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IMPLEMENTATION OF SCIENCE LEARNING USING COMPUTER BASED INSTRUCTION THROUGH SIMULATION MODELS

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Abstrak: Proses pelaksanaan Pembelajaran Ilmu Pengetahuan Alam (IPA) sering dikatakan sebagai suatu mata pelajaran yang susah sehingga menurunnya minat siswa terhadap mata pelajaran (IPA) hal ini bisa dilihat ketika proses belajar siswa lebih cenderung pasif saat pembelajaran berlangsung. Metode yang lazim di terapkan berupa metode ceramah sehingga hasilnya para siswa lebih cenderung mendengarkan saat proses belajar. Tujuan dari penelitian ini adalah untuk mengetahui implemetasi pembelajaran IPA menggunakan *Computer Based Intruction* melalui model simulasi. Adapun jenis Penelitian yang digunakan dalam penelitian ini adalah peneltian kualitatif. Teknik pengumpulan data dalam penelitian ini menggunakan wawancara dan dokumentasi. Hasil penelitian ini mendiskripsikan bahwa di MI Ma'arif Darussalam Plaosan sudah menerapkan pembelajaran IPA menggunakan *Computer Based Instuction* melalui model simulasi yaitu memanfaatkan media visual dalam pembelajaran guru telah memberikan pembelajaran dengan lebih konkrit dan nyata dalam pembelajaran dengan bantuan media visual. didukung dengan tanggapan dan respon siswa yang sangat antusias terhadap pebelajaran yang di terapkan yaitu berbasis *Computer Based Intruction* yang dialami oleh siswa hal ini berhasil menunjang keaaktifan siswa. Dalam model simulasi ada empat peran guru yaitu: pertama seorang guru menjelaskan, kedua sebagai penengah, ketiga sebagai pembina dan keempat berdiskusi. Pembelajaran simulasi ini empat tahap yang mana tahap orientasi, pelatihan, simulasi dan pembekalan.

Kata Kunci: *Pembelajaran IPA, Computer Based Instruction, Model Simulasi.*

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Abstract: The process of implementing Natural Science Learning (IPA) is often said to be a difficult subject so that the decline in student interest in the subject (IPA) can be seen when the student learning process is more passive during learning. The method that is commonly applied is in the form of a lecture method so that the results of the students are more willing to listen during the learning process. The purpose of this study is to determine the implementation of science learning using Computer Based Intruction through a simulation model. The type of research used in this study is qualitative research. Data collection techniques in this study using interviews and documentation. The results of this study describe that at MI Ma'arif Darussalam Plaosan has applied science learning using Computer Based Instuction through a simulation model, namely utilizing visual media in teacher learning has provided more concrete and real learning in learning with the help of visual media. supported

by student responses and responses that are very enthusiastic about the learning that is applied, namely based on Computer Based Instruction experienced by students, this has succeeded in supporting student activity. In the simulation model, there are four roles of the teacher, namely: first a teacher explains, second as an intermediary, third as a coach and fourth as a discussion. This simulation learning is four stages which are the stages of orientation, training, simulation and debriefing.

Keywords: *Science Learning, Computer Based Instruction, Simulation Models.*

INTRODUCTION

Education for human life is an absolute need where the need must be met in everyday life, without education as a human being will not be able to develop according to what he wants (Rapih, 2016). Education has an important role in improving and developing the quality of human resources both in terms of knowledge and skills (Mardhiyah et al., 2021). That way humans can develop the desired potential in the hope of achieving the desired life goals (Tanu, 2017).

The main problem in science learning in elementary school education is the low use of Information and Communication Technology, this is one of the factors behind the learning model applied to basic education. (Priatmoko, 2018). More specifically, it can be said that the policy of organizing education or institutions related to education, the role of an educator must certainly keep up with the times (Fadhli, 2016.). In other words, a teacher is required to be a bridge for information to contribute to the revolution in various fields, especially the field of education. (Anggrasari, 2018).

Eric Ashby stated that the world of education has entered the fifth revolution occurred when people handed over their children's education to a teacher either in pesantren or in other school institutions, the second revolution was the use of writing for learning purposes, the third revousi occurred along with the invention of the printing press such as the fourth revolution book occurred when the use of electronic devices in learning activities such as radios and tape recorders and the fifth revolution namely as it is today with the packaging and utilization of Information and Communication Technology (ICT) in learning activities, especially computer and internet technology used for the benefit of learning activities (Tiis Rahayu & Satibi, 2021).

Another problem in education that is a priority to immediately find a solution is the quality of education, which is especially in the quality of learning itself (Harfiani & Fanreza, 2019). Efforts that can be made regarding improving the quality of learning in schools are to develop a learning system that orients students with challenging, active, creative learning needs, and applying Information and Communication Technology-based learning (Sakdiah & Syahrani, 2022). Learning information and communication technology using Computer Based Instruction is one of the learning media that is very interesting and able to increase student motivation in the learning process (Kurnia et al., 2018).

Simulation model which is a development of Computer Based Instruction which presents material in the form of simulation simulations in the form of interesting animations (Nadeak et al., 2016). In line with what was conveyed by Rusman (2012) in aditama stated that the simulation model is a computer-based instruction development model that conveys learning materials in the form of animations that explain the content interestingly, real, and unite the elements or components of the media into a harmonious unity (Aditama et al., 2021).

Relevant research on Learning using Information and Communication Technology (Tik) Using the Computer Based Instruction Method by Oaber Situmorang in his research states that the existence of the Computer Based Instruction (CBI) learning method can help make it easier for people who want to learn learning materials that with a more engrossing system are applied in learning. through computers and the internet so that users do not need to take formal training that requires large costs and can be more proficient by learning independently through learning programs (Situmorang & Sembiring, 2016). Similar research has also been conducted by Idris Harun on the Effectiveness of the Use of Information and Communication Technology in Learning This research aims to describe the use of information and communication technology in learning in this study which is a research pokus, namely the subject of Islamic Religious Education (Harun, 2015).

Natural Sciences (IPA) is one of the main subjects in the educational curriculum in Indonesia, including at the elementary school level (Giartama et al., 2018). Natural Science (IPA) subjects are subjects that have been considered difficult by some students, starting from the elementary school level to the senior school level. (Putri et al., 2022). Natural Science (IPA) is an effort made by humans in understanding the universe starting from a serious observation, while still using rules, so that it can be understood and explained so as to get a result in the form of a conclusion (Utami & Sabri, 2020). The nature of learning Natural Sciences (IPA), which is defined as natural science, can be classified into three parts where natural science as products, processes, and attitudes (Mardiana, 2018).

The use of learning models in natural science learning is expected to make it easier for students to accept and understand the material presented, especially in the material of self-adjustment of living beings to their environment and the use of computer-based learning (Computer Based Instruction) simulation models are felt to be more effective in the learning process than the learning process using expository methods or lecture methods (Egok & Hajani, 2018)

Based on the review above, this study aims to analyze how the process of implementing Computer Based Innovation learning and teacher responses to the implementation of science learning using Computer Based Innovation through a simulation model at MI Ma'arif Darussalam Plaosan in this article researchers will describe what the implementation of natural science learning using a simulation model looks like and what its implications are for students.

RESEARCH METHODS

The research method used in this study is a qualitative research method (Vienna Sanjaya, 2013). The data sources in this study were obtained from resource persons, places, activities or activities, and documentation (Moleong, Lexy J., 2017). The place and location of the study is MI Ma'arif Darussalam Plaosan, the length of time the research was conducted from June 5 to August 2, 2022. The reason why researchers chose the MI Maa'arif Daarussalam Plaosan school is because based on the results of observations made by researchers that this school has used Computer Based Instruction in the implementation of Natural Science (IPA) learning.

Based on qualitative research methods, the data collection techniques in this study are 1) interviews that are open and carried out repeatedly to the same informant. 2) observation is useful in extracting data from various data sources, including events that occur in the research site, including image recordings. 3) document recording is useful

for completing data when carrying out interviews and observations. 4) Document analysis is useful for collecting document data as a data source for interpreting, testing. Data analysis in this study uses data reduction steps, data presentation and conclusion drawing (Sugiyono, 2017).

RESULTS AND DISCUSSION

Result

Based on the interview with the principal and science teacher of MI Ma'arif Darussalam Plaosan, it can be divided into the first two discussions about the teacher's response to the second computer-based instruction about the implementation of science learning using computer-based instruction through a simulation model. The results of the interview with the principal of MI Ma'arif Darussalam Plaosan can be presented as follows:

Implementation of Science Learning Using Computer Based Instruction Through Simulation Models

The results of this study were obtained by giving several tests in the form of questions to the principal and science teacher of MI Ma'arif Darussalam Plaosan. This aims to analyze science learning using computer-based learning through a simulation model at MI Ma'arif Darussalam Plaosan. From several questions given by researchers to the teacher concerned, it was found that at MI Ma'arif Darussalam Plaosan, science learning is being done using a computer-based instruction model with visual media. In the learning process itself, the teacher gives examples in a concrete or real way by displaying images related to the learning material. This is seen from the learning process, where students take part in expressing their opinions related to the learning material itself.

"In my opinion and opinion, with the experiment of changing the learning model, namely the Computer based instruction model simulation, it has a very positive impact on progress in the field of education which by following the changes and demands of the times has become an obligation for institutions and educators and hopefully be able to increase the motivation of learning students."

Based on the opinion of the principal of MI Ma'arif Darussalam Plaosan, it can be taken to understand computer-based learning media or can be called computer-assisted learning (Computer Based Instruction) is one of the learning media that is very interesting and able to increase the learning motivation of students where this learning is off-line so that its users do not depend on direct access to the internet. then the results of the positivity step also have an impact on the teacher not only to the students. this certainly provides a very valuable experience for teachers and especially students with the aim of building higher student learning motivation that can finally achieve the indicators expected by each educational institution. Equipped with the opinion of the science teacher MI Ma'arif Darussalam Plaosan as follows:

"In my opinion, related to computer-based learning for me is a very interesting model for students because in its implementation it uses computer software that contains the title, objectives, subject matter, and evaluation in learning"

"In my opinion, Basically Computer Based Instruction is a learning that utilizes computer devices in the teaching and learning process as we know that all elements contain learning content and facilitate learning in individuals who use it whether it is used in the form of CDs, DVDs, pendrives, and others which combine media elements both audio, video, images, graphics as well as animation"

Based on the opinion expressed by the mi ma'arif darussalam plaosan science teacher, it can be drawn the understanding that Computer based instruction is a teaching and learning activity by utilizing computer devices in the teaching and learning process which is very interesting for students. That way applying science learning using the Computer Based Instructions simulation model has a big impact on the learning process and the learning outcomes themselves which were previously in the learning process before the use of the Computer Based Instruction simulation model only teachers are more active in the learning process but by applying such learning methods make students more active when the learning process so that good communication is established between educators and students as well as interaction between students and other students and from the learning outcomes of the students themselves have increased where previously the learning outcomes of the students were only categorized as sufficient in answering some questions in the form of essays which have been prepared by the educator in the student worksheet, however, after a change in methods in learning, student learning outcomes fall into a good category where students are able to answer the student's worksheet well, and provide appropriate explanations as the learning process takes place.

However, the application of using a Computer Based Instuction simulation model still has disadvantages and advantages educators have an important role in the learning process which in increasing student awareness of the concepts and principles underlying the simulation and reactions of the learners themselves. In addition, an educator has more complex managerial functions. The advantages of this simulation model also provide space for educators to think critically about learning. There are four roles of educators in the simulation model, namely: explaining, mediating, coaching and discussing the learning model of this simulation model itself is four stages which are the stages of orientation, training, simulation and debriefing. This is reinforced by the opinions of science teachers about science learning at MI Ma'arif Darussalam Plaosan Elementary School as follows:

“In my opinion, science learning is essentially natural science (IPA) learning based on scientific products, scientific processes, and scientific attitudes. This lesson is also seen as a process, as a product of human effort in understanding the universe through observations that are right on target, as well as using procedures, explained by reasoning so as to get a conclusion”

Based on the opinion expressed by mi science teacher Ma'arif Darussalam Plaosan that learning Natural Sciences (IPA) in elementary schools is expected to foster scientific attitudes such as curiosity, confidence, honesty, and unhurriedness. With good knowledge of Natural Sciences (IPA), it is hoped that a positive attitude will be embedded in students towards their environment where the scientific attitude can be achieved if the teaching and learning process in Natural Sciences (IPA) involves various special teaching methods. this will certainly not be achieved if an institution does not take quick and swift steps in overcoming the promulgation of great desires, of course, through a large and appropriate effort. this also applies to students hoping to make a positive impact on students with the aim of improving students' ability to be curious, active, and more importantly a quality learning experience

Based on the statement above, learning Natural Sciences (IPA) is a learning process that studies events that occur in nature through a series of scientific processes so that the learning objectives that have been set are achieved. The learning of Natural Sciences (IPA) is essentially a process and product that is applied by developing curiosity,

determination, perseverance and being aware of the values that exist in society and developing towards a positive attitude.

Discussion

The results of research and discussion can be presented that show how MI Ma'arif Darussalam Plaosan has applied science learning using Computer Based Instruction through a simulation model by utilizing various media items available in the learning process itself, the teacher provides real examples by displaying various animations related to learning when learning takes place. The same thing related to the researcher's study conveyed by Akcay in fitria stated that computer-based instruction is a method, which uses computers in learning media, which can strengthen students' motivation and learning process (Fitria & Prastowo, 2021)

The same thing was conveyed by Akcay in fitria stated that computer-based instruction is a method, which uses computers in learning media, which can strengthen students' motivation and learning process (Ama Amarodin, 2020,). This is the same as robert heinich, et al said that "Computer systems can deliver learning individually and directly to students by interacting with subjects programmed into computers, this is what is called computer-based learning." (Rusman, 2012). There are various uses that include teaching models so that computers can provide the most effective convenience, for example as tutors, practices and exercises, inventions, simulations and games.

Computer-based teaching also provides opportunities for students to learn at their own pace, in addition to computer-based teaching makes learning more active. In addition, computer-based instruction is also defined as learning that uses a computer device that contains learning content that conveys information to its users through interaction with programs through interaction with computers in the form of CDs, DVDs, pendrives, and so on (Suryani et al., 2018)

Likewise, the simulation model is a form of mathematical model that is descriptive or predictive. (Yaqin et al., 2019) Simulation is defined as a set of methods and applications to mimic or present the behavior of a real system, which is usually carried out on a computer using certain software. (Mahessya, 2017) In line with Ekawati's opinion, this simulation model is effectively used for the learning process by making an imitation or action that imitates an event as if the actual event occurred (Ekawati, 2022). The simulation model is essentially one of the learning strategies that aims to provide a real learning experience through the creation of imitations of the form of experience basically close to the actual event.

Computer Based Instruction (CBI) is a method that students use more for practice than theoretical of course in the time needed to learn more, for that means / media are needed to complement the conventional learning process that is not limited by distance and time. Computer-based learning or better known as e-learning is one way to improve the quality of learning. Various types of methods that can be applied in computer-based learning, for example Computer Based Instruction (CBI), which is assisted learning where overall from conventional learning components such as computers, because in conventional learning there is a shortage of time, books, teachers, and distance (Halawa, 2016).

CONCLUSION

Based on the results of interviews with the principal and science teacher of MI Ma'arif Darussalam Plaosan, it can be concluded that first the positive response of the principal and science teacher to the application uses a Computer Based Instuction simulation model with a strong spirit and motivation to make progress in the realm of education. Second, at the Ma'arif Darussalam Plaosan School, science has been taught

using Computer-Based Instruction through a simulation model assisted by visual media. In the learning process, the teacher gives concrete or real examples by displaying images related to learning.

Implications seen after using the Computer Based Instruction simulation model. One of the advantages of this simulation model for teachers is to provide space for a teacher to be able to think critically and creatively in every learning flow. Supported by student responses and responses that are very enthusiastic about the learning that is applied, namely based on Computer Based Instruction experienced by students, this has succeeded in supporting student activity. In the simulation model, there are four roles of the teacher, namely: first a teacher explains, second as an intermediary, third as a coach and fourth as a discussion. This simulation learning is four stages which are the stages of orientation, training, simulation and debriefing.

Researchers' suggestions and inputs to subsequent researchers who want to research on the implementation of the Computer Based Instruction simulation model in elementary schools to be more in-depth and furthermore for the perfection of research results which hopefully can be good reading material for readers and subsequent researchers.

REFERENCE

- Aditama, W. B., Ramdani, A., & Khairunnisa, K. (2021). Penerapan Computer Based Instruction Model Simulasi Dalam Pembelajaran Ipa Sekolah Dasar. *Journal Of Classroom Action Research*, 3(1), 30–45. <http://www.jppipa.unram.ac.id/index.php/jcar/article/view/651>
- Ama Amarodin, A. (2020). E-Learning Dan Aplikasinya Dalam Pembelajaran. *Perspektive: Jurnal Program Studi Pendidikan Agama Islam*, 13(1), 1–26. <http://ejournal.kopertais4.or.id/mataraman/index.php/perspektif/article/view/4060>
- Anggrasari, L. A. (2018). Meningkatkan Profesionalisme Guru Sekolah Dasar Melalui Pengembangan Media Pembelajaran Online Berbasis Edmodo. *Prosiding Seminar Nasional Pendidik Dan Pengembang Pendidikan Indonesia*, 288–292. <http://ejournal.mandalanursa.org/index.php/Semnas/article/view/280>
- Egok, A. S., & Hajani, T. J. (2018). Multimedia Interaktif Pada Pembelajaran Ilmu Pengetahuan Alam (Ipa). *Prosiding Seminar Dan Diskusi Pendidikan Dasar*. <http://journal.unj.ac.id/unj/index.php/psdpd/article/download/10006/6560>
- Ekawati, N. (2022). Islamic Religious Education Learning Model With Simulation Approach (Model Pembelajaran Pendidikan Agama Islam Dengan Pendekatan Simulasi). *Edu-Mandara: Jurnal Pendidikan Dan Ilmu Sosial*, 1(1, Juni) <https://www.ejournal.edu-trans.org/mandara/article/view/5>.
- Fadhli, M. (2016). Manajemen Peningkatan Mutu Pendidikan. *Itqan: Jurnal Ilmu-Ilmu Kependidikan*, 7(1), 103-113. <https://ejurnal.iainlhokseumawe.ac.id/index.php/itqan/article/view/119>
- Fitria, Z., & Prastowo, A. (2021). Analisis Keaktifan Siswa Melalui Computer Based Instruction Model Simulasi Dalam Pembelajaran Ipa Di Mi 01 Rejang Lebong. *Ar-Riyah: Jurnal Pendidikan Dasar*, 5(2), 227. https://scholar.archive.org/work/2m3syy3kc5a7jn7aqo2mfk2pri/access/wayback/http://journal.iaincurup.ac.id/index.php/JPD/article/download/3334/pdf_1
- Giartama, G., Hartati, H., Destriani, D., & Victoriand, A. R. (2018). Pengembangan Model Pembelajaran Tematik Integratif Penjasorkes Pada Mata Pelajaran Ilmu

- Pengetahuan Alam Di Sekolah Dasar. *Sebatik*, 22(2), 167–171. <https://jurnal.wicida.ac.id/index.php/sebatik/article/view/334>
- Halawa, S. (2016). Perancangan Aplikasi Pembelajaran Topologi Jaringan Komputer Untuk Sekolah Menengah Kejuruan (Smk) Teknik Komputer Dan Jaringan (Tkj) Dengan Metode Computer Based Instruction. *Jurikom (Jurnal Riset Komputer)*, 3(1), Article 1. <https://doi.org/10.30865/Jurikom.V3i1.53>
- Harfiani, R., & Fanreza, R. (2019). Implementasi Model Pembelajaran Lesson Study Praktikum Wisata Dalam Upaya Meningkatkan Pemahaman Konsep Dan Berpikir Kreatif Mahasiswa Pada Mata Kuliah Media Dan Sumber Belajar Di Prodi Pendidikan Islam Anak Usia Dini Fakultas Agama Islam Umsu. *Intiqad: Jurnal Agama Dan Pendidikan Islam*, 11(1), 135–154. <https://jurnal.wicida.ac.id/index.php/sebatik/article/view/334>
- Kurnia, N., Darmawan, D., & Maskur, M. (2018). Efektivitas Pemanfaatan Multimedia Pembelajaran Berbantuan Ispring Dalam Meningkatkan Motivasi Dan Hasil Belajar Pada Mata Pelajaran Bahasa Arab. *Teknologi Pembelajaran*, 3(1). <https://journal.institutpendidikan.ac.id/index.php/tekp/article/view/158>
- Mahessya, R. A. (2017). Pemodelan Dan Simulasi Sistem Antrian Pelayanan Pelanggan Menggunakan Metode Monte Carlo Pada Pt Pos Indonesia (Persero) Padang. *Jurnal Ilmu Komputer*, 6(1), 15–24. <https://jik.hip.ac.id/index.php/jik/article/view/41>
- Mardhiyah, R. H., Aldriani, S. N. F., Chitta, F., & Zulfikar, M. R. (2021). Pentingnya Keterampilan Belajar Di Abad 21 Sebagai Tuntutan Dalam Pengembangan Sumber Daya Manusia. *Lectura: Jurnal Pendidikan*, 12(1), 29–40. <http://journal.unilak.ac.id/index.php/lectura/article/view/5813>
- Mardiana, M. (2018). Penerapan Pembelajaran Ipa Berbasis Konstruktivisme Dalam Meningkatkan Sikap Ilmiah Pada Siswa Madrasah Ibtidayah. *Al-Madrasah: Jurnal Pendidikan Madrasah Ibtidaiyah*. <https://www.jurnal.stiq-amuntai.ac.id/index.php/al-madrasah/article/view/69>
- Moleong, Lexy J. (2017). *Metodologi Penelitian Kualitatif (Edisi Revisi)*. (Bandung: Pt. Remaja Rosdakarya). <http://library.stik-ptik.ac.id/detail?id=7251&lokasi=lokal>
- Nadeak, B., Parulian, A., Pristiwanto, P., & Siregar, S. R. (2016). Perancangan Aplikasi Pembelajaran Internet Dengan Menggunakan Metode Computer Based Instruction. *Jurikom (Jurnal Riset Komputer)*, 3(4). <http://ejournal.stmik-budidarma.ac.id/index.php/jurikom/article/view/340>
- Priatmoko, S. (2018). Memperkuat Eksistensi Pendidikan Islam Di Era 4.0. *Ta'lim: Jurnal Studi Pendidikan Islam*, 1(2), 221–239. <http://www.e-jurnal.unisda.ac.id/index.php/talim/article/view/948>
- Putri, D., Kartini, N. H., & Setyawan, D. (2022). Identifikasi Rendahnya Hasil Belajar Peserta Didik Saat Pembelajaran Daring Menggunakan Aplikasi Whatsapp Mata Pelajaran Ipa Kelas V Sdn 7 Menteng. *Anterior Jurnal*, 22(Special-1), 1–6. <http://journal.umpalangkaraya.ac.id/index.php/anterior/article/view/3273>
- Rahmat, S. T. (2015). Pemanfaatan Multimedia Interaktif Berbasis Komputer Dalam Pembelajaran. *Jurnal Pendidikan Dan Kebudayaan Missio*, 7(2), 196–208. <http://jurnal.unikastpaulus.ac.id/index.php/jpkm/article/view/35>
- Raphi, S. (2016). Pendidikan Literasi Keuangan Pada Anak: Mengapa Dan Bagaimana? *Scholaria: Jurnal Pendidikan Dan Kebudayaan*, 6(2), 14–28. <https://doi.org/10.24246/J.Scholaria.2016.V6.I2.P14-28>

- Rusman. (2012). *Model-Model Pembelajaran: Mengembangkan Profesionalisme Guru* (Cet. Ke-2). Rajawali Pers/Pt Raja Grafindo Persada. https://scholar.google.com/scholar?cites=6411145005888230518&as_sdt=2005&scioldt=0,5&hl=id
- Sadiqin, I. K., Santoso, U. T., & Sholahuddin, A. (2017). Pemahaman Konsep Ipa Siswa Smp Melalui Pembelajaran Problem Solving Pada Topik Perubahan Benda-Benda Di Sekitar Kita. *Jurnal Inovasi Pendidikan Ipa*, 3(1), 52–62. <https://doi.org/10.21831/Jipi.V3i1.12554>
- Sakdiah, H., & Syahrani, S. (2022). Pengembangan Standar Isi Dan Standar Proses Dalam Pendidikan Guna Meningkatkan Mutu Pembelajaran Di Sekolah. *Cross-Border*, 5(1), 622–632. <http://journal.iaisambas.ac.id/index.php/Cross-Border/article/view/1131>
- Sugiyono. (2017). *Metode Penelitian Pendidikan Pendekatan, Kuantitatif, Kualitatif Dan R & D*. Alfabeta. https://digilib.unigres.ac.id/index.php?p=show_detail&id=43
- Suryani, A. E., Basir, M. D., & Rusmin, A. R. (2018). Pengembangan Multimedia Pembelajaran Berbasis Komputer Model Permainan Pada Mata Pelajaran Ekonomi Di Sma Muhammadiyah 1 Palembang. *Jurnal Profit: Kajian Pendidikan Ekonomi Dan Ilmu Ekonomi*, 1(1), 1–13. <https://ejournal.unsri.ac.id/index.php/jp/article/view/5526>
- Tanu, I. K. (2017). Pentingnya Pendidikan Anak Usia Dini Agar Dapat Tumbuh Dan Berkembang Sebagai Generasi Bangsa Harapan Di Masa Depan. *Adi Widya: Jurnal Pendidikan Dasar*, 2(2), 19–29. <http://103.207.96.36:8056/ojs2/index.php/AW/article/view/960>
- Tiis Rahayu, N., & Satibi, I. (2021). *Manajemen Stratejik Era Revolusi 4.0 Dalam Peningkatan Kualitas Guru Di Mts Ma'arif Nu 01 Pekuncen Kec. Pekuncen Kab. Banyumas*. Institut Agama Islam Nahdlatul Ulama (Iainu) Kebumen. <http://eprints.iainu-kebumen.ac.id/id/eprint/261/>
- Utami, S., & Sabri, T. (2020). Pengaruh Model Pembelajaran Berbasis Masalah Terhadap Kemampuan Literasi Sains Ipa Kelas V Sd. *Jurnal Pendidikan Dasar Flobamorata*, 1(2), 1–20
- Wina Sanjaya. (2013). *Penelitian Pendidikan: Jenis, Metode, Dan Prosedur*. Kencana. <https://pedagogia.umsida.ac.id/index.php/pedagogia/article/view/1361>
- Yaqin, M. A., Febriana, E. F., & Rahmawati, Y. (2019). Simulasi Model Proses Bisnis Pada Permainan Hay Day. *Prosiding Seniati*, 20–29. <https://ejournal.itn.ac.id/index.php/seniati/article/view/1140>