



The Just In Time Teaching: The Effect on Student Learning Achievements Viewed from Learning Motivation

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Abstract: The purpose of this study is to determine the effect of Just In Time Teaching using schoology and learning motivation on students learning achievement. This research was conducted in Malang Middle School. The type of research is quantitative with quasi-experimental research design. The population of this study is VIII grade students; the sample of this study is class C and D each number bout 32 students. The sample was selected using a purposive sampling technique. Data collection techniques are collected by learning achievement tests and learning motivation observation sheets. Data analysis used by two-way ANOVA analysis. The results of the study indicate that; 1) There are differences in Physics learning achievement between students who learn in using the Schoology-based on Just In Time Teaching and students who learn in using conventional learning, 2) There are differences in Physics learning achievement between students who have high learning motivation and motivated students low learning, 3) There is no interaction effect using school-based on Just In Time Teaching with learning motivation towards learning achievement. It can be concluded that Just in Time Teaching can be one solution to increase student learning achievement. Students who learn with the Schoology-based on Just In Time Teaching and students who have high motivation can improve students learning achievement.

Keywords: Achievement, Just In Time Teaching, Motivation, Schoology

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INTRODUCTION

Physics is one subject that is considered difficult by most students. The causes of difficulties in learning physics include physics that tend to learn something abstractly, and students' mathematical abilities are still minimal (Ayu, Jufriadi, Pratiwi, & Sujito, 2018). The results of the study by (Sujanem, Poedjiastuti, & Jatmiko, 2018) show that the causes of students' learning difficulties in physics, including those who rarely do additional learning at home, rarely read textbooks, and lack practice doing physics questions. Most students attend the lesson without knowing what material the teacher will teach. Students tend to passively accept the material delivered by the teacher at the meeting. Monotonous learning models make students increasingly have no interest in learning Physics. The pattern of learning to students is transmissive, where the teacher transfers and conveys concepts directly to students (Budaeng, Ayu, & Pratiwi, 2017).

Recognizing the importance of a learning model to improve learning achievement, learning is needed that involves students more actively in the learning process. The learning model must be able to stimulate students to improve student learning activities but the learning time in the room can still be used effectively. The use of technology in learning is by the theory of constructionism, which is the development of the theory of constructivism (Harasim, 2012). This theory is the basis of the birth of various hybrid based learning models and blended learning such as Just in Time Teaching.

The Just In Time Teaching model itself is a pedagogical strategy that facilitates technology to build skills, attitudes, and improve student learning (Smith, Rama, & Helms, 2018). This model is student-centered learning making students active in learning. The Just in Time Teaching makes student

learning more meaningful and more student-centered so that students will be more active in learning. The time of learning with the Just in Time Teaching in the room becomes more effective. Students are required to first carry out a series of additional learning activities outside the room. Increasing student learning activities will be able to improve student learning achievement. The just in time teaching model has been researched by various researchers, but not many researchers have examined this in the field of physics. So we want to explore in physics. Just in Time Teaching usually, use helpful tools to simplify the learning process. Some researchers use tools such as learning management systems (LMS), one of the LMS that can be used in learning is schoology.

Schoology is a Learning Management System in the form of a social web that offers to learn the same as in the room for free and easy to use, such as Facebook social media (Williams & Lahman, 2011). (Ramirez, Collazos, & Moreira, 2018) Say that the advantages of Schoology include: 1) prepares more resource choices than other LMS. 2) can accommodate the types of questions (question banks) that are used to give quizzes. 3) provides attendance facilities to check student attendance. 4) provides analytical facilities to see student activities on each course, assignment, discussion, and other activities prepared for students. Schoology does not hinder the implementation of learning. This is because it makes it easy to access schools using various learning tools (Misbah, Pratama, Hartini, & Dewantara, 2018).

The learning process that occurs at this time does not motivate students because they don't use learning media and are oriented towards the teacher center. The learning process that occurs at this time does not motivate students because they don't use learning media and are oriented towards the teacher center (Ayu, Pratiwi, Kusairi, &

Muhardjito, 2017). Sometimes teachers lack sufficient time to deliver learning material. This has an impact on students' lack of understanding of the learning material provided. Just in time teaching model can be a solution for the two problems above because this hybrid learning-based model provides extensive discussion space for teachers and students, without being limited by space and time (Pratiwi, Sujito, Ayu, & Jufriadi, 2018).

The Schoology-based Just in Time Teaching is a combination of the Just In Time Teaching and Schoology as its media. The objectives of this study are: 1) To find out the differences in Physics learning achievement between students who learn to use the Schoology-based Just In Time Teaching and students who learn to use. 2) To find out the difference in Physics learning achievement between students who have high learning motivation and students who have low learning motivation. 3) To determine the effect of the Just In Time teaching using Schoology with learning motivation towards learning achievement.

METHOD

This research was carried out at SMP in Malang. The population in this study were all VIII students. It's about 32 students. Sampling is done by purposive sampling by taking 2 es from 5 es randomly. This type of research is quasi-experimental with posttest-only control design. The design of this study can be seen in Table 1.

Table 1 Research Analysis Design Matrix

	Independent Variable	Learning Model		
		Just Time Teaching (JITT) Based on Schoology (A ₁)	In Conventional (A ₂)	
Moderat Variable	High (B ₁)	A ₁ B ₁	A ₂ B ₁	
	Low (B ₂)	A ₁ B ₂	A ₂ B ₂	

Information:

A₁B₁ = Physics learning achievement of students with high motivation in groups who study with the Just In Time Teaching using Schoology

A₁B₂ = Physics learning achievement of students with low motivation in groups who study with the Just In Time Teaching using Schoology

A₂B₁ = Physics learning achievement of students with high motivation in groups studying with Conventional learning

A₂B₂ = Physics learning achievement of students with low motivation in groups that study with Conventional learning

Data collection in the study is a description in the form of tests. To determine student learning achievement and observation sheets to determine student learning motivation (Smith et al., 2018). Before being used, all the instruments were tested for validity. For syllabus, lesson plans and student worksheets, the content validity test is conducted. Then a field test was conducted on two items of student learning achievement test. From the results of the field test, a consistency test and reliability test were conducted. For student learning achievement test, validity, reliability, power difference, and level of difficulty are tested. Based on the results of the test, it was obtained student learning achievement tests received by 16 items with high reliability ($r_{11} = 0.70$). The influence of the Just In Time Teaching learning model using Schoology treatment was analyzed using the ANOVA test.

RESULTS AND DISCUSSION

The results of the research obtained are data on learning achievement and learning motivation, which can be seen in Tables 2 and 3.

Tabel 2 The Description of Learning Achievement

Learning Model	Amount of Sample	Learning Achievement		Average
		Highest	Lowest	
Just In Time Teaching (JITT) Based on Schoology	32	98.00	58.00	78.72
Conventional	32	84.00	45.00	64.97

Based on Table 2, the average value of learning achievement in the experimental and the control is 78.72 and 64.97. This means that there is the effect of using the Schoology-based Just In Time Teaching That is, there are

differences in learning achievement in Physics, between students who learn to use Just In Time Teaching using Schoology and students who learn using conventional learning.

Tabel 3 Description of Learning Achievement Based on Motivation

Motivation	Amount of Sample	Learning Achievement Value		Average
		Highest	Lowest	
Highest	32	80.00	75.00	77.68
Lowest	32	72.86	54.76	62.72

In Table 3, the value of the average learning achievement between students who have high learning motivation in the experimental and the control is 77.68 and 62.72. The value of high and low learning motivation determined by 27% up and the low average of the learning motivation score. This means that Physics learning achievement between students who have high learning motivation is higher than the learning achievements of students who have low learning motivation.

data testing the first hypothesis on the source model show a significance level of 0.000. Because ($0.00 < 0.05$), then H_{01} is rejected. This means that there is a difference in learning achievement in science (physics), between students who learn to use Just In Time Teaching model using schoology and students who learn using conventional learning models. The difference in science learning achievement (Physics) occurs because of differences in treatment between the experimental and the control. Learning achievement in the that uses the Just In Time Teaching using Schoology is higher than the conventional learning. The average value of student learning achievement with the Just In Time Teaching can be seen in Table 2.

In the Just In Time Teaching using schoology includes e-learning, active learning, and cooperative learning. Just In Time Teaching using schoology requires students to first carry out a series of learning activities focused outside the room, namely on Schoology media. This means demanding students

Table 4 Results of Two Path Anova Test Analysis

Source	F	Sig.
Corrected Model	46.237	0.000
Intercept	5.4943	0.000
Learning_Model	23.473	0.000
Learn_Motivation	65.215	0.000
Learning_Model* Learn_Motivation	0.587	0.447

Based on the analysis of the data in Table 4, the results of the analysis of

to be able to learn independently in preparing for room learning. Learning activities on Schoology media include reading the material, watching videos, and answering quizzes on Schoology. The results of the quiz scores on Schoology can be seen by students, and quizzes can also be tried repeatedly.

With the assessment and retesting the quiz will give students the opportunity to be able to focus more on their difficulties in understanding the material learned so students will be able to find their answers by practicing and improving learning activities because they are supported by a more interesting learning atmosphere and eager to know, cooperation, search, understand, find, and build new knowledge so that student learning achievements will increase. As expressed by (Vijayaratnam, 2012) that higher student learning activities will give a significant influence on improving learning achievement.

What often happens when using conventional learning students do not know the material that will be taught by the teacher at the meeting in. Because students still think that learning physics is difficult. As a result, students feel bored and lack enthusiasm in receiving the material delivered by the teacher. Students become passive, and the teacher must also explain the learning material in them, not least on material that has been understood or not yet understood by students, so that it makes the learning time in less effective.

In the Just In Time Teaching using Schoology, the learning time in is used for evaluation of learning and group discussion. Here the teacher helps students to reflect (evaluate) or evaluate the learning process they do outside the room on Schoology media. The teacher is more focused on explaining material that is not yet understood by students, so that the learning time in the room is more effective than the conventional learning model which will have an impact on student learning achievement if students really understand the concept rather than

the material being taught (Tsaniyah, Ayu, & Pratiwi, 2019).

The results of this study are consistent with the results of a study conducted (Moskal, Dziuban, & Hartman, 2013), which shows that the Just In Time Teaching is better than conventional learning. The same thing is also supported by the results of research by (Monteiro & Morrison, 2014) which concluded that there was a positive influence on the use of the internet in the learning process of students towards learning achievement. This is evidenced by the results of research, namely the use of the internet has an effect of 20.8% on student learning achievement, where Schoology is a media that is also accessed through the internet.

Based on the second analysis on the source of learning, motivation shows a significance level of 0.000. Because $0.000 < 0.05$; H_{02} is rejected. This means that there are differences in Physics learning achievement between students who have high learning motivation and students who have low learning motivation. Students who have high learning motivation, and students who have low learning motivation have different influences on learning achievement. The influence of motivation can be seen in Table 3. Description of Learning Achievement Based on Learning Motivation. The results of this study are relevant to the research of (Pratiwi et al., 2018) that motivation to learn has a significant influence on student learning achievement.

The results of the third hypothesis test data analysis on the source learning model * learning motivation shows a significance level of 0.447. Because $(0.447 > 0.05)$; then H_{03} is accepted. The meaning shows that the results of the study have no interaction effect on the use Just In Time Teaching using schoology with learning motivation towards learning achievement.

Learning that uses Just In Time Teaching using schoology both do not provide a significant difference to

student learning achievement when viewed from students' learning motivation. Although in the previous analysis showed that there were differences in the value of student learning achievement with students' motivation with high learning motivation, there were still students who had good grades in Physics learning achievement despite having low learning motivation. This is because student learning achievements are influenced by many factors originating from outside and within students in addition to learning model factors and student learning motivation and the many limitations in the research conducted so that they are less able to control the factors that are outside the learning activities. The factors that influence the success of learning that come from outside the self influence on student learning achievement (Vanslambrouck, Zhu, Lombaerts, Philipsen, & Tondeur, 2018).

Students who use schoology have their motivation to learn new things. Students tend to be excited. At schoology there are attendance facilities that are used to check student attendance, and also analytical facilities to see all student activities in each, of course, assignments, discussions and other activities prepared for students. (Vanslambrouck et al., 2018) Schoology utilization helps teachers improve learning effectiveness and efficiency (McClelland & Scalzo, 2006). Online-based learning models by schoology are needed by students to improve the mastery of learning materials according to the 21st-century learning model (Moeller & Reitzes, 2011). In line with that, Mekhlafi states that the use of communication and information technology in learning has a positive impact on student performance, motivation, and student achievement.

CONCLUSION

From the results of research and discussion about the influence Just In

Time Teaching using schoology on student achievement in terms of learning motivation of VIII students, the conclusion is that: 1) There are differences in Physics learning achievement between students learning to use Just In Time Teaching using schoology with students who learn to use conventional learning, 2) There are differences in Physics learning achievement between students who have high learning motivation and students who have low learning motivation, and 3) There is no interaction effect using Just In Time Teaching using schoology with motivation learn about learning achievement.

REFERENCE

- Ayu, H. D., Jufriadi, A., Pratiwi, H. Y., & Sujito, S. (2018). Implication of e-scaffolding in mathematical physics - students achievement and motivation. *Ancosh*, 1(1), 119–122.
- Ayu, H. D., Pratiwi, H. Y., Kusairi, S., & Muhardjito, M. (2017). Pengembangan e-scaffolding untuk meningkatkan kualitas proses dan hasil belajar. *Jurnal Kependidikan: Penelitian Inovasi Pembelajaran*, 1(2), 334–347.
- Budaeng, J., Ayu, H. D., & Pratiwi, H. Y. (2017). Pengembangan modul ipa/fisika terpadu berbasis scaffolding pada tema gerak untuk siswa kelas viii SMP/MTS. *Physisc Education Journal*, 1(1), 31–44.
- Harasim, L. (2012). *Learning theory and online technologies*. New York/London: Routledge.
- McClelland, M. M., & Scalzo, C. (2006). Social skills deficits. Academic Press.
- Misbah, M., Pratama, W. A., Hartini, S., & Dewantara, D. (2018). Pengembangan e-learning berbasis schoology pada materi impuls dan momentum untuk melatihkan literasi digital. *PSEJ (Pancasakti Science Education Journal)*, 3(2), 109–114.
- Moeller, B., & Reitzes, T. (2011).

- Integrating technology with student-centered learning. A Report to the Nellie Mae Education Foundation. *Education Development Center, Inc.*
- Monteiro, E., & Morrison, K. (2014). Challenges for collaborative blended learning in undergraduate students. *Educational Research and Evaluation*, 20, 564–591.
- Moskal, P., Dziuban, C., & Hartman, J. (2013). Blended learning: A dangerous idea? *Internet and Higher Education*, 18, 15–23.
- Pratiwi, H. Y., Sujito, S., Ayu, H. D., & Jufriadi, A. (2018). The importance of hybrid teaching and learning model to improve activities and achievements. In *in Proceeding ICoSEd*, 326–330).
- Ramirez, G. M., Collazos, C. A., & Moreira, F. (2018). All-Learning: The state of the art of the models and the methodologies educational with ICT. *Telematics and Informatics*, 35(4), 944–953.
- Smith, T. E., Rama, P. S., & Helms, J. R. (2018). Teaching critical thinking in a GE class: A flipped model. *Thinking Skills and Creativity*, 28, 73–83.
- Sujanem, R., Poedjiastuti, S., & Jatmiko, B. (2018). The Effectiveness of problem-based hybrid learning model in physics teaching to enhance critical thinking of the students of SMAN. *Journal of Physics: Conference Series*, 1040(1).
- Tsaniyah, S., Ayu, H., & Pratiwi, H. (2019). Pengaruh model blended learning menggunakan schoology terhadap prestasi belajar ditinjau dari kemandirian belajar siswa. *Jurnal Terapan Sains & Teknologi (RAINSTEK)*, 1(1), 71–75.
- Vanslambrouck, S., Zhu, C., Lombaerts, K., Philipsen, B., & Tondeur, J. (2018). Students' motivation and subjective task value of participating in online and blended learning environments. *Internet and Higher Education*, 36(September 2017), 33–40.
- Vijayaratnam, P. (2012). Developing Higher Order Thinking Skills and Team Commitment via Group Problem Solving: A Bridge to the Real World, 66, 53–63.
- Williams, L., & Lahman, M. (2011). Online discussion, student engagement, and critical thinking. *Journal of Political Science Education*, 7(2), 143–162.