



Improving Pedagogic Competence through Learning Videos

AUTHORS INFO

Herlina
Universitas Sembilanbelas November Kolaka
herlina8072@gmail.com
082344891534

ARTICLE INFO

o-ISSN: 2528-2026
p-ISSN: 2528-2468
Vol. 5, No. 2, December 2020
URL: <http://doi.org/10.31327/jme.v5i2.1759>

© 2020 JME All rights reserved

Abstract

The purpose of this study was to improve learning outcomes in the subjects of Basics and Mathematics Learning Process. This study uses a pre-experimental one group pre-post design. The research subjects are prospective student teachers who take the Basics and Mathematics Learning Process course consisting of 41 students in 2020. The instrument used is a test instrument that is given before and after treatment in the form of pretest and posttest. Data analysis used two mean differences, namely paired two-sample t-test, but previously tested for normal distribution using Kolmogorof Sminov. To see the improvement in learning outcomes, both data were analyzed by N-Gain. The results of the descriptive analysis showed that the average pretest and posttest were different where the posttest average was 77.44 higher than the pretest average was 62.68. The results of the two-average difference test show a significance value (2 tailed) $(0,000) < \alpha (0.05)$, which means that the average pretest and posttest are significantly different. The results of the N-Gain calculation show that the increase in learning outcomes is included in the medium category, so that an increase in learning outcomes is obtained Based on the results of the study, it was concluded that the use of instructional video media can improve learning outcomes for the Basic Learning Process and Mathematics courses. This is possible because videos about learning can represent teaching simulations more than just lectures or discussions.

Keywords: learning outcomes, pedagogic competence, learning videos.

A. Introduction

Teachers are part of the education system that is directly related to students in the classroom. Teachers have a very important role in achieving a learning goal. In order to carry out this role, teachers must have several competencies, one of which is pedagogic competence. Teacher pedagogic competence is the ability of a teacher to manage student learning (Yasin, 2011) which includes: 1) the ability of teachers to understand students, 2) the ability to design learning, 3) the ability to carry out learning, 4) the ability to assess/evaluate processes and

results. learning, and 5) the ability to develop the potential of students. With this pedagogic competence, it can enable teachers to teach effectively and efficiently.

However, it turns out that expectations have not met reality. Teacher competence in Indonesia is still below the standard. This is shown from the results of the 2015 national Teacher Competency Test (UKG). The average national UKG result was 53.02 while the UTN result from the 2017 PLPG only 44% passed (Aryantini et al., 2018). From the 2015 national UKG, there were two competencies tested, namely professional pedagogic competence. For pedagogic competence, the national average of 48.94 is still below the average Minimum Competency Standard (SKM), which is 55. According to Sumarna Surapranata, one of the instruments to improve teacher competence is through more targeted training and education in accordance with the results. UKG (Maulipaksi, 2016).

There have been many studies conducted in relation to pedagogic competence. For example (Eriawati, 2016; Hali & Herlina, 2018; Sri Wulan Dari & Yulhendri, 2019; Suhandani & Kartawinata, 2014). The research reveals about pedagogic competence. There is also a study (Yasin, 2011) which conducted a case study on the pedagogic development of teachers at MIN 1 Malang, (Saputra et al., 2019) which developed the topic of pedagogic competency modules for students. However, among these studies there have been no experiments aimed at increasing the pedagogic competence of prospective teacher students.

Many factors affect the low pedagogic competence. This gain is also more or less influenced by the teacher's understanding while sitting in college. One of the subjects that is closely related to pedagogic competence at the Faculty of Teacher Training and Education, Mathematics Education Study Program is the Basics and Process of Learning Mathematics. To obtain adequate teacher competence, it can be started to be prepared since college. This can be done by fixing the understanding of prospective teacher students about the competencies that teachers must possess. Many courses contribute an important role in pedagogic competence. The content of teaching materials for the Basics and Mathematics Learning Process course is part of the topic of pedagogic competence, so that if student learning outcomes in the Basics and Mathematics Learning Process course increase, the pedagogic competence of prospective teacher students will also increase.

So far, learning in the Mathematics Basics and Learning Processes course is done by giving assignments to students to find and compile papers which are then presented and discussed in groups in class at the next meeting. In this study, learning videos were added which were considered suitable with the characteristics of the material. By using additional learning videos, students are not only guessing according to their own minds, but can seem to see and feel firsthand a condition of a certain way of learning. The results of the study (Arifin & Gultom, 2016) suggest that improving the pedagogical competence of prospective teacher students uses Lesson Study on Field Experience Practice. However, during this pandemic, this is not possible. Even if it is carried out in lectures, it is very ineffective because it cannot present a model teacher at every meeting. However, Lesson Study is very suitable for teachers in schools.

Based on these problems, this study aims to improve the pedagogic competence of prospective teacher students who take the Basics and Mathematics Learning Process course through additional learning resources, namely learning videos. The learning videos in this study utilize videos from YouTube which contain teacher and student interactions in classroom learning using certain learning models, approaches, strategies, methods, techniques, and learning tactics.

B. Literature Review

1. Basics and Learning Process Course _ Mathematics

The Basics and Learning Process of Mathematics course is one of the mandatory courses that must be taken by prospective teacher students at the Faculty of Teacher Training and Education, Mathematics Education Study Program. Graduates of prospective teacher students at this faculty will become teachers in secondary schools. They will teach mathematics to students between the ages of 13 and 18. This course contains the basics of thinking that underlie a learning process, as well as the process itself, especially in mathematics. In order to teach effectively and efficiently, prospective teacher students must understand learning models, approaches, strategies, methods, techniques, as well as tactics and their implementation (Erita, 2016). Through this course, prospective teacher students are introduced to various learning models, approaches, strategies, methods, techniques, and tactics and their implementation in

learning mathematics. Including the basis for selecting learning models, approaches, strategies, methods, techniques, and tactics that are tailored to the learning objectives and character of the students to be taught.

2. Tutorial video

Video is a form of learning resource (Andi, 2013). Videos used in learning without having to be specially designed are directly accessed via the internet, including *resources by utilization*, meaning sources that can be used as learning resources. Learning using video has the advantage that it can accommodate audio and visual learning styles. Several studies have also found that the use of video/audio visuals can improve learning outcomes, such as in research (Nasrum & Herlina, 2019) which revealed that with video learning students can repeat less material _ understood anytime and anywhere with replay video even without the presence of a lecturer.

Learning resources in the form of videos are very suitable to be used for material in the form of simulations because they can present interactions between teachers, students, media, learning resources, and the environment simultaneously at once. Learning videos are very appropriate to present a certain learning simulation, for example, how does cooperative learning actually take place, how does it work? situation in class, how interactions that occur between teachers, students, media, learning resources, and the environment.

The video used is a video that contains real learning in the classroom. This will be useful so that students really feel they are in the classroom. They can observe and even give suggestions for learning videos by comparing them with theories or concepts they understand. This will give rise to many responses or questions that can trigger discussion.

C. Methodology

1. Research Design

This research is a pre-experimental research design. The respondents of this study were 41 students who took the Basics and Learning Process of Mathematics course at the Faculty of Teacher Training and Education, Mathematics Education Study Program in 2020. The research began with carrying out learning as usual. Students are given the task of studying and discussing the material that is part of the module with their group. If the material in the module is not understood, students can add from other sources. Next, prepare a report on the results of the discussion which is then presented and discussed by the group in class in turn at the scheduled time. This meeting lasted for 6 meetings. Next, students are given a pre-test. Then proceed with learning as before, but each group must add a relevant video. Reports and videos from each group are distributed through the Classroom at least a day before the scheduled meeting. Another student task is to study the report and analyze the video, whether the video is in accordance with the report or module and record the results of the analysis. During the presentation, the learning video will be played according to the commented section. This kind of learning also lasted for 6 meetings. Finally, students will be given a final test. The design of this research can be seen in table 1.

Table 1. One Group, Pre-test Post-test Designs

Pre-test	Independent variable	Post-test
T1	X	T2

Based on Table 1, respondents were given a pretest (T1), then given a different treatment from before (X) and then given a posttest (T2). The results of the pretest and posttest were analyzed and compared.

2. Instruments

The instrument used in this study was a test instrument, namely pretest and posttest which contained 20 pedagogical questions. In addition, field notes during lectures are used to record things that are considered important.

3. Technique of Data Analysis

The pretest and posttest data in this study were analyzed descriptively to determine the average value, maximum value, minimum value, and standard deviation. To find out whether the mean values are significantly different, a two-mean difference test is used, namely the two-sample paired t-test. Before the difference test is carried out, first the normality test is carried out using the Kolmogorof Smirnov test. If the data is normally distributed, then the paired two-

sample t-test is used. However, if the data is not normally distributed, then the difference test is carried out using the Wilcoxon Rank test. Prerequisite testing and hypothesis testing of this study were carried out with the help of SPSS26.

If it turns out that there is a significant difference in the mean of the pretest and posttest, then proceed with analyzing the N-Gain to see the increase from pretest to posttest with the following formula:

$$N - gain = \frac{\% Posttest - \% Pretest}{100\% - \% Pretest} \quad (\text{Hake, 2007})$$

The increase is categorized according to the category (Hake, 2001) in Table 2.

Table 2. Categorization of N-Gain Values

Category N-Gain	N-Gain Value
High	N-Gain > 0.7
Medium	0.3 < N-Gain < 0.7
Low	N-Gain < 0.3

D. Findings and Discussion

1. Findings

The pretest and posttest data were analyzed by descriptive produce values as in Table 3.

Table 3 . Description Average, Maximum Value , Minimum Value, and Standard Deviation

Statistics	Pretest	Posttest
mean	62.68	77.44
Maximum	90	100
Minimum	40	45
Std. Deviation	13.23	14.10

Based on Table 3, the average posttest more tall than the pretest mean, but what is the average significant , then carried out a different test two sample mean in pairs . However Previously , each pretest and posttest data was tested for normality of the data first first . Kolmogorof Smirnov 's test results can be seen in Table 4.

Table 4 . Normality of Pretest and Posttest Data

	Kolmogorof Smirnov
	Sign
Pretest	0.11
Posttest	0.88

Based on Table 4, the results of the normal distribution test using Kolmogorof Smirnov, obtained that Sign value of both data > 0.05 indicates that good pretest data and posttest data together normally distributed , so for different test two average use t test two sample in pairs . T test results two sample in pairs shown in Table 5.

Table 5 . Paired Samples Test

Paired Samples Test	
Statistic	Pretest- Posttest
mean	-14.76
Std. Deviation	6.32
t	-14,951
df	40
Sign. (2-tailed)	0.000

Based on Table 5, obtained the average difference Pretest-Posttest -14.76 (negative value) means occur enhancement results study student after given treatment of an average of 14 , 76. Sign value. (2-tailed) < 0.05 indicates that there is significant difference between pretest and posttest. For see effectiveness treat given so both data were analyzed by N-Gain. The results of the N-Gain analysis obtained an average N-Gain of 0.395. If consulted with Table 2, the N-Gain value is included in the medium category .

2. Discussion

The mean pretest 62.68 including very less value from the maximum ideal value is 100. What's more for size pedagogic competence which is ability mastery manage class . Based on the initial discussion with prospective teacher students, it was also found that the average student understanding of the learning process was still a lot wrong, especially with regard to the new paradigm of learning. This is due to the experience of students in obtaining learning while sitting in primary and secondary schools. Students master the lecture method very well, both in theory and in its implementation in learning, but for other methods it is only limited to mastering concepts, but still lacking in implementation. They do not accept or even believe in learning with approaches or methods other than lectures. For example, when you are in school, learning is done using the lecture method, it is very simple, does not take much time, and does not require much preparation. When compared with learning with a new paradigm, for example, Problem Based Learning, which starts learning with a problem orientation to find or understand concepts, is in stark contrast to the methods they have received in school. The material begins with a ready-made concept, then they are given a problem, then they solve the problem based on that concept. It is undeniable that students are confused about the gap between theory and learning practice, thus affecting students' understanding of pedagogic competence in the Basics and Learning Process of Mathematics course.

After given treatment in the form of additional learning videos and a posttest was carried out, it was found that the average posttest was 77.44 enough far the difference with the average pretest. Different test results show the difference between posttest and pretest is significant , and the N-Gain test also places enhancement results study though only on category medium . Based on results notes field that learning video playback is very helpful student understand by comprehensive something theory study. Finding this in line with results study (Nasrum & Herlina, 2019) who stated that use of learning videos could increase results study student.

E. Conclusion

Based on results research and discussion above could concluded that the teacher's pedagogic ability can upgraded start from seat studying through eye close college relation with teacher competence is one of them eye Basics course and Learning Process Mathematics. Through eye studying this student study with learning video help as companion from module for increase activity think student so that motivate student for discuss . With thereby could said pedagogic abilities can upgraded through learning with additional learning videos

References

- Andi, P. (2013). *Panduan Kreatif Membuat Bahan Ajar Inovatif*. Diva Press.
- Arifin, A., & Gultom, U. A. (2016). Lesson Study: Peningkatan Kompetensi Pedagogik Mahasiswa Praktik Pengalaman Lapangan (Ppl) Di Smp Kota Tarakan. *Journal of Educational Science and Technology (EST)*, 2(3), 185. <https://doi.org/10.26858/est.v2i3.3217>
- Aryantini, N. P., Gede Agung, A. A., & Rihendra Dantes, K. (2018). Kontribusi Implementasi Manajemen Sekolah Berbasis Nilai-Nilai Kearifan Lokal Tri Hita Karana, Kepemimpinan Pelayan Kepala Sekolah, Budaya Sekolah, dan Kepuasan Kerja Terhadap Kinerja Guru di SMP Negeri Kecamatan Sukasada Kabupaten Buleleng. *Jurnal Administrasi Pendidikan Indonesia*, 9(2). <https://doi.org/10.23887/japi.v9i2.2757>
- Eriawati, E. (2016). Kompetensi Pedagogik Mahasiswa Program Studi Pendidikan Biologi Ftk Uin Ar-Raniry. *Aricis Proceedings*, 101–108.
- Erita, S. (2016). Beberapa Model, Pendekatan, Strategi, dan Metode dalam Pembelajaran Matematika. *Tarbawi: Jurnal Ilmu Pendidikan*, 12(2), 1–13.
- Hake, R. (2001). Lessons From the Physics-Education Reform Effort. *Conservation Ecology*,

August 2001, 1–61.

- Hake, R. (2007). Six Lessons From The Physics Education Reform Effort. *Lat. Am. j. Phys. Educ*, 1(1), 24–31. <https://doi.org/10.5751/es-00286-050228>
- Hali, F., & Herlina, H. (2018). Analysis of Pedagogic Competency of Mathematical Education Students in Microteaching Course at the Universitas Sembilanbelas November Kolaka. *Journal of Mathematics Education*, 3(2), 60–64. <https://doi.org/10.31327/jomedu.v3i2.842>
- Maulipaksi, D. (2016). 7 Provinsi Raih Nilai Terbaik Uji Kompetensi Guru 2015. Kemdikbud. <https://www.kemdikbud.go.id/main/blog/2016/01/7-provinsi-raih-nilai-terbaik-uji-kompetensi-guru-2015>
- Nasrum, A., & Herlina, H. (2019). Developing of Calculus Teaching Materials Based on Audiovisual. *Infinity Journal*, 8(2), 209. <https://doi.org/10.22460/infinity.v8i2.p209-218>
- Saputra, A. H., Mardiana, A., & Teguh, T. (2019). Pengembangan Topik Modul Kompetensi Pedagogik Mahasiswa PGSD Universitas Terbuka di Kota Palembang. *DWIJA CENDEKIA: Jurnal Riset Pedagogik*, 3(2), 113. <https://doi.org/10.20961/jdc.v3i2.34666>
- Sri Wulan Dari, E. D., & Yulhendri, Y. (2019). Analisis Kompetensi Profesional dan Kompetensi Pedagogik Mahasiswa Pendidikan Ekonomi Universitas Negeri Padang. *Jurnal Ecogen*, 2(4), 757. <https://doi.org/10.24036/jmpe.v2i4.7853>
- Suhandani, D., & Kartawinata, J. (2014). Identifikasi Kompetensi Guru Sebagai Cerminan Profesionalisme Tenaga Pendidik Di Kabupaten Sumedang (Kajian Pada Kompetensi Pedagogik). *Mimbar Sekolah Dasar*, 1(2). <https://doi.org/10.17509/mimbar-sd.v1i2.874>
- Yasin, A. F. (2011). Pengembangan Kompetensi Pedagogik Guru Pendidikan Agama Islam di Madrasah (Studi Kasus di MIN Malang I). *El-QUDWAH*, 1(April), 157–181.