THE COMPARISON BETWEEN STUDENTS' PHYSICS LEARNING OUTCOMES IN FACE TO FACE (OFFLINE) AND ONLINE LEARNING MODEL AT ISLAMIC SENIOR HIGH SCHOOL 2 PALU

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ABSTRACT

This study aims to compare the learning outcomes of physics taught using face-to-face learning models with online learning models at Islamic Senior High School 2 Palu City in the academic year of 2021/2022. In this study, the X_1 variable consists of the face-to-face model, the X_2 variable is the online learning model, and the Y variable consists of the results of learning Physics. This study used quantitative research with comparative analysis techniques. The subject of the research was students of X IPA 1 at Islamic Senior High School 2 Palu, which is totaling 25 students. Data collection was carried out using student learning outcomes tests, observation, and documentation. The method used for the analysis of hypothesis testing is the paired sample t-test. Descriptive, normality, and homogeneity tests were used for data analysis. The results showed that there were significant differences in the learning outcomes of Physics subjects between face-to-face learning and the online learning model for class X IPA1 Islamic Senior High School 2 Palu in the academic year of 2021/2022. The results of the descriptive analysis calculation show that there is a difference between the Physics Learning Outcomes Taught Using the Face-to-Face Learning Model and the Online Learning Model in class X IPA1 in the academic year 2021/2022. This shows that the face-to-face learning model is more effective than the online learning model in physics subjects.

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INTRODUCTION

Education is a future asset that must be owned by everyone to develop skills and knowledge in order to understand scientific disciplines to keep up with the times in an increasingly advanced technological era. The implementation of formal education adapts with development, in various methods[1], and development demands that require types of expertise and skills.

Learning is a way that is done by providing training and education to students in achieving learning outcomes. Changes as a result of learning can be proposed in various forms, such as changes in knowledge, understanding, attitudes, behavior, skills, abilities, reaction, absorption, psych motoric[2], and other aspects that exist in individuals who are learning.[3] The learning process is an activity that has educational value in the nature of interactions that occur between teachers and students as well as interactions between students and students. Interaction activities that have educational value are caused by learning activities and it is directed to achieve certain goals that have been formulated before the teaching process.[4] The difference in these interactions, so learning activities can be carried out using various learning patterns.[5]

The learning model plays an essential role in classroom learning activities, which include a variety of strategies such as blended learning[6], to achieve the objectives of learning. In this case, face-to-face learning aims to provide direct learning experiences to students through the interactions created between teachers and students when the learning process takes place. In this case, face-to-face learning aims to provide direct learning experiences to students through the interactions created between teachers and students in the learning process.

The pandemic of covid-19 has caused the face-to-face learning system to be temporarily abolished, replaced by online learning for health reasons. It causes several regulations in the education systems, namely by closing all access, especially face-to-face learning by implementing the principles of the education system and learning system in schools/madrasas as determined by the government. The educational principles and policies are as follows: 1) The health and safety of all students, educators, education staff, families, and the community is a main priority that must be considered in setting learning policies in

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[1] Mulyono, & Ampo, I. (2021). Pemanfaatan Media Dan Sumber Belajar Abad 21. *Paedagogia: Jurnal Pendidikan, 9(2)*, 93-112. https://doi.org/10.24239/pdg.Vol9.Iss2.72

[2] Fakhrurrozi, H. (2019). Standar Penilaian Aspek Psikomotorik Pendidikan Agama Islam. Paedagogia: *Jurnal Pendidikan, 7(1)*, 155-170. https://doi.org/10.24239/pdg.Vol7.Iss1.37

[3]Sudjana, Nana, *Dasar-dasar Proses Mengajar*, (Bandung: PT Sinar Baru Algensido, 2000), h. 7

[4]Syaiful Bahri Djamarah & Azwan Zain, *Strategi Belajar Mengajar*, (Jakarta: PT. Rineka Cipta), h.1

[5]Rusman, *Belajar dan Pembelajaran Berorientasi Standar Proses Pendidikan,* (Jakarta:Kencana, 2007), h.84-85.

[6] Ramang. (2019). Efektivitas dan Efisiensi Pembelajaran Berbasis Blended Learning di Madrasah Tsanawiyah Negeri Model Palu. *Paedagogia: Jurnal Pendidikan, 7(2)*, 1-22. https://doi.org/10.24239/pdg.Vol7.Iss2.16

schools/madrasahs; 2) The growth and development of all students and how psychosocial conditions are also the main priority to be considered in the fulfillment of educational services during the pandemic.[7] This syndrome causes a drop in student discipline, as well as a loss in student motivation to learn[8].

The implementation of limited face-to-face learning (PTMT) in the new normal era on the mathematics learning outcomes of Madrasah Aliyah students. It showed that students' learning outcomes have met the criteria for classical minimum completeness, so it can be concluded that student learning activities have been carried out well.[9] The results of the study stated that the quality of learning with the face-to-face learning method was of good value compared to the quality of learning with the video conferencing method.[10] The results of the study indicated that the implementation of online learning during the covid-19 pandemic was carried out by teachers was ineffective and not optimal for its benefits to students.[11]

Based on the previous research above and the results of observations, it was found that the online learning system was carried out by physics teachers at MAN 2 Kota Palu through an e-learning Madrasah on Physics subjects. Is online learning able to improve student learning outcomes compared to face-to-face learning that has been taking place so far? Based on the explanation above, the researcher is interested to conduct research under the title Comparison of Face-to-face Learning Models with Online Learning Models in Physics Subjects of class X IPA 1 MAN 2 Kota Palu in the academic year 2021/2022. The reason is the researcher wanted to know the comparison of learning outcomes using direct learning models with the use of online learning models.

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[7]Aprista Ristyawati, "Efektifitas Kebijakan Pembatasan Sosial Berskala Besar Dalam Masa Pandemi Corona Virus 2019 Oleh Pemerintah Sesuai Amanat UUD RI Tahun 1945," Administrative Law and Governance Journal 3, no. 2 (2020): 240–249.

[8] Umdatun Ni'mah, & David Ari Setyawan. (2021). Analisis Faktor yang Memengaruhi Penurunan Disiplin Siswa Selama Pembelajaran Online Akibat Pandemi Covid-19. *Paedagogia: Jurnal Pendidikan, 10(1)*, 33=48. https://doi.org/10.24239/pdg.Vol10.Iss1.134

[9]Dewi Masyithoh & Nurul Arfinanti, "Analisis pelaksanaan pembelajaran tatap muka terbatas (PTMT) pada era new normal terhadap hasil belajar matematika siswa Madrasah Aliyah," (Jurnal Sigma: Volume 13 Nomor 2, Desember 2021), h. 164.

[10]Yoice, "Analisa Perbandingan Kualitas Belajar-Mengajar Antara Face to Face dan Video Conference, Jurnal Sistem Informasi," Vol. 4, No.2, (Oktober 2012): h. 447.

[11]Wahyuni, Ayu et al, "Dampak Implementasi Pembelajaran Daring pada Masa Pandemi Covid-19," Jurnal Biogenesis Vol. 17 (2): 88-93, (2021): h. 94

Methods

The purpose of the study was to find out whether there were differences in learning outcomes for physics subjects using the face-to-face learning model using an online learning model for class X IPA1 MAN 2 Palu in the school year of 2021/2022. Based on the introduction above, the researcher formulates the question is there a difference in learning outcomes for physics subjects using the face-to-face learning model with online learning models for class X IPA1 MAN 2 Palu in the school year of 2021/2022.

The research method used is qualitative research, and the type of research is comparative research. This research was conducted in September – November 2021. The research location is MAN 2 Kota Palu. The subjects of this study were students of class X IPA1 in the odd semester of the academic year 2020/2021, totaling 25 students. The data were obtained by documentation, test, and observation techniques. The documentation used by the researchers took the form of madrasahs profiles, the number of teachers and students, the condition of the facilities and infrastructure of MAN 2 Kota Palu. The test is a set of questions given to respondents to be answered, in the form of a semester exam that comes from a validated teacher, multiple-choice type with a total of 15 questions. Observations were made to obtain data before the study.

There are two variables of this research: the independent variable (X1) is a face-to-face learning model, whereas the variable (X2) is an online learning model. Physics learning outcomes is the dependent variable (Y). The initial step in data analysis is descriptive analysis, followed by necessary analysis tests such as the normality and linearity tests. The data analysis offered in descriptive statistics includes the mean (M), variance (var), and standard deviation (SD). In addition, the research variable data must be classified on a five-point scale: very high (VH), high (H), medium (M), low (L), and very low (VL). Using the Lilliefors test, estimate the level of normality of the data on learning outcomes achieved by all students as a sample. The t-test is used to determine if the variance is homogeneous or not. When evaluating hypotheses with paired samples, the t-test formula can be utilized.

RESULT AND DISCUSSION
Face-to-face learning model

According to Bonk and Graham face-to-face learning is a conventional learning model, which seeks to convey knowledge to students by bringing together teachers and students in a room for learning that has planned characteristics, which is oriented towards place and social interaction.[12] The face-to-face learning model is a learning model that is always used in the learning process in the classroom. The application of the face-to-face learning model has good effectiveness in physics subjects because the application of the face-to-face learning model is a direct learning model that builds interaction and closeness

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[12]Bonk, Graham, "Handbook of Blended Learning," (2006): h.122.

between teachers and students as well as students with students and their environment. As for the effectiveness of the face-to-face learning model, the teacher can provide material by innovating starting from lectures to other learning methods so that the class becomes more active supported by strategies, approaches and methods applied in improving the classroom atmosphere to be lively and active because of the direct interaction between teachers and students. when students do not understand the material, students will ask questions to the teacher, and when the teacher asks, students are able to answer questions from the teacher. In addition, the face-to-face learning model makes student learning activities more controlled during the learning process.

Presentations, demonstrations, training or practice, and group work are all examples of face-to-face learning. The teacher's efforts in presenting teaching that is in accordance with the context and condition of students, as well as influencing elements that can achieve teaching objectives maximally, are related to the technique used. As a result, for the sake of consistency and learning success, the technique is one of the components of learning. Uneven facilities in face-to-face learning make learning unequal between rural and urban settings. This environmental factor has a significant impact on the long-term success of the optimal learning process.[13] A study describes the success of learning using technology and face-to-face as a successful model in various examples of integration in the education system.[14] With the face-to-face learning model, the teacher can directly assess the attitudes of students starting from the activeness, honesty and enthusiasm of students in participating in the learning process.[15] To optimize limited face-to-face learning, learning must be carefully designed and apply appropriate learning methods so that limited face-to-face learning can be carried out optimally and achieve learning objectives, because the use of appropriate learning methods can improve learning outcomes.[16]

Online Learning

The online learning model is a learning model that is carried out remotely by utilizing the internet and social media. The application of the online learning model is one of the learning alternatives currently applied to replace the face-to-face learning model. Online learning is learning that is able to bring together students and teachers to carry out learning interactions with the help of

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[13]Jamaluddin, Awal Akbar, "Model-model Pembelajaran Tatap Muka," h. 6.

[14]Alam, M. S., & Agarwal, J, "Adopting a Blended Learning Model in Education: Opportunities and Challenges," International Journal of Early Childhood Special Education, 12(2), (2020): 1-7. https://doi.org/10.9756/INT-JECSE/V12I2.201050

[15]Anthony Anggrawan, "Analisis Deskriptif Hasil Belajar Pembelajaran Tatap Muka dan Pembelajaran Daring Menurut Gaya Belajar Mahasiswa, Matriks," Vol. 18, Nomor 2, (2019): h. 340.

[16]Annisa, & Sholeha, D, "Upaya Peningkatan Hasil Belajar Siswa Melalui Metode Pembelajaran Discovery Learning, Indonesian Journal of Teacher Education," 2(1), (2021): 218–225. Retrieved from https://journal.publication-center.com/index.php/ijte /article/view/245

the internet.[17] However, the application of the online learning model will result in a physical separation between the teacher and students and limited interaction so that the application of the online learning model of learning media, whether in the form of printed, recorded or information technology-based media. In the application of the online model, students' independence is also highly emphasized because the learning process with the online model requires initiative, resilience, and problem-solving abilities by the students themselves when learning to use learning material packages with limited supervision from the teacher.

The following are some of the advantages of online learning: (a) Increasing the efficiency of communication and discussion between teachers and students. (b) Without going through the teacher, the pupils communicate and talk with one another. (c) Make it easier for students, instructors, and parents to communicate. (b) Exam and quiz facilities that are appropriate. (e) Teachers can readily deliver content to students in the form of photographs and videos, in addition to allowing students to download the teacher's teaching materials. (f) The online learning paradigm allows teachers to ask questions from anywhere and at any time.[18] Although the online model is an alternative to the current learning model to replace the face-to-face model. However, based on the information that the researcher got from the observations of the researcher with the physics subject teacher, that online learning was applied at MAN 2 Kota Palu. Especially in physics subjects it is less effective, due to lack of preparation from both the school and the students. Lack of internet access is also the biggest obstacle for physics teachers, especially students during the online learning process, causing students to be late for learning as well as entering Madrasa e-learning applications. Like previous research, online learning has weaknesses when internet services are weak, and lecturer instructions are poorly understood by students.[19] In addition, with the application of the online model of controlling/monitoring students, it becomes less because they do not deal directly with students. The success of a model or online learning model depends on the characteristics of the students.[20] As according to Nakayama that from all the literature in e-learning indicates that not all students will be successful in online learning, this is due to learning environment factors and student characteristics.[21]

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[17]Kuntarto, E, "Keefektifan Model Pembelajaran Daring dalam Perkuliahan Bahasa Indonesia di Perguruan Tinggi," Indonesian Language Education and Literature, 3(1), (2017): 99-110, 10.24235/ileal.v3i1.1820

[18]Kemendikbud, No. 15, "Pedoman Penyelenggaraan Belajar dari Rumah Dalam Masa Darurat Penyebaran Corona Virus Disease (covid-19)", (2020), h. 2.

[19]Dewi, W, A, F, "Dampak Covid-19 terhadap Impelemetasi Pembelajaran Daring di Sekolah Dasar," Jurnal Ilmu Pendidikan, Vol 2, (2020): h. 55-61.

[20]Astuti, P., & Febrian, F, "Blended Learning Syarah: Bagaimana Penerapan dan Persepsi Mahasiswa," Jurnal Gantang, 4(2), (2019): 111-119, https://doi.org/ 10.31629/jg.v4i2.1560

[21]Nakayama M, Yamamoto H, & S. R, "The Impact of Learner Characterics on Learning Performance in Hybrid Courses among Japanese Students," Elektronic Journal ELearning, Vol.5(3), (2007): h.1.

Student Learning Outcomes of Physics Subjects in Face-to-face Learning
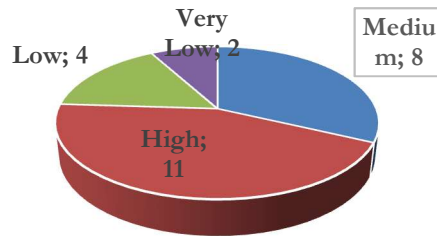

Figure 1. Student Learning Outcomes of Physics Subjects in Face-to-face Learning Model Learning

Outcomes are the final results achieved from the learning process in accordance with educational goals. Learning outcomes are measured to determine the achievement of educational goals so that learning outcomes must be in accordance with educational goals. Based on the average acquisition of physics learning outcomes using the face-to-face learning model, namely 73.85 with a total variance of 8.520 and a standard deviation (SD) value of 90.36. Furthermore, the interpretation of the value of learning outcomes for physics subjects for class X IPA1 MAN 2 Kota Palu has learning outcomes for physics subjects which are calculated from a sample of 25 students. As for the students who have a high category as many as 11 students with medium category physics learning outcomes, as many as 4 students in low category physics learning outcomes and 2 students with very low physics learning outcomes. So it can be concluded that the learning outcomes of physics subjects in class X IPA1 MAN 2 Kota Palu are in the medium category with a score interval of 60-73, which is as many as 8 students.

Student Learning Outcomes of Physics Subjects in Online Learning Models
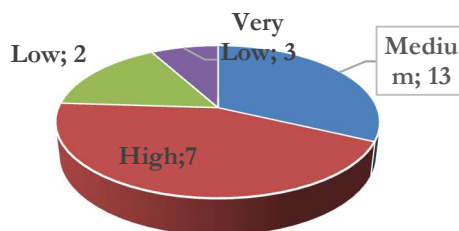

Figure 2. Student Learning Outcomes of physics Subjects in Online Learning Models

Based on calculations, the average value of physics learning outcomes using online learning models is 70.16 with a variance of 8.808, the standard deviation value is 77.54. The results of the interpretation of student learning outcomes in physics subjects on the online learning model were calculated from a sample of 25 students. The students who have a very high category are 0 students with a class interval of 88-100, students who have a high category are 7 students with an interval of 74-87, students who have a medium category are 13

students with an interval of 60-73, students in the low category are 2 student with an interval of <60, and 3 students with very low physics learning outcomes.

Results on learning outcomes of physics subjects in class X IPA1 MAN 2 Kota Palu were subjected to a normality test. The results of the analysis using the face-to-face learning model are L_{count} = 0.131894. While $L_{table\ (0.05)\ (25)}$ = 0.173 is obtained using the significance test (0.05) with n = 25, $L_{table\ (0.05)\ (25)}$ = 0.173 is obtained using the significance test (0.05) with n = 25. L_{table} is smaller than L_{count}, indicating that L_{count} is smaller. As a result, Ho is accepted, or the sample data comes from a population with a normal distribution. Furthermore, an online learning model was used to conduct a normality test on learning outcomes data for physics subjects. Based on the outcomes of learning physics subjects using the online learning model, L_{count} = 0.07494 is calculated, and $L_{table(0.05)(25)}$ = 0.173 is calculated based on the significance (0.05) and df (25) values. L_{count} is therefore smaller than L_{table}. As a result, Ho is accepted, or the sample data comes from a population with a normal distribution.

Using the t-test for paired samples and the results of the homogeneity test count for paired samples on learning outcomes for physics subjects using the face-to-face learning model and learning outcomes for physics subjects using online learning models, tcount = 1,210 is obtained. At the significance level (0.05), T_{table} = 1.708. Because $T_{count} < T_{table}$ or 1, 210 < 1,708 is based on the pricing of t_{count} and t_{table}. Then Ho is accepted, showing that the variation is homogenous and that it comes from the same population.

Based on the t test for paired samples, there are results t_{count} = 7.70 while t_{table} = 1.71. This shows that $t_{count} > t_{table}$ which means that there are differences in learning outcomes for physics subjects in the face-to-face model with learning outcomes on the online learning model of class X IPA1 MAN 2 Kota Palu students in the 2021/2022 academic year. This shows that the face-to-face learning model is more effective than the online learning model in physics subjects because the face-to-face learning model presents direct interaction between teachers and students as well as between students. In addition, the face-to-face model can also develop teacher innovation in planning face-to-face learning so as to create a lively and fun classroom atmosphere when the learning process takes place.

CONCLUSION

The results of the descriptive analysis calculation show that there is a difference between the Physics Learning Outcomes Taught Using the Face-to-Face Learning Model and the Online Learning Model in class X IPA1 MAN 2 Kota Palu in the academic year 2021/2022. This shows that the face-to-face learning model is more effective than the online learning model in physics subjects. This shows that the face-to-face learning model is more effective than the online learning model in physics subjects because the face-to-face learning model presents direct interaction between teachers and students as well as

between students. In addition, the face-to-face model can also develop teacher innovation in planning face-to-face learning so as to create a lively and fun classroom atmosphere when the learning process takes place.Suggestions for further research using blended learning models.

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