group of students who were treated with direct instruction instructional treatment with non-MAR. Acquisition of learning outcomes of cognitive learning outcomes of the group of students with the treatment of direct instruction learning strategy with MAR is superior compared to the student group with the treatment of direct instruction strategy with non-MAR
b. There are significant differences in cognitive learning outcomes between groups of students with high achievement motivation, moderate achievement motivation, and low achievement motivation group. Achievement of learning outcomes of cognitive learning outcomes group of students who have high achievement motivation are more superior compared with groups of students who have low achievement motivation
c. There is an interaction between learning strategies and achievement motivation toward cognitive learning outcomes

REFERENCES

Arends, Richard I. (1997). Classroom Instruction and Management. New York: Mc Graw Hill.

Azuma, R. A (1997), Survey of Augmented Reality. PRESENCE: Teleoperators and Virtual Environments, 6,(4), 355-385

Bessellieu, F., Kozloff, M., & Rice, J. (2001). Teachers' perceptions of direct instruction teaching. Direct Instruction News, 1(1), 14-18.

Buchori A, Setyosari P, Dasna I W, Ulfa S (2016) Developing Character Building Learning Model Using Mobile Augmented Reality On Elementary School Student In Central Java, Global Journal of Pure and Applied Mathematics 12 (4) pp. 3433-3444

Budiarto, M.T..2000. Pembelajaran Geometri dan Berpikir Geometri.Dalam prosiding Seminar Nasional Matematika "Peran Matematika Memasuki Milenium III".Jurusan Matematika FMIPA ITS Surabaya. Surabaya, 2 Nopember.

Craig A.B. (2013). Understanding Augmented Reality: Concepts and Applications. Newnes

Coimbra (2015) Augmented Reality: an Enhancer for Higher Education Students in Maths learning? 6th International Conference on Software Development and Technologies for EnhancingAccessibility and Fighting Infoexclusion , Procedia Computer Science 67 (2015) 332 – 339

Ewing, R. (2002). Framing a professional learning community: An Australian case study. Curriculum Perspectives, 22(3), 23–32.

Farkota, R. (2003). The effects of a 15 minute direct instruction intervention in the regular mathematics class on students' mathematics self-efficacy and achievement. Faculty of Education, retrieved from http://www.acer.edu.au/documents/FarkotaThesis.pdf

Flores, M., & Kayler, M. (2007). The effects of a direct instruction program on the fraction performance of middle school students at-risk for failure in mathematics. Journal of Instructional Psychology, 34(2), 84-94.

Frieberg, H. J., & Driscoll, A. (2000). Universal teaching strategies (3rd ed.). Boston: Allyn & Bacon.

Gersten, R., Baker, S., Pugach, M., Scanlon, D., & Chard, D. (2001). Contemporary research on special education teaching. In V. Richardson (Ed.), Handbook of research on teaching (4th ed.) (pp. 695-722). Washington, DC: American Educational Research Association

Hanafiah, Nanang & Suhana, Cucu. (2010). Konsep Strategi Pembelajaran (The Concepts of Instructional Strategies). Refika Aditama, Bandung. Reynold D (1996) Turning around ineffective schools: some evidence and some speculations, London, Cassell

Heinich, Molenda, et. all (2005). Instructional Technology and Media for Learning. Ohio: Pearson Merrill Hall

Herrington, A, Herrington, J and Mantei, J, (2009), "Design principles for mobile learning, in New technologies, new pedagogies: Mobile learning in higher education, Faculty of Education, University of Wollongong, 4 (2) 138-145.

Hempenstall, K. (2004). The importance of effective instruction. In N. Marchand-Martella,T., Slocum, & R., Martella, (Eds.), Introduction to direct instruction (pp. 1-27). Boston: Pearson.Fitzgerald (1998), Expert and Novice Performance in a Hypermedia Learning Environment for Classroom Observation Skills: The Impact of Prior Teaching Experience, Journal of Educational Computing Research (19) 2, pp 115-131

Degeng, I Nyoman Sudana. (2013). Ilmu Pembelajaran Klasifikasi Variabel untuk Pengembangan Teori dan Penelitian. Bandung: PT Aras Media

Keller J., and Suzuki K. (2004), Learner Motivation and e-learning design . Journal of Educational Media 29(3) 233-236.

Kaufmann, H., Schmalstieg, D., and Wagner (2000), M.Construct3D: A Virtual Reality Application for Mathematics and Geometry Education. Education and Information Technologies 5(4) 263-276.

Kumar Behera Santosh. (2013), M-Learning: A New Learning Paradigm, International Journal on New Trends in Education and Their Implications, 4 (3), 24-34.

Magliaro, S., Lockee, B., & Burton, J. (2005). Direct instruction revisited: A key model for instructional technology. Educational Technology Research & Development, 53(4), 41-55.

Marchand-Martella, N., Blakely M. & Schaefer, E.,. (2004). Aspects of schoolwide implementations. In N. Marchand-Martella, Slocum, T., & Martella, R. (Eds.),Introduction to direct instruction (pp. 304-331). Boston: Pearson.

Muin dkk (1997) profile penguasaan geometri mahasiswa baru FPMIPA IKIP, FKIP UNIVERSITAS dan STKIP Ngeri Sasta di jawa timur, pusta penelitian surabaya

Quinn, C. (2000). Mlearning, Mobile Wireless in Your Pocket Learning. [Online]. Tersedia:http://www.linezine.com/2.1/feature/cqmmwiyp.htm

Sarrab Mohamed, Laila Elgamel, Hamza Aldabbas. (2012), Mobile Learning (M-Learning) and Educational Environments, International Journal of Distributed and Parallel Systems, 3 (4), 31-38.

Schunk, D. H. (2000). Learning theories: An educational perspective. Upper Saddle River, NJ: Merrill

Setyosari, Punaji. (2013). "Metode Penelitian Pendidikan & Pengembangan" edisi Keempat. Penerbit Prenadamedia Group, Jakarta

Shearer (2016) pengenalan mobile augmented reality di UGM.kompas media published (28 Maret 2016)

Stein, M., Kinder, D., Silbert, J., & Carnine, D. (2006). Designing effective mathematics instruction: A direct instruction approach - Chapter 1: Direct instruction. Direct Instruction News, 6(1), 20-31.

Stotsky, S. (2006). Progress in mathematics research base. Retrieved 21/02/17, from http://www.sadlier-oxford.com/docs/pdf/90656-F_PIM_Research_FINAL.pdf

Subagyo dkk (2015) pengenalan rumus bangun ruang matematika berbasis augmented reality prosiding snatif ke -2 tahun 2015 hal 29-32 UMK Kudus

Sugiyono. (2009). Metode Penelitian Pendidikan: Pendakatan Kualitatif, Kuantitatif, dan R&D. Bandung: Alfabeta

Sunandar, Buchori. A, Rahmawati. N.D (2016) Development of Media Kocerin (Smart Box Interactive) To Learning Mathematics in Junior High School, Global Journal of Pure and Applied Mathematics 12 (6) pp. 5253-5266

Suparyan (2007) . Kajian kemampuan keruangan dan kemapuan penguasaan materi geometri mahasiswa pendidikan matematika Universitas Negeri Semarang , Tesis Pascasarjana UNNES.

Supraswati (2016) The Correlation Between Achievement Motivation And Teacher Performance In Teaching At Elementary Schools In Silawe Kajoran Magelang Jurnal Pendidikan Sekolah Dasar 14 (5) hal 1-10

Swanson, H. L. (2001). Searching for the best model for instructing students with disabilities. Focus on Exceptional Childre,n 34 (2), 1-15

Viadero, D. (2002). Studies cite learning gains in direct instruction schools. Education Week 21 (31), p. 15.

Yingprayoon, (2015) .Teaching Mathematics using Augmented Reality Proceedings of the 20th Asian Technology Conference in Mathematics (Leshan, China, 2015) page 384-391

Yulistian (2013) program bimbingan belajar untuk meningkatkan motivasi berprestasi dan prestasi belajar peserta didik, repository. upi.edu

Wilson, L., Andrew, C., & Below, J. (2006). A comparison of teacher/pupil interaction within mathematics lessons in St Petersberg, Russia and North-East of England. British Educational Research Journal, 32(3), 411-441.

Wood, T., Shin, S., & Doan, P. (2006). Mathematics education reform in three US classes. In D. Clarke, C., Keitel, & Y., Shimizu, (Eds.), Mathematics classrooms in twelve countries: The insider's perspective (pp. 75-86). Rotterdam: Sense Publishers.

