Dewantara International Conference on Multidisciplinary

D-ICoM 2022

Excellent and Character Science and Humanity in Post COVID-19 Perspective

Certificate

Nomor : 52/UST/PAN.DIES/XII/2022

This is to certify that

Dr. Dewi Handayani, M.Si

Has Participated as

Presenter

For the manuscript entitled

Artificial Intelligence Used to Improve Cognitive Neuroscience

On the Dewantara International Conference on Multidisclipinary (D-ICoM) 2022 themed
"Excellent and Character Science and Humanity in Post Covid-19 Perspective"
Universitas Sarjanawiyata Tamansiswa (UST), Indonesia

Yogyakarta, 03 December 2022

Prof. Drs. H. Pardimin, M.Pd., Ph.D.
Rector

Ir. Yuli Prihatni, S.Pd., M.Pd.
Chairperson

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EVENT RUNDOWN
DEWANTARA INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY
(D-ICoM 2022)

Time (GMT +7)	Agenda
07.00 – 07.45 am	**Registration**
07.45 – 08.00	**Preparation**
08.00 – 08.15	**Opening Remarks** 1. Singing the National Anthem of Indonesia 2. Singing the song of Tamansiswa 3. Welcoming speech from the Rector of UST
08.15 – 08.45	**Keynote Session 1** Prof. Dr. Sheau-Wen Lin Academic Vice President National Pingtung University Taiwan
08.45 – 09.15	**Keynote Session 2** Nanang Kusuma Mawardi, S.P., M.Sc Vice Dean in Academic Affairs Faculty of Agriculture UST
09.15 – 09.45	**Keynote Session 3** Mr. Ahmad Hifzzurahman Bin Ridzuan University Malaysia Perlis, Malaysia
09.45 – 10.15	**Keynote Session 4** Dr. Babul Salam KSM Kader Ibrahim Coventry University, United Kingdom
10.15 – 11.00	**Discussion**
11.00 – 01.00 pm	**Parallel Session**

PROGRAM BOOK

D-ICoM 2022

3 DECEMBER 2022

PREFACE

On behalf of the scientific committee commemorating the 67th anniversary of Universitas Sarjanawiyata Tamansiswa (UST), we are very pleased to welcome all presenters to actively participate in the **Dewantara International Conference on Multidisciplinary (D-ICoM) 2022** themed **Excellent and Character Science and Humanity in Post COVID-19 Perspective**.

The COVID-19 pandemic occurred during the last two years has brought considerable impacts on various aspects including education sector. To deal with that situation, the digitalization in education sector had been implemented rapidly. The massive use of technology in education sector, of course, brought many consequences to students. The overwhelming free-access information may have negative impacts to young generations who tend to become passive and sedentary. Further, this situation must bring more impacts on younger generations' character and quality in the future. Once they may not capable of managing this digitalization, a huge number of younger people will become a disaster. Accordingly, it is very necessary to optimize technology in education sector by strengthening character education through the development of science, technology, and social culture. In addition, to produce excellent generation, in today's Post COVID-19 pandemic era it is very relevant to equip human resources with the competence of society 5.0. Therefore, this frum is initiated for scholars, practitioners, and other parties to disseminate, discuss, and collaborate ideas, best practices, and researches from various multidisciplinary subjects related to the theme.

Finally, we also express our appreciation to the distinguished speakers who proactively share their thoughts and ideas in this event. We hope that there will be more aspirations as well as positive changes that can be implemented to improve the role of education amid today's digital era.

The Organizing Committee

DEWANTARA INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY (D-ICoM)

Aim

To disseminate, discuss, and collaborate ideas, best practices, and researches from various multidisciplinary subjects.

Theme

"EXCELLENT AND CHARACTER SCIENCE AND HUMANITY IN POST COVID-19 PERSPECTIVE"

Scopes (but not limited to)

Education
Engineering
Agriculture
Psychology
Economics

KEYNOYE SPEAKERS

Prof. Dr. Sheau-Wen Lin
Academic Vice President, National Pingtung University
Taiwan

Nanang Kusuma Mawardi, S.P., M.Sc
Vice Dean in Academic Affairs, Faculty of Agriculture,
Universitas Sarjanawiyata Tamansiswa

Mr. Ahmad Hifzzurahman Bin Ridzuan
Universiti Malaysia Perlis, Malaysia

Dr. Babul Salam KSM Kader Ibrahim
Coventry University, United Kingdom

AGENDA

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09.45 – 10.15	**Keynote Session 4** Dr. Babul Salam KSM Kader Ibrahim Coventry University, United Kingdom
10.15 – 11.00	**Discussion**
11.00 – 01.00 pm	**Parallel Session**

IMPORTANT NOTES

1. Participants should actively participate in the whole agenda and are expected to enter the zoom meeting at 07.30 am (GMT+7),
2. Participants should turn on the camera during the agenda using the virtual background that can be downloaded at https://bit.ly/DICoM-Virtualbackground,
3. The participant's attendance form will be provided at the end of the keynote session, while the presenter's attendance form will be provided in each breakout room when running the parallel session,
4. Before the parallel session, the presenters should rename the zoom's name using this format: **Abstract ID_Full Name**,
5. The parallel session will be led by the parallel moderator in each breakout room until the closing of the event,
6. All presenters should prepare a presentation material (PPT) on each presenter's device and will be allowed to share the screen based on the presentation time,
7. The maximum duration of presentation is **10 minutes**. The presentation and Q&A session will further be led by the parallel moderator.
8. Please also pay attention that the full paper submission is on 10 December 2022 through our system (https://bit.ly/DICoM-Submit-Fullpaper),
9. **Our scientific committee encourages all the manuscript submitted must be strictly complied with the template, otherwise there will be considered to be rejected**. The template of the proceeding can be download through our website https://seminar.ustjogja.ac.id/index.php/D-ICoM or directly click https://bit.ly/DICoM-Fullpaper. In addition, please use the **APA style** for the reference system and it should be written using the assistance of referencing management software such as Mendeley, EndNote, etc., and also submit your similarity check indicating the result of **<20%.**

LINK ZOOM

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D-ICoM 2022

ROOM DISTRIBUTION FOR SELECTED PRESENTERS

ROOM 1. Moderator: V. Reza Bayu Kurniawan

ID	Authors	Affiliation	Title
SE01	Alvin Christianta	Environmental Engineering, Institut Teknologi Sepuluh Nopember, Indonesia	Water Loss Decrease with District Meter Area (DMA) Establishment in Baleendah Service Area of Tirta Raharja Regional Water Utility Company at Bandung Regency
SE02	Detha Sekar Langit Wahyu Gutama, Ahmad Mashadi, Maria Gorety Tae	Universitas Sarjanawiyata Tamansiswa	Analysis of the Road Performance Using 2014 PKJI Method (Case Study: Seturan Raya Road, Depok Sub-District, Yogyakarta)
SE04	Julhar Mistri Adi Prawito, Rokhana Dwi Bekti, Maria Titah Jatipaningrum, Edhy Sutanta, I Wayan Juliantana Pradnyana	Department of Statistics, Institut Sains & Teknologi AKPRIND Yogyakarta, Indonesia	Comparison of Forecasting Accuracy of Composite Stock Price Index When COVID-19 Pandemic Using ARIMA and Artificial Neural Network Backpropagation Methods
SE06	Qurnia Amanah Dwiadi, Rokhana Dwi Bekti, Kris Suryowati, Edhy Sutanta, Retno Widiastuti	Department of Statistics, Institut Sains & Teknologi AKPRIND Yogyakarta, Indonesia	Analysis of Factors Affecting Carbon Monoxide (CO) Concentrations Before and During COVID-19 in the Special Region of Yogyakarta using the Principal Analysis Regression (PCA) Method
SE12	Faridah Firdausiyah, Dewi Sulistyorini, Lilik Hendro Widaryanto	Program Studi Teknik Sipil, Fakultas Teknik Universitas Sarjanawiyata Tamansiswa	STUDY OF K-700 CONCRETE WASTE AS A SUBSTITUTE OF COARSE AGGREGATE AND KOKAP STONE ASH AS FINE AGGREGATE IN CONCRETE
SE17	Mohammad Imam Sufiynato, Benyamin Pintakhari, Dini Deswarni, Nuril Huda, Dewi Handayani	Tarbiyah Faculty, State Islamic Institute of Madura, East Java	Artificial Intelligence Used to Improve Cognitive Neuroscience

ROOM 2. Moderator: Nurcholish Arifin H.

ID	Authors	Affiliation	Title
SE03	Saroj Kumar Sahoo, Apu Kumar Saha, Muhammad Irfan	Department of Mathematics, National Institute of Technology Agartala, India	HMFOISCA: A Hybrid Moth Flame Optimization Algorithm for Combined Economic Emission Dispatch Problem
SE07	Iskandar Yasin, Dewi Sulistyorini, Farid Hari Purnama, Wahyudi, Andi Puja Widiantara, Kevin Tria Farell, Agus Priyanto	Departement of Civil Engineering, Universitas Sarjanawiyata Tamansiswa	ANALYSIS OF THREE SIGNIFICANT INTERSECTIONS USING PTV VISSIM (CASE STUDY: STREET OF NITIKAN BARU – SOROGENEN)
SE08	Iskandar Yasin, Widarto Sutrisno, Zainal Arifin, Mealky Aluan, Andreo Desperaldo Berek, Yasinto Salvatore Mario Lake, Angga Darmawan, Detha Sekar Langit Wahyu Gautama	Departement of Civil Engineering Universitas Sarjanawiyata Tamansiswa	THE INFLUENCE OF GALVALUM STEEL'S GEOMETRIC REINFORCEMENT TO THE CONCRETE BEAM'S STRENGHT
SE09	Iskandar Yasin, Widarto Sutrisno, Ida Bagus Agung, Angga Pinandika Islami, Gavinza Ardha Mahendra, Agustinus Nugraha Adit Putranto, Adi Sutarto, Agus Priyanto	Departement of Civil Engineering Universitas Sarjanawiyata Tamansiswa	SOIL DENSITY ANALYSIS IN RAIN DRIPHONIC SYSTEM (RDS) LAND SUMBERWUNGGU TEPUS GUNUNGKIDUL
SE15	Tegar Subekti, Agus Slamet, Agus Ahyar	Department of Environmental Engineering, Sepuluh Nopember Institute of Technology, Indonesia	Energy Efficiency Improvement of Water Distribution Network at Perumda Air Minum Tirta Makmur Sukoharjo Regency (Case Study: Nguter Distribution Network)
SE18	Liza Efriyanti, Ari Setiawan	UIN Sjech M. Djamil Djambek Bukittinggi, Indonesia	Designing Rules Based on Fuzzy Logic in the Selection of Learning Media in Computer Programming Algorithms Course

ROOM 3. Moderator: Nanang Bagus Subekti

ID	Authors	Affiliation	Title
SE05	Saurav Wanjari, Saroj Kumar Sahoo, Tareq M. Shami, Apu Kumar Saha, Irham Taufiq	Department of Mathematics, National Institute of Technology Agartala, India	A Hybrid Single Candidate Optimizer for Engineering Design Problems
SE10	Iskandar Yasin, Adi Sutarto, Tri Budi Utama, Reja Putra Jaya, Rajib Ar Rafif, Muhammad Fauzi Zakizain, Zain Nur Rahman, Ramadhan Saifullah Imam Safari, Lilik Budi Prasetyo, Ahmad Mashadi, Detha Sekar Langit Wahyu Gautama, Angga Darmawan	Departement of Civil Engineering Universitas Sarjanawiyata Tamansiswa	GROUNDTANKS CONSTRUCTIONS ANALYSIS OF RDS (RAIN DRIPHONIC SYSTEM) IRRIGATIONS
SE11	Iskandar Yasin, Widarto Sutrisno, Farid Haris Priyanto, Asep Panji Ibrahim, Bagus Hendrawan, Shahikh Al Amin, Adi Sutarto, Reja Putra Jaya, Dewi Sulistorini, Ida Bagus Agung, Ahmad Mashadi, Muhammad Bardan	Departement of Civil Engineering Universitas Sarjanawiyata Tamansiswa	Analysis of Lightweight Concrete Gutters Strenght in RDS (Rain Driphonic System) Agricultural Lands
SE13	Ayu Kusuma Wardhani, Agus Slamet, Muhammad Sundoro	Environmental Engineering, Institut Teknologi Sepuluh Nopember, Indonesia	Analysis of Energy Efficiency Improvement in Distribution Pump of SPAM Cicalengka Perumda Tirta Raharja Kabupaten Bandung
SE14	Laksmi Kurnia Santi, Agus Slamet, Dian Suci Hastuti	Environmental Engineering Department, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia	Controlling Non Revenue Water (NRW) With The Establishment of District Meter Area (DMA) In Zone J, Perumda Air Minum Tirta Khatulistiwa, Pontianak City

ROOM 4. Moderator: Kusuma Chandra K.

ID	Authors	Affiliation	Title
BM01	Zohaib Hassan Sain	Faculty of Business & Management Sciencest, Superior University, Pakistan	Challenges Faced to Online Education & Learning in Pakistan During Covid-19 Pandemic
BM02	Galih Suseno, Fuadhillah Kirana Putri, Nur Anita Chandra Putry, Suyanto	Fakultas Ekonomi, Universitas Sarjanawiyata Tamansiswa	FINANCIAL LITERACY, FINANCIAL TECHNOLOGY, STUDENT FINANCIAL MANAGEMENT: THE UNDERSTANDING OF TRI PANTANGAN
BM03	Selamat Muliadi, Eko Sutrisno, Widaryanti, Sri Ndaru Arthawati , Solikah Ana Estikomah	Department of Islamic Economics, Hamzanwadi Islamic Institute of Nahdlatul Wathan Lombok Timur, Indonesia	Strengthening Bau Nyale Festival on Economics Development in Central Lombok
SE16	Yoyon Efendi, Wetri Febrina, Ihwana As'ad, Rismayani, Agry Alfiah[5]	Technology Information, STMIK Amik Riau, Purwodadi Indah Street Pekanbaru, Riau, Indonesia	Application Virtual Reality 3D Museum with User Experience Questionnaire (UEQ)
BM04	Faidah Azuz, Sutiharni, Siyono, Ali Rahmat, Marhawati	Universitas Bosowa Makassar	The Social and Economic Dimension of Seaweed Farming in South Sulawesi
BM05	Trimardi Jaya Putra, Siswadi Sululing, Zumaroh, Andi Ismail Marasabessy	Sekolah Tinggi Ilmu Ekonomi Perdagangan, Padang, Indonesia	Can Human Development Increase Economic Growth?

ROOM 5. Moderator: Nur Widyastuti

ID	Authors	Affiliation	Title
EP01	Hendro Prabowo, Mahargyantari Purwani Dewi, Aski Marissa, Henny Regina Salve, Astri Nur Kusumastuti, Sang Putu Adi Sanjaya, Gusti Ngurah Anom Mardika	Fakultas Psikologi Universitas Gunadarma Depok	Trend of the Wellness and Health Therapy After Pandemic Covid1-19 in Bali
EP02	Nur Aziz Afandi, Abdul Aziz Ali Rosyiddin, Deva Octavia Syahrani	Study Program of Islamic Psychology, Faculty of Ushuluddin and Da'wah IAIN Kediri	The Place for Controlling Negative Emotions
EP07	Tri Septa Nurhantoro, Galant Nanta Adhitya, Fantasiya Nurul Huda, Yanus Purwansyah Sriyanto	English Literature/Respati Yogyakarta University, Indonesia	Assertive Speech Acts in Nadiem Anwar Makarim's Communication in a Fireside Conversation at Harvard with HPAIR
EP08	Murniningsih, Ani Widyawati	Pendidikan Guru Sekolah Dasar, Universitas Sarjanawiyata Tamansiswa, Yogyakarta	Analysis of Needs for Development of Science Modules Based on Cooperative-Case Based Learning
EP10	Adria Vitalya Gemilang, Rizki Pratama, Nimas Sabrina Sintyasakti	English Education, Sarjanawiyata Tamansiswa University, Indonesia	Politeness in Nadiem Anwar Makarim's A Fireside Conversation at Harvard with HPAIR
EP21	Deprizon, Sri Budyartati, Farida Hanun, Siskha Putri Sayekti, Acep Nurlaeli	Universitas Muhammadiyah Riau	Management of Online Learning Problems at the University of Muhammadiyah Riau

ROOM 6. Moderator: Th. Laksmi Widyarini

ID	Authors	Affiliation	Title
EP03	Nur Aziz Afandi, Intaning Qurota Ayun, Ivatul Ulla	Student of Islamic Psychology, Faculty of Ushuluddin and Da'wah, IAIN Kediri	Undergraduate Student Preferences for Online and Offline Learning
EP04	Prasastya Eka Fadilah, Nur Aziz Afandi	Islamic Psychology Study Program Faculty of Ushuluddin and Da'wah IAIN KEDIRI	SPIRITUAL EMOTIONAL FREEDOM TECHNIQUE (SEFT) IN EMOTIONAL DISORDERS OF ABUSE PERSONS
EP11	Dirgahayu Ari Astuti, Agustina Sri Purnami	Universitas Sarjanawiyata Tamansiswa	Program Internasional Homeschooling Primagama Solo
EP12	Sitti Jamiatul Usna, Ayu Rahayu, Retno Utaminingsih	Universitas Sarjanawiyata Tamansiswa	Analisis Kebutuhan Pengembangan LKPD Eksperimen Berbasis Ajaran Tamansiswa Tri N Pada Pembelajaran IPA Kelas IV di SD Negeri Gedongtengen
EP13	Rita Sari, Ariyani Muljo, Mavianti, Merri Sri Hastuti, Apriza Fitriani	IAIN Langsa, Jl. Meurandah, Langsa Lama, langsa, Indonesia	Card sort: Teaching Mild Mentally Retarded Children
EP22	Ahmad, Zaedun Na'im, Hasnawati, Acep Nurlaeli, Adiyono	Universitas Alkhairaat Palu, Indonesia	The Contribution of Islamic Education in the Era of Society 5.0

ROOM 7. Moderator: Jamiu Temitope Sulaimon

ID	Authors	Affiliation	Title
EP05	Saskia Bunga Choirunisa, Nur Aziz Afandi	Islamic Psychology Study Program Faculty of Ushuluddin and Da'wah IAIN KEDIRI	BEHAVIORAL THERAPY USING TOKEN ECONOMIC TECHNIQUES TO IMPROVE THE LEARNING MOTIVATION OF CHILDREN WITH MENTAL RETARDATION
EP06	M. Jandra, A. Syauqi Hidayatullah	Universitas Sarjanaawiyata Taman Siswa	Preparation of Ulama at MAN PK Padang Panjang New City, West Sumatra
EP14	Andi Musda Mappapoleonro, Zahrati Mansoer, Mila Zultriyanti S, Resy Nurwati, Yanny Zusana, Farizawati	Kusuma State College of Teacher Training and Education	Steam Literacy in Improving Critical Thingking Skills Early Childhood
EP15	Resy Nirawati, Tri Astari	Departemen Pendidikan Matematika, Universitas Pendidikan Indonesia, Bandung, Indonesia	The Way Elementary School Students Think in Mathematical Problems
EP16	Sri Budyartati, Andi Harpeni Dewantara, Arum Putri Rahayu, Nisrina Hikmawati, Farida Hanun	Universitas PGRI Madiun	Obstacles to implementing AFL in elementary schools
EP23	Mohammad H. Holle, Sri Hartono, Niswatun Hasanah, Rahmawati, Rina Septiani	Institut Agama Islam Negeri Ambon, Indonesia	Financial Inclusion Gap in Western and Eastern Regions of Indonesia, Why?

ROOM 8. Moderator: Mark Gabriel W. Aguilar

ID	Authors	Affiliation	Title
EP09	Fitri Puji Handayani, Titik Muti'ah	Fakultas Psikologi Universitas Sarjanawiyata Tamansiswa	THE EFFECTIVENESS OF NRIMO IN SELF-ADJUSTMENT FORMER DRUG USERS (Study in an Al-Islamy Pesantren Yogyakarta)
EP17	Mulono Apriyanto, Bayu Rianto	Agriculture Faculty, Islamic University of Indragiri	Age and Gender Caracteristics of The Sellers and Buyers of Jamu Gendong
EP18	Adirasa Hadi Prasetyo, Tri Rohani, Jasiah, Siti Aisyah Hanim, Novita Eka Tristiana	STKIP PGRI Sumenep	Use Flipped Classroom in Problem based Learning Class Activities
EP19	Ari Setiawan, Kiki Engga Dewi, Wiputra Cendana, Diani Ayu Pratiwi	Universitas Sarjanawiyata Tamansiswa Yogyakarta	Teams Games Tournaments (TGT) Types to Improve Motivation and Mathematical Learning Achievement
EP20	Hidayati, Ayu Fitri Amalia, Sony Yunior Erlangga	Department Of Physics Education Faculty Of Teacher Training And Education Sarjanawiyata Tamansiswa University	Optics Teaching Book Developmentproblem Based Learning Model Through Macromedia Flash
BM06	Dwi Koerniawati	Sunan Ampel Islamic State University Surabaya, Indonesia	Regional Financial Ratio Analysis as Performance Appraisal Tool (Case Study on BPPKAD Magetan Regency)

Water Loss Decrease with District Meter Area (DMA) Establishment in Baleendah Service Area of Tirta Raharja Regional Water Utility Company at Bandung Regency

Alvin Christianta

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ABSTRACT
Tirta Raharja Regional Water Utility Company of Bandung Regency is a Municipally-Owned Corporation (*BUMD*) engaged in providing drinking water in Bandung Regency. One of their future-term priorities per the 2019-2024 business plan is targeting a 25% decline in Non-Revenue Water (NRW) by 2024 in accordance with the National Medium-Term Development Plan (RPJMN). The current NRW in Tirta Raharja Regional Water Utility Company of Bandung Regency is 27.20%. They should be able to develop a proactive approach strategy in analyzing and designing a water distribution network. One of the measures in NRW control at Tirta Raharja Regional Water Utility Company is the establishment of a District Meter Area (DMA) in the Baleendah service area. The DMA establishment is newly planned for 4.943 House Connections (*SR*). The new establishment of DMA is expected to help make it easier to monitor and control water loss. This study focused on the EPANET model of DMA establishment conducted with distribution network data in QGIS. The control by establishing a new DMA is expected to facilitate water loss control, reduce operational costs, and increase revenues.The present study used survey and descriptive methods, and the research approach used was a case study. The case study stages were analyzing existing conditions, planning the formation of DMA, and analyzing investment feasibility. The research results, conducted through the EPANET 2.2 modeling, were adjusted to the existing conditions in the field. There were 11 DMA to be planned in the Baleendah service area, in the planning for critical points in each DMA has met the criteria of the applicable standard, which is at least above 0.5 bar. The hydraulic simulation in the DMA planning was made under the condition of a 25% leakage rate. A decrease of 4.22% would create a high savings potential in the Baleendah service area.

Keywords: *Planning, Drinking Water, DMA, Tirta Raharja Regional Water Utility Company, NRW, EPANET.*

Analysis of the Road Performance Using 2014 PKJI Method (Case Study: Seturan Raya Road, Depok Sub-District, Yogyakarta)

Detha Sekar Langit Wahyu Gutama*, Ahmad Mashadi, Maria Gorety Tae

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ABSTRACT

The road is a very important transportation infrastructure, to ensure that the road can provide the expected service, it is necessary to repair the road. One of the factors causing congestion is the large volume of vehicles. The problem of traffic jams often arises in areas with high activity and land use. The research location is on Jalan Seturan Raya, Kec. Depok, Jogja. The research method used is observation data (primary data), literature review (research of previous research documents). Analysis of surface friction, traffic flow, capacity and saturation data uses the Indonesian road capacity guide method (PKJI 2014). The conclusions of this study are as follows: The highest traffic volume occurred on Tuesday, 10 May 2022, from 16.00 to 17.00 with a total of 5130 vehicles/hour or 2484.4 Kur/hour. Fence over Jl. Seturan Raya, Depok, Yogyakarata also have an influence on the occurrence of congestion such as the presence of street vendors selling along the sidewalks causing density and narrower traffic space. Saturation level value on Jalan Seturan Raya Depok, Yogyakarta is 1,016, so the service level of the road as class "F" with the characteristics of heavy traffic, low speed, long lines and big obstacles.

***Keywords**: Road Perfomance, PKJI 2014, Traffic Volume*

Comparison of Forecasting Accuracy of Composite Stock Price Index When COVID-19 Pandemic Using ARIMA and Artificial Neural Network Backpropagation Methods

Julhar Mistri Adi Prawito[1], Rokhana Dwi Bekti[1], Maria Titah Jatipaningrum[1], Edhy Sutanta[2*], I Wayan Juliantana Pradnyana[2]

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ABSTRACT

Forecasting methods continue to be developed to obtain more accurate forecasting results. **Purpose**: This research was conducted to obtain a comparison of the accuracy of forecasting results using the Autoregressive Integrated Moving Average (ARIMA) and Artificial Neural Network (ANN) backpropagation methods. **Methods**: The research was conducted through six stages, namely preparing Composite Stock Price Index (CSPI) data, conducting descriptive statistical analysis, forecasting using the ARIMA method (including data stationarity tests, model parameter estimation tests, diagnostic check tests, and forecasting), conducting forecasting with the ANN Backpropagation method, calculating and comparing accuracy, as well as comparing the accuracy between ARIMA and ANN backpropagation methods. The research data used was CSPI, obtained from secondary sources. The training data for testing include the period January 2016-March 2021, while the testing data use data from April-July 2021. **Results**: Forecasting accuracy using the smallest MAPE value, the best method is ANN backpropagation, namely, 1.08818. The CSPI forecast values for the April-September 2021 period are 5083, 5277, 5425, 5551, 5662, and 5761. Based on the MSE values the best method is ARIMA (0,1,6), namely, 14138 that produces CSPI forecast values of 5935, 5860, 5969, 5800, 5889, and 5875. The ANN backpropagation method produces forecasts that continue to experience an increasing trend, whereas the ARIMA method produces forecasts with a downward trend. **Implications**: Policy makers need to be careful in making policies so that economic conditions remain stable, both during and after the COVID-19 pandemic. The results of this study and previous studies prove that the ANN backpropagation method is suitable for predicting CSPI. **Additional materials**: This manuscript uses 15 numbers of references, 11 tables, and 5 graphs.

Keywords: *Artificial Neural Network (ANN), Autoregressive Integrated Moving Average (ARIMA), backpropagation, Composite Stock Price Index (CSPI), forecasting*

Analysis of Factors Affecting Carbon Monoxide (CO) Concentrations Before and During COVID-19 in the Special Region of Yogyakarta using the Principal Analysis Regression (PCA) Method

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ABSTRACT

The high number of motorized vehicles operating in the Special Region of Yogyakarta (DIY) has increased air pollution that can impact human health. One of the pollutant gases originating from motorized vehicles is Carbon Monoxide (CO). **Purpose**: This study aimed to determine the factors that affected CO levels in the air in DIY before and during the COVID-19 pandemic. Many methods can be used to analyze the relationship between independent variables, one of which is multiple regression with Ordinary Least Square (OLS) estimation. However, in the case of air quality data in DIY, it was found that there was a relationship between independent variables, which impacted not fulfilling the multicollinearity assumption. An alternative solution to overcome this problem is the use of the Principal Component Analysis (PCA) regression method. **Methods**: The analytical method used in this study is PCA regression, then it is compared with multiple regression with OLS estimation. The dependent variable is CO. The independent variables were temperature, humidity, wind speed, SO2, TSP, PM 10, lead, N02 and O3. This study uses secondary data sourced from DLH DIY in 2021 and primary data obtained from survey results in 2018. **Results**: The OLS regression model gives the result that air humidity and oxidants significantly affect CO levels in the air in 2018. Meanwhile, SO2 affects the levels of CO in 2021 during the COVID-19 pandemic. However, this method does not fulfill the multicollinearity assumption, so it is continued with PCA regression. Through model comparison, it is proven that the PCA regression method can overcome multicollinearity and is better than the OLS regression method. The PCA regression model gives the result that Principal Component (PC2) significantly affects CO levels, both in 2018 and 2021. PC2 is a linear combination of all independent variables. **Implications**: Through PCA regression, the effect of all variables is obtained even though it contains multicollinearity. This provides the advantage of being able to know the relationship pattern between the independent variables and CO and predict it without eliminating the independent variables that have multicollinearity. Policy makers should continue to strive to control levels of CO, SO2, air humidity and oxidants so that they are at the threshold of quality standards. **Additional materials**: This manuscript uses 15 references, 3 tables and 3 pictures.

Keywords: *Carbon Monoxide (CO), Covid-19 pandemic, Ordinary Least Square (OLS), Principal Component Analysis (PCA)*

STUDY OF K-700 CONCRETE WASTE AS A SUBSTITUTE OF COARSE AGGREGATE AND KOKAP STONE ASH AS FINE AGGREGATE IN CONCRETE

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ABSTRACT
K-700 concrete wastes are often found from failed production of CCSP concrete, unused concrete laboratory samples, or other concrete constructions. This study used stone ash as fine aggregate, natural crushed stone as coarse aggregate and utilizing K-700 concrete waste as a substitute for natural coarse aggregate. This study compared the compressive strength values produced between K-700 waste coarse aggregate concrete and natural coarse aggregate concrete. This study used the calculation method of mixed design SNI 2002 Mix Design and SNI 2012 Mix Design on concrete cylinders d.15 and h.30 aged 28 days for a 25 MPa quality plan. There were 3 samples for each variation of K700 waste concrete and natural concrete, so there were 12 samples in total. In this study, several test object code are used which are N0 as normal natural coarse aggregate concrete Mix Design SNI 2002, N1 as normal natural coarse aggregate concrete Mix Design SNI 2012, F0 as waste concrete coarse aggregate waste K-700 Mix Design SNI 2002 and F1 as concrete waste coarse aggregate waste K-700 Mix Design SNI 2002. The test results of the average compressive strength values on concrete were 29.127 MPa, 30.157 MPa, 20.90 MPa and 23.70 MPa respectively. Based on the results of the compressive strength test, there was a decrease in the strength of the concrete in the waste concrete compared to normal concrete. Whereas the use of the SNI 2012 Mix Design calculation method produces a greater compressive strength value than the SNI 2002 Mix Design calculation method in the test.

Keywords: Agreggate, Concrete Waste, Compressive Strength, Mix Design SNI 2012 and Stone Ash

Artificial Intelligence Used to Improve Cognitive Neuroscience

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ABSTRACT
The main problems in teaching and learning activities are the advancement of technology in the digital age and teachers' difficulties in utilizing digital platforms; additionally, teachers' neuroscience cognitive abilities are required to continue to develop and improve creativity, imagination, and innovation in enlivening the learning environment in the classroom. The aim of this study is to improve the cognitive neuroscience of teachers who are familiar with ICT through artificial intelligence. This study employed classroom action research, in which 30 correspondences in Sumenep Regency were given a pretest and post-test, as well as N-Gain scores, to determine how far the use of artificial intelligence and cognitive neuroscience had progressed. According to the study's findings, the educator's understanding of the algorithm improves by 20%. There is also a 10% increase in teacher understanding of machine learning. According to the N-Gain test results, there has been a significant improvement in aspects of artificial intelligence and cognitive neuroscience. As a result, artificial intelligence can assist teachers in better understanding technology and improving cognitive neuroscience in the development of ICT, particularly digital ones.

Keywords*: artificial intelligence (AI), cognitive, neuroscience*

HMFOISCA: A Hybrid Moth Flame Optimization Algorithm for Combined Economic Emission Dispatch Problem

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ABSTRACT
An important task in the operation and planning of power systems is solving the combined economic and emission dispatch (CEED) problem, a highly non-linear multi-objective problem with equality and inequality constraints. CEED is well-liked among academics despite the fact that its goals are at odds with one another. But when compared to other meta-heuristic algorithms, the moth flame optimization (MFO) algorithm performs admirably when faced with nonlinear restricted global optimization issues. The sluggish convergence pace and high-quality solution remain, though. The sine cosine algorithm (SCA) has recently garnered significant popularity due to its simplicity, although it suffers from weak exploitation ability. To address the drawbacks of MFO and SCA while keeping their benefits, this research introduces a novel hybrid algorithm called HMFOISCA, which combines the MFO with improved SCA. CEED problem for six-unit thermal generating systems is solved using the suggested HMFOISCA algorithm to evaluate its performance in terms of solution quality and convergence rate. The simulation findings outperform competing optimization techniques and motivates for future studies like conversion into multi-objective, applied it to solve image segmentation problem, vehicle routing, job shop planning, etc. Furthermore, in this study we have added more than thirty references, two figures and one table.

Keywords: *Moth Flame Optimization Algorithm, Sine Cosine Algorithm, Combined Economic Emission Dispatch Problem, Swarm Intelligence*

ANALYSIS OF THREE SIGNIFICANT INTERSECTIONS USING PTV VISSIM (CASE STUDY: STREET OF NITIKAN BARU – SOROGENEN)

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ABSTRACT
An intersection is part of a road network system that connects two or more roads at a meeting point. Intersections are part of the road network system, and the smooth movement of the road network also depends on the movement of these intersections. Unsignalized intersections can cause traffic jams on the road network. Unsignalized intersections can cause road movement to become sluggish. One of the crossroads in the city of Yogyakarta that is experiencing this problem is at the three unsignalized intersection of Jalan Nitikan Baru and Jalan Sorogenen. By knowing the performance of the intersection based on the 2014 Indonesian Road Capacity Guidelines, then simulated with PTV Vissim Software. The parameters of the intersection performance are the degree of saturation, delay, and queuing opportunities. The results of this study are the performance of the intersection using the 2014 PKJI method and the results of the PTV Vissim Software simulation. The results of the calculation of the intersection performance using the 2014 PKJI method obtained the largest DJ value of 1.123 with an intersection delay (T) of 27.426 sec/cur with a queue opportunity value of 51% -103%. The results of the intersection performance analysis using Vissim PTV Software obtained the level of service LOS B, delay of 12.802 seconds and an average queue length of 4.952 m.

Keywords*: intersections, analysis, PTV Vissim*

THE INFLUENCE OF GALVALUM STEEL'S GEOMETRIC REINFORCEMENT TO THE CONCRETE BEAM'S STRENGHT

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ABSTRACT
Effect of bearings on the strength of mild steel reinforced concrete beams C and U channels with loading at two points. The purpose of this study was to determine the flexural strength of concrete beams using mild steel reinforcement and to determine the stiffness value of the object being tested. With a comparison of the two types of objects tested, namely lightweight steel reinforced concrete beams C and U channels with the dimensions of the beam on the test object beam used were 200 cm x 10 cm x 10 cm. then get the value of each of the two test objects, the beam test has 3 samples for C channel mild steel concrete beams with an average value of 391.96 kg/cm2 and for U channel mild steel get the average value of 3 samples of test objects is 385.44 kg/cm2.

***Keywords**: Geometric, Galvalum Steel, Reinforcement, Concrete Beam*

SOIL DENSITY ANALYSIS IN RAIN DRIPHONIC SYSTEM (RDS) LAND SUMBERWUNGGU TEPUS GUNUNGKIDUL

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ABSTRACT

Soil in a construction must have a large soil density value, a large soil density value greatly affects the carrying capacity of the soil in carrying the load on it. Dynamic cone penetration test (DCP) is often used. To obtain the CBR value, the results of the DCP (Dynamic Cone Penetrometer) test are correlated with the DCP-CBR Value Correlation formula. However, to minimize failures in testing the CBR-DCP correlation, it is necessary to correct it with the DCP-CBR Correlation Formula from the Ministry of PUPR which is universally applicable to all regions of Indonesia. This research was attempted by carrying out a DCP test at 10 points in the field and then taking a soil sample which was then brought to the laboratory to be tested for the characteristics of the soil. After all soil data is obtained, then analyze and formulate the DCP-CBR correlation formula and comparisons are made with the correlation formula. After doing research, we got a DCP–CBR correlation formulation model, having the formula Log CBR= 3. 2322– 1. 512 Log DCP, where this formula is in accordance with the DCP–CBR correlation formula from the PUPR meter because the position of the curve of the DCP–CBR Correlation Formula is slightly above the DCP-CBR Correlation formula curve of the Ministry of PUPR.

***Keywords**: Soil, Bearing Capacity, CBR, DCP*

Energy Efficiency Improvement of Water Distribution Network at Perumda Air Minum Tirta Makmur Sukoharjo Regency (Case Study: Nguter Distribution Network)

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ABSTRACT
The problem that water supply companies commonly face is the high operational costs caused by inefficient energy usage. Nguter water distribution network (WDN) uses a pumping system to deliver water to customers. The pressure measurements carried out in the distribution network show that during the minimum flow, the pressure received by customers at the farthest point of the distribution network is greater than the distribution inlet (3.9 bar at the furthest customer point and 3.6 bar at the distribution inlet). So there is an opportunity to save energy costs by reducing the pressure at the distribution inlet. In this pump station, only one pump can be operated, and the results of the pump efficiency measurement show that the pump's total efficiency is 53.95% or a 6.76% decrease in total efficiency. Actions are needed to improve the existing energy efficiency conditions by reconditioning, repairing impellers, and resetting distribution pumps. In addition, energy-saving models were studied in EPANET 2.2 by adding and managing the pump's operation, which shows a saving in energy costs by 36,30% from the initial condition.

Keywords: *Pump Efficiency, Water Distribution Network, Hydraulic Simulation, Pump Operation.*

Designing Rules Based on Fuzzy Logic in the Selection of Learning Media in Computer Programming Algorithms Course

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Abstract

There are still many lecturers in theory and practice who experience confusion over which media percentages are prioritized to be applied in each meeting so that the main learning outcomes are maximally achieved. Fuzzy logic is one of the tools in artificial intelligence that can provide a decision from a problem that intersects with one another and is blurred so that it provides a good solution. The choice of the right learning media greatly influences the type of learning that is carried out whether in theory or practice, especially in scientific courses. computers that use these two types in the lecture process. The use of media that is suitable for technical implementation of lectures in theory or practice will have an impact on achieving the learning objectives of each lecture meeting. The use of fuzzy logic can assist educators in making presentations of various learning media used in the lecture process both theoretically and practically, so that it greatly assists lecturers in making decisions in a short time at the beginning of the semester when making semester lesson plans. In this study, the ADDIE model of R&D research was used. The results obtained in this study are in the form of fuzzy logic-based rule designs in selecting appropriate learning media for theoretical or practical lectures in Computer Programming Algorithms courses. The designs obtained can be used by lecturers who apply theory and practice in one semester, especially in the field of computer science

Keywords: ***Fuzzy logic, designing rules, learning media, ADDIE, theory and practice***

A Hybrid Single Candidate Optimizer for Engineering Design Problems

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ABSTRACT
Single candidate optimizer (SCO) is a new member of metaheuristic (MH) algorithm based on a single candidate solution throughout the whole optimization scheme. To balance between two major factor of MH algorithm i.e., diversification and intensification, SCO utilized a unique set of solutions which helps effectively in updating the position of the individual solution. Like other MH algorithms it is unable to handle good trade-off between exploration and exploitation. On the other hand, particle swarm optimization (PSO) has gained significant popularity due to its simplicity and efficient phase, although it suffers from weak exploitation ability. To overcome the drawbacks of both algorithms, this research introduces an efficient hybrid algorithm called SCPSO, by combining the SCO with PSO. Fourteen classical benchmark functions and two real-world problems are solved using the newly developed SCPSO algorithm to evaluate its performance. Further, Friedman rank test is used to measure the effectiveness of the proposed algorithm. The simulation findings outperform competing optimization techniques and motivates for future studies like enhancement of SCO by learning strategy, conversion into multi-objective, to solve image segmentation problem, job shop planning, etc. Furthermore, in this study we have added more than thirty references, one to two figures and four tables.

Keywords: *Single candidate optimizer, Particle swarm optimization, Benchmark functions, Friedman rank test, Swarm Intelligence, Engineering design problems*

GROUNDTANKS CONSTRUCTIONS ANALYSIS OF RDS (RAIN DRIPHONIC SYSTEM) IRRIGATIONS

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ABSTRACT
The RDS (Rain Dribonic System) project is a system that adapts several systems, namely rainwater harvesting and drip irrigation systems which are easy planting concepts. The irrigation system in the RDS project relies on water harvested during the rainy season by capturing the flow of rainwater from the mountain slopes that flows into the gutters around the plants. Water and mud in the gutters will be filtered on the sand trap and then enter the ground tanks, the water in the ground tanks will go to the lowest ground tank. The water in the groundtank will be pumped to the main water reservoir. The water in the reservoir is then given nutrients which will later be channeled to the date palms and intercrops. The irrigation system in the RDS (Rain Driponik System) project uses water sourced from annual rainfall. Among the date palms and intercrops, 17 ground tanks were built, assisted by gutters to connect the ground tanks. Groundtank in the irrigation system of the RDS project which has dimensions of 5m x 1.3m x 1m. Groundtank can hold as much as 6500 liters of water. The RDS (Rain Driponic System) project is located in Karanggebang Sumberwungu Hamlet, Gunungkidul D.I Yogyakarta. The Central Bureau of Statistics for Gunungkidul Regency explains that with a diagram the average rainfall in 1 month is 184 mm, which from these results can be calculated that the volume of rainwater catchment is 920 liters/month. RDS construction materials use a mixture of additive cement with DIFA SOIL STABILIZER products, soil and water. The construction of the ground tank and gutter or sandtrap was built without using reinforcing steel, the building only relied on the strength of the soil bearing capacity and the adhesion of the additive cement.

Keywords*: RDS, Groundtank, Constructions, Additive Cement*

Analysis of Lightweight Concrete Gutters Strenght in RDS (Rain Driphonic System) Agricultural Lands

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ABSTRACT
The Rain Drypponic System or Rain Harvesting System for precision agriculture is here to address the solution to water shortages in dry and barren land areas. The way this system works is to collect or "harvest" rainwater, flow it into the gutter and forward it to the Ground Tank around the ground, which is then used for irrigation with additional nutrients given to the water in the ground tank, then channeled into a pipe to then drip on plants, both staple and intercrops. In the gutter structure, the strength of the gutter structure is highly dependent on the reinforcement as the main component. If reinforcement is not used in the gutter structure, the gutter structure will crack because it is unable to withstand the load. For this reason, research was carried out using the Hammer Test method which is used to determine the compressive strength of concrete. This study aims to obtain a mixture composition that has a certain concrete compressive strength so that it can be classified as high quality concrete using the Hammer Test tool. The location of this research is Karanggebang Village, Sumberwungu Hamlet, which is in the Gunungkidul Regency Region. The total area of agricultural land is 10,000 m2. This method is descriptive in nature based on data that is in accordance with the conditions in the field and aims to evaluate conditions in the year based on the data collected according to its objectives based on theoretical and empirical analysis which then draw conclusions from the results of the analysis that has been carried out. Data collection method with the method used for this research is descriptive analysis to provide an overview of the data and information that has been obtained. The maximum concrete compressive strength is 31 MPa, the minimum compressive strength of concrete is 18 MPa, and the average compressive strength is 24 MPa. This shows that the compressive strength of the concrete or the test point is 20 kg/cm2 and the standard deviation is 45.99 kg/cm. Based on the data above, the construction of the gutter structure in the Rain Dripponic System project is less strong due to the quality of the concrete. Very low. So it is advisable to use reinforcement as the main component in order to get high quality concrete so that the structure can last a long time or is strong enough to withstand loads.

Keywords*: Strenght, Gutter, Lightweight Concrete, RDS*

Analysis of Energy Efficiency Improvement in Distribution Pump of SPAM Cicalengka Perumda Tirta Raharja Kabupaten Bandung

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ABSTRACT
Sistem Penyediaan Air Minum (SPAM) is one of water distribution systems in Perumda Tirta Raharja that uses a pumping system. SPAM Cicalengka has a Specific Energy Consumption (SEC) value above the standard set by USAID IUWASH Plus, which is above 0.4 kWH/m^3. A SEC value that exceeds 0.4 kWh/m^3 indicates the inefficiency of the existing system. A high SEC value can caused by pump settings that are not in accordance with the needs of the distribution system. During the minimum hour the pump is still operating at full speed but the water discharge distributed is small/according to the customer's requirement at the minimum hour. This causes inefficiency in energy use. This research will analyze the increase in energy efficiency through 2 (two) alternatives, the first alternative is adding a Variable Speed Drive (VSD) and the second alternative is adding an elevated reservoir. The result based on technical and financial analysis is the installation of a Variable Speed Drive at SPAM Cicalengka more feasible than using elevated reservoar. VSD installation can increase energy efficiency by 15% and reduce the SEC value from 0.41 kWh/m^3 to 0.3 kWh/m^3.

Keywords: *Energy Efficiency, Pump, SEC, SPAM Cicalengka*

Controlling Non Revenue Water (NRW) With The Establishment of District Meter Area (DMA) In Zone J, Perumda Air Minum Tirta Khatulistiwa, Pontianak City

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ABSTRACT
Non Revenue Water (NRW) is one of the issues that occurs in water suplai needs for the community. The level of Non Revenue Water (NRW) of Perumda Air Minum Tirta Khatulistiwa in 2021 is 31.81% or 18,176,517 m3/year which cause the potential loss of income of 83.5 billion. This NRW level is still far above the RPJMN 2020-2024 target of 25%. Zone J, which is a zone in SPAM BKST, is one of the zones that has not yet formed a DMA., with an NRW value of 27.6%. There are two methods in this research, namely survei method and a descriptive method. This study aims to plan the DMAs formation in Zone J in an effort to control Non Revenue Water (NRW). The result of the research is planning the formation of DMA using two supplies according to existing conditions. There are 9 DMAs planned in Zone J, where the critical point in each DMA has met the applicable standard criteria, between 0.5-10 bar. The hydraulic simulation in the DMA planning is carried out by reducing the suplai discharge, with a leakage rate of 25%, so the potential savings of IDR 349.245.824,00 per year can be obtained in Zone J.

***Keywords**: District Meter Area, Non Revenue Water, Establishment*

Challenges Faced to Online Education & Learning in Pakistan During Covid-19 Pandemic

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ABSTRACT
This study was required to analyze the challenges teachers and students encountered in the online education & learning process as it was being carried out in Pakistan during Covid-19 pandemic. In Pakistan, one of the most damaged sectors is thought to be education. The Third World nations like Pakistan were most negatively impacted because they lacked the necessary technology for online learning during the pandemic. In this study, closed-ended questionnaires were used in a mixed-method research design. To improve data collection and analysis, the researcher issued questionnaires to students, teachers, and the management in addition to conducting management interviews. This study offers advice to online teachers in Pakistan on how to overcome their difficulties. The results show a negative attitude toward faculty members using online learning environments for teaching and learning. The difficulties faced by faculty members prevented them from providing effective teaching and learning. Faculty members needed extensive expertise in teaching online and were not provided the right training to deal with the technical difficulties. This study will assist educators in improving the quality of online teaching in Pakistan by identifying suitable solutions and suggestions by exploring the experiences and difficulties faculty members have with online education and learning.

Keywords: *Online Education & Learning, Pakistan, Covid-19 Pandemic, Online Teaching & Learning Challenges.*

FINANCIAL LITERACY, FINANCIAL TECHNOLOGY, STUDENT FINANCIAL MANAGEMENT: THE UNDERSTANDING OF TRI PANTANGAN

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ABSTRACT
This study aims to examine the effect of financial literacy and financial technology on financial management students with the an understanding of Tri Pantangan as a moderating variable. The research method used is quantitative research. The population used in this study were Bachelor of Economics students from batch 2018-2021 at Tamansiswa University throughout Indonesia. The number of samples used in this study were 309 respondents. The sampling technique used is purposive sampling. The data collection method was taken by distributing questionnaires using the Google form. This test was carried out using Multiple Linear Regression analysis and Moderated Regression Analysis (MRA). The results of this study indicate that financial literacy has a positive and significant effect on student financial management, financial technology has a positive and significant effect on student financial management, the understanding of Tri Pantangan can strengthen the effect of students' financial literacy in managing their financial. meanwhile, the understanding of Tri Pantangan can not strengthen the influence of students' financial technology in managing their financial.

***Keywords**: Financial Literacy, Financial Technology, Understanding of Tri Pantangan, Financial Management.*

Strengthening Bau Nyale Festival on Economics Development in Central Lombok

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ABSTRACT
The development of Bau Nyale Festival in Central Lombok often uphold the existence of culture that has become the identity of local wisdom. The natural beauty and social culture values of the coastal communities in Selong Belanak and has the potential of being developed into an attractive centre for tourists. Bau Nyale Festival has been an important component of Sasak tradition for centuries and tourism icon in the Districs of Central Lombok. This paper aims to examine how the Bau Nyale Festival in the area around the Selong Belanak Central Lombok can be a source of tourism development and developed to increase estimate economics community. The research used the qualitative descriptive method. The data collection techniques in this study were observations, interviews and documentations from various parties and institutions related to the Bau Nyale Festival, namely the village government, Pokdarwis, society figures and tourists. The results of in-depth interviews with several sources show that the Bau Nyale Festival held on the island of Central Lombok is still exist and superior event in the number of enthusiasts and and concepts. The main factor that affects the sustainability of Bau Nyale is the quality of human resources in the tourism sector on the island of Central Lombok, so as to be able to formulate effective and creative planning in packaging the event. The type of business which grows in the presence of Bau Nyale Festival in Selong Belanak includes cafes, restaurants, ans souvenir shops. This tends to have a multiplier effect on employment and economics growth in Central Lombok.

Keywords*: Bau Nyale Festival, Tourism, Economics Development, Central Lombok*

Application Virtual Reality 3D Museum with User Experience Questionnaire (UEQ)

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ABSTRACT
Low visitor interest in the museum. In addition, new technology is needed that can provide new experiences for visitors. One of the Virtual Reality technologies that can be implemented based on 3D. testing using a user experience questionnaire (UEQ) containing 7 Likert scale with 26 items. This 3D VR museum application uses an Android-based smartphone and an additional VR Box tool. This application has been used by 77 STMIK Amik Riau students with UEQ testing with good results. With this museum application it is very helpful for the museum to improve services and museum visits

Keywords: *Virtual Reality, 3D, Museum, User Experience Questionnaire (UEQ)*

The Social and Economic Dimension of Seaweed Farming in South Sulawesi

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ABSTRACT
Seaweed started to attract the attention of international consumers when people's awareness about healthy food and urban lifestyle emerged. The urban lifestyle is also inspired by culinary delights from Japan and Korea which are made from seaweed. This situation has led to an increase in demand for seaweed and cause local communities are interesting in cultivating seaweed. This study aims to (1) describe the social aspects of seaweed farming, and (2) describe the economic aspects of seaweed farming. This research was conducted at the largest producer of seaweed in Bulukumba Regency South Sulawesi. Data was collected through a survey of seaweed farmers. The results of this study indicate that (1) On the social aspect, farmers generally finished junior and senior high school level. The kinship between farmers is very strong, especially the behavior of helping each other when there is an urgent need. (2) On the economic dimension, famers's income is highly dependent on the length of the stretched rope, plant density, production, and the price set. From the economic analysis it is known that in a harvest season with a price level of IDR 9,500/kg, farmers earn an average income of IDR 26,876,599.11 per season with a rope length of 10,800 meters

Keywords: *Social dimension; economic dimension; seaweed farming*

Can Human Development Increase Economic Growth?

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Abstracts

This study analyzes how human development affects economic growth in urban areas of West Sumatra. The data used in this study is secondary data published by the Central Statistics Agency of West Sumatra. The data includes the health index, education, purchasing power index, and economic growth for 7 (seven) intermediate cities from 2010-2021. Using panel data, the samples in the study amounted to 252 pieces. The analysis method used is multiple regression analysis of panel data. Based on data processing, the results were obtained that the health index, education index, and public purchasing power index simultaneously had a significant effect on the economic growth of West Sumatra Province, indicated by a sig value of 0.00. Meanwhile, from the partial test, the results were obtained that the health index and the people's purchasing power index had a significant effect, shown by the sig values of 0.000 and 0.006, respectively. The health index did not have a significant impact on the economic growth of West Sumatra Province. The coefficient of determination in this study is 0.544, which means that the regression model used is quite good.

Keywords: *economic growth; west Sumatra; health index; education index; purchasing power index.*

Trend of the Wellness and Health Therapy After Pandemic Covid1-19 in Bali

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ABSTRACT
Wellness and health therapy tourism is a type of tourism that has developed since the 2000s. In Indonesia, this type of tourism has been developed in Bali since 2001. During the Covid-19 pandemic, this tourism stagnated and developed again in 2022. This research is a qualitative narrative research, where data is obtained from Scholar Google with the keywords wellness and health therapy tourism and Bali, the results can be described into four themes, namely: life style, nature therapy, holistic health and well-being, and body-mind-spirit balancing.

Keywords*: wellness and health therapy, pandemic covid-19, Bali.*

The Place for Controlling Negative Emotions

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ABSTRACT
One control that is owned by each individual is emotional. However, not all individuals have full control over their emotional feelings which results in a disturbance of their mental state so they require situations and conditions to express their emotional feelings. Negative emotions are emotions that are often felt and tend to be destructive so extra control is needed to handle them. The purpose of this study is to reveal several places that are often used by individuals to express their emotional feelings. With a statistical descriptive research method using online questionnaires, this study shows that in general, individuals make their home a place to control negative emotions and there are several other options such as places of ablution, private places, places to sell juice, overseas, hospitals, etc. used by individuals as a place to control their negative emotions.

Keywords*: Self-control, Negative emotions, Place of emotional control*

Assertive Speech Acts in Nadiem Anwar Makarim's Communication in *a Fireside Conversation at Harvard with HPAIR*

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ABSTRACT
There are circumstances that make speakers to deliver utterances in accordance with a situational background that aims to inform, invite, persuade, or something else, such as in talk shows that can be accessed by the public. Assertive speech acts can be employed as a medium to gain public support because they can build people's perceptions. The research focuses on analyzing the utterances delivered by Nadiem Makarim in communicating as a guest speaker in *A Fireside Conversation at Harvard with HPAIR*. From the results of the study, it was found that Nadiem Makarim employed 94 data of stating (46.77%), 26 data of claiming (12.94%), 67 data of reporting (33.33%), 6 data of reminding (2.98%), and 8 data of suggesting (3.98%). The dominating assertive speech act employed is stating, which functions to commit the addressees about the fact and truth dealing with the Indonesian education system.

Keywords*: speech act, assertive, communication*

Analysis of Needs for Development of Science Modules Based on Cooperative-Case Based Learning

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ABSTRACT
The purpose of this study is to describe the results of the needs analysis for the development of science modules based on Cooperative-Case Based Learning. This type of research, namely research and development (R&D) adopts the 4D model (define, design, development, disseminate) which is limited to the define stage using SWOT analysis as the analytical method. Based on the SWOT analysis, informations were obtained that: (1) Strength: students are good enough to access online learning, the UST PGSD Study Program has a case-solving-oriented curriculum, the UST PGSD Study Program has implemented the independent curriculum (MBKM), Learning in the UST PGSD Study Program is oriented towards learning outcomes, the scientific vision of the PGSD Study Program supports learning innovation; (2) Weakness: not all students have quota availability, when learning is online, students have difficulty doing cooperative learning; (3) Opportunity: FKIP UST has implemented blended learning with online and offline percentages of 40% and 60%; and (4) Threat: some PGSD students are not science graduates at the SMA/MA education level, there are several places that are constrained by the network, there are some students who feel they do not fit into their majors). It is hoped that this research will be followed up with product development in the form of E-modules that can be accessed during simple, structured, and meaningful online or offline learning that can improve student competence in science science.

Keywords: *needs analysis, e-module, SWOT, cooperative learning, case based learning*

Politeness in Nadiem Anwar Makarim's *A Fireside Conversation at Harvard with HPAIR*

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ABSTRACT
Conversation has several objectives relevant to the speaker's situational background. In a talk show entitled *A Fireside Conversation at Harvard with HPAIR*, Nadiem Anwar Makariem delivered his speech as Indonesia's Minister of Education, Culture, Research, and Technology in Advanced Indonesia Cabinet in Joko Widodo's leadership. The research focuses on analyzing the language politeness of Nadiem based on speech act theory. The results described form of language politeness in the conversation between Nadiem and the host, Lesly Goh, and identify a smooth communication process without confusion. This research can provide insight for the wider community in assessing a person through understanding politeness acts in communication. Politeness in language as conveyed by Leech (1983) in 43 stories of Nadiem in communication classified as follows: 17 tact maxim (39.5%), 6 generosity maxim (13.95%), 5 approbation maxims (11.63%), 1 modest maxim (2.33%), 6 agreements maxim (13.95%), and 8 sympathy maxim (18.6%).

Keywords*: speech act, maxim, conversation, language*

Management of Online Learning Problems at the University of Muhammadiyah Riau

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Abstract

Online learning has become one of the learning models in the Millennial era, Z generation and Alpha generation such as Whatsapp group media, Google classroom, and learning videos, Google Form which is used by educators (lecturers) in tertiary institutions with the aim of creating an interesting online learning atmosphere. for interactive learning. However, the problem is that there are many underlying weaknesses including limited devices for online learning, limited internet quota, geographical conditions that are difficult to reach by internet networks and lack of interaction between students and lecturers. So the solution taken by the leadership of Muhammadiyah Riau University to answer this problem is to build a Learning Management System (LMS), namely an online lecture information system (SIKULI) that can realize efficient and effective online learning, so it is necessary to evaluate the learning media to measure the level of achievement. student understanding in lectures. The research method uses qualitative empirical methods: observation, through questionnaires or Google forms, interviews. The results showed that 86% of students understood the online lecture information system (SIKULI) in the successful category (understanding = satisfactory). With these results the leadership of the University of Muhammadiyah Riau needs to improve the socialization of a more comprehensive online lecture information system (SIKULI).

Keywords: *Online learning; Problem; Learning Management System SIKULI*

Undergraduate Student Preferences for Online and Offline Learning

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ABSTRACT
The existence of the Covid-19 pandemic has changed the lifestyle of the Indonesian people, including the model for implementing teaching and learning activities for students. Before the Covid-19 pandemic, the teaching and learning activities for university students were held offline and during the pandemic, they switched to online through virtual media. This policy is a form of the government's efforts to suppress the spread of Covid-19 in Indonesia. In 2022, the spread of Covid-19 in Indonesia has decreased compared to previous years so teaching and learning activities in tertiary institutions will begin to be carried out offline again. However, when the number of the Covid-19 pandemic is decreasing, are the online teaching and learning models still desired by students? This study aims to reveal student preferences for online and offline learning models. The research method is descriptive statistics using online questionnaires. The results of the study show that the majority of students want offline teaching compared to online. Those who choose online are students who have side jobs or part-time jobs.

***Keywords**: Learning preferences, online, offline*

SPIRITUAL EMOTIONAL FREEDOM TECHNIQUE (SEFT) IN EMOTIONAL DISORDERS OF ABUSE PERSONS

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ABSTRACT
Someone with emotional behavior can harm themselves and others. Especially in conflict situations. Such as quarrels with other people or with friends. This study aims to reveal the application of SEFT in reducing the emotional disturbance of perpetrators of abuse in Class 1 LPKA Blitar. This research method is all experimental with qualitative data before and after treatment. The subject of this study was a convict who was an abuser at Class 1 Blitar LPKA. The results of the study prove that the subject commits a criminal act based on the emotions that the subject has harbored for the victim. It is this feeling of revenge that makes the subject commit the act. To reduce resentment and control the subject's emotions. Researchers used SEFT therapy, which is a therapeutic technique that combines the body's energy system and spirituality therapy with the tapping method on 18 specific points of the body. The goal of SEFT is to improve thoughts, emotions and behavior so that you can think more positively and relax. After SEFT therapy was carried out on the subject, it was found that the subject became calmer, able to control his emotions and surrender his life to God.

Keywords*: emotional disturbances, seft therapy, abusers*

Program Internasional Homeschooling Primagama Solo

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ABSTRACT
Homeschooling is an alternative education system that is currently one of the choices of parents and society in general to provide education to their children. **The purpose** of this article is to find out about the HSPG Solo international homeschooling program as an education of choice. **The research method** used is a qualitative research method. Time of research and place of research, which is carried out in June 2022 at HSPG Solo homeschooling. The research subjects were the Chairperson of PKBM Homeschooling HSPG Solo, educators and homeschooling staff at HSPG Solo. **The results** of the study show that: HSPG Solo homeschooling is the choice of the Solo community as a non-formal educational institution that organizes international programs. HSPG Solo is equivalent to a formal school, with the aim of supporting non-academic education in cultivating talents and later it is hoped that they will have the skills to enter the world of work. Related to international programs, the research results are shown by the methods applied in HSPG Solo homeschooling, namely learning how to learn (learning how to learn), fun learning, contextual learning, scientific method, as well as creative innovative and entrepreneurship. This curriculum is published by the University of Cambridge in England. IGCSE (secondary level) and advanced level (A Level) certificates can be used to apply to leading universities/colleges in the world. In addition to the subjects offered at CIE homeschooling, HSPG Solo adds subject matter according to the competencies needed by students. The HSPG Solo homeschooling program has only held a primary program equivalent to elementary school.

Keywords*: Homeschooling, programs, international*

Analisis Kebutuhan Pengembangan LKPD Eksperimen Berbasis Ajaran Tamansiswa *Tri N* Pada Pembelajaran IPA Kelas IV di SD Negeri Gedongtengen

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ABSTRACT
The purpose of this study was to describe the analysis of the needs for the development of experimental LKPD (Student Worksheets) based on Tamansiswa *Tri N* teachings in fourth grade science learning at SD Negeri Gedongtengen. This research is a qualitative descriptive research with a survey method to obtain the needs of students in learning science. Data collection techniques used in this study were questionnaires, interviews, observation, and documentation. The subjects of this study were 27 students in grade IV, consisting of 12 male students and 15 female students. The needs analysis in this study leads to the learning needs of students, the problems faced by students with LKPD in science learning in grade IV as well as solutions from LKPD that are in accordance with the characteristics of students. Obtained research results that; 1) LKPDs are not in accordance with the actual LKPD functions, 2) Existing LKPDs do not yet cover all LKPD elements, design guidelines, LKPD requirements, and steps for making LKPD, 3) *Tri N* implementation in LKPD is not optimal. In this study, there are several implications, namely the influence on students' enthusiasm for learning, the effect on student interest, and the influence on student learning outcomes.

Keywords: *Experimental LKPD, Tamansiswa Teachings, Tri N, Qualitative Descriptive, Science Learning*

Card sort: Teaching Mild Mentally Retarded Children

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ABSTRACT
Learning media that is well-packaged and combined with the right learning methods can optimize the potential of students. Especially for children with disabilities who experience intelligence problems, teachers need to innovate to help and guide their learning so that their academic goals are met. The purpose of this study is to describe the learning progress of children with mental disabilities using card media. The type of research used is mix method. The data collection tool used is in the form of observation sheets, interviews, and documentation. Indicators of treatment success are measured through four aspects, namely the quality of learning, the suitability of the material with the responder, incentives, and time. The results of this study showed that the three research respondents (AZ, RI, and RV) could follow the learning well. Each respondent learns according to their abilities and intelligence. The media of cards played with a certain pattern can arouse their enthusiasm for learning so that the set learning assessment (C1-C3) is met properly. Therefore, card media combined with game methods is recommended to be implemented in the teaching and learning process for children with mental impairments.

Keywords: *Card sort; media; retarded children; specially student*

THE CONTRIBUTION OF ISLAMIC EDUCATION IN THE ERA OF SOCIETY 5.0

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Abstract

The purpose of writing this article is to find out the contribution of Islamic education in the Era of society 5.0. The era of society 5.0 has influenced the development of science, especially community-centered Islamic education. This challenge provides an opportunity to continue to contribute to Islamic education as a source of knowledge. The method used is theoretical review or literature review. The references are analyzed and reviewed from the thoughts of experts sourced from books, journals that match the title of the article. Development of thought from the author is very meaningful in reviewing this paper. The results and conclusions of the contribution of Islamic education in the era of society 5.0 have had a very good impact on the development of Islamic education. The biggest challenge in the world of Islamic education. Islamic education scientists are expected to be able to continue to develop sustainable research in accordance with the contribution of their scientific disciplines. it is intended that Islamic education has a very good impact on knowledge globally. The era of society 5.0 is a very real challenge for the progress of Islamic education globally.

Keywords: *The contribution, Islamic, education, era, society, 5.0*

BEHAVIORAL THERAPY USING TOKEN ECONOMIC TECHNIQUES TO IMPROVE THE LEARNING MOTIVATION OF CHILDREN WITH MENTAL RETARDATION

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ABSTRACT
Motivation to learn becomes a problem as a child with mental retardation so that it affects the process of learning formally and informally. Efforts to increase motivation to learn can be done with several techniques including the token economy. The purpose of this study was to find out how the token economy technique can increase the learning motivation of children with mental retardation at the Special Development Institute for Class 1 Children in Blitar. This research is a quasi-experimental with one research subject. Pretest and posttest data are qualitative from interviews and observations. Based on the implementation of the token economy, within two weeks there was a qualitative change, which included the subject having the motivation to learn and starting to be able to write, read and do arithmetic, be able to complete assignments as well as possible, not complain in doing assignments, and have curiosity about the material provided .

***Keywords**: learning motivation, token economy, mental retardation*

Kaderisasi Ulama di MAN PK Kota Baru Padang Panjang Sumatera Barat

Preparation of Ulama at MAN PK Padang Panjang New City, West Sumatra

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ABSTRACT
This research is depanded of the crisis of ulama in the middle of modernism and existence of religious understaning between two opposite extremes, radicalism and liberalism. For this reason, MAPK as the center of islamic education is organized through an integrated learning system to optimally develop the potential of students as regeneration of ulama in the future. This reseacrh aimed to reveal the learning system in the MAPK MAN 2 Kota Baru Padang Panjang as an attempted to regeneration of ulama consisting of objectives, materials, methods, and learning evaluation. This research is the qualitative method case study approach. Research data through observation, depth interviews, and documentation. The result of this research shows. First, formulating learning objectives include the national education goal's, institutional goal's, and curricular goal's. Second, learning materials used curriculum 2013, diniyah curriculum, and self development activities. Third, learning methods used traditional-modern methods. Fourth, learning evaluation for formal learning used national standard curriculum held through evaluation of goverment, madrasa, and teacher. For diniyah evaluation held through written exams and oral exams.

Keywords*: the learning syste, regeneration of ulama, MAPK*

Steam Literacy in Improving Critical Thingking Skills Early Childhood

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ABSTRACT
Literacy ability is the minimum ability that children must have in order to carry out the learning process. However, it was found that literacy skills in children in Puta VI Kindergarten were still lacking. This is due to the lack of motivation, independence, and learning patterns that do not stimulate children to carry out learning activities. In finding solutions to problem solving, it is applied to combine L-STEAM-based learning or learning innovation by combining science, technology, engineering, art, and mathematics to be able to think logically and rationally with critical thinking that can be applied to Early Childhood (AUD). The purpose of this paper is to find out an overview of the application of the L-STEAM method learners to improve children's critical thinking skills or critical thinking in Putra VI Kindergarten. The data collection techniques used in this study were through observation, interviews, and documentation. The application of the L-STEAM method is good, it is hoped that the ability to think critically can also increase. The ability to think critically is an acceptable thought process using the expected sense of reflection to be able to decide, what is done or what is believed to be the best thing. This relates to L-STEAM divided into several parts: reading, listening to stories. With this the child can find ways to solve the problem in the child and conduct an analysis with the problem. Thus the child can form a more critical character or person. The findings about STEAM literacy in Men's Kindergarten can improve critical thinking skills.

***Keywords**: STEAM Literacy, Skills, Critikal Thinking, AUD*

The Way Elementary School Students Think in Mathematical Problems

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ABSTRACT
Mathematics consists of two sections that work together. The first component constitutes a collection of axioms, definitions, theorems, proofs, problems, and solutions. This section comprises all of the many ways of thinking (WoT). This study is prompted by students' inadequate geometric thinking processes, as evidenced by the problems they encountered in the exploratory investigation and earlier research findings. This study aims to investigate students' ways of thinking (WOT) when it approaches solving geometric issues. The subjects of this study were 92 fifth-grade students in one of the Public Elementary Schools of Sambas Regency, West Kalimantan Province, Indonesia, divided into three levels (low, medium, and high). The results show that the Ways of thinking (WOT) found include various interpretations of mathematical symbols, explaining, understanding and mathematizing. Each type has a different solution and a different understanding of solving geometric problems. Ways of thinking (WOT) are needed to solve mathematical problems from the abilities possessed by students' minds to stimulate students to understand their knowledge of geometric concepts.

Keywords: *Geometry, students' ways of thinking*

Obstacles to implementing AFL in elementary schools

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ABSTRACT
Assessment for learning has been trusted as an alternative assessment that covers various aspects of student progress. This authentic Assessment is critical and more humane in assessing student development, including at the elementary level, which is an essential foundation in education. However, the implementation is not without problems. This study aims to describe the implementation of AFL at the elementary school level and its obstacles in various parts of Indonesia. The literature review is used in this study, with three stages: data collection, evaluation, and Analysis. Based on the results of the review and Analysis of the ten selected journal articles, it was concluded that the implementation of AFL in elementary schools could be carried out using various procedures according to the situation and conditions of the school, teachers, and students. This variety of procedures occurs because each educational institution has obstacles in implementing AFL. Three main obstacles are difficulties in designing assessment instruments, time management, and large classes. This result can be a consideration for policymakers to be assisted and facilitated so that the implementation of AFL can be carried out correctly and the success of education becomes measurable.

Keywords: *Obstacle Assessment for Learning, Primary Education, Elementary School, Formative Assessment*

Financial Inclusion Gap in Western and Eastern Regions of Indonesia, Why?

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Abstract

Indonesia's level of financial inclusion is still far from expectations since 2016 until now. This is illustrated by the contribution of financial inclusion in 34 provinces in Indonesia, which on average is still very low. The level of financial inclusion in each province shows the disparity between the western and eastern regions of Indonesia. Where the average level of financial inclusion in the Western region is higher than in the Eastern region of Indonesia. For this reason, this research aims to examine the causes of disparities between the West and East regions and find solutions to overcome these disparities as a finding in this literature research. This research method is a comparative study between regions with a descriptive qualitative paradigm. The research results found that the financial inclusion gap occurred because the government was not focused on implementing financial inclusion programs that had been launched, such as the Multi year's Program, etc. In addition, supervision of the implementation of programs intended for inclusive target communities is still relatively low. For this reason, overcoming this gap requires synergy between stakeholders which is maximally supervised by the government, in this case, the Financial Services Authority and other institutions that are given authority and responsibility in implementing financial inclusion programs in Indonesia.

Keywords: *Gap, Financial inclusion, Western, Eastern, Indonesia*

THE EFFECTIVENESS OF NRIMO IN SELF-ADJUSTMENT FORMER DRUG USERS (Study in an Al-Islamy Pesantren Yogyakarta)

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ABSTRACT
Nrimo (Javanish word) is a full acceptance of various events in the past, present and all possibilities that could occur in the future. This study aims to examine empirically the effectiveness of Nrimo's psychoeducation in effort to improve the self-adjustment of former drug users at the Al-Islamy Kalibawang Islamic Boarding School, Yogyakarta. This research subjects were 10 former drug users who were being rehabilitated at this place. The research method uses a scala of self-adjustment with quantitative data analysis techniques, using the Wilcoxon Test. The results showed a significant P value of 0.005 (P <0.05) with a mean pre-test of 102.8 and a mean post-test of 106.3 (102.8 <106.3), indicating Nrimo's psychoeducation is effective in increasing self-adjustment efforts for former drug users. This shows that Nrimo's aspects cognitively, affectively and behaviorally can increase former drug users' adjustment efforts after given psychoeducation.

***Keywords**: Nrimo, Self-Adjustment, Former Drug User*

Age and Gender Caracteristics of The Sellers and Buyers of Jamu Gendong

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ABSTRACT
This study aims to identify the characteristics of consumers of herbal products and assess their preferences for "Jamu Gendong." This research was conducted for one month, beginning in November 2020 and ending in December 2020. This study utilized both primary data and secondary data. Direct interviews with herbal drink customers and herbal vendors yielded the primary data. Secondary data were gathered from the Monograph of Tembilahan Village and relevant academic literature. The sampling approach utilized in the selection of respondents was the technique of accidental sampling, with a total of 50 respondents. The findings of this study reveal that the majority of "Jamu Gendong" consumers in Tembilahan Village are female and that the majority of them are manual laborers who use herbal beverages to maintain their health (promotive). The customer preference for herbal drink in Tembilahan Village has an overall score of 7.11, which indicates that, in the eyes of consumers, the herbal drink is excellent.

Keywords*: Consumer's Preference, Herbal Drink, Jamu gendong*

Use Flipped Classroom in Problem based Learning Class Activities

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ABSTRACT
This study aims to describe a literature review on the use of flipped classrooms in problem based learning. This research method uses qualitative research methods with a literature review approach. The research stages were carried out starting from article collection, article reduction, article display, discussion, and conclusion. Sources of research data are articles in national journals in the last 4 years (2019-2022). The results of the study showed that out of 25 articles, 17 were found to be in accordance with the topic title. the use of flipped classrooms in problem based learning in its implementation is in accordance with the theories that are used as references. The problem based learning model can be used in flipped classrooms

Keywords*: Flipped Classroom, Problem based Learning*

Teams Games Tournaments (TGT) Types to Improve Motivation and Mathematical Learning Achievement

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ABSTRACT
This study was to determine the effect of TGT type cooperative learning on mathematics learning motivation of grade 3 students of SD N Jaban Sleman in 2018-1919. This type of research is CAR which is carried out collaboratively and participatively. This research was conducted in 3 cycles with the subject of this study, namely all students in grade 3 of SD N Jaban Sleman in 2018/2019 which meant 24 students. Appropriate data collection techniques. Data from circles is analyzed using specified guidelines and references. The results of the study showed that TGT cooperative learning consisting of presentation step classes, study groups, games, tournaments, and groups, could increase students' motivation and learning outcomes in mathematics learning for grade 3 students of SD N Jaban Sleman in 2018-1919. Based on the measurement of students in cycle I showed that 8.33% of students reached low, while 66.67% of students were moderate, and 25% were still in high motivation, in cycle II showed 8.33% of low motivation, 45.83% of students were at the medium time, and 45.83% with high criteria. Whereas cycle III shows that 41.67% are at the medium time and 58.33% are in high motivation. Student learning outcomes from cycle I were 50.83, cycle II was 47.83, and cycle III was 60.29. Student learning outcomes fall from cycle I to cycle II by 0.3, while the average from cycle II to cycle III is 12.46. The expected learning outcomes have been achieved for students in cycle III there are 55% of students get a score of ≥60.

Keywords: *TGT Cooperative Learning, Motivation, Learning Achievement Mathematics*

Optics Teaching Book Developmentproblem Based Learning Model Through Macromedia Flash

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ABSTRACT
This research aims to :1). developing an optical textbook with a problem-based learning model through Macromedia Flash.2).Describe the feasibility of a problem-based learning Optics textbook using macromedia flash. This research is research and development (Reseach and Development), with the Borg and Gall (1983) model which consists of 5 steps, namely 1). Exploratory Studies. 2). Initial Product Development. 3). Expert Validation and Product Revision. 4). Limited Trials and Product Revisions. 5). Main Trials and Revisions to the Final Product.IThe instruments used were a validation questionnaire for lecturers, material experts and media experts, as well as student response questionnaires. Data analysis techniques use qualitative and quantitative data. The results of the research areproblem-based learning model optics textbook through macromedia flash,dewith an average score of material expert validation of 3.47 or 86.66% which is included in the very good category (SB), media experts 3.31 or 82.83% in the very good category (SB), and student responses 3.25 or 81.14% which is included in the very good category (SB).

Keywords: *Development of Optical Text books, problem based learning, Macro media flash*

Regional Financial Ratio Analysis As Performance Appraisal Tool (Case Study on BPPKAD Magetan Regency)

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Abstract

This study aims to determine the financial performance of BPPKAD Magetan Regency by analyzing the ratio of regional financial independence, effectiveness and efficiency ratio, activity ratio, growth ratio, and debt service coverage ratio. This study uses secondary data for 2018-2020 obtained through financial statement analysis. The writing methods used are description and exposition. The results showed that the independence ratio is still low with an average of 28.67% but continues to increase every year. The effectiveness ratio tends to be effective with an average of 108.46% while the efficiency ratio is already efficient with an average of 4.75%. In the ratio of BPPKAD activities, Magetan Regency is still prioritized for routine expenditure (Operations) of 69.64% rather than for development expenditure (Capital) of 14.74%.
The growth ratio is showing a negative trend. Thus, the financial performance of BPPKAD Magetan Regency based on regional financial ratio analysis is quite good

Keywords: *Financial performance, Ratio analysis, BPPKAD Magetan Regency*

Artificial Intelligence Used to Improve Cognitive Neuroscience

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Abstract

The main problems in teaching and learning activities are the advancement of technology in the digital age and teachers' difficulties in utilizing digital platforms; additionally, teachers' neuroscience cognitive abilities are required to continue to develop and improve creativity, imagination, and innovation in enlivening the learning environment in the classroom. The aim of this study is to improve the cognitive neuroscience of teachers who are familiar with ICT through artificial intelligence. This study employed classroom action research, in which 30 correspondences in Sumenep Regency were given a pretest and post-test, as well as N-Gain scores, to determine how far the use of artificial intelligence and cognitive neuroscience had progressed. According to the study's findings, the educator's understanding of the algorithm improves by 20%. There is also a 10% increase in teacher understanding of machine learning. According to the N-Gain test results, there has been a significant improvement in aspects of artificial intelligence and cognitive neuroscience. As a result, artificial intelligence can assist teachers in better understanding technology and improving cognitive neuroscience in the development of ICT, particularly digital ones.

Keywords: ***artificial intelligence (AI); cognitive; neuroscience.***

INTRODUCTION

Artificial intelligence is a technological innovation that is developing in the field of education in this digital era. These potential benefits come from advancements in building technology. Artificial intelligence can enhance cognition, neuroscience, and intelligence. Neuroscience is the study of how the brain controls memory and emotion. Stimulus in the form of a building application is required to improve one's ability to think. Intelligence will determine

the direction of future learning patterns in the world of education. The neuroscience brain of imagination and prediction can help with artificial intelligence programming in a variety of forms. One of the most significant new developments in product development is the ability of neuroscience to continue to grow.

Developments in neuroscience and the brain, are also capable of creating mapping records from cognitive neuroscience. With the emergence of data in mapping the human brain, it is possible to collect cognitive improvements in the use of artificial intelligence programs as one of the most advanced technological developments. Artificial intelligence is considered as one of the breakthroughs in the use of digital applications that are able to improve neuroscience activity in students' cognitive development. The nature of artificial intelligence in multi-scale learning has begun to be implemented to improve cognitive neuroscience, namely the use of chat bots, voice assistants, smart content, and global courses. The human brain has the ability in spatial navigation, consequently the development of artificial intelligence technology will have a positive impact on the temporal and spatial brain regions. Research with models using descriptive, mechanistic, and normative approaches can improve cognitive and neuroscience abilities. In the digital era, the need for prediction and analysis is the most important part of the brain, as well as learning innovations that continue to develop.

According to (Richards et al., 2019), learning innovation is meant to be a new and qualitative change; of course, there is something that distinguishes it from what existed before and is meaningfully made to improve efforts to achieve learning goals. whereas the term "new" in terms of the use of artificial intelligence can also refer to anything that has not been understood or implemented by generation Z recipients of innovation in the age of digitization and globalization.

A learning renewal activity carried out by teachers in the learning process involves carrying out existing learning innovations and then adding new ideas, thoughts, or thoughts. Thus, the innovative learning process can proceed smoothly because learning innovations are born from creative thinking, resulting in innovative learning and creativity from teachers.

In order to produce better learning outcomes than before, innovative learning must be implemented, in addition to various challenges and developments in science and technology that necessitate learning renewal. A renewal agent is required for renewing learning in the digital era, with the teacher playing a significant role in this renewal. As a result, in this innovative learning process, it is necessary to use innovative and creative artificial intelligence in design. Teachers' creativity can produce ICT in the field of education, which is growing.

According to (Bermudez-Contreras et al., 2020), the use of artificial intelligence is also inseparable from the development of the dominance of Generation Z, which continues to grow and develop, the growth of the digital world in Indonesia is also with growth of 8 to 23%, which continues to grow and has many digital innovations. The challenges of the times that are increasingly uncertain in carrying out face-to-face learning, due to uncontrolled transmission of viruses and diseases, contamination of dangerous radioactive substances, and even the threat of prolonged war, make generation Z continue to think about doing online and self-taught learning, which will continue to foster the use of artificial intelligence in platforms and applications that are developed both via mobile phones and laptops with the concept of visualization and imaginative virtual worlds.

According to (Kashyap, 2021), visualization using artificial intelligence will pique students' interest, and teachers will be able to map each student's brain with predictions in numeric and

literate domains made in an artificial intelligence platform via development applications. The brain will respond positively to the use of artificial intelligence if it is presented with combination, literacy, and numeric questions on an interactive platform for generation Z. Limb and spatial patterns will be maximized if artificial intelligence follows the flow in predicting numbers and a combination of algorithms that create challenges. to the human brain is improved.

The importance of artificial intelligence, with the majority of its users being the Z generation population, will make teachers more challenged in delivering all planned and organized teaching materials. The development of artificial intelligence in Indonesia, particularly through the use of simple chat bots, will improve the brain's abilities in the limb and spatial phases. This will also be able to improve the neuroscience and cognitive intelligence of every student who comes from generation Z and begins to dominate its existence and population. The aim of this study is to see how far artificial intelligence has improved students' cognitive neuroscience in classroom teaching and learning activities.

METHOD

The method is written in full and detail so that it can be repeated by others (reproducible). The common methods should not be written in detail. This part contains research design, data collecting technique(s), data sources or participants, and data analysis technique(s). This part should have 10-15% proportion of the manuscript.

The research design implemented is the classroom action research method, which investigates problems or seeks solutions (Creswell, 2014). This type of research investigates how students who participate in teaching and learning activities experience learning problems, particularly after the COVID-19 pandemic, where teachers are also still adapting and have not been able to implement the industrial revolution, particularly in the implementation of blended learning and independent study. Furthermore, classroom action research provides a broad space for determining imagination and innovation that is on target, which is useful for creating changes that are tailored to the analysis of existing needs and problems.

Teachers believe that this classroom action research will boost their enthusiasm and self-confidence. The scientific integration achieved in learning activities will also improve self-identity development. Teachers can create a good atmosphere for digital learning by using patterns of interaction with students. Teachers with more than 5 years of teaching experience at the basic unit level in Sumenep Regency totaled 30 people from various sub-district elements, including 6 people from Batuan (20%), 4 people from Tobang, 3 people from Ganding, 3 people from Manding, 4 people from Gapura, 2 people from Pandian, 3 people from Kalianget, and 5 people from Arjasa. Purposive sampling is used in this research technique to select samples that meet specific criteria related to the research objectives (Li et al., 2021).

Teachers with more than five years of experience teaching elementary school children meet the sample criteria. This study also included participants from the Madrasah Ibtidaiyah Teacher Education (PGMI) department who were apprentice students in obtaining teaching certificates or, in this case, taking the Teacher Professionalism Program, and who were also assisted by several mentors and facilitators in the development of a community-based artificial intelligence called ai4impact. The use of ICT in the form of developing chat-bot applications based on digital learning media has also received positive feedback from related agencies in

Sumenep, including basic education departments and tertiary institutions.

The questionnaire, observation, and documentation methods were used to collect data for this research instrument. The questionnaire is the primary or main instrument in this study, and the type of questionnaire used to collect data is variable X (artificial intelligence application) and variable Y (cognitive neuroscience), namely a closed questionnaire. There are three alternative answers in the questionnaire or questionnaire method, which are coded: a, b, and c, each with a score of (a)=3. (b)=2. (c) = 1. While all data obtained through methods other than questionnaires are classified as supporting data. After collecting the data, it is tested using the N-Gain Score by looking at the percentage, and then a normality test is performed. The use of artificial intelligence to improve cognitive neuroscience has a correlation if there is a significant difference in results. The N-Gain Score is calculated as follows:

$$N - Gain\ Score\ (g) = \frac{Posttest\ score\ -\ Pretest\ score}{Ideal\ score\ -\ Pretest\ score} \quad (1)$$

Table 1. Criteria of N-Gain Score

Average criteria	Score
$g > 0.7$	Tall
$0.3 \leq g \leq 0.7$	Adequate
$0 < g < 0.3$	Low
$g \leq 0$	Fail

Table 1, namely the N-Gain criteria from this table, are used in providing responses or answers between aspects of artificial intelligence used as ICT media in learning by teachers who teach as a correspondence from treatment or experiment.

Table 2. Aspects of Artificial Intelligence in Applications

No.	Aspects of Artificial intelligence	Information	Assessment indicators	Target
1.	Algorithm and Logic	Able to make logical language according to mentor's instructions	1. Able to modify command sentences 2. Able to know command sentences and sentences from computer language 3. Able to modify commands and instructions 4. able to manipulate the boot sentence of the application 5. able to distinguish which sentences can be modified which sentences cannot be modified	72 %

2.	Machine Learning	Able to integrate boot/machine language into the program language according to the material presented	1. Able to predict the boot / machine language used in the application 2. Able to make calculations in programmed logic language 3. Able to classify the boot/machine language used in the application 4. Able to reduce the dimensions of the boot sentence / machine used 5. Able to use boot language in learning evaluation	70 %
3.	NLP (Natural Language Processing)	Able to Analyze, Understand, and Recognize Human language text	1. Able to understand the interdisciplinary character of the subject being made 2. Being able to cultivate natural language is also a goal 3. Able to be able to translate linguistic, computational, to natural language 4. Able to understand the technological semantic language of computing 5. Able to respond to the response given in the form of an order to answer	65 %

Table 2. shows some artificial intelligence aspects that are measured in order to determine the extent to which the application is used, whether it can run well, or whether it has constraints in the form of a computational programming language that has been compiled in accordance with the program commands entered into the customized application. These elements can support the computational program language patterns that teachers or teachers have programmed in each material that will be given to students. These elements can be used as guides or indicators for using artificial intelligence applications as ICT companions or teaching aids to share information relevant to classroom or school-based learning activities.

Table 3. Cognitive Aspects of Neuroscience

No.	Cognitive Aspects of Neuroscience	Information	Assessment Indicator	Target

1.	Theory	Understand the theory presented	1. Able to do reasoning against theory 2. Able to translate the theory of philosophy being studied 3. Able in logic in translation 4. Able to find evidence of the theory studied 5. 5. Able to bridge the logic and the appropriate model	70%
2.	Behavior and emotions	Understanding Scientific Attitude and Computer Logic	1. Able to represent the relationship between data and theory 2. Able to conduct analytical studies based on the data obtained 3. Be able to respond to the experimental results or the questions presented 4. Able to respond to the presentation of experimental data 5. Able to make instructions that can make the boot / computer language work according to reasoning in the brain	72 %

Table 3 shows how the cognitive aspect of neuroscience can be accessed in artificial intelligence to provide data on a person's ability to respond to an event, their attitude, and their relationship to a treatment using logical, computational, or logarithmic language. Predictions, analysis, and representation can and are able to be translated into the language of artificial intelligence programs programmed by humans as a form of describing the capabilities of the human brain and also mapping the human brain where desires, logic, imagination, and innovation can go as planned. When using artificial intelligence programs or applications, the cognitive aspects of neuroscience must be disclosed. teachers or teachers can select from a variety of artificial intelligence applications.

RESULTS AND DISCUSSION

Pre-action Analysis

There are 30 teachers were surveyed with the goal of determining the problems and constraints that are an urgent problem in student learning activities at school and in the classroom, teachers' perceptions of the use of artificial intelligence applications, the effectiveness of using computational language, and teachers' interest in using digital-based artificial intelligence. Many teachers are given several options regarding the most important issues in learning, and 15 teachers (80%) find it difficult to use artificial intelligence applications. 10 teachers (70%) answer a lack of knowledge about digital and applied artificial intelligence (e.g., games) and its value between students and teachers; 8 teachers (40%) answer a lack of online learning innovations for use in blended learning methods; and 10 teachers (60%) answer a lack of reasoning, imagination, and deep thinking. Based on this data exposure, the response for researchers is to investigate and observe the problems studied by teachers and students in teaching and learning activities that take place in class or at school.

The results regarding this matter and from the teacher's point of view on the use of artificial intelligence applications, the effectiveness of using artificial intelligence, and the motivation of teachers in the desire to learn about the use of artificial intelligence in blended learning-based *classes* through the survey scale used are from a Likert scale (1 "strongly disagree," 2 "disagree," 3 "slightly disagree," 4 "agree," and 5 "strongly agree"). This Likert scale is used in the educator's questionnaire. When teachers were asked whether they already knew and utilized artificial intelligence, they said yes. As many as 22 teachers (80%) did not know about the application of artificial intelligence, while 3 people abstained and 5 people knew about the use of AI applications (20%) because they came from the millennial generation and generation Z. Observations were made by looking at the potential of cognitive neuroscience for teachers, and in developing the use of artificial intelligence in the field of education, there are still many who are unfamiliar with this.

Understanding from some of the responses that have been given by teachers who have answered and know that the use of artificial intelligence is difficult and not yet understood, it becomes even more challenging, extracting research data obtained from surveys conducted regarding the use of artificial intelligence to improve cognitive neuroscience, the answer from the teacher is 11 teachers (51%) answered agree, 7 of the teachers (26%) were unsure, 5 teachers strongly agreed (8%), and 5 teachers answered disagree (15%), 2 people answered strongly disagree (5%) if the application of the use of artificial intelligence is done in *blended learning*.

These results provide an illustration that teachers are also interested in the use of artificial intelligence technology in the field of education, as well as the future development of ICT and acceleration of digitization by the government in various aspects. Aspects of artificial intelligence have improved the speed of thought for those who represent them as well as those who use them; one example is the use of chat bots. The description of this data proves that when blended learning is carried out by teachers or in terms of distance learning, the teacher uses applications in the form of WAG, Zoom Meeting, Google Meet, etc. However, there are still difficulties in recapitulating evaluation and assessment data. Interest and motivation to want to develop and not be outdone by generation Z are high, so teachers have a high desire to learn to use and utilize artificial intelligence because it provides an overview related to the cognitive neuroscience picture of students.

The cognitive picture of neuroscience can be mapped if teachers are given an overview of student evaluations in teaching and learning activities in one material given to students. In addition, teachers who utilize artificial intelligence will respond positively to creativity and imaginative development, and their habits of using computational language will train their

logic in describing what questions will be given to students with computational language, algorithms, and logic. Enable teachers to develop cognitive abilities based on neuroscience. Furthermore, the use of artificial intelligence can send a picture of the evaluation of learning from students who are taught in their respective classes or according to the subject in a short period of time. Teachers who use artificial intelligence as a platform for teaching in class will automatically innovate in developing questions and boot games (game computers) available on the internet and developed in various learning frames and platforms.

The Action of Implementation

Several steps were taken to improve the teacher's creative and imaginative aspects regarding the use of artificial intelligence applications in order to achieve this goal. The steps are based on (Gentili, 2021) theory of responding, revising, and reflecting (3R). The first R (responding) is accomplished in the pre-action stage by capturing teachers' initial abilities in the use of artificial intelligence and improving cognitive neuroscience. As a result, the second R (revising) is carried out at the action stage to determine teachers' creativity and innovation in utilizing artificial intelligence in the field of education. This stage includes a variety of activities in designing problem-based improvement efforts, ranging from planning and the media used to implementing learning improvements.

Artificial intelligence initiatives include introducing teachers to various types of learning ICT platforms, such as chat bots. A chat bot for master ICT teachers is a new program that challenges teachers' imagination and innovation in providing ICT, practice questions, and games so students don't get bored while carrying out teaching and learning activities in class. Thus far, the steps toward popularizing the introduction of chat bots have received positive feedback, but some of the teaching staff prefer to teach the material through a teaching approach.

Table 4. Pre test Aspects of Artificial Intelligence in Applications and Neuroscience

Pre-Test	Aspect	Indicator (%)				
		1	2	3	4	5
✓ Pre-test Aspects of artificial intelligence in applications	• Algorithm and Logic	68	54	55	40	45
	• Machine Learning	62	65	72	63	68
	• NLP	60	50	45	70	52
✓ Pre-test Cognitive Aspects of Neuroscience	• Theory	75	72	68	66	50
	• Behavior and Emotions	70	73	65	67	52

Table 4. shows the results of the pretest on the teacher's knowledge of utilizing artificial intelligence in Sumenep City. By using the indicators that were made previously with the supervisor, the results of the pretest aspects of the teacher's creativity were obtained on machine learning points. Only one indicator can be represented by all participants, namely the 15 teachers (72%), who can change the computation language, boot code, and AI description when a chat bot link is shared. And the NLP used is 70%, which is able to recognize computing languages that are different from language or command sentences. As for the second indicator, there are 23 teachers (7.5%) who are able to translate logic, represent computational language and code, as well as avatars and backgrounds on the use of artificial intelligence. In the third indicator, the four teachers (73%) using artificial intelligence can translate and make **perinatal** sentences in accordance with the material taught at each meeting.

Teachers are familiar with using applications and technology related to artificial intelligence, so the cognitive neuroscience brain will also be trained in improving thinking skills, especially in thinking creative and innovative. Cognitive abilities in neuroscience are one aspect of artificial intelligence support with logic, algorithms, and computational languages, as well as linking command sentences resulting from teachers' thinking abilities in making learning and ICT use.Cognitive aspects of neuroscience in teachers range from 75 to 73% familiarity with programming languages, code, and command sentences to be compiled.Some of the teachers are also familiar with using smart phone technology, which is often used in daily activities. This is a big reason why artificial intelligence and cognitive neuroscience are being used more and more in education in the Era of Society 5.0 and will continue to be used more in the future.

Table 5. Post-test Aspects of Artificial Intelligence in Applications and Neuroscience

Pre-Test	Aspect	Indicator (%)				
		1	2	3	4	5
✓ Post-test Aspects of artificial intelligence in applications	➢ Algorithm and Logic	78	74	75	70	76
	➢ Machine Learning	72	85	82	73	78
	➢ NLP	70	80	70	80	85
✓ Post-test of Cognitive Aspects of Neuroscience	➢ Theory	85	88	78	76	78
	➢ Behavior and Emotions	80	90	75	77	82

Table 5 shows the post-test results, which show that the amount of processing has improved since the introduction of artificial intelligence. Teachers who have already mastered NLP score 80%, indicating that they can distinguish between computational languages, algorithms, and codes. Because it is a computational language that employs mathematical logic, the code should not be altered. There is a percentage of 88% in using theoretical language that uses reasoning, which means that the teacher is theoretically capable of learning, either because of aspects in the millennial and generation Z categories or self-taught learning using several platforms available on the internet. Artificial intelligence is an example of ICT in education that is evolving with computational languages, coding, logic, and embedded games that are carried out so that students are motivated in learning and completing tasks, and even better, students do not feel bored and monotonous in learning. Blended learning patterns have a positive impact on artificial intelligence.

The cognitive aspects of neuroscience that are emerging as a result of the use of artificial intelligence in learning activities have the potential to improve behavior and emotions by 80% to 90%. The use of ICT in classroom teaching and learning will help to accelerate digitization. According to the data collected, many of the 30 teachers involved in determining the extent to which learning activities use artificial intelligence to improve cognitive neuroscience are supported by around 16 people who support artificial intelligence for use in teaching and learning activities (KBM), while 4 people said they did not. Three people stated that artificial intelligence is difficult to learn because the computational language and command sentences that must be combined into one unit are difficult to learn. Meanwhile, two teachers disagreed because they were from Generation X and had difficulty adapting to their artificial intelligence technology.

Following the evaluation of the post test results, the implementation of the third R (reflecting), namely evaluating the entire series of actions taken in research activities, is continued. This final stage aims to provide an overview of the progress made in solving

research problems. The data from the pretest and post test results are tabulated, and the N-Gain Test and Normality Test are analyzed with the SPSS computer program. In other words, after being given an introduction to artificial intelligence applications, neuroscience teachers use artificial intelligence and cognitive enhancement differently. The average result for the aspect of artificial intelligence after the N-Gain Test was 34%, while the cognitive aspect of neuroscience was 66%. Meanwhile, based on the N-Gain criteria, there was a significant improvement in both aspects following the introduction of artificial intelligence. Figures 2 and 3 show a comparison of aspects of artificial intelligence and cognitive neuroscience at the pretest and post-test stages to demonstrate this advancement.

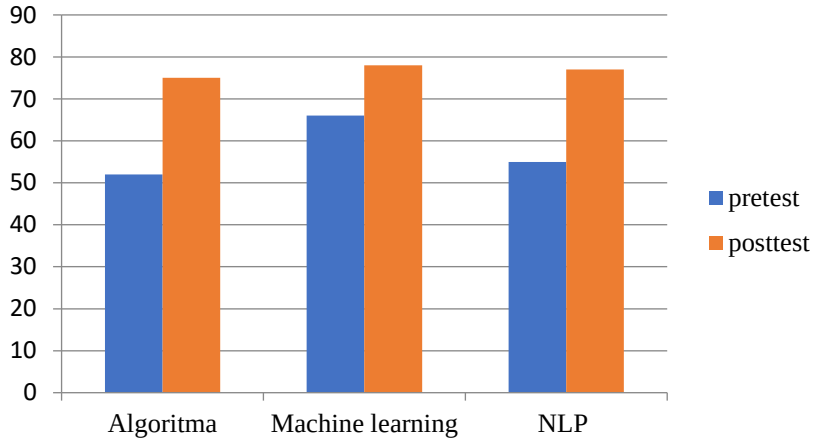

Figure 2. Comparison of Pretest and Post test Results for Aspects of Artificial Intelligence and Cognitive Neuroscience

Figure 2, it is shown that there is an improvement in the results of the comparison of the aspects of the indicators measured, namely machine learning. This proves that teachers from the millennial generation are familiar with computational and coding languages in the use of artificial intelligence applications, but the NLP indicator has decreased, which means that teachers are not familiar with the interdisciplinary use of computational languages and various supporting aspects. For the use of algorithms and logic, only a few teachers know about this, but in the post-test measurement of the three indicators after the introduction of artificial intelligence applications, teachers can recognize the language of logic, algorithms, computation, and coding in the use of artificial intelligence applications.

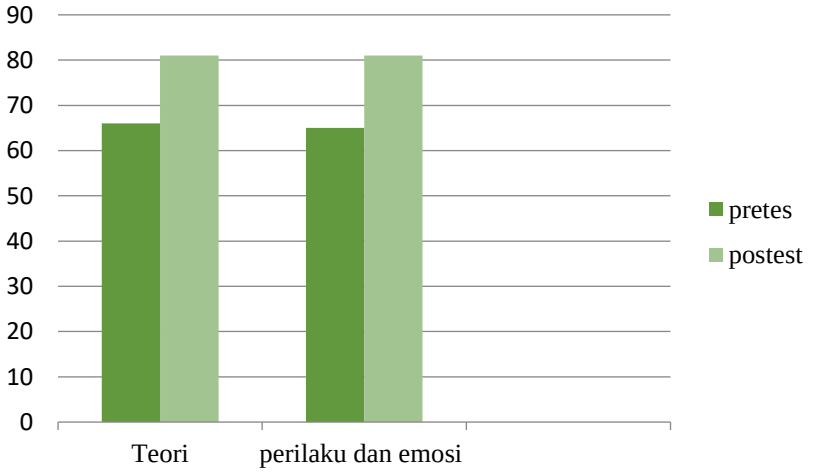

Figure 3. Comparison of Pretest and Post test Results of Artificial Intelligence and Cognitive Neuroscience

Figure 3 shows measurements related to theoretical and behavioral indicators. Indeed, from the pretest aspect, many already understand this factor; it can come from the millennial generation or generation Z, who are familiar with technology from an early age and are accustomed to using it. Patterns and aspects of the relationship between artificial intelligence and cognitive neuroscience make teachers think about continuing to use technology and tend to have positive behavior because they have imaginative and innovative thinking in developing coding languages related to the use of technology and the acceleration of digitization, which the central government has begun to socialize and become general knowledge that can be applied and continues to develop, especially in the world of education, in order to obtain a lot of information and knowledge.

There are many possible tools with technical support that can be integrated as digital learning media or ICT to help improve cognitive neuroscience through modified learning support. With integrated artificial intelligence, artificial intelligence can also be used as a digital learning tool to ask questions, provide answers to questions, retrieve information (Richards et al., 2019), explore digital space/ICT (Al-Amyn et al., n.d.), provide useful information (Stocco et al., 2021), and propose possible solutions for individual learners (Andreu-Perez et al., 2021). because several studies have shown that poor neuroscience support can lead to a lack of creativity and weak innovation, while support for the use of artificial intelligence can improve creativity (Wang, 2021).

Artificial intelligence used for teachers, it turns out that problems in implementing teaching and learning activities are able to attract attention because artificial intelligence is able to utilize ICT and cognitive neuroscience. In addition, this digital training can spark creativity among teachers to make learning independent of traditional platforms. teachers as a platform that can train cognitive neuroscience, and the brain continues to be upgraded to a higher level and is able to be mapped as the development of intelligence continues to rise. Teachers can also learn basic coding easily with ever-evolving artificial intelligence platforms. This research shows that the application of the Responding, Revising, and Reflecting model has succeeded in increasing cognitive neuroscience through the use of artificial intelligence. This improvement can be seen from the results of the post-test, which were tested for normality. There is an improvement in pre- and post-test results on the cognitive aspects of neuroscience. This improvement is inseparable from the steps taken by the teacher as the front guard.

CONCLUSION

According to the findings of this study, some current learning issues should be of concern to teachers. Furthermore, these issues can be researched further as part of a larger study on the impact of learning difficulties at the elementary school level in Indonesia. The main learning issues are the difficulty in monitoring student learning progress and the lack of interactive media (e.g., quizzes, question and answer) between students and teachers. The average results on the cognitive aspects of neuroscience teachers and teachers' understanding after the N-Gain Test demonstrated that the participants' abilities in the pretest improved after the post-test. In terms of theory and behavior in integrating artificial intelligence platforms, the participants' abilities improved in the pretest and post-test results. Furthermore, there is an improvement in pre-test and post-test results for interactive creativity in chat bots. Then, in terms of the algorithm, data on teachers' understanding of the algorithm improves by 20%. There is also a 10% increase in teacher understanding of machine learning. The N-Gain test

results show a significant improvement in aspects of artificial intelligence and cognitive neuroscience. As a result, artificial intelligence can help teachers better understand technology and improve cognitive neuroscience in the development of ICT, particularly digital ICT. NLP data on boot language use improved by 25%. There is also a 20% improvement in emotional behavior toward the development of artificial intelligence. According to the N-Gain test results, there is a significant improvement in artificial intelligence and cognitive neuroscience, as well as enhanced ICT and digital understanding. The N-Gain test results show a significant improvement in the cognitive aspects of neuroscience and the use of artificial intelligence. As a result, the application of digital artificial intelligence must be improved.

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