EFFECTIVENESS OF BLENDED LEARNING MODEL-BASED ON "KUTUB AL-TIS'AH" APPLICATION IN IMPROVING STUDENTS' CRITICAL THINKING IN HADITH STUDY COURSES

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Abstract: This study aims to analyze the differences in students' critical thinking skills improvement between students that joined the Blended Learning model based on the Kutub al-Tis'ah and students who get the ordinary learning model. This study uses a quasi-experimental method with purposive sampling. The research samples were two classes from the Architecture Study Program of the State Islamic University of Sunan Ampel Surabaya in 2020/2021. Experiment class was a class with Blended Learning model based on the Kutub al-Tis'ah whether the conventional class was control class. The Blended model is effective if the post-test score of the Experiment class is better than the Control class. The results of the study showed that the average post-test value for the Experiment class was 90,32 with a variance of 6,799 and the Conventional class had an average value of 65,81 with a variance of 5,872. The hypothesis test of the similarity of the two post-test data averages was carried out through a normality test whose calculation results using Kolmogorov-Smirnov and Spiro-Wilk showed the post-test values for both the Experimental class and Control class were normally distributed with Sig 0,200 > =0,05. While the homogeneity test of the calculation results using the Levene test showed that the post-test value of both the Experiment class and the Control class was homogeneous with Sig 0,206 > = 0,05. While the statistical test calculation results obtained a value of Sig 0.00 < = 0.05, which means rejecting H0. The average post-test value for the Experiment class is greater than the average post-test value for the Control class that means the blended learning model based on the Kutub al-Tis'ah application is effective for improving students' critical thinking for Hadith Studies courses.

Keywords: Blended Learning, *Kutub al-Tis'ah*, Student's Critical Thinking.

Lilik Channa

Introduction

      The development of science, technology, and the currents of globalization have brought changes in various aspects of human life, and these developments are taking place very quickly, especially in the field of technology and information.[1] The use of digital technology is familiar so that through various digital devices, interaction can be done very quickly, including finding teaching materials.[2] To deal with these problems, quality human resources are needed through the renewal of the Education system. To support the renewal of education can be started by preparing the atmosphere and learning process, from various methods, strategies, approaches, and learning techniques in encouraging the achievement of 21st-century skills, namely "The 4Cs" that is Critical Thinking and problem-solving skills, collaboration skills, communications skills, creativity and innovations skills.[3]

      One of the indispensable skills in the face of this century of globalization is the skill or ability to think critically. This opinion is reinforced by Budi Cahyono who states that the skills of critical thinking are a very important skill for the success of learning, working, and living in the 21st century.[4] According to Dewis, critical thinking is an active process of a person is thinking about things for his own sake and one does not easily accept things from others.[5] According to Johnson, critical thinking is a mental activity such as solving problems, making decisions, persuading, analyzing assumptions, and conducting scientific research.[6] Chukwuywnum argues that critical thinking skills are tools that can be used in everyday life so

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[1] I Wayan Redhana, "Mengembangkan Keterampilan Abad 21 Dalam Pembelajaran Kimia," *Jurnal Inovasi Pendidikan Kimia* 13, no. 1 (February 10, 2019), https://journal.unnes.ac.id/nju/index.php/JIPK/article/view/17824.

[2] Muhasim Muhasim, "Pengaruh Tehnologi Digital Terhadap Motivasi Belajar Peserta Didik," *PALAPA* 5, no. 2 (November 30, 2017): 53–77.

[3] Nurul Septikasari and Rendy Nugraha Frasandy, "Keterampilan 4C Abad 21 Dalam Pembelajaran Pendidikan Dasar," *Tarbiyah al-Awlad* 8, no. 2 (2018): 107–117, accessed January 5, 2022, https://ejournal.uinib.ac.id/jurnal/index.php/alawlad/article/view/1597.

[4] Budi Cahyono, "Analisis Ketrampilan Berpikir Kritis Dalam Memecahkan Masalah Ditinjau Perbedaan GenderLAH DITINJAU PERBEDAAN GENDER," *AKSIOMA : Jurnal Matematika dan Pendidikan Matematika* 8, no. 1 (August 9, 2017): 50–64, accessed January 5, 2022, http://journal.upgris.ac.id/index.php/aksioma/article/view/1510.

[5] Alec Fisher and Benyamin Hadinata, *Berpikir Kritis: Sebuah Pengantar*, ed. Gugi Sagara, Cet. 2. (Jakarta: Erlangga, 2008), accessed January 5, 2022, https://pustakaaceh.perpusnas.go.id/detail-opac?id=40700.

[6] Elaine B. Johnson, *CTL Contextual Teaching & Learning: Menjadikan Kegiatan Belajar-Mengajar Mengasyikan Dan Bermakna* , ed. Ida Sitompul and Ibnu Setiawan (Bandung: Kaifa, 2010), accessed January 5, 2022, https://opac.perpusnas.go.id/DetailOpac.aspx?id=528508.

that they can face various challenges in this century and can survive at any time.[7] But the reality, as the results of research conducted by Irene Andita stated that the critical thinking skills of learners in Indonesia are still low and need to be developed again.[8] This is reinforced by Pisa results in 2018 which stated that the mathematical ability of learners in Indonesia was ranked 73rd out of 79 countries. While the questions tested in this PISA study use hots-based problems. (*High Order Thinking Skills*).

In addition to cognitive aspects, there are also psychomotor aspects in utilizing information media and technology that need to be mastered. Technological development is inevitable in the 21st century. Edi Syahputra's research highlights the importance of information technology for learning in the 21st century. It requires all education stakeholders to master digital literacy skills. The learning model shifted significantly towards the application of digital technology, ICT Literacy (Instructional Communication and Technology) so that all educational institutions in Indonesia must be able to compensate so that there is no gap between rural and urban schools.[9]

But objectively Megahantara's research has mentioned various impacts of the development of information technology made both positive and negative. Among the positive impacts: (1) can get work done easily and quickly, (2) facilitate communication with others, (3) can establish new relationships, (4) easy in finding the information needed, (5) can be used shopping, (6) accessing the internet can be easier and cheaper, and 7) get free entertainment. In addition to these positive impacts, information technology also has a negative impact including the emergence of new model fraud, the emergence of various plagiarism, and others.[10] On the other hand, the development of information technology according to Yohannes also affects

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[7] Asuai Nelson Chukwuyenum, "Impact of Critical Thinking on Performance in Mathematics among Senior Secondary School Students in Lagos State," *IOSR Journal of Research & Method in Education* 3, no. 5 (2013): 18–25, accessed January 5, 2022, www.iosrjournals.orgwww.iosrjournals.org18%7C.

[8] Irene Andita Purnamasari, "Analisis Proses Berpikir Kritis Siswa Dalam Pemecahan Masalah Soal Cerita Materi Persamaan Linear Satu Varoabel Yang Memuat Nilai Mutlak Ditinjau Dari Minat Belajar Matematika Siswa Kelas X Semester 2 SMAN 1 Klaten Tahun Ajaran 2016/2017," *Pendidikan Matematika* (October 16, 2017).

[9] Edi Syahputra, "Pembelajaran Abad 21 Dan Penerapannya Di Indonesia," in *Seminar Nasional Sains, Teknologi, Humaniora Dan Pendidikan* (Medan, 2018), accessed January 5, 2022, https://www.researchgate.net/publication/331638425_PEMBELAJARAN_ABAD_21_DAN_PENERAP ANNYA_DI_INDONESIA.

[10] Galang Sansaka Megahantara, "Pengaruh Teknologi Terhadap Pendidikan Di Abad 21", http://megahantara.blogs.uny.ac.id/wp-content/uploads/sites/15470/2017/10/jurnal.pdf

changes in the behavior, ethics, norms, rules, or morals of life that are contrary to the ethics, norms, rules, and morals of life that exist in society.[11]

To overcome the negative impact of the development of technology and information, Humairah Munir researched Madrasah Aliyah students and the results showed that efforts to counter the negative impact of ICT development can be done through educators' examples, giving advice, the application of habituation, restrictions on the use of ICT (Information and Communication Technology), awarding and punishment, and cooperation between madrasahs and parents. These countermeasures can also be done through the learning of Islamic Religious Education which includes Qur'an hadith, Aqidah Akhlak, Fiqh, and SKI.[12] While Zakaria in his research concluded that ICT can improve the quality of learning, if three things are realized by the institution, namely: (1) The institution provides access to technology, (2) the material is quality and useful for teachers and learners, (3) Teachers must have knowledge and ICT skills.[13] Unfortunately, in another study conducted by Handayani, it was stated that the use of the internet as a medium of literacy among students is still limited to socialization media, business, and entertainment media.[14]

Referring to the various results of the above research, more research is needed on how to improve critical thinking skills through the use of ICT media well, one of which is by implementing the Blended Learning model. Blended Learning is the combination of online learning with face-to-face in its implementation carried out by instructors or teachers.[15] Thus, in the Blended Learning model, the application of ICT is a must and has a positive

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[11] Yohannes Marryono Jamun, "Dampak Teknologi Terhadap Pendidikan," *Jurnal Pendidikan dan Kebudayaan Missio* 10, no. 1 (January 28, 2018): 48–52, accessed January 5, 2022, http://unikastpaulus.ac.id/jurnal/index.php/jpkm/article/view/54.

[12] Humaerah Munir, "Upaya Penanggulangan Dampak Negatif Teknologi Informasi Dan Komunikasi Pada Peserta Didik Kelas X MAN 2 Kota Parepare Dalam Perspektif Pendidikan Islam.," *Istiqra`: Jurnal Pendidikan dan Pemikiran Islam* 7, no. 1 (September 27, 2019), accessed January 5, 2022, https://jurnal.umpar.ac.id/index.php/istiqra/article/view/167.

[13] Zakaria Siregar and Topan Bilardo Marpaung, "Pemanfaatan Teknologi Informasi Dan Komunikasi (TIK) Dalam Pembelajaran Di Sekolah," *BEST Journal (Biology Education, Sains and Technology)* 3, no. 1 (April 10, 2020): 61–69, accessed January 5, 2022, https://jurnal.uisu.ac.id/index.php/best/article/view/2437.

[14] Eka Aprilya Handayani, "Penggunaan Internet Sebagai Media Penggunaan Internet Sebagai Media Literasi Pada Mahasiswa STKIP Muhammadiyah Bulukumba: Tantangan Pendidikan Abad 21," in *Seminar Nasional Kedua Pendidikan Berkemajuan Dan Menggembirakan (The Second Progressive and Fun Education Seminar)*, n.d.

[15] Rini Ekayati, "Implementasi Metode Blended Learning Berbasis Aplikasi Edmodo," *EduTech: Jurnal Ilmu Pendidikan dan Ilmu Sosial* 4, no. 2 (October 5, 2018), accessed January 5, 2022, http://jurnal.umsu.ac.id/index.php/edutech/article/view/2277.

impact, as Ekayati's research states, the implementation of Edmodo application-based blended learning methods has a positive impact where lecturers and students are actively involved in learning activities, both online and face-to-face.[16] There are many applications that teachers can use to support the implementation of the online learning process (in-network) and blended, such as WhatsApp, zoom, Edmodo, and others.[17] The Blended Learning model offered in this study is the incorporation of ICARE (Introduction, Connection, Application, Reflection, and Extension) learning models in face-to-face learning and online face-to-face using the flipped classroom model.

The use of the ICARE system allows trainees or learners to have the opportunity to apply what they have learned in training.[18] ICARE is the name of the learning model that corresponds to its syntaxes, namely introduction, connection, application, reflection, extension.[19] The ICARE model was originally for online learning and later used in the classroom,[20] Bob Hoffman and Donn Ritchie were first introduced at San Diego State University in 1998 in their document entitled Teaching and Learning Online: Tools, Templates and Training. United States Agency International Development (USAID) introduced the ICARE model in Indonesia in 2016 through teacher training programs and classroom learning processes. The teacher training program is given to elementary/MI teachers, junior high school/MTS in several cities.[21]

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[16] Ibid, "Implementasi Metode Blended Learning …," n.d.

[17] Rikhatul Wardah and Hernik Farisia, "Pembelajaran Daring Pada Masa Pandemi Covid-19: Implementasinya Pada Sekolah Menengah Pertama," *Edukatif: Jurnal Ilmu Pendidikan* 3, no. 4 (August 2, 2021): 2008–2017, accessed January 6, 2022, https://www.edukatif.org/index.php/edukatif/article/view/908.

[18] Kementerian Pendidikan Nasional, *Buku 1 Panduan Pengembangan Pendekatan Belajar Aktif* (Jakarta, 2010).

[19] Ni Made Dwijayani, "Pengembangan Media Pembelajaran ICARE," *Kreano: Jurnal Matematika Kreatif Inovatif* 8, no. 2 (2017): 127.

[20] Carni, J. Maknun, and P. Siahaan, "An Implementation Of Icare Approach (Introduction, Connection, Application, Reflection, Extension) to Improve The Creative Thinking Skills," *JPhCS* 812, no. 1 (March 29, 2017): 012022, accessed January 5, 2022, https://ui.adsabs.harvard.edu/abs/2017JPhCS.812a2022C/abstract.

[21] Desi Wulandari, Fitria Dwi Prasetyaningtyas, and Sri Hartati, "PENGEMBANGAN PEMBELAJARAN ICARE-K BERKARAKTER UNTUK MEMBEKALI KEMAMPUAN KETERAMPILAN PROSES IPA MAHASISWA CALON GURU SD," *ELEMENTARY SCHOOL JOURNAL PGSD FIP UNIMED* 7, no. 3 (December 19, 2017): 337–345, accessed January 5, 2022, https://jurnal.unimed.ac.id/2012/index.php/elementary/article/view/8169.

This learning model as a student-centered learning model,[22] provide learners with the opportunity to apply the knowledge that learners have learned in real life, and apply what they have learned.[23] The ICARE model is also a learning model that develops student problem-solving skills.[24]

This model has several advantages including learning becoming more meaningful because the ICARE model gives students enough opportunities to practice or practice the material they have received, connecting the learning experience in school with real life, so that the material can be embedded in the memory of learners and not easily forgotten.[25]

Some of the advantages that exist in the ICARE model, on the other hand, there are also shortcomings including at the application stage, theory or teaching material is not mastered in-depth, because of the narrowness of time at the stage (introduction and connection), as the author experienced himself while participating in training conducted by USAID, and various studies that often combine with other learning models or media. Then this research combines the ICARE model with the flipped classroom model.

According to Graham Brent, the Flipped classroom is a model or strategy provided by educators by minimizing instruction during classroom learning but maximizing interaction between learners. This strategy utilizes technology by providing additional materials for learners that can be accessed online.[26] This means freeing up learning time for learners, which was initially done in the classroom. Learning this model, a teacher gives assignments or materials to students to actively learn the material, and then the teacher will convey the learning material through video or e-book and

[22] Ahmad Jalalluddin Al-Mahali, "Pengembangan Model Pembelajaran ICARE Pada Ekspansi Kelas Yang Sesuai Dengan Kultur Dan Karakter Siswa Di SDN Gedongan 2 Dan SDN Meri 2 Kota Mojokerto," *Progressa: Journal of Islamic Religious Instruction* 1, no. 1 (April 16, 2017): 59.

[23] Maria Desidaria Noge, "Efektivitas Model Pembelajaran ICARE Berbasis Media Autentik "Berbabe" Terhadap Hasil Belajar Bahasa Inggris Siswa Sekolah Dasar," *Jurnal Tunas Bangsa* 4, no. 2 (August 30, 2017): 198–210, accessed January 5, 2022, https://ejournal.bbg.ac.id/tunasbangsa/article/view/642.

[24] Liliek Triani et al., "Pembelajaran I-CARE Berbantuan Praktikum: Peningkatan Problem-Solving Skills Dan Hasil Belajar Siswa Pada Materi Jaringan Hewan," *Jurnal Inovasi Pendidikan IPA* 4, no. 2 (October 10, 2018): 158–168, accessed January 5, 2022, https://journal.uny.ac.id/index.php/jipi/article/view/21826.

[25] Kuntum An Nisa Imania and Siti Husnul Bariah, "Pemanfaatan Program Pembelajaran Lovaas (ABA) Dengan Pendekatan ICARE Dalam Meningkatkan Kemampuan General Life Skill Anak Autis," *Jurnal Petik* 4, no. 1 (2018), accessed January 5, 2022, https://www.scribd.com/document/486116485/7-50-1-PB-pdf.

[26] J. Bergmann and A Sams, "Flip Your Classroom Reach Every Student in Every Class Every Day ," *International Society for Technology in Education* (2012): 120–130, accessed January 5, 2022, https://www.scirp.org/(S(oyulxb452alnt1aej1nfow45))/reference/ReferencesPapers.aspx?ReferenceID=1791200.

some instructions while doing the exercise. The material is at once a discussion material when the class takes place face-to-face.[27]

In the Flipped Classroom model, the sequence of learning processes is the opposite of conventional learning. In conventional learning in the classroom, learners will apply active learning guided by educators, and assignments in the form of exercises or homework. According to Tucker in Amy Roehl, it is outlined that students use time in the classroom to solve problems, develop concepts, and engage in collaborative learning.[28]

In some studies, it was found that the flipped classroom learning model makes learners more active and increases their learning motivation,[29] so that in learning more effectively and increase the activeness of learners in collaborating with their friends.[30] Through the application of flipped classroom learning models, learners can increase their critical thinking so that they can solve problems by collaborating.[31]

With several studies from the ICARE and Flipped Classroom learning models that resulted in positive results, researchers raised the title of the effectiveness of blended learning to improve student's critical thinking skills through the media application of Kutub al-Tis'ah on hadith study learning. The application can be used for additional materials and at the same time learning media in Hadith Studies courses. The app contains several features,[32] which can be used to support the learning of hadith studies and

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[27] Fatra Hadi Kurniawan, "Pengembangan Sistem Pembelajaran Berbasis Flipped Classroom Dengan Media LSN Pada Mata Pelajaran Biologi Kelas Xi Di SMA Negeri 1 Plosoklaten Kabupaten Kediri / Fatra Hadi Kurniawan" (July 20, 2017).

[28] Amy Roehl, "The Flipped Classroom: An Opportunity to Engage Millenial Students through Active Learning Strategies," *Journal of Family & Consumer Science* 105, no. 2 (n.d.).

[29] Nadya Treesna Wulansari and et. al, "Pengaruh Penerapan Model Pembelajaran Flipped Classroom Terhadap Hasil Belajar Kognitif Mahasiswa Keperawatan Dalam Materi Ajar Mikrobiologi," *Jurnal Bioeducation* 5, no. 2 (2018).

[30] Kurniawan, "Pengembangan Sistem Pembelajaran Berbasis Flipped Classroom Dengan Media LSN Pada Mata Pelajaran Biologi Kelas Xi Di SMA Negeri 1 Plosoklaten Kabupaten Kediri / Fatra Hadi Kurniawan."

[31] Lenia Puri Rahayu, "Efektivitas Strategi Pembelajaran Flipped Classroom Pada Materi Pythagoras SMP Kelas VIII Ditinjau Berdasarkan Gender," in *Prosiding SI MaNis (Seminar Nasional Integrasi Matematika Dan Nilai-Nilai Islami)*, 2017.

[32] The application features Kutub al-Tis'ah. among others: (1) contains 62 thousand hadiths more than 9 hadiths (kutub al-tis'ah) and all of them are accessible, (2) equipped with Arabic texts and translated Indonesian and can be shared, (3) each of these hadiths is given a level of authentic quality}, h}asan and da'if) except Musnad Ahmad and Muwatta' Imam Malik; (4) search for words, either Arabic text or Indonesian text; (5) Related hadith means being able to see Hadiths that have a connection with a Hadith that we are reading/looking for, (6) Index hadith or grouping hadith thematically (Iman, Akhlaq & Adab, Worship, etc.), (7) there is a collection or group of Hadith Qudsi, Mutawatir, Marfu, Mauquf, Maqtu', Mursal, Munqati, Muallaq, (8) Sanad path diagram: various

encourage the development of students' critical thinking skills. Hadith Studies is a basic and independent subject in several Islamic Religious Colleges, both public and private. Therefore, almost all universities offer hadith study courses that must be taken by every student. This is because the course of hadith studies as a basic scientific basis in studying the sources of Islamic teachings. However, reviewing the study of hadith according to Daniel June, professor of Hadith science at UIN al-Raniry Aceh, is still categorized as a difficult field and it can even be said that studies in this field are drab so that the interest is very little. According to his observations, this is due to his less systematic learning.[33]

Therefore, the Blended Learning model based on the kutub al-Tis'ah application as one of the learning innovation efforts needs to be applied. What's more, this model is an innovation that has not been applied in various universities in Indonesia. To test the effectiveness of the Blended Learning model based on the kutub al-Tis'ah application in the Hadith Studies course to improve the critical thinking of students, this quasi-experimental research was conducted. There are two used, namely experimental classes that use blended learning models based on the Kutub al-Tis'ah application and control classes using conventional models (lectures & discussions). In the early stages, both groups were given pre-tests and post-tests.

The population of this study is all students who are taking hadith studies at UIN Sunan Ampel as many as 134 classes from 43 study programs, with a sample of 2 classes from the Architecture Study Program. Class A is an experimental class with 25 students, and class B is a control class with a total of 26 students, as outlined in the table.

Table 1. The number of Research subject

Subject	Experiment Class	Control Class	Total	Note
	25	26	51	Samples

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sanad (path to Hadith) of a Hadith are displayed in the form of informative diagrams, (9) Detailed information for each narrator (Hadith passage) to make it easier for us to know the credibility of narrators, (10) Statistics on the number of hadith narrations of a narrator in 9 books of Hadith, (11) Supporting multi-numbering: supporting some widely known methods of Hadith numbering (Al-Alamiyah, Fathul Bari, Sharah An-Nawawi, etc.), (12) Daily Hadiths: daily will be sent interesting thematic Hadith. (https://news.detik.com/berita/d-2963319/cari-rujukan-Hadis-kini-ada-aplikasi-ensiklopedi-hadits-9-imam, **Accessed on Wednesday,** July **8th,** 2019 11:25 WIB)

[33] Daniel Juned, "Ilmu Hadis Paradigma Baru Dan Rekonstruksi Ilmu Hadis" (Jakarta, n.d.).

The collection of other data through interviews with lecturers and study programs to obtain data on the implementation of Hadith Studies courses, the validity of the Blended Learning model is validated by the validator, the application is observed by lecturers and given a response by users, namely experimental class students. While critical thinking data in the form of hots questions, adapted from the cognitive theory of Benjamin S. Bloom which has been revised by Anderson and Krathwohl for levels C4 and C534 as a pre-test and post-test.

To determine the effectiveness of the Blended Learning model based on the Kutub al-Tis'ah application in improving critical thinking skills, pre-test and post-test results data are processed with effective criteria if the post-test value of the experimental class is better than the post-test value of the control class. The analysis method used is a statistical test. After the data is collected, the prerequisite test of the analysis continues the hypothesis of similarity test two average pre-test data. This test is conducted to find out whether the average pre-test value of student learning outcomes in Blended Learning classes with average pre-test results of students in conventional classes is different or not. For these purposes, the assumption test first uses the Normality Test, whose calculation results use Kolmogorov-Smirnov and Spiro-Wilk, then the homogeneity test, whose calculation results use the Levene test, continued the statistical test. Testing this hypothesis aims to find out whether the hypothesis is accepted or rejected. In the next stage, a hypothesis test of the similarity of two average post-test data, which is the same process as the analysis of pre-test results.

Blended Learning which is a combination of ICARE and Flipped Classroom models, observed as follows: (1) Introduction; (2) Connection; (3) Application; (4) Reflection allows students to reflect on what has been done, lecturers provide feedback, students record important things; (5) Extension; and (6) Recitation.

Effectiveness of ICARE and Flipped Classroom Models with Blended Learning Model Based on Kutub al-Tis'ah application in Improving Critical Thinking Skills

After determining the sample for both the experimental class and the control class and pre-tested, each class (experiment and control) gets a score, then analyzed the results seen in Table 2 below.

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[34] L.W Anderson, *Kerangka Landasan Untuk Pembelajaran, Pengajaran, Dan Asesmen Revisi Taksonomi* (Yogyakarta: Pustaka Pelajar, 2010).

Lilik Channa

Table 2. Description of Experiment Class Pre-test Data and Control Groups

	Type of Method	N	Mean	Std. Deviation	Std. Error Mean
Critical Thinking	Experiment	25	49,88	6,35	1,27
	Control	26	50,20	6,11	1,22

In the table above, it is shown that the average pre-test scores of student learning outcomes in experimental classes and conventional classes are 49.88 and 50.20 with variances of 6.35 and 6.11.

Two Average Similarity Hypothesis Test Pre-test Data

This test is conducted to find out whether the average pre-test value of student learning outcomes in an experimental class with an average pre-test of student learning outcomes in a control class is different or not. For these purposes, the assumption test is carried out first, with the following results:

Normality Test

Normality test results of experiment class pre-test scores and Control classes are as follows:

Table 3. Normality Test

	Type of Method	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	*df*	*Sig.*	*Statistic*	*df*	*Sig.*
Critical Thinking	ICARER/ Experiment	0,093	25	0,200[*]	0,949	25	0,236
	Conventional/Control	0,117	25	0,200[*]	0,956	25	0,343

Calculations using Kolmogorov-Smirnov and Spiro-Wilk showed pre-test scores for both the Experiment class and the normally distributed Control class with Sig 0.200 > α=0.05.

Homogeneity Test

Experimental class homogeneity test results with control classes as follows:

Table 4. Test of Homogeneity of Variances

Pretest

Levene Statistic	df1	df2	Sig.
.165	1	49	.687

The results of the homogeneity test calculation using the Levene test showed the pre-test value of both the experimental class with the control was homogeneous with Sig 0.677 > α = 0.05.

Statistical Test

(i) Hypothesis

H_0: Experimental class pre-test grade average is equal to control class pre-test grade point average

H_1: Experimental class pre-test grade average score is not the same as control class pre-test average

(ii) α = 5%

(iii) Test Statistics

Table 5. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
							95% Confidence Interval of the Difference			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pre-test	Equal variances assumed	.165	.687	-.181	49	.857	-.312	1.727	-3.783	3.158
	Equal variances not assumed			-.181	48.532	.857	-.312	1.729	-3.788	3.163

(iv) Conclusion

From the results of the calculation obtained a sig value of 0.857 > α = 0.05 which means receiving H0 which means the average value of the pre-test class Experiment is equal to the average pre-test value of the Control class. In other words, the initial ability of both the Experiment class and the Control class is the same.

Table 6. Description of Post-test Data
Group Statistics

	Kode	N	Mean	Std. Deviation	Std. Error Mean
Post-test	Experiment	25	90.32	6.799	1.360
	Control	26	65.81	5.872	1.152

The data description results obtained the average post-test score of student learning outcomes in experimental classes and conventional classes of 90.32 and 65.81 with variants of 6,799 and 5,872.

Two Average Similarity Hypothesis Test Post-test Data

This test is conducted to find out whether the average grade post-test of student learning outcomes in the experimental class with the average post-test of student learning outcomes in the control class is different or not. For these purposes, the assumption test is carried out first, as follows:

Normality Test

Normality test results of Experiment class post-test scores and Control classes Normality test results of Experiment class post-test scores and Control classes are as follows:

Table 7. Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Post-test_Eks	.118	25	.200[*]	.928	25	.077
Post-test_Ctr	.090	25	.200[*]	.959	25	.388

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Calculations using Kolmogorov-Smirnov and Spiro-Wilk showed post-test scores in both the Experiment class and the normally distributed Control class with Sig 0.200 > α=0.05.

Homogeneity Test

Experimental class homogeneity test results with control classes as follows:

Table 8. Test of Homogeneity of Variances

Post-test

Levene Statistic	df1	df2	Sig.
1.641	1	49	.206

The results of the homogeneity test calculation using the Levene test showed the post-test value of both the experimental class with the Control class was homogeneous with Sig 0.206 > α = 0.05.

Statistical Test
(i)   Hypothesis
      H_0: Experimental class post-test average is equal to control class post-test grade average
      H_1: Experimental class post-test average scores greater with Control class post-test average scores
(ii) α = 5%
(iii) Test Statistics.

Table 9. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Post test	Equal variances assumed	1.641	.206	13.796	49	.000	24.512	1.777	20.942	28.083
	Equal variances not assumed			13.756	47.377	.000	24.512	1.782	20.928	28.096

(iv) Conclusion

From the results of the calculation obtained a value sig $0.00 < \alpha = 0.05$ (Test hypothesis two-tailed) and if one tail then Sign $0.00 / 2 < \alpha = 0.05$ which means reject H0 which means the average value of the post-test class experiment is greater than the average value of post-test control class. In other words, the end-of-class experimental ability is better than the control class.

From the results of statistical analysis, it can be concluded that the Flipped Classroom model is effective for improving critical thinking skills.

Discussion of the Effectiveness of Blended Learning Model Based on the Kutub al-Tis'ah

The results of the data analysis showed that the Blended Learning model based on the Kutub al-Tis'ah application was more effective in improving students' critical thinking compared to conventional learning models. This is in line with some previous research that suggests that the ICARE and Flipped Classroom models affect improving critical thinking skills, which in this study the two models combined.

Ni Putu Rosma Dewi's research shows that GeoGebra-assisted ICARE model-based learning can improve learners' mathematical problem-solving skills.[35] The same thing was done by Liliek Triani et al., initially seeing the low ability of problem-solving students in biological materials. But after using the practicum-assisted ICARE model at the "application" stage, the results were also consistent that the ICARE learning model could improve problem-solving capabilities rather than conventional models.[36]

Research entitled "Development of ICARE Learning Media" by Ni Made Dwijayanti resulted in ICARE model devices having the following characteristics: (1) practical use; (2) learning brings students to critical and creative thinking; (3) provide students with the opportunity to think of alternative solutions in problem-solving while working on problem training and real problems faced; and (4) provides variety in learning.[37] Hapsari's research targets the low ability to think creatively. The results showed that there was a positive and significant influence on the ICARE learning model on improving students' creative thinking skills.

Previous research related to Flipped Classroom, showed results that this model can improve students' critical thinking skills, as research Misfalla Roudlo, with the title "Kemampuan Berpikir Kritis dan Kemandirian Belajar Melalui Model Pembelajaran *Flipped Classroom* dengan Pendekatan STEM"[38]. Research about "Efektivitas Penggunaan E-Modul Berbasis *Flipped Classroom* untuk Melatih Keterampilan Berpikir Kritis" by Farida Tsalatsatur

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[35] Ni Putu Risma Dewi, "Efektivitas Model ICARE Berbantuan Geogebra Untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa," *JNPM (Jurnal Nasional Pendidikan Matematika* 3, no. 1 (2019).

[36] Triani et al., "Pembelajaran I-CARE Berbantuan Praktikum: Peningkatan Problem-Solving Skills Dan Hasil Belajar Siswa Pada Materi Jaringan Hewan."

[37] Dwijayani, "Pengembangan Media Pembelajaran ICARE."

[38] Misfalla P. A Roudlo, "Kemampuan Berpikir Kritis Dan Kemdirian Belajar Melalui Model Pembelajaran Flipped Classroom Dengan Pendekatan STEM," in *Prosiding Seminar Nasional Pascasarjana UNNES*, 2020.

Rokhmania et.al.[39]; Agung, et.al, in their research about "Pengaruh Model Pembelajaran *Flipped Classroom* Terhadap Kemampuan Berpikir Kritis Siswa pada Mata Pelajaran Sejarah Kelas Xi-3 SMA Negeri 15 Surabaya".[40] Irna Septiani Maolidah, **"**Efektivitas Penerapam Model Pembelajaran Flipped Classroom pada Peningkatan Kemampuan Berpikir Kritis Siswa"[41]; and Dinda Febrianti, et.al, "Meningkatkan Kemampuan Berpikir Kritis Siswa SMP dalam Pembelajaran Tari Secara Daring Melalui Model *Flipped Classroom"* [42].

In this study, the results of statistical calculations showed that sig value $0.00 < \alpha = 0.05$ (two-tailed hypothetical test) and if one tail then Sign $0.00/2 < \alpha = 0.05$ which means reject H0 which means the average value of post-test class experiments is greater than the average post-test value of the control class. The results of this study are in line with various previous studies that have been outlined above, with modifications to the combination of flipped classroom models with ICARE models.

In this study has been found that learning using the Flipped Classroom model is more effective than conventional models, especially hadith studies courses urgently need to be helped with the application of Kutub al-Tis'ah. The learning model is designed from various learning theories including Cognitivism, Constructivism, and others. The Blended Learning model based on kutub al-Tis'ah application is meaningful learning, meaning the process of associating new information to relevant concepts contained in a person's cognitive structure. This can be seen from the steps as follows.

(1) Introduction (10 minutes), this stage of the learning experience, lecturers instill an understanding of the content of the lesson to students. This section contains an explanation of the purpose of the lesson and what will be achieved or the results to be obtained during learning. Preparing students psychologically and physically to follow the learning process (concentration). Concentration is the ability to focus on the lesson. The concentration of attention is focused on the content of learning materials and

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[39] Farida Tsalatsatur Rokhmania and et.al, "Efektivitas Penggunaan E-Modul Berbasis Flipped Classroom Untuk Melatih Keterampilan Berpikir Kritis," in *Prosiding Seminar Nasional Fisika (SNF)*, 2017.

[40] Et.al Agung, "Pengaruh Model Pembelajaran Flipped Classroom Terhadap Kemampuan Berpikir Kritis Siswa Pada Mata Pelajaran Sejarah Kelas XI-3 Sma Negeri 15 Surabaya," *AVATARA: e-Journal Pendidikan Sejarah* 11, no. 1 (2021).

[41] Irna Setiani Maulidah, "Efektivitas Penerapam Model Pembelajaran Flipped Classroom Pada Peningkatan Kemampuan Berpikir Kritis Siswa," *Edutcehnologia* 3, no. 2 (2013).

[42] Dinda Febrianti and et.al, "Meningkatkan Kemampuan Berpikir Kritis Siswa SMP Dalam Pembelajaran Tari Secara Daring Melalui Model Flipped Classroom," *Ringkang* 1, no. 3 (2021).

the process of obtaining them.[43] Concentration is one of the factors that affect the learning and teaching process.

(2) Connection (30 minutes), Brainstorming fellow learners, about material from e-modules that have been sent through Google Classroom (GC) or WA Group to be studied at home before face-to-face in class. Through group discussion, the material is explored by learners and subsequently shared in other groups.

(3) Application (90 minutes). Students collaboratively in small groups practice through the application "Kutub al-Tis'ah": Hadith verification and acceptance (*Takhrij al-hadith*), evaluate the quality of the hadith and determine the status of the hadith (sahih, hasan or da'f), combined with several schemes of sanad, then ascertained the position of each hadith after being known the strengthening hadith (the witness or its disciple), in short at this stage students practice solving the problem.

(4) Reflection (15 minutes), Students reflect on what has been received from connection to application, then strengthened by Q&A. Lecturers facilitate these activities by straightening out if there is a mistake and strengthening again if it is correct, students note what is needed. (5) Extension (10 minutes). Lecturers with students summarize the material that has been taught, and lecturers give independent assignments to students to explore the material. (6) Recitation (5 minutes). Lecturers give the task of studying the material will come in the form of e-modules and some video, images, and other media sent by students through WhatsApp group (WAG) or Google Class (GC) to be studied at home so that when face-to-face learning, students are no stranger/master the material to be trained; The activity ends with the lecturer giving moral messages and closing prayer.

If you pay attention to the steps, then Blended Learning provides many opportunities for students to participate in the learning process, students are given freedom of thought and flexibility to act in understanding knowledge and in solving problems, students are allowed to construct knowledge not just wait for transfer from lecturers. Examples in hadith studies, students look at the theory of the process of transmitting hadith (material sent through WA Group or GC), analyze, and evaluate information before determining whether students will receive or reject the information. The effort is carried out by students independently before face-to-face at the "recitation" stage, as a representation of part of the flipped classroom model. The theory that has been mastered is checked by lecturers at the "connection" stage and practiced at the "application" stage then reflected, and continued "Extension" to expand information and provide additional

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[43] Dimyati, "Belajar Dan Pembelajaran" (Jakarta: Rineka Cipta, 2009).

learning experiences and remedial if deemed necessary. Thus, it can be concluded that the use of blended learning models (Introduction, Connect, Apply, Reflect, Extend, and Recitation) affects students' critical thinking skills in hadith study materials. This learning model of learners organizes the mind and understanding of the material they have achieved and there is an opportunity to expand the information that has been obtained. So with the blended learning model, learners will be able to understand widely and deeply, this can train learners to develop critical thinking skills.

Blended Learning also includes meaningful learning, because in the learning stage, interlocking between newly taught concepts with concepts that are already owned by learners, so that the new concepts will be absorbed by learners. This can be seen from his syntactic: introduction, connection, application, reflection, extension, and recitation. David Paul Ausubel states: the subject matter learned must be "meaningful" because it will affect the intellectual, emotional involvement of learners in learning activities. Nasution provides the following meaningful learning characteristics: (1) Describe the relationship or relevance of new materials to old materials; (2) First give the most common ideas and then more detailed things; (3) Show similarities and differences between new materials and old materials; (4) Strive for existing ideas to be fully mastered before the new idea is presented and that knowledge is constructed by the child himself as a subject of meaningful knowledge.[44]

In the "ICARE" learning model this constructivism learning theory is completely applied. This can be seen in each of its stages. In the stages of "connection" and "application", students learn by: (1) collaboration by forming small groups to solve problems or work on learning materials, (2) in the composition of cohesiveness there need to be students who master the material (more competent); (3) Lecturer's act as facilitators. And, logically, this ICARER model can improve critical thinking. Critical thinking can be improved through exercises that can spur a person to always think critically, including First, it provides important problems and problematic questions, develops clear and accurate questions and problems, secondly collects and evaluates relevant information, uses ideas to explain effectively, to create rational conclusions and solutions, and thirdly communicates effectively in finding solutions to complex problems.[45]

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[44] Wina Sanjaya, *Penelitian Tindakan Kelas* (Jakarta: Prenada Media, 2016).

[45] Ha Thi Lan Huong, "Devise Integrated Theme Assignment Oriented to Ability Development and the Application of Knowledge in Realistic Problem Solving for Secondary School Student," *American Journal of Educational Research* 6, no. 5 (2018).

From the discussion, it is clear that the blended learning model (a combination of ICARE and Flipped Classroom models) trains critical thinking because there is an exercise or practice of solving problems that require critical thinking. This is also evidenced by the higher post-test grades of the Experiment class, which uses high-level thinking questions (HOTS), namely questions that are level C4 (analyzed) and C5 (evaluating) Bloom's perspective that Anderson and Kart Wohl revised. So, the Blended Learning model is more effective than conventional models, primarily to improve critical thinking.

As for the subjects of Hadith Studies, it is necessary to be coupled with the application media "Kutub al-Tis'ah which serves as a medium as well as a source in learning at the stage of the application and at the time of deepening of the material, at the extension stage. As explained in the introduction that the application contains many features, which can temporarily replace dozens of books. Because *Takhrîj hadith* before there is an application, it seems impossible for S.1 students to be given hadith research material because they have to use many books that speak Arabic and some of the books are not hopeful. So, the application "Kutub al-Tis'ah here serves media as well as learning materials".

The application of "Kutub al-Tis'ah" is a medium of learning and at the same time as a source of learning. This application will lead to being able to carry out *Takhrîj Hadith* and its research because this application contains the features needed to conquer Hadith and research the quality and quantity of its sanad. *Takhrîj hadith* at first can only be done by someone who is an expert in the field of Hadith Studies, but with this application, those who do not speak Arabic can use it. In this case, Kurt Lewin stated that if the learner is close to the learning field, then the motivation to learn is getting stronger and vice versa. The terrain in question is the psychological field of the learning arena of the learner. Likewise, Dale stated in the cone image that symbolizes the more upwards of the cone the more abstract the media conveying the message, and vice versa down the more real (concrete) the message, that is, if the learning media in the form of direct experience will provide information and ideas contained in the experience, because it involves the senses of sight, hearing, feeling, smell, and touch."[46]

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[46] Azhar Arsyad, *Media Pembelajaran* (Bandung: Raja Grafindo Persada, 2013).

Conclusion

Based on the results of the previously presented research, it can be concluded that blended learning is a learning facility that combines different ways of delivery, teaching models, and learning styles, introducing a wide selection of media dialogue between facilitators and people who get to learn. Blended learning is also a combination of face-to-face teaching and online teaching. Blended Learning in this study is the incorporation of the ICARE learning model as face-to-face, while flipped classroom model as online.

The blended learning model is more effective to improve students' critical thinking skills because this learning model provides opportunities to learners in the learning process or more briefly is part of Student-Centered Learning (SCL). The Blended Learning model based on the kutub al-Tis'ah application is very effective for hadith study learning. With this model it will be easy to say hadith, researching the quality of hadith (sahih, hasan, and da'if).

References

Agung, Et.al. "Pengaruh Model Pembelajaran Flipped Classroom Terhadap Kemampuan Berpikir Kritis Siswa Pada Mata Pelajaran Sejarah Kelas XI-3 Sma Negeri 15 Surabaya." *AVATARA: e-Journal Pendidikan Sejarah* 11, no. 1 (2021).

Al-Mahali, Ahmad Jalalluddin. "Pengembangan Model Pembelajaran ICARE Pada Ekspansi Kelas Yang Sesuai Dengan Kultur Dan Karakter Siswa Di SDN Gedongan 2 Dan SDN Meri 2 Kota Mojokerto." *Progressa: Journal of Islamic Religious Instruction* 1, no. 1 (April 16, 2017): 59.

Anderson, L.W. *Kerangka Landasan Untuk Pembelajaran, Pengajaran, Dan Asesmen Revisi Taksonomi*. Yogyakarta: Pustaka Pelajar, 2010.

Arsyad, Azhar. *Media Pembelajaran*. Bandung: Raja Grafindo Persada, 2013.

Bergmann, J., and A Sams. "Flip Your Classroom Reach Every Student in Every Class Every Day ." *International Society for Technology in Education* (2012): 120–130. Accessed January 5, 2022. https://www.scirp.org/(S(oyulxb452alnt1aej1nfow45))/reference/ReferencesPapers.aspx?ReferenceID=1791200.

Cahyono, Budi. "Analisis Ketrampilan Berpikir Kritis Dalam Memecahkan Masalah Ditinjau Perbedaan GenderLAH DITINJAU PERBEDAAN GENDER." *AKSIOMA : Jurnal Matematika dan Pendidikan Matematika* 8, no. 1 (August 9, 2017): 50–64. Accessed January 5, 2022.

http://journal.upgris.ac.id/index.php/aksioma/article/view/1510.

Carni, J. Maknun, and P. Siahaan. "An Implementation Of Icare Approach (Introduction, Connection, Application, Reflection, Extension) to Improve The Creative Thinking Skills." *JPhCS* 812, no. 1 (March 29, 2017): 012022. Accessed January 5, 2022. https://ui.adsabs.harvard.edu/abs/2017JPhCS.812a2022C/abstract.

Chukwuyenum, Asuai Nelson. "Impact of Critical Thinking on Performance in Mathematics among Senior Secondary School Students in Lagos State." *IOSR Journal of Research & Method in Education* 3, no. 5 (2013): 18–25. Accessed January 5, 2022. www.iosrjournals.orgwww.iosrjournals.org18%7C.

Dewi, Ni Putu Risma. "Efektivitas Model ICARE Berbantuan Geogebra Untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa." *JNPM (Jurnal Nasional Pendidikan Matematika* 3, no. 1 (2019).

Dimyati. "Belajar Dan Pembelajaran." Jakarta: Rineka Cipta, 2009.

Dwijayani, Ni Made. "Pengembangan Media Pembelajaran ICARE." *Kreano: Jurnal Matematika Kreatif Inovatif* 8, no. 2 (2017): 127.

Ekayati, Rini. "Implementasi Metode Blended Learning Berbasis Aplikasi Edmodo." *EduTech: Jurnal Ilmu Pendidikan dan Ilmu Sosial* 4, no. 2 (October 5, 2018). Accessed January 5, 2022. http://jurnal.umsu.ac.id/index.php/edutech/article/view/2277.

Febrianti, Dinda, and et.al. "Meningkatkan Kemampuan Berpikir Kritis Siswa SMP Dalam Pembelajaran Tari Secara Daring Melalui Model Flipped Classroom." *Ringkang* 1, no. 3 (2021).

Fisher, Alec, and Benyamin Hadinata. *Berpikir Kritis: Sebuah Pengantar.* Edited by Gugi Sagara. Cet. 2. Jakarta: Erlangga, 2008. Accessed January 5, 2022. https://pustakaaceh.perpusnas.go.id/detail-opac?id=40700.

Handayani, Eka Aprilya. "Penggunaan Internet Sebagai Media Penggunaan Internet Sebagai Media Literasi Pada Mahasiswa STKIP Muhammadiyah Bulukumba: Tantangan Pendidikan Abad 21." In *Seminar Nasional Kedua Pendidikan Berkemajuan Dan Menggembirakan (The Second Progressive and Fun Education Seminar)*, n.d.

Huong, Ha Thi Lan. "Devise Integrated Theme Assignment Oriented to Ability Development and the Application of Knowledge in Realistic Problem Solving for Secondary School Student." *American Journal of Educational Research* 6, no. 5 (2018).

Imania, Kuntum An Nisa, and Siti Husnul Bariah. "Pemanfaatan Program Pembelajaran Lovaas (ABA) Dengan Pendekatan ICARE Dalam Meningkatkan Kemampuan General Life Skill Anak Autis." *Jurnal Petik* 4, no. 1 (2018). Accessed January 5, 2022. https://www.scribd.com/document/486116485/7-50-1-PB-pdf.

Jamun, Yohannes Marryono. "Dampak Teknologi Terhadap Pendidikan." *Jurnal Pendidikan dan Kebudayaan Missio* 10, no. 1 (January 28, 2018): 48–52. Accessed January 5, 2022. http://unikastpaulus.ac.id/jurnal/index.php/jpkm/article/view/54.

Johnson, Elaine B. *CTL Contextual Teaching & Learning: Menjadikan Kegiatan Belajar-Mengajar Mengasyikan Dan Bermakna* . Edited by Ida Sitompul and Ibnu Setiawan. Bandung: Kaifa, 2010. Accessed January 5, 2022. https://opac.perpusnas.go.id/DetailOpac.aspx?id=528508.

Juned, Daniel. "Ilmu Hadis Paradigma Baru Dan Rekonstruksi Ilmu Hadis." Jakarta, n.d.

Kurniawan, Fatra Hadi. "Pengembangan Sistem Pembelajaran Berbasis Flipped Classroom Dengan Media LSN Pada Mata Pelajaran Biologi Kelas Xi Di SMA Negeri 1 Plosoklaten Kabupaten Kediri / Fatra Hadi Kurniawan" (July 20, 2017).

Maulidah, Irna Setiani. "Efektivitas Penerapam Model Pembelajaran Flipped Classroom Pada Peningkatan Kemampuan Berpikir Kritis Siswa." *Edutcehnologia* 3, no. 2 (2013).

Muhasim, Muhasim. "Pengaruh Tehnologi Digital Terhadap Motivasi Belajar Peserta Didik." *PALAPA* 5, no. 2 (November 30, 2017): 53–77.

Munir, Humaerah. "Upaya Penanggulangan Dampak Negatif Teknologi Informasi Dan Komunikasi Pada Peserta Didik Kelas X MAN 2 Kota Parepare Dalam Perspektif Pendidikan Islam." *Istiqra`: Jurnal Pendidikan dan Pemikiran Islam* 7, no. 1 (September 27, 2019). Accessed January 5, 2022. https://jurnal.umpar.ac.id/index.php/istiqra/article/view/167.

Nasional, Kementerian Pendidikan. *Buku 1 Panduan Pengembangan Pendekatan Belajar Aktif.* Jakarta, 2010.

Noge, Maria Desidaria. "Efektivitas Model Pembelajaran ICARE Berbasis Media Autentik "Berbabe" Terhadap Hasil Belajar Bahasa Inggris Siswa Sekolah Dasar." *Jurnal Tunas Bangsa* 4, no. 2 (August 30, 2017): 198–210. Accessed January 5, 2022. https://ejournal.bbg.ac.id/tunasbangsa/article/view/642.

Purnamasari, Irene Andita. "Analisis Proses Berpikir Kritis Siswa Dalam

Pemecahan Masalah Soal Cerita Materi Persamaan Linear Satu Varoabel Yang Memuat Nilai Mutlak Ditinjau Dari Minat Belajar Matematika Siswa Kelas X Semester 2 SMAN 1 Klaten Tahun Ajaran 2016/2017." *Pendidikan Matematika* (October 16, 2017).

Rahayu, Lenia Puri. "Efektivitas Strategi Pembelajaran Flipped Classroom Pada Materi Pythagoras SMP Kelas VIII Ditinjau Berdasarkan Gender." In *Prosiding SI MaNis (Seminar Nasional Integrasi Matematika Dan Nilai-Nilai Islami)*, 2017.

Redhana, I Wayan. "Mengembangkan Keterampilan Abad 21 Dalam Pembelajaran Kimia." *Jurnal Inovasi Pendidikan Kimia* 13, no. 1 (February 10, 2019). https://journal.unnes.ac.id/nju/index.php/JIPK/article/view/17824.

Roehl, Amy. "The Flipped Classroom: An Opportunity to Engage Millenial Students through Active Learning Strategies." *Journal of Family & Consumer Science* 105, no. 2 (n.d.).

Rokhmania, Farida Tsalatsatur, and et.al. "Efektivitas Penggunaan E-Modul Berbasis Flipped Classroom Untuk Melatih Keterampilan Berpikir Kritis." In *Prosiding Seminar Nasional Fisika (SNF)*, 2017.

Roudlo, Misfalla P. A. "Kemampuan Berpikir Kritis Dan Kemdirian Belajar Melalui Model Pembelajaran Flipped Classroom Dengan Pendekatan STEM." In *Prosiding Seminar Nasional Pascasarjana UNNES*, 2020.

Sanjaya, Wina. *Penelitian Tindakan Kelas*. Jakarta: Prenada Media, 2016.

Septikasari, Nurul, and Rendy Nugraha Frasandy. "Keterampilan 4C Abad 21 Dalam Pembelajaran Pendidikan Dasar." *Tarbiyah al-Awlad* 8, no. 2 (2018): 107–117. Accessed January 5, 2022. https://ejournal.uinib.ac.id/jurnal/index.php/alawlad/article/view/1597.

Siregar, Zakaria, and Topan Bilardo Marpaung. "Pemanfaatan Teknologi Informasi Dan Komunikasi (TIK) Dalam Pembelajaran Di Sekolah." *BEST Journal (Biology Education, Sains and Technology)* 3, no. 1 (April 10, 2020): 61–69. Accessed January 5, 2022. https://jurnal.uisu.ac.id/index.php/best/article/view/2437.

Syahputra, Edi. "Pembelajaran Abad 21 Dan Penerapannya Di Indonesia." In *Seminar Nasional Sains, Teknologi, Humaniora Dan Pendidikan*. Medan, 2018. Accessed January 5, 2022. https://www.researchgate.net/publication/331638425_PEMBELAJARAN_ABAD_21_DAN_PENERAPANNYA_DI_INDONESIA.

Triani, Liliek, Sri Wahyuni, Elly Purwanti, Atok Miftachul Hudha, Diani Fatmawati, and Husamah Husamah. "Pembelajaran I-CARE Berbantuan Praktikum: Peningkatan Problem-Solving Skills Dan Hasil Belajar Siswa Pada Materi Jaringan Hewan." *Jurnal Inovasi Pendidikan IPA* 4, no. 2 (October 10, 2018): 158–168. Accessed January 5, 2022. https://journal.uny.ac.id/index.php/jipi/article/view/21826.

Wardah, Rikhatul, and Hernik Farisia. "Pembelajaran Daring Pada Masa Pandemi Covid-19: Implementasinya Pada Sekolah Menengah Pertama." *Edukatif: Jurnal Ilmu Pendidikan* 3, no. 4 (August 2, 2021): 2008–2017. Accessed January 6, 2022. https://www.edukatif.org/index.php/edukatif/article/view/908.

Wulandari, Desi, Fitria Dwi Prasetyaningtyas, and Sri Hartati. "PENGEMBANGAN PEMBELAJARAN ICARE-K BERKARAKTER UNTUK MEMBEKALI KEMAMPUAN KETERAMPILAN PROSES IPA MAHASISWA CALON GURU SD." *ELEMENTARY SCHOOL JOURNAL PGSD FIP UNIMED* 7, no. 3 (December 19, 2017): 337–345. Accessed January 5, 2022. https://jurnal.unimed.ac.id/2012/index.php/elementary/article/view/8169.

Wulansari, Nadya Treesna, and et. al. "Pengaruh Penerapan Model Pembelajaran Flipped Classroom Terhadap Hasil Belajar Kognitif Mahasiswa Keperawatan Dalam

Materi Ajar Mikrobiologi." *Jurnal Bioeducation* 5, no. 2 (2018).