

# The Effectiveness of Pedagogical Innovation of Islamic Education Learning (PAI) During Covid-19 A Case Study of Senior High School in Malang-East Java

Dina Mardiana<sup>1,\*</sup>, Triyo Supriyatno<sup>2</sup>

<sup>1</sup> Universitas Muhammadiyah Malang, Indonesia

<sup>2</sup> Universitas Islam Negeri Maulana Malik Ibrahim Malang, Indonesia

\* Corresponding Author. Email: [dinamardiana@umm.ac.id](mailto:dinamardiana@umm.ac.id)

## ABSTRACT

The COVID-19 pandemic has shifted education patterns that focus on the IT-based online learning sector. This certainly requires the adaptive readiness of teachers to adapt the learning system provided to the students. To realize this, pedagogical innovation becomes an absolute necessity that must be possessed by teachers. This research aims to analyze the effectiveness of pedagogical innovation of the teachers of Islamic Education Learning (PAI) in Aisyiyah Senior High School Malang. This study was conducted on teachers in grades X at the school, by using a quantitative approach and a research survey. Sources of primary data were teachers of grades XA and XB, school administration data, and students. Observation, questionnaires, and documentation of archives in Aisyiyah Senior High School Malang were the research instruments of data collection. Sampling data sources is done purposively. Data analysis was using a test instrument validity, reliability test, whereas pre-test and post-test also added as descriptive analysis. Furthermore, the data elaborated and described with the T-test by using SPSS 21.00. The findings of this research show that pedagogical innovation by using online media (social media, video games) and teachers' design thinking capabilities in the experimental class (XA) is more effective than the control class (XB) in terms of student learning outcomes. The normalized gain values in the calculation between the experimental class show a higher number than the control class, namely  $g = 0.60$  in the experimental class and  $g = 0.50$  in the control class.

**Keywords:** Pedagogical Innovation, Islamic Education Learning (PAI), Covid-19.

## 1. INTRODUCTION

Today, the discourse on the COVID-19 pandemic has become a *trading topic* of scientific research from various dimensions of education [1]. Various perspectives are used by academics to photograph the COVID-19 pandemic phenomenon and its implications for managerial aspects of education [2], academic regulation [3], teaching media [4], impact psychic pandemic COVID-19 [5], to the projected educational policies during the pandemic [6]. The presence of the response from the academics is not without reason if we see a number of 1.292.378.969 people with student status have been affected subjects due to the area closure policy adopted by each local government head. Indonesia itself is included in the category of "country-wide closures" with a total of

33.247.703 affected students [7]. So, online learning readiness becomes the urgent matter.

Therefore, innovation in the pedagogical aspect is an absolute necessity for teachers to carry out online learning during the COVID-19 pandemic. This is because pedagogical innovation is the key for teachers in enhancing the quality of learning provided to students [8] so that learning targets can be achieved maximally [9].

Aisyiyah Senior High School is one of the schools in Malang City, East Java Indonesia that must carry out learning in the midst of the Covid-19 pandemic situation. Technically, this school already has a number of teachers. Based on school data, the percentage of teachers with students ranges from 1 : 25. This means that quantitatively, one teacher is

responsible for 25 students. However, the readiness of the pedagogical skills of the teachers still needs to be studied in depth regarding the lessons that must be done as long as the pandemic is not over.

Nevertheless, this paper wants to analyze and measure the effectiveness of pedagogical innovation in the online learning process at Aisyiyah Senior High School Malang city, East Java, during the COVID-19 pandemic.

Many studies have published research in the field of pedagogical innovation, as pedagogical innovation is seen from the aspects of the *theoretical* foundation that underlie the importance of teacher pedagogical innovation [10], [11] as a form of learning approach that must be mastered by a teacher [12], [13].

As the main actor who plays a role in learning assistance, educators' pedagogical ability has a considerable role in determining the achievement of learners' learning targets. In this case, internal factors such as teacher self-perceptions turn out to be essential to increase the intention to implement and share pedagogical innovations in schools [14] in addition to the role of external factors through teacher pedagogical competency improvement programs that can support the achievement of innovative pedagogical competencies [15].

Pedagogical innovation does not only require the readiness of these two factors. Research [16] states that educators' cognitive readiness in absorbing strategic guidelines for learning planning is a determining factor in the emerge of innovation in the pedagogical field. These strategic guidelines mean that technical factors such as guidelines for preparing lesson plans should not neglect in carrying out the learning process.

On the other hand, various media can use to support pedagogical innovation. Social media, for example, is technically applicable able to be used as a support exploration of learning resources from all over the world, as well as compiling a learning paradigm in the future at the same time. This social media certainly provides its advantages for students to be able to learn in new ways [17]. Research [18] also indicates that the media supports teachers' pedagogical innovation through the use of *mobile technology*, which functions as a trigger for students' *high-order thinking skills*. In the end, *mobile technology* will be able to increase students' cognitive knowledge [19], [20].

Mobile technology, as the description above, is one of the main components in today's modern learning, where the majority have used the concept of e-learning in the learning process. In her research, Rissa [21] said

that e-learning is a sophisticated media that has various model variants for learning purposes.

E-learning has an essential element in the use of electronic media. In fact, e-learning, which is widely used in modern learning today, is described as a learning medium with the principles of digital competence [22], digitization [23], and virtual environments [24].

The next topic related to the COVID-19 pandemic and its implications in the field of education also did not escape the attention of researchers. The main subjects affected were students [25] and teachers [26]. In such a situation, innovations in the education sector become something that needs to be well prepared by actors and education policymakers.

The research that has put forward shows the different *scope of* analysis regarding the theme of pedagogical innovation, media supporting pedagogical innovation, and the impact caused by the COVID-19 pandemic on the urgency of innovation in education. Therefore, the researcher wants to review these themes in this research through a case study at the Aisyiyah Senior High School educational institution Malang city, East Java.

## 2. THE PROPOSED APPROACH

This research used the quantitative approach, whereas a simple numerical data related to the pre-test, post-test as the focus of the research. Data analysis was derived from observations in the Aisyiyah Senior High School Malang, related to the effectiveness of the pedagogical innovation of the teachers of Islamic Education Learning (PAI) in these school. According to the type of research, this study uses the type of survey research in the educational unit at Aisyiyah Senior High School that is located in Malang city, East Java. The survey was taking a sample of the population of the teachers in there, with the hypothesis:

$H_0$ = The effectiveness of the pedagogical innovation in Islamic education learning with online media (social media and video games) is same as the implementation of distance learning as usually

$H_1$ = The effectiveness of the pedagogical innovation in Islamic education learning with online media (social media and video games) is higher than the implementation of distance learning as usually

The source of the data in this research were teachers and students of class XA and XB of Aisyiyah Senior High School Malang. In addition to the two research subjects, the source of the research's data will also come from questionnaires, as well as the school's

academic documentary in Aisyiyah Senior High School Malang.

Secondly, data sources that was used in this study were the pre-test and post-test conducted on 15 respondents, consisting of 8 teachers of class XA and 7 teachers of class XB. Sampling data sources is done purposively. This research carried out data collection techniques through documentation, interviews by mobile phone, and tests (pre-test and post-test).

The pre-test was carried out to students (class XA and XB) by giving ten questions on the chapter of zakat, while the post-test was carrying out when the *treatment* for the teachers finish. In the post-test, students given ten questions on the chapter of zakat, but with more complex material weights than those given during the pre-test.

### 3. EXPERIMENTAL RESEARCH AND ANALYSIS

As the methods of this research, the processed data is the result of knowledge tests namely pre-test and post-test. Eight teachers of class XA as the sample of experimental group in this research. It was given treatment by using pedagogical innovation with online media (social media and video games), while XB class became a comparison side in the control group with seven teachers given treatment with distance learning as usually. The sample of this research carried out within each of the four meetings. Islamic Education Learning (PAI) subjects from 2013 curriculum for one basic competence (KD) namely zakat, as the test material used in the study.

#### 3.1 Test Validity of Question Items

In determining valid or not the question item, this research analyze the comparison of results between  $r_{\text{count}}$  with  $r_{\text{table}}$  Product Moment. Through 15 respondents, it shows  $r_{\text{table}}$  get  $N-1 = 23$  d with a significance level of  $\alpha = 5\%$  so that  $r_{\text{table}} = 0.329$ . In the other side, the result of  $r_{\text{count}}$  for each item is compared with  $r_{\text{table}}$ . So, the question items for the test validity are valid. The data used in the research are in the form of scores of pre-tests, scores of post-tests, and gain scores. Especially for the acquisition of gain score, it is derived from the difference between the score of pre-tests and score of the post-test, both teachers who teach using online media as a pedagogical innovation and teachers who teach the students by using distance learning as usually.

#### 3.2 Reliability Test

The result of the count from SPSS 21,00 shows that the question is used for pre-test and post-test in the experimental class is reliable, with Cronbach's value  $> 0.895$ . In common with, the questions is used for the pre-tests and post-test in the control class is reliable too, with Cronbach's value  $> 0.873$ .

#### 3.3 Descriptive Statistics of Pre-test and Post-test Data.

The data used in the pre-test and post-test are descriptive statistical data obtained through testing of 10 questions regarding the material of zakat. This treatment gives to both the experimental class and the control class. Technically, the pre-test questions are given based on Basic Competence (KD) 3.2 "Examine Islamic provisions regarding zakat and its lessons". While the post-test questions base on KD 4.2 "Shows examples of the application of zakat provisions". The pre-test and post-test results assess by the researcher and the teaching teachers in class XA and XB. The assessment technique allows an objective evaluation based on the data obtained.

Based on the data obtained, it appears the mean (average) score of pre-test experimental class by 1.04317 with a maximum score of 22 and a minimum score of 0.00. While in control class, the mean (average) score of pre-tests at 0.92883 with a maximum score of 21 and a minimum score of 0.00.

#### 4.4 Test Results of t-test.

The acquisition of research data shows the value of  $P = 0.697$  and  $t_{\text{count}} = 0.998$ . By comparing the value of  $P (0.697) > \alpha (0.05)$  and  $t_{\text{count}} < t_{\text{table}}$ , so the result is that can be taken is  $H_1$  is accepted. It is a common if said that the effectiveness of the pedagogical innovation in Islamic education learning with online media (social media and video games) is higher than the implementation of distance learning as usually.

### 4. RESULT AND DISCUSSION

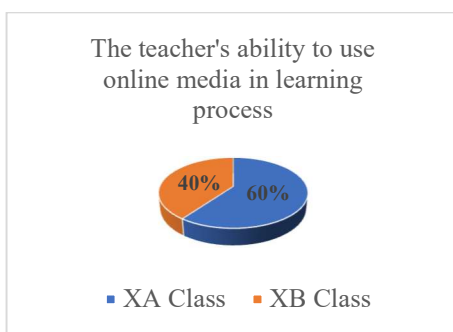
In experimental class of this research, through data obtained from the value of pre-test or post-test, shows that the normalized gain value of control class is 0.5 and an experimental class of 0.6. Moreover, this value was analyzed into the criterion of the value  $<g>$ , gained the effectiveness of pedagogical innovation with online media (social media and video games) both in experimental class and control class is high. Based on the comparisons of gain between experiment class and control class, it can be recapitulated that the

effectiveness of the experimental class using pedagogical innovation with online media (social media and video games) is higher than the control class distance learning as usually.

In the two types of samples of this research, namely teachers of XA and XB, there were no differences in the initial abilities because they had not provided pedagogical innovation which was the test material in this study. It was obtained different things when the sample was given treatment in the form of online media as a process through the pedagogical innovation of teachers in the experimental class (XA), and the treatment in the form of distance learning as usually to the control class (XB).

The differences in pedagogical innovations shown by the teachers during the treatment period were divided into two groups. In XA class, teachers show their pedagogical competence by providing learning through performance platforms on social media (YouTube and Instagram) to support the learning material in the class. In addition, the ability of teachers in teaching is also demonstrated through an interactive video game platform containing Islamic education learning materials. Meanwhile, the control class (XB) emphasizes distance learning which is oriented towards group discussion through small groups. Another variation shown by the teacher in class XB was peer tutors interacting with each other in a distance learning forum which facilitated by the teacher.

After four meetings and eight internal discussions of the teachers discussing the evaluation of innovations that have been carried out in these four weeks, there are changes in the pedagogical competence aspects of the teachers. This can be seen from the ability of teachers to maximize the benefits of online media in learning, as shown in the following diagram:



Graphics 1. The Teacher' S Ability to Use Online Media In Learning Process

Through this pedagogical innovation, the difference shown in the final learning outcomes. Average (regained mean) at 81.29 control class and 85.75 while the experimental class. Based on the value of the average (mean) of post-test, it can be deduced that the control class learning outcomes is lower than the experimental class.

The results of the average value between control class and the experimental class in this study shows the difference. So, it is indicating that there is distinction in the students learning outcomes in the subjects of the PAI zakat chapter which are the entity in this research. The results were in consequence of the experimental class using pedagogical innovation with online media (social media and video games) during the learning taking place, which in this research took the duration of four online meetings, which required the teachers to be more effective in using pedagogical innovation with social media and video game. Both of these media (social media and video games) are maximally utilized to support the student learning process. This activity includes the teachers' ability to share the outcome of material of zakat term, download teaching materials and combine this material with both, social media and video game. Whereas in distance learning that is commonly practiced, the learning process is dominated by peer tutoring activities and discussions in small groups.

This research follows the results of a previous study with similar themes. Mardiana [27] concluded in her study that information-technology is a determining factor for the effectiveness of Islamic Education learning. On the other hand, educational institutions also have an essential role in forming basic learning patterns for their students. This institution also can apply to facilities, technical-implementation, and readiness in the field of Human Resources [28]. The headmaster of the school can use the combination of these two factors. It can be used as a reference for increasing the effectiveness of learning. One of the indicators that can be seen to achieve this effect is the teachers' pedagogical innovation readiness.

Lastly, from the result of this study, the overall activity of pedagogical innovation in Aisyiyah Senior High School Malang become a strategy of learning is effective in improving quality of learning during pandemic COVID-19.

## 5. CONCLUSION

The result of this study shows that the effectiveness of the use of pedagogical innovation from online media and video game is higher than distance learning as usual. Based on the research problem, the purpose of the research, the aims of the analysis, and the discussion of research, this is indicated that pedagogical innovation is an important thing that must be done by teacher. By the post-test hypothesis test and the normalized gain value results with T-test, it is indicated that P-value is higher than oc value so that  $H_0$  "The effectiveness of the use of pedagogical innovation is higher than the use of distance learning as usual in learning process during COVID-19" accepted. In the data analysis from the normalized gain of the experimental class is higher than the control class.

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## REFERENCES

- [1] E. J. Sintema, "Effect of COVID-19 on the Performance of Grade 12 Students : Implications for STEM Education," *EURASIA J. Math. Sci. Technol. Educ.*, vol. 16, no. 7, pp. 1–6, 2020.
- [2] C. Wang, Z. Cheng, X. Yue, and M. McAleer, "Risk Management of COVID-19 by Universities in China," *J. Risk Financ. Manag.*, vol. 13, no. 36, pp. 1–6, 2020.
- [3] D. Telaumbanua, "Urgensi Pembentukan Aturan Terkait Pencegahan Covid-19 di Indonesia," *Qalamuna J. Pendidikan, Sos. dan Agama*, vol. 12, no. 1, pp. 59–70, 2020.
- [4] A. R. Setiawan, "Scientific Literacy Worksheets for Distance Learning in the Topic of Coronavirus 2019 (COVID-19)," *Kudus*, 1, 2020.
- [5] C. Wang *et al.*, "Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease ( COVID-19 ) Epidemic among the General Population in China," *Int. J. Environ. Res. Public Health*, vol. 17, no. 5, pp. 1–25, 2020.
- [6] J. Qiu, B. Shen, M. Zhao, Z. Wang, B. Xie, and Y. Xu, "A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic : implications and policy recommendations," *Gen. Psychiatry*, vol. 33, no. 2, pp. 1–4, 2020.
- [7] en.unesco.org, "Global Monitoring of School Closure Caused by COVID-19," <https://en.unesco.org/covid19/educationresponse>, 2020. [Online]. Available: <https://en.unesco.org/covid19/educationresponse>. [Accessed: 02-Jun-2020].
- [8] M. Sharples, R. de Roock, R. Ferguson, and M. Gaved, "Innovating Pedagogy 2016: Open University innovation Report 5," United Kingdom, 2016.
- [9] G. (Ed. . Sonia, *Educational Research and Innovation Pedagogical Knowledge and the Changing Nature of the Teaching Profession*. Paris: OECD Publishing, 2017.
- [10] P. Serdyukov, "Innovation in Education: What works, What doesn't, and What to do About It?," *J. Res. Innov. Teach. Learn.*, vol. 10, no. 1, pp. 4–33, 2017.
- [11] K. (e. P. Taru and K.-M. Liisa, "Developing Innovation Pedagogy Approach," *Horiz.*, vol. 28, no. 1, pp. 45–54, Jan. 2020.
- [12] S. P. Karunanayaka, "A Design-based Approach to Support and Nurture Open Educational Practices," *Asian Assoc. Open Univ. J.*, vol. 12, no. 1, pp. 1–20, 2017.
- [13] A. Cerqua, C. Gauthier, and M. Dembele, "Pedagogical Orientations and Foundations in the Discourse Emanating from the OECD's TALIS Initiative," *Int. Perspect. Educ. Soc.*, vol. 31, pp. 61–95, 2017.
- [14] F. Oddone, "SELF-EFFICACY: A BOOSTER FOR PEDAGOGICAL INNOVATION," *Je-LKS J. e-Learning Knowl. Soc.*, vol. 12, no. 3, pp. 51–64, 2016.
- [15] "A Layered Approach to Critical Friendship as a Means to Support Pedagogical Innovation in Pre-service Teacher Education Author names and affiliations: Tim Fletcher," *Stud. Teach. Educ.*, pp. 1–35.
- [16] J. Santos, A. S. Figueiredo, and M. Vieira, "Innovative pedagogical practices in higher education: An integrative literature review," *Nurse Educ. Today*, vol. 72, no. October 2018, pp. 12–17, 2019.

- [17] M. Sharples, M., de Roock, R., Ferguson, R., Gaved, M., Herodotou, C., Koh, E., ... & Weller, "Innovating Pedagogy 2016: Open University Innovation Report 5," United Kingdom, 2016.
- [18] L. Lindsay, "Transformation of teacher practice using mobile technology with one-to-one classes: M-learning pedagogical approaches," *Br. J. Educ. Technol.*, vol. 47, no. 5, pp. 883–892, 2015.
- [19] L. A. Annetta, J. B. Firestone, R. L. Lamb, L. Annetta, J. Firestone, and E. Etopio, "A meta-analysis with examination of moderators of student cognition , affect , and learning outcomes while using serious educational games , serious games , and simulations Computers in Human Behavior A meta-analysis with examination of moderators of stud.," *Comput. Human Behav.*, vol. 80, no. November, pp. 158–167, 2018.
- [20] B. Gros, C. Suárez-guerrero, and T. Anderson, "The Internet and Online Pedagogy Editorial," *Int. J. Educ. Technol. High. Educ.*, vol. 13, pp. 37–38, 2016.
- [21] J. Rissa, "An empirical study on the e-learning acceptance among the Finnish labor," Aalto University School of Business, 2014.
- [22] H. Ibda, "Penguatan Literasi Baru Pada Guru Madrasah Ibtidaiyah Dalam Menjawab Tantangan Era Revolusi Industri 4.0," *JRTIE J. Res. Thought Islam. Educ.*, vol. 1, no. 1, pp. 1–21, 2018.
- [23] H. Suwardana, "Revolusi Industri 4.0 Berbasis Revolusi Mental," *Jati Unik*, vol. 1, no. 2, pp. 102–110, 2017.
- [24] B.-C. Lee, J.-O. Yoon, and I. Lee, "Learners' acceptance of e-learning in South Korea: Theories and results.," *Comput. Educ.*, vol. 53, no. 4, pp. 1320–1329, 2009.
- [25] A. Purwanto, R. Pramono, M. Ashari, P. B. Santoso, and L. Mayesti, "Studi Eksploratif Dampak Pandemi COVID-19 Terhadap Proses Pembelajaran Online di Sekolah Dasar," *EduPsyCouns*, vol. 2, no. 1, pp. 1–12, 2020.
- [26] A. Purwanto, "Studi Eksplorasi Dampak Work From Home (WFH) Terhadap Kinerja Guru Selama Pandemi Covid-19," *EduPsyCouns*, vol. 2, no. 1, pp. 92–100, 2020.
- [27] D. Mardiana and D. C. Anggraini, "The effectiveness of utilising web-learning media towards islamic education learning (PAI) outcome in the era of industrial revolution 4.0," *Int. J. Innov. Creat. Chang.*, vol. 8, no. 1, pp. 80–96, 2019.
- [28] A. Prastowo, Mujadi, Purnaida, and B. R. Santosa, "Pembelajaran Keterampilan Berpikir Kritis: Studi Kasus di MIM Ngipik dan MIM Dondong Kulonprogo," *Edukasia J. Penelit. Pendidik. Islam*, vol. 13, no. 2, pp. 263–286, 2018.