Borobudur INTERNATIONAL SYMPOSIUM2024

interconnects
INTERNATIONAL CONFERENCE ON ENVIRONMENT, GREEN TECHNOLOGY AND DIGITAL SOCIETY

Book *of* Abstract

6th Borobudur International Symposium

IN CONJUNCTION WITH 2ND INTERNATIONAL CONFERENCE
ON ENVIRONMENT, GREEN TECHNOLOGY AND DIGITAL SOCIETY 2024

Book of Abstracts

6th Borobudur International Symposium in conjunction 2024 with 2nd International Conference on Environment, Green Technology and Digital Society 2024

Editor:
Prof. Dr. Ir. Muji Setiyo, ST., MT.
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5th Borobudur International Symposium 2024 in conjunction with 2nd International Conference on Environment, Green Technology and Digital Society 2024

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December 10, 2024

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Greeting from the Chairman

Assalamualaikum.

It is with great pleasure and honor that we welcome you to the 6th Borobudur International Symposium in conjunction with the 2nd International Conference on Environment, Green Technology and Digital Society.

This year's symposium is themed "**Co-creating a Sustainable Future: Green Technology and Digital Society**". We are delighted to have gathered over 400 participants from diverse backgrounds and geographical locations, including Asia (Malaysia, Vietnam, Thailand, Philippines, Uzbekistan, India, Japan, and Indonesia), Europe (Austria, Scotland), America (Ecuador), and Africa (Morocco, Nigeria, Libya).

We are particularly honored to have a distinguished lineup of keynote speakers:

- Prof. Astri Rinanti from Trisakti University, Indonesia
- Prof. Muhammad Aziz, from The university of Tokyo, Japan
- Dr. Mowafg Abrahem Masuwd, from University of Zawia, Libya, and
- Dr. Elem Miranda, from University of Glasgow, Scotland.

Their insightful presentations will undoubtedly enrich our discussions and inspire innovative solutions.

This symposium aims to foster interdisciplinary dialogue and collaborative research among scientists, engineers, policymakers, and practitioners. By bringing together experts from various fields, we hope to address pressing global challenges and explore innovative approaches to sustainable development.

We extend our sincere gratitude to all participants, presenters, and organizers for their contributions to the success of this event. Let us work together to create a sustainable future for generations to come.

Thank you.

Wassalamualaikum

Prof. Dr. Ir. Muji Setiyo, ST., MT.

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6th BIS 2024 in conjunction with 2nd INTERCONNECTS 2024 Program

Wednesday, December 11, 2024

TIME (GMT +7)	EVENT
8.00 – 8.30	Preparation (Participants enter the conference room)
8.30 – 9.00	**Opening Ceremony** 1. Reciting Holy Qur'an 2. Indonesia Raya and Sang Surya 3. Speech from Chairman of 6th BIS 2024 4. Welcome speech from Rector of Universitas Muhammadiyah Magelang
9.00 – 11.15	**Main Session** ▪ Keynote Speaker I **Mowafg Abrahem Masuwd, PhD** University of Zawia, LYBIA ▪ Keynote Speaker II **Dr. Elem Miranda** University of Glasgow, SCOTLAND ▪ Keynote Speaker III **Prof. Dr. Ir. Astri Rinanti, S.Si., MT, IPM., ASEAN Eng** Trisakti University, INDONESIA ▪ Keynote Speaker IV **Assoc. Prof. Muhammad Aziz** The University of Tokyo, JAPAN
11.15 – 12.00	**Discussion**
12.00 – 13.00	**Break**
13.00 – 14.00	**Online Q&A Forum via *Konfrenzi* (Question Session)**
14.00 – 15.00	**Online Q&A Forum via *Konfrenzi* (Answer Session)**
15.00 – 16.00	**Technical Clinic and Closing**

Virtual Conference

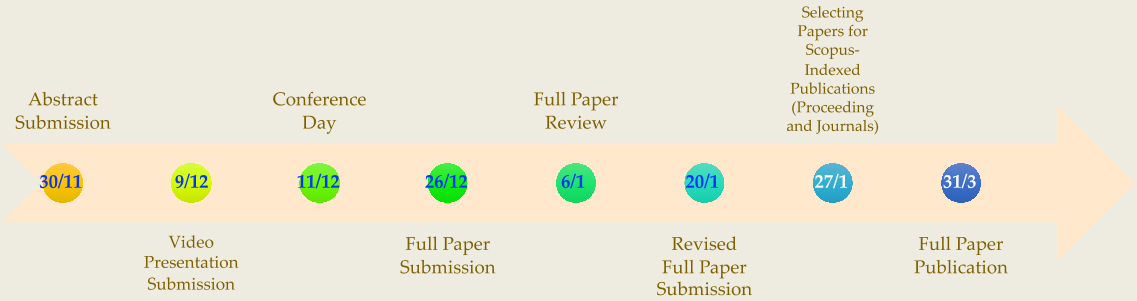
link: https://unim.ma/XqkjEr

Meeting ID: 925 2623 3545
Passcode: unimma

QnA Forum

https://interconf.org/2024/bis/kfz/

The Conference Program Schedule



Keynote Speakers' Profile

Mowafg Abrahem Masuwd, PhD
University of Zawia, LIBYA
Expertise:
Religious and Cultural Studies

Prof. Dr. Ir. Astri Rinanti, S.Si., MT, IPM., ASEAN Eng
Trisakti University, INDONESIA
Expertise:
Environmental Technology; Environmental Biotechnology

Dr. Elem Miranda
University of Glasgow, SCOTLAND
Expertise:
Digital Innovation, Scaling-Up, Digital Entrepreneurship

Assoc. Prof. Muhammad Aziz
The University of Tokyo, JAPAN
Expertise:
Energy and Process Integration Engineering

List of Abstracts: Chemistry

[ABS-305]
Adsorption Study of Pink IR Dyes Using Scallop Shell Adsorbent: Kinetic and Equilibrium Analysis

Muhammad Naoval Haris[1], Aditya Dimas Wahyu Sasongko[1], Farchan Mushaf Al Ramadhani[2]*

[1] Department of Batik Craft, Faculty of Engineering, University of Pekalongan, Indonesia
[2] Department of Agrotechnology, Faculty of Agriculture, University of Pekalongan, Indonesia
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Abstract
Scallop shells are abundant in Indonesia, particularly along the northern coast of Java Island in Pekalongan Regency. These shells can be a natural adsorbent for removing Pink IR dyes from aqueous solutions due to their high mineral content, especially calcium carbonate. Pink IR dye is a type of synthetic textile dye commonly used in the batik dyeing process. However, its synthetic characteristic poses potential environmental risks due to the release of harmful chemical residues. Adsorption experiments were carried out to investigate the effects of contact time, initial dye concentration, and adsorbent mass on the removal efficiency. Kinetic analyses were performed using pseudo-first-order and pseudo-second-order models, showing that the adsorption process is best described by the pseudo-first-order model, indicating that the reaction seems to exhibit first-order behavior concerning one reactant. Equilibrium studies were analyzed using Langmuir, Freundlich, and Jovanovic isotherm models. The Freundlich model provided the best fit, suggesting a heterogeneous adsorption process with varying adsorption sites and energies. Meanwhile, the Langmuir and Jovanovic models offered less accurate descriptions, indicating that the adsorption was not limited to a monolayer or uniform surface and might involve interactions beyond simple adsorption. The results confirm that scallop shell adsorbent is an effective and eco-friendly material for removing textile dyes, presenting a sustainable solution for water treatment applications. Further research is suggested to evaluate its performance under actual industrial conditions.

Keywords: Adsorption, Equilibrium studies, Kinetic analysis, Pink IR dyes, Scallop shell

Topic: Chemistry

[ABS-73]
Effect of Administration of Telang Flower Extract (Clitoria Ternatea) on Degenerative Hepatocytes and Liver Necrosis of Mice Exposed to Cigarette Smoke

Agus Suprijono, A. Ariani Hesti W, Endang Setyowatiningsih*

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*agussuprijono1967@gmail.com

Abstract
Exposure to cigarette smoke is one of the risk factors for the onset of various diseases, Cigarette smoke contains high levels of free radicals so that it can cause cell damage, one of which is hepatocyte cells to cause necrosis. Telang flower extract has properties as an antioxidant. Flavonoids that function as antioxidants can reduce the amount of free radicals formed from the lipid peroxidation process. This research aims was to determine the effect of telang flower extract on degenerative hepatocytes and necrosis of liver cells in

mice exposed to cigarette smoke. This was an experimental research method with a posttest only controlled group design. Sample of this research was 25 mice were divided into normal groups (N). negative control (C-) was given exposure to cigarette smoke 2.25 mg/100 gBW, sample 1 (S1) was given telang flower extract 400 mg/kgBW and exposure to cigarette smoke 0.75 mg/100 gBW, sample group 2 (S2) was given extract 400 mg/kgBW and exposure to cigarette smoke 1.50 mg/100 gBW and sample 3 (S3) was given extract 400 mg/kgBW and exposure to cigarette smoke 2.25 mg/100 gBW The treatment was carried out for 7 day and continued with observation and calculation of degenerative hepatocytes and necrosis. The results that the negative control showed an increase in degenerative hepatocytes and necrosis by 157.8% and 5.84%, while in samples 1.2 and 3 after being given telang extract, there was an average decrease in degenerative by 74.1%, 51.1% and 3.27% and a decrease in necrosis of 400mg/kgBW by an average of 24.9%, 17.1% and 14.2%. The administration of telang flowers extract can reduce degenerative hepatocytes and necrosis due to exposure to cigarette smoke.

Keywords: cigarettes, degenerative hepatocytes, necrosis, mice, telang flowers

Topic: Chemistry

[ABS-332]
Formulation and Characterization of Self Nanoemulsifying Drug Delivery System (SNEDDS) Hydrochlorothiazide Using Medium Chain Triglyceride (MCT)

Asep Nurrahman Yulianto[1], Wahyu Widyaningsih[2], Iis Wahyuningsih[2], Elisa Issusilaningtyas[1], Anis Yulia Rakhman[1], Devi Amelia Citra Sugiyono[1]*

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Abstract

Hydrochlorothiazide (HCT) is a diuretic that has low toxicity and belongs to BCS Class IV has low solubility and permeability. Self-Nanoemulsifying Drug Delivery System (SNEDDS) is a formulation that can increase the solubility and dissolution rate of HCT so that it increases diuretic effect of HCT. MCT oil consisting of capryol, labrasol, mygiol 812, myritol 318, and VCO is optimized for its ability to dissolve HCT. Optimization of SNEEDS Formula by varying the oil: surfactant: co surfactant using Simplex Lattice Design method and resulting in the composition of Labrasol 16.67 percent, Tween80 59.971 percent and PEG400 23.359 percent as the recommended formula. SNEDDS HCT preparation is stable after storage for 30 days at room temperature and freeze thaw cycle, drug loading maximum 125mg/5mL, viscosity 3 cP, pH 6.6, and has a melting point at a temperature of 145.62 degrees Celsius. SNEDDS HCT formula gets a percent transmittance value of 99.185,0.178 dev percent and emulsification time of 18.97,0.118 dev seconds, nano emulsion droplets of 15.9 nm, Polydispersity Index (PI) 0.459 and potential zeta value of minus 36.3 mV. SNEDDS can increase the dissolution rate of HCT and provide faster dissolution times than pure HCT

Keywords: Hydrochlorothiazide, SNEDDS, Solubility, Medium Chain Triglyceride, Labrasol

Topic: Chemistry

[ABS-96]

Portable and Low-Cost Paper-Based Sensor Integrated with Smartphone for Chromium Ions Detection

Teguh Pambudi[1], Hilman Imadul Umam[2], Fajar Amelia Rachmawati Putri[3], Melisa Nur Halimah[1], Cindy Salsabilla Anjani[1]*

[1] Department of Chemical Engineering, Universitas Singaperbangsa Karawang, Karawang, Indonesia
[2] Department of Physics, Universitas Singaperbangsa Karawang, Karawang, Indonesia
[3] Department of Chemical Analysis, Politeknik AKA Bogor, Bogor, Indonesia

Abstract

Heavy metal contamination has an adverse effect on the environment. Hence, affordable detection techniques are required for field monitoring. Paper based sensors provide a low cost, simple, and portable diagnostic technology for rapid detection of heavy metals in water. In this work, the paper sensor was fabricated by adsorbing 1,5 diphenyl carbazide (DPC) as a chromogenic reagent for chromium onto papers coated with SiO2. The detection of targeted chromium has been evaluated using digital image based colorimetric analysis, with parameters of chromogenic concentration, pH, and reaction time being optimized. The SEM image shows a layer of silica on the surface of paper, indicating silica supporting material was successfully coated. The confirmed IR band at 1053 corresponds to the SiOSi asymmetric stretching network in SiO2. Furthermore, new band appearances at 1538, 1602, and 1666 confirm the successful attachment of DPC to the surface of the paper. The paper-based sensor is very sensitive to chromium ions, demonstrating a persistent purple color shift after 60 seconds of contact in a pH chromium solution of 6 and DPC concentration of 16 mM. The use of paper-based sensors shows promising results to be used potentially for low cost and portable onsite detection of heavy metals in water.

Keywords: Paper Based Sensor, Chromium, Detection, Water

Topic: Chemistry

[ABS-360]

Optimization of Yeast Concentration, Fermentation Time, and Temperature in Tapai Sorgum (Sorghum bicolor L. Moench)

Alfia QW[1], Wisnu C[2], Dede ZA[2], Istiyati I[2]*

[1] Student of Food Technology Department, Pasundan University
[2] Lecturer of Food Technology Department, Pasundan University
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Abstract

Indonesia has abundant local food sources with great potential for development, but dependence on rice and wheat undermines food security. Sorghum, a nutritious cereal with high protein and starch content, remains underutilized despite its benefits. This study explores the use of sorghum in producing tapai, a traditional fermented food, by evaluating the effects of yeast concentration, fermentation time, and temperature on its characteristics to produce the optimum process of Tapai Sorghum (Sorghum bicolor L. Moench) using Design-Expert 13 Response Surface Box-Behnken Design method based on chemical, physical, and organoleptic properties. The benefits of this study are for the utilization of local sorghum commodities into Tapai Sorghum products and diversification of traditional sorghum-based food products. The research conducted consists of two stages, for instance, preliminary research (raw material analysis) and main research. The preliminary research is to analyze the starch and reducing sugar content of raw sorghum rice materials (Sorghum bicolor L. Moench) and calculate the number of yeast cells (Saccharomyces cerevisiae). The main research conducts testing to obtain the optimum process of Tapai Sorghum using the

Design Expert 13 program Response Surface Box-Behnken Design method by analyzing each combination of processes recommended by the program. The analysis carried out testing the alcohol content using the distillation method and organoleptic testing with hedonic quality on the attributes of sweet taste, distinctive aroma of tapai, and soft texture. The results of the study based on the Design Expert 13 predictions produced 12 process combinations where the optimum process was obtained with a desirability value of 0.997. The optimum process with a combination of yeast concentration of 1.25%, fermentation time of 72 hours, and fermentation temperature of 35oC which has an alcohol content of 1.85778%, a hedonic quality score of the sweet taste attribute of 3.85, a hedonic quality score of the typical aroma attribute of tapai of 4.77, and a hedonic quality score of the soft texture attribute of 4.69. The results of further research on the starch content test in the optimum process of Sorghum Tapai were 13.72% and a reducing sugar content of 5.51%.

Keywords: Fermentation, Sorghum, Tapai, Design Expert

Topic: Chemistry

[ABS-241]
Carboxymethyl Cellulose Analysis Towards of Bioactive Compounds in Two Varieties of Shallots Skin Typical of Cibunut Village

Tania Avianda Gusman, Zakiyyah, Indah Karina Y*

Universitas Muhammadiyah Cirebon
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Abstract
Bali Karet and Sumenep are two varieties of shallots typical of Cibunut Village. During harvest, shallots produce waste in the form of shallot skins that have an unpleasant odor, resulting in air pollution and an unclean environment. So far, shallot skin waste has been mixed as animal feed and compost. However, based on research, shallot skins contain bioactive compounds in the form of flavonoids that can be converted into healthy herbal drinks. This study compares the proximate analysis results of the two types of shallots based on the maceration process and the effect of Carboxymethyl Cellulose on the flavonoid content and the physical quality test of the syrup of the two types of shallots. The experimental results showed the effect of Carboxymethyl Cellulose on the bioactive content of the two types of shallots.

Keywords: Shallot skin waste, Flavanoid, Carboxymethyl Cellulose

Topic: Chemistry

[ABS-116]
The Effectiveness of Ceramic Membrane from Clay and Sugarcane Charcoal for Water Filtration

Firda Ainun Nisah, Wilma Nurrul Adzillah, Farradina Choria Suci, Faris Diaztu Febrian, Yoga Ulya Mubarok, Muhammad Ragil Ramadhan*

Universitas Singaperbangsa Karawang, Karawang, Indonesia.
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Abstract
Clean water is a primary need for the society. The supply of clean water has become difficult to access due to population growth and water pollution. To solve this problem, ceramic membrane is used as a water

filtration media that can be used to obtain clean water for sanitation purposes. This study aims to test the effectiveness of ceramic membranes with three different compositions, the ratio of clay: sugarcane charcoal = 70%:10% (CM1)- 55%:25% (CM2)- 40%:40% (CM3), then the ceramic membrane was molded into tubular shape and sintered at a temperature of 1000 oC for 10 hours. The parameters tested include pH, Manganese (Mn), Iron (Fe), TDS (Total Dissolve Solid), and TSS (Total Suspended Solid). Using water sampling at a flow rate of 100 mL/min. The results of water filtration by ceramic membrane 1 (MC1) showed the best results in reducing the value of Fe 0.742 mg/L, Mn 0.224 mg/L, TSS 320 mg/L, TDS 10 mg/L, and could stabilize the pH value to 7.2. The characterization of ceramic membrane 1 (MC1) has a surface area 0.535082 m2/g, pore volume 0.00722712 cc/g, and pore diameter 27.0131 nm.

Keywords: Ceramic Membrane, Water Filtration, Clay, Sugarcane Charcoal

Topic: Chemistry

[ABS-133]
Green and Sustainable Lignin Extraction from Corn Cobs Residue and Its Promising Application in Suncreens

Teguh Pambudi[1], Alifa Rahma Zuhri[1], Nanda Aurelia Salsabila S[1], Melisa Nur Halimah[1], Sheryl Ayesha Bruning[1], Elzandra Imola Vioniken[1], Hilman Imadul Umam[1], Fajar Amelia Rachmawati Putri[2]*

[1] Universitas Singaperbangsa Karawang, Karawang, Indonesia
[2] Department of Chemical Analysis, Politeknik AKA Bogor, Bogor, Indonesia

Abstract
Corn cobs is biomass residue mainly composed of cellulose, hemicellulose, and lignin. Since lignin is an aromatic biopolymer with numerous benzene and ketone groups, it is naturally UV light resistant and could potentially use as an ingredient in sunscreens. In present study, corn cob residue containing 18,5% hemicellulose, 23,5% cellulose and 16,5% lignin was extracted using choline chloride and citric acid mixture as deep eutectic green solvent (DES). The extraction procedure is compared to a conventional technique using NaOH. The results showed a decrease in intensity of the majority lignin DES IR peaks, suggesting decreased extraction efficiency and potential lignin structure change compared to lignin NaOH. These results correspond to a lignin yield of 10.06% with DES and 16.19% with NaOH. Sunscreen creams with 2%, 3%, and 4% lignin concentrations can efficiently absorb UV light, specifically in the UVA wavelength range, with the maximum absorption intensity shown at 4% lignin concentration. This nature lignin provides a sustainable substitute to replace some synthetic sunscreen actives ingredient.

Keywords: Corn cobs, biomass, lignin, deep eutectic solvent, sunscreens

Topic: Chemistry

[ABS-157]
Morphological Appearance of Cellulose from Pandanus odorifer through Chemical and Ultrasonic Processes

Mochamad Asrofi

University of Jember

Abstract
Nanofiber Cellulose (NFC) is a natural material that has the potential as a filler in bionanocomposites. This study presents a study of fiber morphology before and after being given treatment, namely chemical

treatment and ultrasonication. NFC from Pandanus odorifer was obtained from a combination of chemical treatments such as alkalization and bleaching and mechanical treatment in the form of ultrasonication. The study of fiber morphology before and after treatment was observed using a Scanning Electron Microscope (SEM) and Transmission Electron Microscope (TEM). SEM results show that the fibers undergo defibrillation after the alkalization and bleaching processes. This proves that the lignin and hemicellulose content was broken down and leaves cellulose in the fiber nature. Meanwhile, TEM shows that the fibers have entered the nanometer size where the distribution size was around 20 nm. Chemical and ultrasonic treatments successfully produce NFC fibers from Pandanus odorifer.

Keywords: Nanofiber, Cellulose, Pandanus odorifer, Morphology

Topic: Chemistry

[ABS-147]

Effect of Extraction Method on Total Flavonoid Contents and Antioxidant Activity ABTS Method (2,2 azinobis (3 ethylbenzothiazoline 6 sulfonic acid) Seagrass Leaf Extract (Enhalus acoroides L.f.)

Naniek Widyaningrum[1], Azmi Rahmadani[1], Alya Putri Sakura[1], Thendi Abdul Arief[2]

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Abstract

Flavonoids are antioxidant that fighting free radicals, widely distributed in plants, one of which is seagrass leaves (Enhalus acoroides). Flavonoids were extracted using 2 methods to determine the effect of the method on flavonoid levels and continued with the ABTS. The aim was to determine the effect of extraction methods on flavonoid levels and antioxidant activity. Flavonoid levels using the distilled water solvent infusion, ultrasonic distilled water solvent, ethyl acetate, and n hexane, and antioxidant activity using the ABTS with a UV Vis spectrophotometer. Determination of flavonoid levels by calculating mgQE/gr and antioxidant activity by calculating the IC50 value. Data analysis by the Shapiro Wilk normality test, Levenes homogeneity test, t test, Kruskal Wallis test, Mann Whitney test, ANOVA test and correlation test. The results showed the flavonoid content of the infundation was 4.339 mgQE/gr, the ultrasonic of distilled water solvent was 8.777 mgQE/gr, the ethyl acetate solvent was 68.836 mgQE/gr, and the n-hexane solvent was 6.61 mgQE/gr. The antioxidant activity using the ultrasonic method, the distilled water solvent was 13.76 mcg/mL, the ethyl acetate solvent was 13.66 mcg/mL, and the n-hexane solvent was 15.59 mcg/mL. These showed that the highest flavonoid levels were in the ethyl acetate solvent. Statistical analysis showed an influence of the extraction method on flavonoid levels. The antioxidant activity indicates seagrass extract is classified as a very strong antioxidant in ethyl acetate solvent. Statistical analysis shows that seagrass leaf extract in ethyl acetate solvent has the same antioxidant activity as vitamin C.

Keywords: Antioxidant, Total Flavonoid, ABTS, Seagrass Leaf

Topic: Chemistry

List of Abstracts: Computer Science

[ABS-10]
Extraction of Solar Panel Image Texture Feature Using GLCM Method for Damage Analysis on Solar Panel Surface Images

Ninuk Wiliani[1], Titik Khawa[2], Suzaimah Ramli[3]*

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[2] Department of Computer Science, Asia e University, Malaysia
[3] Department of Computer Science, National Defence University of Malaysia, Malaysia

Abstract
An effective method for analyzing surface damage on solar panels is highly desired, as defects such as cracks and scratches can significantly reduce panel efficiency. This study explores the application of the Gray Level Co-occurrence Matrix (GLCM) method for texture feature extraction to identify and analyze surface damage on solar panels. By utilizing Python software for data processing and a comprehensive dataset of solar panel surface images, this approach effectively distinguishes between damaged and undamaged surface texture features. The results provide valuable insights into the variation of texture patterns, supporting accurate damage identification and better maintenance strategies for solar panels. This study is relevant to the fields of renewable energy, materials science, and computer vision, offering potential applications in solar panel maintenance, quality control, and automated defect detection in the photovoltaic industry and sustainable energy sector.

Keywords: GLCM, solar panel, texture feature extraction, damage analysis, image processing

Topic: Computer Science

[ABS-261]
Digital Literacy as a Model for Cultural Preservation Using Artificial Intelligence

Ulaya Ahdiani, Sri Winiarti, Taufiq Ismail

Universitas Ahmad Dahlan

Abstract
Digital documentation plays a critical role in decision-making, particularly in the documentation of cultural buildings. Indonesia, renowned for its diverse traditional cultures, boasts unique architectural styles that reflect the identity of each region. Preserving this cultural diversity is essential for education, research, and the advancement of scientific knowledge. Among these invaluable heritage assets are traditional and cultural heritage buildings, which must be maintained and preserved for future generations. This study aims to develop a cultural preservation model using an intelligent application to identify traditional Malay buildings. Initial research conducted in 2020 utilized Convolutional Neural Networks (CNN) to identify heritage buildings in Yogyakarta, achieving 95% accuracy. However, this approach relied solely on the ornament of the buildings, which limited its scope. Further development in 2021 focused on identifying traditional Rumah Kampung houses using Transfer Learning, incorporating parameters such as ornaments, roofs, doors, windows, walls, and columns. This enhanced model achieved 98% accuracy, emphasizing the unique characteristics of traditional Indonesian houses. The application developed from these studies has already been implemented by the Kembang Limus Borobudur Central Java project team

to analyze the similarity between 3D designs and traditional house structures. Building on this foundation, the current research explores the identification of traditional Malay houses using sequential data, such as video, to capture the shape and topology of these buildings comprehensively. This research has significant implications for digital literacy and cultural preservation. It offers a practical tool for architects, students, and cultural practitioners to design and understand traditional Malay houses, fostering a deeper appreciation of Indonesia's architectural heritage. The AI-based cultural preservation model produced through this study provides valuable support for government initiatives in digital documentation and serves as an educational resource for showcasing Indonesia's diverse traditional buildings. By leveraging AI to detect architectural similarities, this research underscores the potential of digital technology in preserving and promoting cultural heritage.

Keywords: Digital Architecture, Artificial Intelligence, Malay Traditional Buildings, Digital Literacy, Cultural Preservation

Topic: Computer Science

[ABS-24]
Short-Term Prediction of Bus Station Fleet Number Using a Combination of BiLSTM Models

Joko Siswanto[1], Ainun Rahmawati[1], Untung Rahardja[2], Nanda Dwi Putra[3], Muhammad Iman Nur Hakim[4], Tito Pinandita[5], Ilham Bagus Prasetyo[4]*

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Abstract

Predicting the number of bus station fleets requires a holistic approach, using sophisticated data analysis techniques and appropriate predictive modeling. Short-term predictions of bus station fleet numbers are proposed based on the best MAPE evaluation values from the comparison of the Bi-LSTM, BiLSTM-CNN, BiLSTM-Transformer, BiLSTM-Informer, and BiLSTM-Reformer models. The dataset used is in the form of a CSV consisting of 6 types of arrivals and departures of the Giwangan City Yogyakarta type A bus station fleet from 01/01/2021 to 09/30/2023. The best prediction model was found in BiLSTM-Transformers based on a MAPE value of 0.2211 with a relatively fast time (00:00:52) compared to BiLSTM, BiLSTM-CNN, BiLSTM-Informer, and BiLSTM-Reformer. The BiLSTM-Transformer model can short-term predict 6 types of fleet arrivals and departures at the bus station in the next 30 days. The peak of the bar and curve is at 0 which means the proposed prediction model is very accurate. There is 1 strong positive correlation, 2 weak positive correlations, 2 strong negative correlations, 8 weak negative ones, and 2 uncorrelated ones. Prediction results can be used to support short-term decision making in fleet planning and management based on the dynamics of community mobility.

Keywords: Bus Station, Fleet, Short-Term, Prediction, BiLSTM

Topic: Computer Science

[ABS-40]
Integration of AHP and Certainty Factor for Optimizing Chicken Disease Diagnosis

Harry Gunawan, Bayu Arisandi, Budi Susanto, Ila Sahlila Bunga Fadjar*

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Abstract
Abstract. Diagnosis of chicken diseases must be carried out appropriately to increase the productivity of poultry farms. The failure of rapid and precise disease discovery is often due to a lack of diagnostic tools and veterinary expertise. The Analytical Hierarchy Process (AHP) and Certainty Factor (CF) methods are used to build an expert system for optimizing the diagnosis of chicken diseases. The Analytical Hierarchy Process (AHP) determines the weight of criteria based on their level of importance, while the Certainty Factor (CF) measures the level of confidence based on the symptoms found. By combining these two approaches, the system is able to produce a more structured, measurable, and based diagnosis based on quantitative data and expert expertise. The test results show that the system to be built is very accurate in providing diagnosis recommendations based on symptoms and key criteria. It is expected that farms and veterinarians will take advantage of this system to better handle diseases, reduce misdiagnoses, and strengthen the poultry farming sector as a whole.

Keywords: Optimization, Disease, Chicken, Analytical Hierarchy Process, Certainty Factor

Topic: Computer Science

[ABS-289]
Leveraging Deep Learning and Convolutional Neural Networks for Digital Waste Image Classification

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Abstract
Waste management is one of the most pressing environmental challenges of the modern era. In 2023, it was reported that approximately 14 million tons of waste remained uncollected and accumulated at various landfill sites across multiple regions. The growing complexity of waste management is compounded by the mixing of household and industrial waste at these sites, making effective segregation and disposal difficult. Traditional methods of waste classification and sorting demand significant time, labor, and resources. To address these challenges, the application of advanced machine learning techniques, particularly Convolutional Neural Networks (CNNs), presents a promising solution. CNNs are capable of automatically classifying digital images of waste, reducing human intervention and improving the speed and accuracy of the sorting process. This study aims to advance the capabilities of CNN models in classifying digital images of various waste materials, such as glass, plastic, paper, and other common waste categories. The primary goal is to improve the efficiency, accuracy, and scalability of waste classification, ultimately contributing to more effective waste management practices. By leveraging deep learning techniques, the proposed model seeks to automate the sorting process, enabling rapid and precise categorization of waste at large scale. In this research, we evaluate and optimize the performance of different CNN architectures to determine the most effective model for waste image classification. The dataset used in this study includes a variety of waste categories, including battery, biological waste, brown-glass, cardboard, clothes, green-glass, metal, paper, plastic, shoes, trash, and white-glass. The model's performance is assessed by comparing the effects

of different training parameters, such as the number of epochs and the number of layers in the network. Our findings reveal that the fine-tuned ResNet101 architecture significantly outperforms the custom-designed architecture in terms of validation accuracy. Specifically, the ResNet101 model achieved an impressive validation accuracy of 98.63%, while the custom model reached a validation accuracy of 92.73%. Furthermore, during the classification experiments, where 120 images (10 images per category) were tested, the fine-tuned ResNet101 model demonstrated a classification accuracy of 69.1%, while the custom architecture achieved 50% accuracy. The results highlight the potential of deep learning models, particularly CNNs, for improving waste classification accuracy, which can play a critical role in enhancing waste management processes. Future work will focus on refining the models further, expanding the dataset, and exploring the integration of these models into real-world waste management systems to promote more sustainable practices.

Keywords: Waste Management, Deep Learning, CNN, Classification

Topic: Computer Science

[ABS-60]
Transforming Legal Literacy in Indonesia: Leveraging Semantic-Based AI and NLP for Enhanced Civil Law Access

Abdul Rozaq, Rahimi Fitri, Muhammad Sohiburroihan Akbar, Mohammad Hollandi Sumari, Nidaan Khafiyya, Fuad Sholihin, Isna Wardiah

Politeknik Negeri Banjarmasin

Abstract

In Indonesia, access to legal information is often limited, with many individuals struggling to understand complex civil law texts due to low legal literacy. This deficiency hampers the effective application of laws and restricts citizens from exercising their legal rights. To address this issue, this study leverages semantic-based artificial intelligence (AI) and natural language processing (NLP) to improve access to civil law information. Utilizing IndoSBert, a pre-trained BERT-based language model optimized for the Indonesian language, the research conducts semantic analysis and contextual understanding of civil law texts. Relevant legal data were processed into vector representations managed using Qdrant, a vector database enabling efficient similarity searches. The system converts user queries into 256-dimensional vectors, compared against legal articles using cosine similarity to identify the most relevant content. Tested on 2,074 articles from the Indonesian Civil Code, the system achieved a recommendation accuracy of 76.66%, as validated by legal experts. User satisfaction, measured using the System Usability Scale (SUS), scored 74.81, indicating good usability with a Grade B rating. These results demonstrate that integrating IndoSBert and Qdrant enhances the efficiency and relevance of legal information retrieval, providing a scalable, user-friendly solution for public access to legal guidance. This study highlights the importance of applying advanced machine learning techniques in local contexts to bridge the gap between complex legal systems and public understanding, ultimately promoting greater legal literacy in Indonesia.

Keywords: Legal Literacy, Artificial Intelligence, Natural Language Processing, IndoSBert, Civil Law Access

Topic: Computer Science

[ABS-328]

Identification of Protein Targets for Polyscias Saponin P1: A Bioinformatics Approach to Novel Therapeutic Development

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Abstract

Bioinformatics approaches effectively accelerate the discovery of novel therapies. This study investigates the phototherapeutic potential of Polyscias Saponin P1 through integrated bioinformatics analysis. We utilized KnapSack for metabolite identification, Chembl for molecular structure analysis, and SuperPred for protein target prediction. Seven variants of Polyscias Saponin P1 metabolites were identified, confirming significant interactions with four protein targets: DNA-apurinic, Cathepsin D, Toll-like receptor 4, and Kinase P110. These interactions highlight the potential of Polyscias Saponin P1 as a promising phototherapeutic agent for various diseases, including glioma, melanoma, ocular cancer, hypertension, autoimmune diabetes, viral hepatitis, non-Hodgkin lymphoma, prostate cancer, solid tumors, and breast cancer.

Keywords: Metabolite Identification, Molecular Structure, Protein Targets, Novel Therapeutic Development

Topic: Computer Science

[ABS-91]

OCR Implementation in Archiving System at Borobudur Subdistrict using Regular Expression and TextRank Methods

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Abstract

Borobudur Subdistrict is part of a government agency that is required to manage archives, including the registration of incoming letters. Over the past five years, approximately 10,000 incoming letters have been stored in the Borobudur Subdistrict, which must be registered and digitized to support implementing an Electronic-Based Government System. The efforts for registration and digitization have been carried out using conventional methods, which require a considerable amount of time. Therefore, this study aims to develop a system that can assist in the process of archive registration and digitization using Optical Character Recognition (OCR) techniques along with Regular Expression and TextRank methods. The system is designed to extract text from physical documents into digital text through OCR, automatically detecting required text patterns using the Regular Expression method and summarizing documents using the TextRank method. The study's results show a significant increase in efficiency, up to 300%, where the number of archives registered and digitized in one day increased from 20 to 80. This solution proves that implementing this system can significantly improve the speed of the process of archive management in the Borobudur Subdistrict and also provide an effective solution for the registration and digitization process.

Keywords: Digitization, Archive, OCR, Regular Expression, TextRank

Topic: Computer Science

[ABS-375]

Predicting Mahseer Fish Habitat Distribution in Central Java Using Google Earth Engine and MaxEnt Machine Learning

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Abstract

Rivers are vital freshwater habitats connecting upstream and downstream ecosystems but face threats from habitat degradation, climate change, and overexploitation. Mahseer fish, a key species, is experiencing a population decline. This study utilizes Google Earth Engine and the MaxEnt machine learning approach to predict Mahseer habitats in Central Java. Remote sensing data, including temperature, elevation, rainfall, vegetation index, and river order, were extracted from satellite imagery. The model identifies elevation as the most significant predictor, emphasizing the potential of MaxEnt and remote sensing for habitat mapping and conservation of riverine species. This study uses predictive modeling, combining presence-absence data with environmental predictors to map Mahseer habitats. River course data were buffered by Strahler's order in QGIS, and presence points were recorded in UTM format. Predictors like NDVI, elevation, slope, river order, temperature, and rainfall were extracted from Sentinel, SRTM, MODIS and CHIRPS Daily imagery via Google Earth Engine. The MaxEnt algorithm was used to create vectors and weight predictors that have the highest contribution values to Mahseer habitat distribution. The study produced a habitat map for Mahseer fish in Central Java, showing river order as the main predictor (73%). Other contributors included elevation (18%), rainfall (8%), NDVI, slope, and temperature are 0%. The model's AUC score (0.7) suggests preliminary and acceptable predictive accuracy. In conclusion, the MaxEnt machine learning on Google Earth Engine shows potential for modeling fauna habitats in restricted niches like rivers. However, accurate predictions require more comprehensive environmental predictors to improve model performance and reliability.

Keywords: Mahseer Fish, Habitat Prediction, Google Earth Engine, MaxEnt Machine Learning

Topic: Computer Science

[ABS-128]

Disease Detection in Chili Plants Using YOLOv11 on Google Colab and Roboflow Platform

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Abstract

Chili plantations in Indonesia face significant challenges due to diseases frequently affecting the crops, such as Gemini virus and chili leaf curl virus, transmitted by thrips and whitefly pests. These diseases can lead to a decline in crop quality if not detected early. This study aims to develop a disease detection system for chili plants using the YOLOv11 object detection method, implemented on Google Colab and Roboflow platforms. Disease detection is performed by analyzing chili leaf images, resulting in the identification of 'Leaf Curl' and 'Yellow' diseases with a high confidence score exceeding 0.8. The results demonstrate that the applied object detection model reliably recognizes specific diseases in chili plants, offering a solution for monitoring and enhancing the resilience of chili crops against diseases.

Keywords: YOLOv11, Gemini virus, leaf curl virus, Google Colab, Roboflow

Topic: Computer Science

[ABS-142]
The Influence of Unhealthy Lifestyles and Habits on Hypertension in Data

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Abstract

Serious illnesses like hypertension are frequently brought on by unhealthy eating habits and lifestyle choices. This disease, which manifests as fat, smoke, stress, and a lack of physical exercise, is not limited to metropolitan regions- it can also occur in suburban or rural areas. This study investigates the relationship between rural lifestyles and consumption habits with hypertension using data from BPS (BPS-Statistic Indonesia) Magelang Regency in Central Java. The population covered by the data includes 14 settlements, 10 columns, and 70 data points. The study's findings, which were derived by multivariate algorithms and linear regression, indicate that smoking and consuming processed foods and beverages both contribute to hypertension (74.76%). Particularly for rural areas, this study aids in the development of predictive models that identify and suggest healthy lifestyle modifications.

Keywords: Hypertension, Suburban, Rural, Multivariate, Linear Regression, Predictive Models

Topic: Computer Science

[ABS-180]
Integration of Consortium E-Learning with SOA Architecture

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Abstract

The increasing demand for online learning (e-learning) is critical to supporting modern education, which faces the challenge of providing relevant, flexible, and affordable education. In addition, one of the innovations in organizing learning programs is Collaboration between universities in a consortium that raises the need for support for technology integration. Service-Oriented Architecture (SOA) supports interoperability, flexibility, and scalability in integrating this consortium's e-learning system. However, differences in technology standards, data management, and service sustainability are challenges. Comprehensive research is needed to design an integration model that can be adopted and become a practical guide in creating an integrated, adaptive, and forward-looking learning ecosystem. The research method will use two steps. The first starts with a literature study using scientific articles related to e-learning, SOA, and Collaboration. The second is the model's design, preceded by identifying the consortium's needs, the leading SOA services, and a simple architecture diagram to visualize integration. The results are in the form of conceptual and exploratory models in the form of new model designs, identification of trends, existing needs and problems, and theoretical contributions that can be used by researchers and practitioners that can be developed into other research.

Keywords: Model, E-learning Integration, SOA, Consortium

Topic: Computer Science

[ABS-264]
Antecedents of Financial Accountability in Zakat Management Organizations

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Abstract

Accountability is an obligation to be answerable for the success or failure of an organization's operations in achieving its predetermined objectives periodically. To produce accountable zakat fund management reports, zakat management organizations need to implement several zakat accounting procedures. This study aims to examine and analyze the influence of internal control, zakat accounting implementation, transparency, human resource competency, and accounting information systems on financial accountability. The research sample consists of employees working in Zakat Management Organizations in Magelang and Temanggung. Using purposive sampling, 88 respondents were obtained. Multiple linear regression was used for testing. The results showed that zakat accounting implementation and accounting information systems have a positive influence on financial accountability. However, internal control, transparency, and human resource competency do not significantly influence financial accountability. This study is expected to enhance understanding of the accountability of zakat, infaq, and shadaqah (ZIS) with the implementation of PSAK 109. In addition, it is expected that the management of zakat management organizations can produce more accountable financial reports.

Keywords: Internal Control, Zakat Accounting Implementation, Transparency, Accounting Information Systems, Financial Accountability

Topic: Economics

[ABS-13]
Green Credit Subsidy and Environmental Tax as Determinants of Green Technology Adoption

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Abstract

The adoption of green technologies has emerged as a critical strategy for addressing environmental concerns and achieving sustainability goals. Governments worldwide have implemented various policy instruments, including subsidies and taxes, to incentivize the adoption of green technologies by businesses. This research aims to investigate the impact of green credit subsidies and environmental taxes on green technology adoption. By examining existing literature and theoretical frameworks, we propose that green credit subsidies can positively influence green technology adoption by reducing financial barriers and incentivizing innovation. Conversely, environmental taxes may have a negative impact on green technology adoption, as they increase production costs and reduce profitability. However, the effectiveness of these policy instruments can be complex and context-specific. Further empirical research is needed to validate

these theoretical propositions and to explore the interplay between these policies in different economic and environmental contexts.

Keywords: Green Technology Adoption, Subsidy on Green Credits, Environmental Tax

Topic: Economics

[ABS-8]
IFRS S1: Review of the Issues, Challenges and Opportunities in Morocco

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Abstract
Following the introduction of the international accounting standard on sustainability, the aim of our research is to analyse the impact of IFRS S1 on financial reporting and environmental accounting. Indeed, previous research has shown that environmental accounting can improve the quality of financial reporting by providing information on environmental risks and opportunities, as well as on the costs and benefits of environmental management practices. However, despite the growing interest in environmental accounting, we found that there is still a lack of research on its impact on financial reporting, particularly in the context of multinational companies. Our study has confirmed that IFRS S1 represents an opportunity for companies interested in aligning themselves with sustainability requirements and a real challenge for its effective and successful implementation.

Keywords: IFRS S1, Sustainability, Financial Disclosures

Topic: Economics

[ABS-270]
The Relationship between Skills, the Labor Market, and Market Size and Women's Education

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Abstract
Women's education has an important role in social and economic development. This study examines the influence of skills, labor market, and market size on the average length of schooling for girls. This study aims to identify the extent to which these three factors affect the level of women's education in the community. A quantitative approach was used in multiple regression analysis with data from 32 province in Indonesia. Independent variables included skills, labor market, and market size, while the dependent variable was the average length of girls' schooling. The results showed that skills had the greatest positive significant influence on the average length of schooling for girls (b946- = 0.661, $p < 0.001$), followed by the labor market (b946- = 0.366, $p = 0.003$) and market size (b946- = 0.229, $p = 0.040$). The regression model has high predictive power with $R2 = 0.700$. The study highlights the importance of investing in women's skills

and developing the labor market to improve access to education. These findings can be the basis for education and economic policies.

Keywords: Women's Education, Skills, Labor Market, Market Size, Regression Analysis

Topic: Economics

[ABS-271]
Trends in Household Food Expenditure in Indonesia: Analysis of the Period 2018-2022

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Abstract
Food expenditure is an important indicator in analyzing household economic resilience. The high proportion of food expenditure indicates economic vulnerability, especially among low-income households. This study aims to analyze the change in the percentage of households with a share of more than 65% in food expenditure in Indonesia during the period 2018-2022. Secondary data were used from a five-year national survey (2018-2022). The analysis was carried out to identify patterns of change and factors that affect the dynamics of household food expenditure. Results show a decrease in the proportion of households with a share of food expenditure >65% from 40.89% in 2018 to 34.23% in 2022. However, a volatile trend occurred, especially in 2020 and 2021 due to the impact of the COVID-19 pandemic. Certain regions showed significant increases in 2022, reflecting regional disparities. These findings underscore the need for policies to strengthen the household economy and equitable access to food to reduce vulnerability. This analysis can be the basis for policymakers in designing poverty alleviation programs.

Keywords: Food Expenditure, Households, Economic Vulnerability, Food Security

Topic: Economics

[ABS-272]
Changing Patterns of Household Access to Clean Water in Indonesia: A Study for the 2018-2022 Period

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Abstract
Access to clean water is an important indicator of community welfare. Despite improvements in recent years, many households in Indonesia still face challenges in accessing clean water. This study aims to analyze the change in the percentage of households without access to clean water in Indonesia during the period 2018-2022. This study used longitudinal data from an annual survey that measured the proportion of households without access to clean water. The analysis was carried out descriptively to identify trends and variations between regions. Results show that there is a gradual decline in the percentage of households without access to clean water nationally, although there are fluctuations in some regions. Some provinces showed significant improvement, while others experienced stagnation or even improvement. These

findings highlight the importance of area-based interventions to improve access to clean water, with priority given to areas that show slow improvement or regression. The results of this study can be the basis for more targeted policies in ensuring the equitable availability of clean water throughout Indonesia.

Keywords: Access to Clean Water, Households, Regional Trends, Indonesia, Social Policy

Topic: Economics

[ABS-273]
Key Factors in Tourism Infrastructure Development in the Era of High Demand

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Abstract
The development of tourism service infrastructure plays a crucial role in supporting a sustainable tourism sector. Various factors such as land and port infrastructure, environmental sustainability, socioeconomic conditions, and the impact of tourism demand can affect the quality and effectiveness of this infrastructure. This study aims to identify and analyze the influence of these factors on tourism service infrastructure Using multiple linear regression analysis, this study analyzed quantitative data to measure the relationship between independent variables (land and port infrastructure, environmental sustainability, socioeconomic conditions, and the impact of tourism demand) on the dependent variable, namely tourism service infrastructure. The results show that land and port infrastructure, socioeconomic conditions, and the impact of tourism demand have a significant positive influence on tourism service infrastructure. On the contrary, environmental sustainability has a significant negative influence (&#946-=-0.225- p=0.034). These findings demonstrate the importance of integrating development strategies that take into account social, economic, and environmental dynamics to strengthen sustainable tourism service infrastructure.

Keywords: Tourism Infrastructure, Environmental Sustainability, Socio-Economy, Tourism Demand, Regression Analysis

Topic: Economics

[ABS-277]
Regression Analysis: Infrastructure and Business Dynamism as Key Determinants of Labor in Micro Industries

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Abstract
Micro industry plays an important role in supporting a country's economy, especially through job creation. Adequate infrastructure and business dynamism are believed to be the main factors influencing the growth of the workforce in this sector. This study aims to analyze the relationship between infrastructure and business dynamism on the number of workers in micro industries. The study used multiple linear regression analysis with quantitative data from 33 samples. The independent variable includes infrastructure and

business dynamism, while the bound variable is the number of workers. The model showed a significant relationship between independent variables and dependent variables (R2=0.629, F=26.262, p<0.001). Infrastructure (B=283971,712, p<0.001) and business dynamism (B=284163,421, p=0.001) contribute significantly to the number of workforces. These results emphasize the importance of investing in infrastructure and efforts to increase business dynamism to support workforce growth in micro industries.

Keywords: Micro Industry, Infrastructure, Business Dynamism, Labor, Linear Regression

Topic: Economics

[ABS-279]

The Impact of Fintech Peer to Peer Lending and E-Money Transaction on Economic Growth: The Moderating Role of Inflation

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Abstract

The digitalization era underlies the emergence of financing distribution through financial technology and electronic transactions. Both of these digital transactions can also be factors that influence economic growth. Therefore, this study aims to analyze the impact of fintech peer to peer lending and e-money transactions on economic growth. In addition, this study also analyzes the role of inflation as a moderating variable. Moreover, multiple regression using a random-effect model is used to test the impact of fintech peer to peer lending and e-money transactions on economic growth and the role of inflation as a moderating variable. Random-effect model analysis reveals that fintech peer to peer lending has a significant positive effect on economic growth with a z-statistic value of 15.32. E-Money transactions also have a significant positive effect on economic growth with a z-statistic value of 8.03. Furthermore, inflation successfully moderates the impact of fintech peer to peer lending on economic growth with a z-statistic value of -1.78. In addition, inflation also successfully enhance the impact of e-money transactions on economic growth with a z-statistic of 1.78.

Keywords: Loan Distribution, Digitalization, Electronic Transaction

Topic: Economics

[ABS-37]

The Impact of Strategic Agility on MSMEs Innovation Driven by Digital Entrepreneurial Leadership

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Abstract

The research explores the impact of strategic agility on the innovation of micro, small, and medium enterprises (MSMEs), mediated by digital entrepreneurial leadership. In the rapidly evolving era of digitalization, MSMEs face the challenge of remaining adaptive to market and technological changes. Strategic agility is the organization's ability to respond to environmental changes quickly and effectively, a key factor in supporting sustainable innovation. Digital entrepreneurial leadership plays an important role in driving the utilization of digital technology and creating new opportunities through innovation. This

study employs a quantitative approach, collecting data from Batik SMEs in West Java, such as Cirebon (Batik Megamendung), Garut (Batik Garutan), Tasikmalaya (Batik Tasik), Batik Bogor, Indramayu (Batik Dermayon), Batik Sumedang, and Batik Bandung. SmartPLS processes the data using statistical analysis methods to analyze the relationship between strategic agility, digital leadership, and innovation. The research results demonstrate a significant positive impact of strategic agility on SME innovation, which digital entrepreneurial leadership reinforces. This article provides theoretical and practical contributions to understanding the importance of combining strategy and technology-based leadership in developing the competitiveness of SMEs in the digital era.

Keywords: Strategic Agility, MSMEs Innovation, Digital Entrepreneurial Leadership

Topic: Economics

[ABS-297]

PleInclusive Health and Economy: Strengthening the Role of Persons with Disabilities in Sustainable Development

Zahro, Andung Maheswara R, Ade Nahdliyah, Agung Hermawan, Ari Muhardono, Titi Rahayuo Submit This Sample Abstract

Universitas Pekalongan

Abstract

Inclusion-based health and economic strategies are strategic approaches that ensure the full participation of people with disabilities in sustainable development, aligning with Sustainable Development Goals (SDGs) No. 8, which advocates for decent work and economic growth, and SDGs No. 10, which focuses on reducing inequalities. Key challenges faced by individuals with disabilities in accessing healthcare and economic opportunities include discrimination, structural barriers, and a lack of supportive policies. Strengthening the role of people with disabilities can be achieved through holistic strategies, such as providing universal access to adaptive technologies, developing market-driven skill training programs, and implementing affirmative policies oriented toward inclusivity. This study also explores the contribution of the private sectors and civil society in creating an inclusive ecosystem that fosters equality. Through cross-sectoral analysis, it highlights those investments in inclusive healthcare programs and creative economies not only enhance the quality of life for people with disabilities but also contribute to overall economic growth. Thus, inclusion-based approaches are pivotal to ensuring sustainable development involves all layers of society equally, leaving no one behind.

Keywords: SDGs, Disabilities, Inclusion Strategies

Topic: Economics

[ABS-43]

What are the Factors That Influence the Disclosure of Materiality in the Sustainability Report?

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Abstract

The materiality concept is one of the measurements and reporting of corporate sustainability performance. The concept of materiality as a tool in disclosing material aspects so that sustainability reports are more

relevant to stakeholders. This study aims to provide empirical evidence and analyze the factors that influence materiality disclosure in sustainability reports. The population used is companies on the Indonesia Stock Exchange for the period 2018 to 2021. With the purposive sampling method, a sample of 32 companies was obtained and data analysis using SmartPLS (Partial Least Square). The results of the analysis show that financial performance and company size have no impact on materiality disclosure in sustainability reports. While high industry reduces materiality disclosure in sustainability reports. The implication of this research is that it can be a reference for company management to improve the function of its performance both financial and non-financial, so as to improve the quality of materiality disclosure, especially sustainability reports.

Keywords: Sustainability Report, Financial Performance, Company Size, Industry

Topic: Economics

[ABS-336]

Proactive Personality Mediates the Relation Creative Process Engagement and Creativity of Employee

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Abstract

This research aims to examine the influence of employee creativity on the performance of small and medium businesses through Creative Process Engagement. This research uses a resource dependency theory perspective. This research was conducted on SMEs in the Magelang area in the form of a survey. The sample selection method in this study used nonprobability sampling with purposive sampling technique. The criteria used in this research are that MSMEs have high creativity, such as children's toys, batik and souvenirs. The number of samples in this research was only 287 respondents. The analytical tool to test the hypothesis in this research uses Structural Equation Modeling (SEM) with WarpPLS 7 software. The results show that employee creativity influences the employee creativity of small and medium businesses through Creative Process Engagement.

Keywords: Proactive personality, Creativity, Creative Process Engagement, SMEs, Employee

Topic: Economics

[ABS-50]

The Effectiveness of Using QRIS as a Digital Transaction Tool in Banjarmasin City Siring Tourism

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Politeknik Negeri Banjarmasin

Abstract

This study aims to determine the effectiveness of using QRIS as an effort to increase the income of MSMEs around Banjarmasin City Siring tourism and increase the competitiveness of Siring City to become an integrated and up-to-date visitor location with the use of QRIS. The research was conducted using a quantitative descriptive method. Data collection techniques are observation, survey, and interview. The study was conducted in Banjarmasin City Siring Tourism in July 2023. The research subjects were MSMEs

around the siring tourism location in Banjarmasin city, with a total sample of 30 people. The findings show that 82.7% of respondents agree and strongly agree that QRIS provides benefits. As many as 88% of respondents agree and strongly agree that QRIS is easy to use. As many as 76% of respondents agree and strongly agree to use QRIS as a means of payment for their business. In the future, the government and related banks should be able to provide socialization and education to merchants or related merchants regarding the security and additional benefits of using QRIS, regarding flexibility and how to control the use of QRIS, and provide socialization regarding the effectiveness and efficiency of using QRIS, because there are still many merchants who do not understand that QRIS is more effective and efficient than cash payments.

Keywords: Tourism, QRIS, Digital Payment, Banjarmasin

Topic: Economics

[ABS-19]

The Effect of Cloud Technology Implementation, Employee Engagement, Digital Literacy, and Organizational Readiness on Employee Productivity and Business Sustainability in Indonesian MSMEs in the Era of Digital Transformation

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Abstract

In the context of the digital revolution, this study explores the complex dynamics of cloud technology installation, employee engagement, digital literacy, and organizational readiness in Micro, Small, and Medium-Sized Enterprises (MSMEs) in Indonesia. The study analyzes data from 295 different MSMEs using a quantitative approach and Structural Equation Modeling - Partial Least Squares (SEM-PLS). The findings show a strong correlation between the use of cloud computing and worker productivity as well as the long-term viability of businesses. One important factor that influences cloud technology adoption and the ensuing productivity increases is employee engagement. Cloud technology integration success is also greatly influenced by digital literacy and organizational preparedness. The findings highlight the significance of comprehensive plans that cover workforce engagement, digital skills development, and organizational preparedness and offer MSMEs practical insights for navigating the challenges of digital transformation.

Keywords: Digital Transformation, Cloud Technology Implementation, Employee Engagement, Organizational Readiness, Business Sustainability

Topic: Economics

[ABS-294]

Driving Sustainability Performance in Indonesian SMEs: The Role of Cloud-Based Accounting Information Systems and Digital Transformation

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Abstract

This study aims to analyze the impact of using a Cloud-Based Accounting Information System (CB-AIS) on digital transformation and its subsequent effect on the sustainability performance of Small and Medium Enterprises (SMEs) in the food and beverage sector in Indonesia. Sustainability performance is measured across three dimensions: economic, social, and environmental. Data were collected from 151 SMEs using the convenience sampling method. Structural Equation Modeling-Partial Least Squares (SEM-PLS) was employed for data analysis. The results reveal that CB-AIS has a significant positive effect on digital transformation and sustainability performance. Digital transformation also significantly influences sustainability performance and serves as a partial mediator in the relationship between CB-AIS and sustainability performance. These findings underscore the critical role of CB-AIS implementation in facilitating the digital transformation of SMEs, ultimately enhancing their sustainability across economic, social, and environmental dimensions. This study provides theoretical and practical contributions to the development of digital strategies for SMEs in Indonesia's food and beverage sector

Keywords: SME Sustainability, Cloud Accounting, AIS, Digital Transformation

Topic: Economics

[ABS-325]

Financial Sustainability: A Study on the Influence of Financial Literacy, Product Innovation, and Financial Technology

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Abstract

Micro, small and medium enterprises (MSMEs) have an important role in achieving sustainable goals (SDGs), and as a whole can have a significant environmental impact, associated with conventional production practices that prioritize natural resources more deeply. MSMEs also have the potential to innovate from an environmental perspective and make relevant contributions to technology and environmental improvement. Sustainability for MSMEs must be carried out by business actors, the existence of very tight competition requires MSME actors to develop their businesses. This research will test and analyze the factors that support MSMEs, in this case namely financial literacy, product innovation, and financial technology as independent variables. The aim of this research is to test and analyze the influence of financial literacy, product innovation and financial technology on the sustainability of MSMEs

Keywords: Financial, Literacy, Technology, Innovation, MSMEs

Topic: Economics

[ABS-321]

The Effect of Entrepreneurial Orientation, Knowledge Management and Marketing Innovation on SMEs Sustainable Competitive Advantage

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Abstract

This study aims to analyze the effect of entrepreneurial orientation, knowledge management, and marketing innovation on SMEs sustainable competitive advantage. The study used quantitative methods, with purposive sampling and a sample size of 100 respondents. The sample criteria are SMEs actors in Magelang Regency with a business age of 2 years. The data analysis technique uses multiple linear regression analysis with SPPS software. The results obtained in the study are entrepreneurial orientation and knowledge management have a positive and significant effect on sustainable competitive advantage. While marketing innovation has no effect on SMEs sustainable competitive advantage. Research limitations are found in samples that are still in one region only, so further research needs to be carried out in several different regions with diverse SMEs sectors. The findings of this study are expected to contribute to the determination of policies related to the development of SMEs competitiveness.

Keywords: Entrepreneurial Orientation, Knowledge Management, Marketing Innovation, Sustainable Competitive Advantage, SMEs

Topic: Economics

[ABS-322]

Tax Avoidance in Indonesia: What is the Role of Corporate Governance and Financial Distress?

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Abstract

Tax avoidance practices are very complicated cases, because companies tend to want their tax burdens to be minimized without violating the law. Tax avoidance practices are not the desire of lawmakers, because tax avoidance practices will reduce the target of state revenue from the tax sector. The purpose of this study is to determine the effect of corporate governance and financial distress on tax avoidance in manufacturing companies in Indonesia. In this study, corporate governance is measured using six variable, namely managerial ownership, institutional ownership, board of directors' size, independent board of commissioners' size, audit committee, and audit quality. A sample of 258 was selected using the purposive sampling method. The analysis technique used to test the hypothesis is multiple linear regression analysis. The results of the study concluded that institutional ownership has proven to have a significant negative effect on tax avoidance, as well as financial distress has also proven to have a significant positive effect on tax avoidance. This study failed to prove the negative influence of managerial ownership, board of directors' size, independent board of commissioners' size, audit committee, and audit quality on tax avoidance in manufacturing companies in Indonesia. This research has implications for the government to tighten up the creation of tax regulations so that there is no grey area for companies to carry out tax avoidance actions.

Keywords: Corporate Governance, Financial Distress: Institutional Ownership, Tax Avoidance

Topic: Economics

[ABS-327]

How Corporate Sustainability Performance Can Create Corporate Value?

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Abstract

The purpose of this study is to explore the role of corporate sustainability performance corporate value. In addition, this paper examines the direct and indirect relationship between corporate sustainability performance and corporate value through profitability. This study uses a purposive sampling technique and collects 96 data for 4 years (2019-2022) listed on the IDX. Multiple linear regression was conducted to analyze the data. The results show that corporate sustainability performance and profitability have a positive effect on corporate value. This study finds strong support for the indirect effect between corporate sustainability performance and corporate value. Profitability can mediate the effect of corporate sustainability performance and corporate value. These findings provide theoretical and practical contributions to developing literature and decision making.

Keywords: Corporate Sustainability Performance, Profitability, Corporate Value

Topic: Economics

[ABS-341]

The Effect of Financial Literacy, Financial Technology, and Digital Marketing Effect on MSMEs Business Sustainability in Magelang City

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Abstract

Micro, Small and Medium Enterprises (MSMEs) play an important role in the economy and are the main support for the country's economic activities in almost all sectors of the country's economy. MSMEs are also very important for the economic development of developing countries, one of which is Indonesia, so that they can contribute to creating stability in the country's economy. This study aims to examine the influence of financial inclusion and financial literacy on business performance and sustainability of MSMEs in Magelang City. The research was conducted using a quantitative approach by providing questionnaires to respondents. The sampling technique using this study uses a type of non-probability sampling with an accidental sampling technique. In this study, the measurement of variables with statements using the Likert scale is based on five categories with points one to five and information from strongly disagreeing to strongly agreeing. The results of this study show that Financial Literacy has an effect on Sustainability Business. Other variables prove that Financial Technology has an effect on Sustainability Business, and Effect Digital Marketing has an effect on Sustainability Business.

Keywords: Financial Literacy, Financial Technology, Digital Marketing, Sustainability Business, MSMEs

Topic: Economics

[ABS-338]
Relocation of Kajen Market: A Study of Trader and Buyer Perceptions

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Abstract

The Kajen Market in Pekalongan Regency, Indonesia, is struggling with serious issues, including the building's deteriorating condition, insufficient trading infrastructure to handle the 1974 vendors, overcrowding, and legal issues that prevent renovation. The local government has proposed relocating the market to a new location in Sinangohprendeng Village. This study aims to explore the perceptions of traders and buyers on this relocation plan. The study used a quantitative descriptive method, gathering data from surveys given to 100 traders and 100 buyers. These participants were chosen through purposive sampling. The questionnaire, employing a 5-point Likert scale, included 21 questions split between the traders and buyers. These questions examined their opinions on the current market's state, their thoughts on the relocation plan, and their perspectives on the new market location. Survey results revealed that a majority of both traders and buyers are in favor of the relocation. Result shows that 59% of all respondents (46 traders and 72 buyers) viewed the existing market building as damaged. This finding is consistent with a 2020 analysis by the Public Works Agency, which reported the building's damage at 46%. In addition, 75% of traders and 54% of buyers believe that the proposed new location is easily accessible. While both groups find the current market relatively convenient and safe for transactions, they do expect to see improvements at the new location. This study offers important insights into the social, cultural, and economic effects of market relocation, highlighting the need for governments to carefully consider and address the concerns of stakeholders during the relocation process. This consideration will help achieve positive outcomes for the community and encourage local economic growth.

Keywords: Relocation, Market, Perception, Economic Growth

Topic: Economics

[ABS-345]
Challenges and Strategies for Enhancing Environmental Performance in Indonesia's Batik Industry

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Abstract

All stakeholders now accept sustainability as a guiding principle for public policy-making and corporate strategy. However, the biggest challenge still lies in achieving environmental performance in an industry. The current concept of environmental waste focuses on the total waste production from the remaining production results. Therefore, there is an emphasis on limiting waste within the boundaries of the industry and implementing post-production processes to clean it up. The batik industry as a livelihood for some Indonesian people still produces waste from production (solid and liquid waste) which disrupts environmental sustainability. This study aims to determine the effect of eco-efficiency, non-product output, and waste reduction on environmental performance. The associative method was used in this study. The types of data used are primary and secondary data, with data collection methods through questionnaires. Quantitative methods with Smart PLS analysis tools were used to collect research data and analyze the

answers to questions from available respondents. The results showed that the relationship between eco-efficiency and environmental performance had a significant effect, as well as the relationship between non-product output and environmental performance, the results were significant. However, the relationship between waste reduction and environmental performance was not significant. Efforts to achieve better environmental performance must be carried out by reducing sources such as low-waste technology and on-site management performance. Meanwhile, encouraging sorting behavior such as increasing stakeholder awareness of waste, improving regulations, strengthening government supervision, and controlling illegal dumping should be emphasized.

Keywords: Environmental Performance, Eco-Efficiency, Non-Product Output, Waste Reduction, Batik Industry

Topic: Economics

[ABS-348]

The Influence of Green Products and Green Knowledge on Electric Motorcycle Purchase Decisions with Environmental Awareness as a Moderating Variable (Empirical Study of Electric Motorcycle Buyers in Central Java, Indonesia)

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Abstract

In terms of pollution mitigation, individuals should strive to reduce activities that contribute to pollution, especially by switching from using fossil fuel vehicles to electric vehicles. The fact show that purchasing decisions made by the public for environmentally friendly products are increasing. A purchasing decision is a stage where an individual decides to buy a product when they have examined its differences from other products. There are factors that influence a purchasing decision, including green products, green knowledge, and environmental awareness. How does the influence of green products and green knowledge on purchasing decisions for electric motorbikes with environmental awareness as a moderating variable? This research aims to test the influence of green products and green knowledge on purchasing decisions for electric motorbikes with environmental awareness as a moderating variable. The type of research is quantitative used a questionnaire which was distributed to 110 respondents. This research used WarpPLS 7.0 to data analysis. The final results show that green products and green knowledge can have a positive and significant influence on purchasing decisions, then environmental awareness as a moderation strengthens the influence of green products and green knowledge and has a positive and significant influence on purchasing decisions. It can be concluded that this research can validate the Theory of Reasoned Action (TRA). The managerial implications of the research show that there is an increase green products and green knowledge can be maximized to increase purchasing decisions for electric motorbikes, with environmental awareness as a strong moderating factor. Besides that, it is hoped that this can be useful for other researchers to conduct future research as a reference It is also hoped that it can become a source of information and knowledge regarding natural sustainability from environmental pollution.

Keywords: Environmental Awareness, Green Knowledge, Green Product, Purchasing Decisions

Topic: Economics

[ABS-373]

The Role of Social Capital in Network Business Sustainability (Case Study of a Group of Product Marketers Using a Network System in Ponorogo)

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Abstract

The existence of a product marketing team with a network system has been able to lift the economy in Ponorogo City. They are required to continue to innovate to maintain and advance their business even though they use a network system to market. So that strategy is very necessary in maintaining business so that business can be carried out by all groups with various strategies that are adapted to the marketer's age. This research aims to understand and describe the competitive development efforts of marketers with network systems so that they are able to maintain and compete with companies with similar systems. This research uses a qualitative approach with purposive sampling techniques to determine research subjects. Data mining techniques use in-depth interviews and observation. Meanwhile, the data analysis technique uses an Interactive Model. The research results conclude that 1. Network business is an interesting and developing phenomenon to date. 2. Strengthening groups in network business is carried out to maintain clarity of rules, strengthen trust among members and develop business networks. 3. Strengthening groups in network business has been able to develop the business, be able to compete and maintain the business and the group or team has become stronger and developed well.

Keywords: Social Capital, Network System Marketing

Topic: Economics

[ABS-380]

Idealized Influence and Intellectual Stimulation: Critical Dimensions in Improving MSME Performance in the Era of Digital Transformation

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) are important pillars of the global and national economy, but are faced with various major challenges in the era of digital transformation, such as increasingly tight competition, rapid technological changes, and demands for innovation. Effective leadership is a key factor in ensuring the success of MSMEs to survive and thrive amidst these challenges. This study aims to examine the influence of two dimensions of transformational leadership, namely Idealized Influence and Intellectual Stimulation, on the performance of MSMEs. A quantitative approach was used in this study with a survey method, where data were collected through questionnaires distributed to MSME owners and managers in various industrial sectors. The population and location of this research are the owners of Mie Ayam n Bakso in Ponorogo Regency. Data analysis was carried out using linear regression to test the effect of the two dimensions of leadership on MSME performance variables. The results of the study showed that Idealized Influence has a significant positive influence on the performance of MSMEs, with leaders who are able to set an example and build trust directly contributing to increased productivity and organizational performance. In addition, Intellectual Stimulation proven to encourage innovation and creativity, which in

turn increases the competitiveness of MSMEs in facing digital challenges. The implications of this study are important for MSME leaders to understand the role of transformational leadership in facing digital dynamics. Practical recommendations are expected to help MSMEs to be more adaptive, innovative, and competitive in an era that continues to develop.

Keywords: Idealized Influence, Intellectual Stimulation, MSME Performance, Digital Transformation

Topic: Economics

[ABS-374]
Performance Assessment of Islamic Rural Banks: A POJK No. 3/2022 Perspective

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Abstract

This study aims to evaluate the performance of Islamic Rural Banks (IRB) in Central Java and the Special Region of Yogyakarta based on POJK Number 3 of 2022. The analysis involved 36 BPRS during the 2022-2023 period, focusing on quantitative performance encompassing profitability aspects (ROA, BOPO, NI) and capital adequacy (KPMM and MIAPB). The descriptive analysis results indicate that the performance of BPRS in Central Java tends to be more varied compared to Yogyakarta. A decline in ROA, KPMM, and MIAPB, alongside an increase in BOPO, highlights operational and efficiency challenges, particularly in Central Java. Conversely, Yogyakarta demonstrated better stability despite experiencing a decline in several indicators. Based on difference tests, only NI showed a significant improvement between 2022 and 2023, reflecting better management of productive assets, while other indicators did not show significant changes. This study emphasizes the need for strategies to enhance operational efficiency and asset management to strengthen profitability and maintain capital stability. These findings are expected to provide valuable insights for IRB managers and regulators to improve competitiveness and ensure the sustainability of the IRB industry.

Keywords: Soundness, Islamic Rural Bank, POJK 3/2022, Performance

Topic: Economics

[ABS-381]
Revitalizing Islamic Philanthropy through Eco-Pesantren: The Role of Infaq Management Institutions (LMI) in Realizing a Green Economy

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Abstract

Revitalization of Islamic philanthropy is a strategic step in supporting sustainable development based on the values of justice and ecosystem balance. This article examines the role of the Infaq Management Institute (LMI) in realizing the eco-pesantren concept as an effort to create a green economy. This approach focuses on the integration of pesantren-based education with an environmentally friendly lifestyle. This study uses a qualitative-descriptive approach with data collection through literature studies, interviews, and

observations on LMI activities related to the eco-pesantren program. The results of the study indicate that LMI has a central role in integrating the principles of Islamic philanthropy with pesantren-based environmental management practices that have an impact on increasing student awareness of the environment, creating jobs based on renewable energy, and strengthening local economic resilience. These findings indicate that the revitalization of Islamic philanthropy through eco-pesantren shows great potential in supporting the achievement of sustainable development goals (SDGs), especially in terms of increasing awareness in environmental management, poverty alleviation, and inclusive economic growth. Thus, this approach can be an ideal model to be adopted in various regions, making Islamic philanthropy the main driving force in realizing a just green economy.

Keywords: Islamic Philanthropy, Eco-Pesantren, Green Economy

Topic: Economics

[ABS-171]
Introduction to Islamic Inheritance and Economic Productivity

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Abstract
The empowerment of economically valuable inheritance assets through the development of sugarcane land businesses is an innovative approach that is compelling to study to obtain empirical and contextual data. Implementing economically valuable inheritance assets is a serious concern and an absolute necessity for proper management. Inheritance assets, which are typically fixed and consumptive in nature, are often distributed directly among heirs. However, in the case of sugarcane land and other assets, instead of being divided immediately, they are empowered to be more productive, positively impacting family and community welfare. This research uses the maqasid al-shariah approach specifically hifdh al-mal (protection of wealth) as the primary method to analyze the issues related to economically valuable inheritance assets. The findings of this study reveal insights into the empowerment of economically valuable inheritance assets implemented by heirs in Kediri, East Java.

Keywords: Economic value, inheritance empowerment

Topic: Economics

[ABS-174]
The Influence of Power on Employee Performance through Conflict as a Mediating Variable

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Abstract
The phenomenon of low employee performance due to conflict is the background in this study. The conflict is caused by the power factor that prioritizes the personal ego over the organization. And aims to test and analyze- 1) The effect of positive power on employee performance- 2) The effect of conflict on employee performance- 3) The effect of conflict on employee performance. The unit of analysis of this research is the regional apparatus organization (OPD) who are members of the local government budget team (TAPD) of

Kendari City. Respondents as a sample to test the research hypothesis were 131 employees using the Structural Equation Modeling (SEM) analysis method. The results show that power has no significant effect on employee performance, power has a significant effect on conflict, conflict has a significant effect on employee performance, conflict acts as a partial mediation linking the variables of power and employee performance. The practical implication of this research is that coercive power is the dominant indicator of the effect of conflict on employee performance.

Keywords: Power, Conflict, Performance, Employee

Topic: Economics

[ABS-184]
Governance of Charitable Organizations and Public Trust in Increasing Investment in Cash Waqf Linked Sukuk

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Abstract
The relationship between donors and charitable organizations is closely related to the level of success of fundraising. However, there are many charitable organizations that have limitations in organizational governance, which affects the level of donor trust. Likewise, waqf management organizations have a similar situation. This study aims to analyze and measure the governance of charitable organizations that receive and administer cash waqf and its influence on public trust in increasing investment in waqf-related sukuk. (Cash Waqf Linked Sukuk/CWLS). This study uses a qualitative approach, data collection through observation, interviews. The expected results of this study can be a consideration in improving the quality of governance of charitable organizations and can be used to develop strategies in increasing public trust and willingness to invest and make waqf through (Cash Waqf Linked Sukuk/CWLS). Some charitable organizations have not implemented good organizational governance, especially in terms of transparency and accountability of organizational management. This research can be a reference for further research related to similar topics.

Keywords: Sukuk, Charity organization, Cash waqf linked sukuk

Topic: Economics

[ABS-185]
The Consequences of Loan Growth and Credit Risk Management on Bank Performance: A Study ASEAN Commercial Banks

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Abstract
ASEAN is a dynamic economic region that contributes significantly to global growth but faces challenges such as high levels of non-performing loans (NPLs) in its banking sector. This study analyzes the impact of bank credit management and bank-specific factors on ASEAN commercial banks' financial performance. This study uses secondary data from commercial banks in ASEAN countries over 10 years (2010-2023). Fixed

Effects and Random Effects methods and OLS are applied to estimate the coefficients and assess their robustness tests. The results show that Credit Risk harms bank performance, and loan growth has no impact on bank performance but has an impact on net-performing loans. Factors from bank-specific variables show mixed results on the financial performance of ASEAN commercial banks. This study recommends that ASEAN policymakers create a robust financial environment by implementing monetary policy that regulates interest rates to reduce high NPL ratios through a better monitoring system. This study contributes to the literature by focusing on ASEAN commercial banks, providing region-specific insights into the interaction between bank credit management and financial performance. This study uniquely combines accounting-based and market-based measures, comprehensively evaluating banking performance in ASEAN.

Keywords: ASEAN Countries, Credit Risks, Loan Growth, Bank-specific Factors

Topic: Economics

[ABS-190]
Analysis of the Determinants of Business Performance of Transportation Companies during Post Covid-19 in Indonesia

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Abstract

Business performance in post covid-19 transportation companies requires appropriate management accounting strategies. This study aims to test and analyse the factors that affect business performance in transportation companies, especially bus companies in the Central Java and Yogyakarta regions. The sample used in this study amounted to 126 respondents obtained by purposive sampling technique. Hypothesis testing was carried out using multiple linear regression analysis. The results show that management accounting strategy and information technology affect business performance in the transportation sector, especially bus companies.

Keywords: Business Performance, Management Accounting Strategies, Information Technology

Topic: Economics

[ABS-191]
The Impact of Greenhouse Gas Emissions Disclosures and Institutional Ownership on Firm Value: Evidence from Mining Industry in Indonesia

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Abstract

In the mining industry, handling and mitigating greenhouse gas emissions (GHG) is crucial to maintaining business and environmental sustainability. A large portion of the world's carbon dioxide emissions come from the mining industry as a result of deforestation and heavy machinery exploration run by fossil fuels in the mining site. This study aims to investigate whether GHG emission reporting, as well as institutionally owned share ownership, would increase the firm's value in the eyes of capital market investors. A simple

pool linear regression of the one hundred and thirty-three listed mining companies on Indonesia's capital market in 2018-2021 reveals that GHG emissions reporting and institutional ownership are likely to increase firm value. The results suggest that investors would value companies with higher GHG emissions and institutional ownership. This study advises mining company management that, although GHG emission mitigation action and reporting and dealing with institutional investors are costly, they will boost company image and value in the capital market.

Keywords: Greenhouse Gas Emission, Carbon Emission, Greenhouse Gas Emission Disclosure, Institutional Ownership, Firm Value

Topic: Economics

[ABS-202]
The Impact of Environmental Performance, Independent Commissioners, Institutional Ownership, and Industry Sensitivity on Environmental Disclosure in Non-Cyclical Consumer Companies

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Abstract

This research aims to examine the influence of environmental performance, independent commissioners, institutional ownership, and industry sensitivity towards environmental disclosure. The population used in this research is non-cyclical consumer companies listed on the IDX in 2018-2022. The method used is purposive sampling with a total research sample of 50 samples. Analytical techniques used is multiple linear regression analysis using SPSS 26. Based on this research, environmental performance is proven to have a positive effect on environmental disclosure, while independent commissioners, institutional ownership and industry sensitivity have no effect on environmental disclosure.

Keywords: Environmental Performance, Independent Commissioners, Institutional Ownership, Industry Sensitivity, Environmental Disclosure

Topic: Economics

[ABS-204]
Exploring Sustainability in Cryptocurrency Protocols: Environmental Insights from PoW to PoS

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Abstract

Cryptocurrencies, particularly Bitcoin, have been criticized for their significant environmental impact due to the energy consumption required by the Proof-of-Work (PoW) consensus algorithm. As a response, Proof-of-Stake (PoS) is seen as a more sustainable alternative, potentially reducing energy use and carbon

emissions. This study explores the environmental implications of transitioning from PoW to PoS in cryptocurrency protocols, focusing on carbon footprint and energy efficiency. Purpose: To assess the sustainability of cryptocurrency protocols by comparing the carbon footprint and energy efficiency of Bitcoin (PoW) and Ethereum (PoS). Method: This research uses a quantitative approach, combining regression analysis to explore the relationship between various factors (GHG emissions, energy consumption, and protocol types) and carbon footprint. Additionally, independent t-tests are performed to examine the differences in energy efficiency and environmental impact between PoW and PoS protocols. Main Finding: PoS cryptocurrencies, especially Ethereum after its transition, show a significantly lower carbon footprint and energy consumption compared to PoW-based cryptocurrencies like Bitcoin. The findings indicate that PoS systems are more energy-efficient and environmentally sustainable. Implication: This research is relevant for policymakers, blockchain developers, and environmentalists, suggesting that transitioning to PoS could significantly reduce the environmental impact of cryptocurrencies. The results have implications for sustainability, blockchain technology, and energy policy.

Keywords: Cryptocurrency, Sustainability, Proof of Work, Proof of Stake, Carbon Footprint

Topic: Economics

[ABS-207]
Revisiting the Trade-Off Theory: The Role of Liquidity in Profitability Outcomes. Evidence from Southeast Asia

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Abstract

This study revisits the Trade-Off Theory of capital structure by investigating the moderating role of liquidity in the relationship between capital structure and profitability. The Trade-Off Theory posits that firms optimize their capital structure by balancing the benefits of debt against the costs of debt. While previous studies have extensively explored the direct effects of capital structure on profitability, the role of liquidity as a moderating variable remains underexplored. As sustainable financial management gains prominence, it becomes essential to explore how liquidity, a key indicator of financial resilience, shapes this dynamic. Using a dataset of publicly listed firms in Southeast Asia spanning from 2002 to 2021, this research employs a panel data regression model to examine the proposed relationships. Profitability is measured using Return on Equity (ROE), while capital structure is proxied by the Debt-to-Equity (D/E) ratio. Liquidity is captured through the Current Ratio. The analysis reveals that capital structure negatively affects profitability, consistent with the notion that higher leverage increases financial distress costs, outweighing the benefits of debt. Furthermore, liquidity significantly moderates this relationship, with higher liquidity mitigating the adverse effects of debt on profitability. These findings underscore the importance of incorporating liquidity considerations into the Trade-Off Theory framework, offering theoretical and practical insights for corporate financial management. The study concludes by highlighting the implications for firms seeking to optimize their capital structure in varying liquidity environments.

Keywords: Trade-Off Theory, Capital Structure, Profitability, Liquidity, Southeast Asia

Topic: Economics

[ABS-221]
The Role of Internal Control and Risk Management on the Survival of MSMEs

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Abstract

Micro, Small and Medium Enterprises (MSMEs) are the most important pillar in the Indonesian economy. However, MSMEs face more risks in their business survival due to lack of resources, especially in developing countries. MSMEs are better able to carry out internal control and risk management to survive in a volatile market. As a risk management tool, internal control does contribute to the sustainability of MSMEs. The purpose of the study is to test and analyze internal control and risk management for the survival of MSMEs. This research is quantitative research. The population of this study is MSME managers in Magelang Regency. The sampling technique uses convenience sampling with a sample used as many as 135 MSMEs in Magelang Regency. Hypothesis testing uses SEM-PLS analysis tool. The results of the study show that the improvement of internal control and risk management significantly encourages MSMEs to continue to achieve survival. This study expands the literature by providing empirical evidence on the role of internal control and risk management in the sustainability of MSME businesses.

Keywords: Internal control- Risk management- Survival- MSMEs

Topic: Economics

[ABS-248]
Employees Creativity: A Critical Review

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Abstract

This study examines the factors that influence employee creativity, emphasizing the need for a broader methodological approach. Through a critical review of relevant studies, this study identifies personal characteristics, organizational context, and motivation as important determinants in predicting employee creativity levels. Furthermore, this study critiques methodological approaches in the literature, highlighting limitations such as selection bias and limited sample representation due to standard non-random sampling methods. A mixed-methods approach, combining quantitative and qualitative data, is recommended to provide a more comprehensive understanding of employee creativity and organizational support. Expanding sampling techniques to incorporate random or stratified methods is suggested to increase the generalizability of the findings. This approach will also allow for richer insights into how individual factors, work experiences, and motivations influence employee creativity. Ultimately, this study contributes to a deeper understanding of the complexity of individual components, employee motivation, and organizational support, and suggests future research directions that integrate multiple sampling and analysis methods to capture the dynamic nature of employee creativity.

Keywords: Employee's creativity, personal characteristic, organizational context, and motivation.

Topic: Economics

[ABS-250]
The Concept of Syirkah in Indonesian Culture: Exploring Islamic Values and Local Wisdom

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Abstract
The integration of the syirkah concept within the Javanese cultural context aligns Islamic economic principles with local wisdom. Syirkah, an Islamic partnership model, prioritizes justice, cooperation, and shared responsibility for social welfare and spiritual integrity. Javanese values such as gotong royong (mutual cooperation), tepa salira (mutual respect), and rukun (harmony) reflect the collective ethos and social harmony crucial for community well-being. This study examines the adaptability of syirkah within Javanese traditions, highlighting its alignment with ethical and collaborative practices in local contexts. Key findings indicate that syirkah not only enhances economic cooperation but also strengthens moral and spiritual dimensions by incorporating Javanese cultural symbols, such as the Saka Tatal of Demak Mosque, which embodies unity and shared purpose. However, challenges arise in ensuring the preservation of syariah principles like justice and transparency amidst localized interpretations. This study advocates for a balanced integration of Islamic and cultural values, demonstrating that syirkah is not merely an economic framework but also a tool for achieving holistic prosperity (falah) rooted in ethical and spiritual foundations. The findings contribute to the development of sustainable and inclusive economic models tailored to Indonesia's cultural heritage.

Keywords: Syirkah, Javanese culture, Islamic economics, local wisdom, sustainable development

Topic: Economics

[ABS-253]
Halal Fashion and Gen Z: Driving Sustainability Through Lifestyle

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Abstract
This study examines the role of lifestyle in driving halal fashion consumption among Generation Z (Gen Z) in Pekalongan, a leading center for Indonesia's halal fashion industry. The research aims to explore how lifestyle influences consumption patterns and contributes to sustainable economic development through the principles of ethical and responsible practices inherent in halal concepts. The study employed a survey method, collecting data from 255 Gen Z respondents. The data were analyzed using Warp PLS-SEM to evaluate the relationships between variables. Lifestyle emerged as a significant predictor of halal fashion consumption (p value = 0.74, p < 0.001), while influencer endorsements, often emphasized in digital marketing, showed no significant moderating effect (p value = 0.02, p = 0.38). Instead, peer and family recommendations were found to have a stronger influence on purchasing decisions. These findings suggest that lifestyle plays a critical role in shaping consumer behavior, offering new insights into marketing strategies and policy formulation. By emphasizing ethical and sustainable values, halal fashion aligns with the goals of sustainable economic development, particularly in culturally and economically dynamic regions like Indonesia. The study provides valuable implications for stakeholders in the halal fashion industry, highlighting the need to focus on community-driven and culturally relevant approaches rather than relying

solely on digital influencer marketing. This research contributes to the discourse on sustainable consumption and its potential to promote broader economic and social resilience.

Keywords: Halal Fashion, Generation Z, Lifestyle, Sustainable Economic Development

Topic: Economics

[ABS-389]
The Role of Social Opinion as a Moderation Factors Forming the Intention to Blame Local Brands

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Abstract

The triggers for consumers to blame local brands are still a hot topic of debate today, because there is no conclusive definition. Academics are confused about explaining the emergence of the phenomenon of blaming behavior and marketers are designing marketing strategies and ways to reduce local brands from being blamed. This study examines the influence of brand incongruence, brand incapability, and brand unqualified as suspected triggers and social opinion as moderating variables that are expected to reduce blaming behavior. The assessment indicator uses a Likert scale with the SEM-Amos application. The respondents who were sampled were those who intended to blame Polytron, using the snowball sampling technique. The online survey method was chosen to distribute 402 respondents. The results of the study indicate that there is a positive relationship between brand incongruence, brand incapability, and brand unqualified towards attitudes to denigrate local brands, in addition it was found that social opinion is a variable that positively moderates between these hubs. Implications for academics, can provide new insights into behavioral models that have not been the focus of researchers, to be used as reference models in further research. Practical implications for marketers and policy makers, are able to plan marketing strategies that are in accordance with the needs of market segments.

Keywords: Incongruence, Incapability, Unqualified, Opinion and Blame

Topic: Economics

[ABS-249]
The Sustainability About the Corporate Sustainability Itself (Environment, Social and Governance): Methodological Review in Guidance of Research Onion

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Abstract

The reduction in non-renewable resources has made various parties start to think about sustainability. Departing from these conditions, a concept of sustainability for companies has recently emerged which is then often discussed in the context of three areas, namely environmental social and governance (ESG). Sustainability issues are becoming increasingly important in the modern business world, especially for industries that have a significant impact on the environment. Provides a methodological review of a research article written by Alex Edmans (2023) with the title: The End of ESG which was published in the Wiley

Journal in 2023. The issues that will be reviewed are theoretical, methodological aspects and results that will be compared with five samples of research results as previously regarding the influence of ESG on company value. For a review of the theory used, the author will compare the theory used by Edmans (2023) with the theory used by other researchers for research with similar variables. Next, the method is by comparing the research method used in the Edmans (2023) article with the Onion Research Method proposed by Mark N.K.Saunders. Finally, the research results will use the Publish and Perish and Scopus tools to find out the number of studies related to the Influence of ESG on Company Value, then the author will compare the results of the Edmans article (2023) with five similar research results as samples. That in conducting research on The End of ESG, Edmans used very little theory, in expressing his ideas, he argued from experience, personal observations and the opinions of experts. In terms of methodology, Edmans does not mention in detail the type of research, the amount of sampling, so the author provides an overview based on the Research Onion proposed by Saunders. Next, for the results of the last year, there were more than 200 studies related to ESG in searches using Publish or Perish or Scopus, next, the results of Edmans' research, he believes that ESG is very important but nothing special, these results can be strengthened with quantitative data to strengthen his argument. Provides insight into the meaning of ESG on company value, so that this research review can be used as consideration in investing, especially in companies that are starting to think about sustainability.

Keywords: Sustainable, ESG, FirmValue

Topic: Economics

[ABS-391]
Inclusive Health and Economy: Strengthening the Role of Persons with Disabilities in Sustainable Development

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Abstract

Inclusion-based health and economic strategies are strategic approaches that ensure the full participation of people with disabilities in sustainable development, aligning with Sustainable Development Goals (SDGs) No. 8, which advocates for decent work and economic growth, and SDGs No. 10, which focuses on reducing inequalities. Key challenges faced by individuals with disabilities in accessing healthcare and economic opportunities include discrimination, structural barriers, and a lack of supportive policies. Strengthening the role of people with disabilities can be achieved through holistic strategies, such as providing universal access to adaptive technologies, developing market-driven skill training programs, and implementing affirmative policies oriented toward inclusivity. This study also explores the contribution of the private sectors and civil society in creating an inclusive ecosystem that fosters equality. Through cross-sectoral analysis, it highlights those investments in inclusive healthcare programs and creative economies not only enhance the quality of life for people with disabilities but also contribute to overall economic growth. Thus, inclusion-based approaches are pivotal to ensuring sustainable development involves all layers of society equally, leaving no one behind.

Keywords: SDGs, Disabilities, Inclusion Strategies

Topic: Economics

[ABS-390]

Review of Transfer Pricing Aggressiveness (A Study of Mining Companies Listed on the IDX During 2019-2023)

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Abstract

This research aims to determine how Innovation, tunneling incentives, and multinationality influence transfer pricing aggressiveness. The study collected samples from 60 companies over five years using purposive sampling techniques. A quantitative analysis was conducted using multiple linear regression with SPSS version 25. The findings indicate tunneling incentives significantly affect transfer pricing aggressiveness, while Innovation at the corporate and multinational levels does not significantly impact it.

Keywords: Innovation, Tunneling Incentive, Multinational, Transfer Pricing Aggressiveness

Topic: Economics

[ABS-352]

Analyze the Impact of the Use of Accounting Information Technology, Planning, Implementation, and Administration Factors on the Financial Accountability of Village-Owned Enterprises (BUM Desa)

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Abstract

The partial test results show that there is an influence between the use of accounting information technology on financial accountability with a t-test value of 3.015 > 1.98761 and a significance value of 0.003 < 0.05. There is an influence between planning and financial accountability with a t-test value of 2.249 > 1.98761 and a significance value of 0.027 < 0.05. There is an influence between implementation and administration on financial accountability with a t-test value of 1.996 > 1.98761 and a significance value of 0.049 < 0.05. Simultaneous test results using the f-test: 17.192 > 2.71 and a significance value of 0.000 < 0.05. This means that together there is an influence of the use of accounting information technology, planning, implementation, and administration on financial accountability. The results of the coefficient of determination test obtained an Adjusted R-Squared value of 0.351.

Keywords: Accounting Information Technology, Planning, Implementation and Administration, Financial Accountability, Village-Owned Enterprises (BUM Desa)

Topic: Economics

[ABS-267]
Streamlining Chemistry Learning Process: Applying Lean Methodologies to Minimize Waste in High School Education

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Abstract

High school education plays a pivotal role in shaping students' character and nurturing national intelligence. The integration of lean education into the high school learning process aligns closely with the goals of sustainable development. By focusing on maximizing value and eliminating waste, these principles promote a more efficient and effective educational system that can adapt to the evolving needs of students and society. Sustainable development in education emphasizes the importance of creating learning environments that are not only resource-efficient but also capable of fostering continuous improvement. This study explores the application of lean education in the chemistry learning process to identify inefficiencies, understand root causes, and propose solutions to enhance learning efficacy. Through mixed-method approach, the study engaged 128 11th-grade science students, utilizing questionnaires, interviews, observations, and document incrustation. Value Stream Mapping (VSM) and fishbone diagrams were utilized to analyze the data. VSM is used to visually documents and analyzes the process flow and identifying inefficiencies. Fishbone diagrams used to unearth the causes of inefficiencies. The results unveiled seven forms of inefficiencies in the chemistry learning process. Noteworthy included unnecessary repetition of material, delays in lesson dissemination, and students challenges in understanding and excelling in assessments. Implementing Standard Operating Procedures, such as structured class timetables and group study sessions, further supports sustainable development by creating a more organized and supportive learning environment. This approach not only enhances educational outcomes but also prepares students to be proactive, problem-solving individuals who can contribute to sustainable practices in their future endeavors

Keywords: Lean Education, Waste Minimization, Chemistry Learning Process, Educational Efficiency

Topic: Educational Studies

[ABS-21]
The Influence of Curriculum on Educational Technology Using Participatory Learning to Strengthen Elementary Education Policies

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Abstract

The purpose of this study was to determine the effect of curriculum on educational technology using participatory learning to strengthen basic education policies. The paradigm used with constructivism theory in the form of a qualitative and quantitative approach with a descriptive natarif method using path analysis. This study involved (N) 60 respondents at the elementary education level. The results of the study explained the existence of a significant positive effect of the table coefficient obtained a significance value between the

curriculum (X1) 0.352> 0.005 with t_count 0.398> t_table 0.2144 and educational technology (X2) 0.236> 0.005 with t_count 1.198> 0.2144 using participatory learning (Y) 0.264> 0.05 with t_count 0.493> 0.2144 to strengthen basic education policies (Z) can be said to be accepted.

Keywords: Curriculum, Education Technology, Participatory Learning, Elementary School Policy.

Topic: Educational Studies

[ABS-22]
Development of GODUKASI Interactive Learning Media on Asean Material

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Abstract
The level of student understanding related to the content of subject matter that has a broad scope such as ASEAN is still very lacking. For this reason, media is needed that can provide a more meaningful learning experience so that there is an increase in student learning outcomes. The purpose of this research is to develop GODUKASI interactive learning media on ASEAN material. This development uses the Research & Development (R&D) method with the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model with the help of the macromedia flash application. At the evaluation stage, a questionnaire was given to 76 prospective teacher students regarding the meaningfulness and effectiveness of the media, and to 17 students regarding the ease of understanding and attractiveness of the media. The results of the questionnaire found that prospective teachers stated that the media was very meaningful and effective, and students stated that the media was easy to understand and interesting. Thus, GODUKASI interactive learning media can be used as an alternative media for use in ASEAN material.

Keywords: Learning Media, Interactive Media, GODUKASI Media, ASEAN Material

Topic: Educational Studies

[ABS-292]
Analyzing Research Connections in the Development of Systems Thinking for Science Problem Solving: A Systematic Literature Network Analysis (SLNA) Approach

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Abstract
This study investigates the emerging trends and research opportunities focused on promoting systems thinking within the context of scientific problem-solving. To facilitate this exploration, the research employs the Systematic Literature Network Analysis (SLNA) method. The study is based on an analysis of scholarly articles related to systems thinking in science education, which were gathered from the Scopus and IEEE databases using the Publish or Perish (PoP) application. Initially, a total of 1,200 relevant articles were retrieved, but through the elimination of duplicates and non-journal sources, a more refined dataset was created. Following a preliminary screening process based on article titles, the dataset was narrowed down to 350 articles. Further refinement involved keyword searches and specific inclusion criteria, which

culminated in the selection of 20 articles for comprehensive analysis. The most frequently discussed topics include systems thinking, with strong connections to other concepts such as problem-solving strategies and inquiry-based learning. While research on systems thinking in science education is well-established, there are still underexplored areas, such as the development of innovative teaching models that integrate systems thinking frame work. Future research could focus on developing innovative instructional models that incorporate strategies to facilitate systems thinking, offering new ways to enhance students' ability to approach complex science problems.

Keywords: Systems Thinking, Science Education, Problem Solving, Systematic Literature Network Analysis

Topic: Educational Studies

[ABS-25]
Analysis of Student Engagement and Critical Thinking Skills in Digital Annotation-Assisted Collaborative Reading Activities

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Abstract

This research seeks to describe how digital social annotation media can engage students and support the development of their critical thinking skills in collaborative reading activities. Using a qualitative approach and a case study design, the data were collected through observations and reflections on students' digital annotations via online platforms. The findings illustrate that collaborative reading through digital annotations engages students across behavioural, cognitive, and emotional dimensions. Students actively interacted with the text and their peers, sought additional information to support their ideas, and showed deeper comprehension. Moreover, the use of the Question Answer Relationship (QAR) strategy in collaborative reading appeared to encourage students to think more critically by analyzing, evaluating, and reflecting on the text. These findings suggest that digital annotation tools can be beneficial in enhancing both student engagement and critical thinking skills in collaborative learning contexts.

Keywords: Collaborative Reading, Digital Annotation, Critical Thinking

Topic: Educational Studies

[ABS-38]
Improving Students Numeracy Ability Through Mathematics Games

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Abstract

This research addresses the low numeracy ability of the 2023-2024 intake students in the Smart City Information System (SIKC) study program at Banjarmasin State Polytechnic. The objectives of this study are to (1) design and develop a math game to improve students' numeracy skills, (2) validate the game's quality, and (3) assess its effectiveness in enhancing numeracy skills. This Research and Development study employs the ADDIE model for game development and quasi-experimental quantitative methods for evaluation. The game features four stages with varying levels to engage students in numeracy exercises. Expert validation resulted in 'Good' ratings, with scores of 3.05 from game development experts and 2.73 from math experts,

indicating the game is suitable for use. The effectiveness was tested on control and experimental groups using pre-test and post-test scores. The N-Gain test analysis showed a significant improvement in the experimental group's numeracy skills, with a coefficient of 0.704, classified as 'High'. The findings suggest that the math game is valid and can improve students' numeracy skills. This study highlights the importance of integrating educational games into learning environments to address foundational skill gaps effectively.

Keywords: Numeracy Skills, Math Games

Topic: Educational Studies

[ABS-295]
Field-Based Insights into E-Learning, PBL, and Soft Skills Participation in TVET

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Abstract
This study explores the impact of e learning and problem based learning PBL on soft skills participation in Technical and Vocational Education and Training TVET The research focuses on understanding how these educational methods contribute to the development of practical skills in students within TVET institutions Using Structural Equation Modeling SEM with a sample of 100 TVET students the study examined the relationships between e learning implementation PBL approaches and soft skills development The analysis revealed significant positive correlations between e learning adoption and soft skills development with beta coefficient 0 68 while PBL showed a strong mediating effect with beta coefficient 0 72 The model demonstrated good fit indices CFI 0 92 TLI 0 90 RMSEA 0 058 explaining 76 percent of the variance in students soft skills development These findings suggest that the integration of e learning and PBL significantly enhances soft skills development in TVET education particularly when implemented in a structured and complementary manner

Keywords: E-Learning, Problem-Based Learning, Soft Skills, TVET, Structural Equation Modeling (SEM)

Topic: Educational Studies

[ABS-302]
Educators' Perceptions of Early Childhood Working Memory Capacity and Implementation in Outdoor Learning Activities (OLA)

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Abstract
Children aged 5-6 years need executive function (EF) cognitive abilities as readiness to learn towards elementary school level. Working memory (WM) is one aspect of EF that is very important in children's academic abilities. The results of the study showed that children's WM is low because in the introduction of

early childhood mathematics, children still have difficulty in remembering, carrying out instructions, and remembering to use certain strategies. One of the physical activities is packaged in Outdoor Learning Activity (OLA). Currently, OLA has not been implemented optimally, as evidenced by the fact that it has not been planned and implemented every day. OLA should be implemented every day at least 30 because it can increase the amount of natural chemicals that support neuron connections. This study aims to (1) Identify the working memory capacity of early childhood children based on teacher perceptions- and (2) Determine the implementation Outdoor Learning Activity (OLA) in early childhood learning. This research is Descriptive research through Forum Group Discussion (FGD). Data collection using questionnaires with subjects of 60 Early Childhood educators. The results of the study show that (1) Based on the perception of educators, it shows that the capacity of children's working memory (WM) is not yet optimal, reaching 65.23% which is included in the sufficient category. (2) The implementation of OLA is carried out 7 times every month and 54.29% of educators stimulate WM during closing recall. This research is the basis for further research in developing an OLA model that can improve working memory as a reference for educators in learning activities.

Keywords: Educator Perception, Working Memory, Outdoor Learning Activity (OLA)

Topic: Educational Studies

[ABS-304]
Integrating Digital Society Trends into Teaching Materials: Enhancing Indonesian Language Learning for Foreign Speakers at Universitas Pekalongan

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Abstract

The integration of digital society trends into teaching materials has become crucial in enhancing the learning experience, particularly for Indonesian language learners as foreign speakers (BIPA). This research investigates the effectiveness of digital-based teaching materials in improving language competence and cultural understanding among BIPA students at Universitas Pekalongan. A mixed-methods approach was employed, combining quantitative and qualitative data collection. The study involved 50 BIPA students as participants, divided into experimental and control groups. The experimental group utilized digital teaching materials incorporating social media content, interactive applications, and digital storytelling, while the control group used conventional materials. Data were collected through pre-tests, post-tests, and surveys, complemented by interviews and classroom observations. The results indicate a significant improvement in the experimental group's performance, with an average post-test score increase of 25% compared to 10% in the control group. Survey responses show that 90% of students in the experimental group found the digital materials engaging and effective for understanding Indonesian culture. Qualitative findings highlight the relevance of digital tools in aligning with students' learning habits in a digital society. This study concludes that integrating digital trends into teaching materials not only enhances language acquisition but also fosters cultural appreciation, offering a practical model for modern BIPA programs.

Keywords: BIPA, digital society, teaching material, Indonesian studies

Topic: Educational Studies

[ABS-307]

Implementing IoT-Driven Noise Level Detector as a STEM-Based Science Learning Media

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Abstract

Despite its negative impact on student concentration and learning effectiveness, we often overlook excessive classroom noise. The importance of noise management is urgent in creating a conducive learning environment and improving the quality of learning. This study aims to develop a STEM (science, technology, Engineering, and Mathematics)-based classroom noise measuring tool for junior high school students as an interactive learning medium. Researchers used the Research and Development (RnD) method with the ADDIE model for the study. This method has five steps: figuring out what the students, teachers, and classroom environment need- designing learning modules and tools- making prototypes of the tools- using them in trial classes- and evaluating them through pre-tests, post-tests, and user feedback. We collected data through observation, interviews, questionnaires, and testing. The results of the study showed that this tool was effective in improving students' understanding of science concepts such as sound waves and noise intensity while helping to reduce noise levels in the classroom. In conclusion, this tool not only provides a practical solution for noise management but also enriches technology-based learning, thus supporting the creation of a more optimal and interactive learning environment.

Keywords: IoT, Noise Level Detector, STEM, Learning Media

Topic: Educational Studies

[ABS-97]

STEM Learning: Innovative Strategies to Strengthen Prospective Teachers Science and Mathematics Concepts

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Abstract

Understanding the concepts of science and mathematics is a core competency that prospective elementary school teachers must have to teach integrated and relevant learning to the challenges of the 21st century. This study aims to analyze the influence of the STEM (Science, Technology, Engineering, and Mathematics) approach on the understanding of science and mathematics concepts of students of the basic education study program. This study uses a quasi-experimental quantitative design with a pretest-posttest one group design. The sample consisted of 50 students of the basic education study program at the University of Muhammadiyah Magelang who were selected in total sampling. The research instrument is in the form of a test of understanding science and mathematics concepts. The results of the paired t-test analysis showed a significant increase in students' understanding of science and mathematics concepts after STEM-based learning ($p < 0.05$). These findings show that STEM approaches are effective in strengthening students' understanding of basic concepts, as well as encouraging integrated learning. This study recommends the implementation of STEM approaches in science and mathematics learning in teacher education.

Keywords: STEM Approaches, Understanding Science Concepts, Understanding Mathematics Concepts, Elementary Teacher Education, Science Education

Topic: Educational Studies

[ABS-316]

Marketing Management of Islamic Boarding Schools Based on Information and Communication Technology at Pesantren Baitul Arqom Polinggona Kolaka

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Abstract

This research aims to describe and analyze the ICT-Based marketing management of the Islamic Boarding school Baitul Arqom Polinggona Kolaka. Data were obtained through observation, interviews and documentation, as well as using Miles & Huberman model data analysis techniques (data collection, data reduction, data presentation, and drawing conclusions). The results of this study indicate that: 1) ICT-based educational services are services aimed at the community and guardians customers using online media (website, facebook and whatsapp) and print media (brochures). Overall, the services provided have met the dimensions of excellent service, namely: reliability, responsiveness, assurance, empathy, and tangible. 2) The marketing strategy of the Islamic boarding school Baitul Arqom Polinggona Kolaka consists of several steps, namely: Market Identification, Market Segmentation, Differentiation/Positioning, Marketing Communications and Services for Educational Institutions. Practically, marketing is done with a promotion strategy consisting of advertising (print and digital advertising), personal selling, building aliences/coalition and Word of Mouth (WOM). 3) the marketing management of the At-Tarbiyah Kolaka Islamic boarding school has been carried out properly and systematically starting from analysis, then planning, organizing, implementing, and ending with evaluation.

Keywords: Management, Islamic Boarding School Marketing, Information and Communication Technology

Topic: Educational Studies

[ABS-343]

Needs Analysis of Virtual Reality-Based Learning Media Development in Welding Learning

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Abstract

This research aims to analyze the need to develop virtual reality-based learning media in welding learning. The needs analysis is carried out based on the initial stages in the ADDIE development model, namely analysis. This analysis was conducted to determine media use during the welding learning process. The instrument used in the research is a questionnaire or questionnaire with quantitative data type and is a closed questionnaire. The distribution of this questionnaire uses a Google form in the form of a link filled in online. The results of the needs analysis of 4 lecturers and welding practitioners and 51 students in Surakarta. The results showed that 100% of lecturers and practitioners stated that virtual reality-based learning media was interesting. The results of the analysis on students showed 95% of students stated that virtual reality-based learning media in welding learning was interesting, and 91.4% of students stated that they needed to use virtual reality-based learning in welding learning.

Keywords: Needs Analysis, Learning Media, Virtual Reality, Digital Learning, ADDIE

Topic: Educational Studies

[ABS-306]
Mathematics in Kindergarten

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Abstract

This research examines further the importance of learning mathematics in Kindergarten (TK), identifying effective methods and basic mathematical concepts taught, the challenges faced, and the role of parents in children's mathematics learning. The approach used in this research is a literature review, based on a review of previous research results that are relevant to the theory and practice of mathematics learning in kindergarten. The results of the study show that mathematics is one of the basic foundations in the formation of children's cognitive abilities, especially those related to understanding patterns, shapes and sizes, the concept of numbers, and children's logical thinking abilities. The basic mathematical concepts taught in kindergarten have been arranged and adapted to the child's abilities and developmental stages according to their age, including material about numbers, geometry, patterns, measurement, and data analysis. Learning methods using varied visual aids, play-based approaches, and a variety of games that encourage children's exploration and active interaction are effective alternative learning methods for children. Mathematics learning up to now has had big challenges due to limited learning time, teacher abilities, and children's initial perceptions about mathematics which are still abstract. In practice, creating a supportive environment and involving children in daily activities that contain mathematical elements requires collaboration and active participation from parents. This confirms that the synergy of teachers and parents determines the success of mathematics learning in early childhood.

Keywords: Mathematics Learning, Kindergarten, Basic Mathematics Methods and concepts, Role of Parents

Topic: Educational Studies

[ABS-334]
Indonesian Students' Autonomous Learning Activities to Support English Mastery in the Era of Merdeka Belajar

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Abstract

Learner autonomy has received greater attention in Indonesian educational system after the concept of Merdeka Belajar or the freedom of learning is introduced in 2020 by the Ministry of Education and Culture of Indonesia. In the past, Indonesian society believes that the higher of the educational level of the learners, the more responsible they will be in pursuing knowledge. This is described by the beliefs that elementary school teachers are required to transfer 100% knowledge to students and the percentage of knowledge transfer will decrease gradually as students enter a higher level of education, about 75% in senior high school and 50% in junior high schools. At university level, the lecturer will require the students to work more in discovering the knowledge as the knowledge transfer will only done for about 25%. Combining the philosophy of Merdeka Belajar and this local belief, the writer is interested to reveal university students' autonomous activities in learning English outside of the classrooms. The data were taken from the self-report written by Pekalongan University students. The findings reveal students' various autonomous

learning activities in which listening to English songs and watching English movies become the most frequently performed activities to improve their mastery of English.

Keywords: Autonomous Learning, Learner Autonomy, Merdeka Belajar, Learning Activities

Topic: Educational Studies

[ABS-310]
Clustering Pre-Service Teachers' Performance During Teaching Internships Using K-Means Algorithm: Insights for Professional Development

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Abstract

The ability to assess and support pre-service teachers during teaching internships is essential for fostering their professional development. This research aims to analyze the clustering of pre-service teachers based on their performance during teaching internships in schools, providing insights into performance patterns that can guide tailored interventions. The data used for clustering includes scores from preparatory activities, self-assessment, peer assessment, evaluation of teaching materials by supervising lecturers, assessments by mentor teachers, and evaluation of lesson plans by supervising lecturers. A total of 109 pre-service teachers participated in this study. The clustering process utilized the K-Means algorithm, with the elbow method determining the optimal number of clusters. Clustering evaluation was conducted using silhouette scores and the Davies-Bouldin index, yielding four clusters with a silhouette score of 0.46 and a Davies-Bouldin index of 1.92. Cluster 1 consists of individuals with moderate performance across all metrics, demonstrating stable and consistent results in both self-assessment and peer evaluations. Cluster 2 includes individuals with high scores across all metrics, reflecting high confidence and recognition from peers. Cluster 3 comprises individuals with low performance in pre/post and peer scores, despite relatively high self-assessment scores, indicating a gap between self-perception and peer recognition. Cluster 4 is characterized by individuals with high scores across all metrics, similar to Cluster 2. These findings provide a deeper understanding of performance variations among pre-service teachers and underscore the importance of tailored strategies to address individual needs. This study contributes to educational research by showcasing the application of clustering techniques in evaluating teaching internship outcomes and offering a framework to enhance pre-service teacher training programs.

Keywords: Clustering, K-Means, Educational Data Mining, Teaching Internship

Topic: Educational Studies

[ABS-89]

Enhancing Career Readiness Through Webinar-Based Interventions: Bridging Academic Learning and Workforce Demands

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Abstract

Higher education institutions are emphasizing career preparedness in preparing students for the growing workforce. This community activity assesses a webinar for Digital Business students, improving competencies such as resume development, interview strategies, and career alignment. Positive feedback underscores the significance of community service in connecting academic knowledge with practical applications, enhancing employability. This study assesses the efficacy of a webinar intervention in improving career set for fifth-semester Digital Business students, emphasizing confidence, preparedness, topic relevance, and application. This study employed a descriptive qualitative methodology to evaluate a career planning webinar for fifth-semester Digital Business students, concentrating on resume development, interview techniques, and career objectives. Feedback forms, reflections, and observations were assessed to evaluate participation and comprehension. The webinar markedly improved the career preparedness of fifth semester Digital Business students, augmenting their confidence in resume development, interview skills, and goal alignment. Participants enjoyed the participatory format, practical examples, and actionable insights, linking theory with practice. Feedback highlighted its significance and recommended incorporating skill-based efforts into academic curricula for workforce readiness. This study emphasizes the significance of webinars in augmenting academic curriculum to improve vocational preparedness. Resume development, interview preparation, and goal alignment connect theoretical concepts with workplace requirements. Institutions should incorporate relevant programs and business partnerships to enhance understanding, improve employability, and synchronize education with the changing demands of the workforce.

Keywords: Career Readiness, Career Planning, Resume Building, Interview Preparation, Career Goal Alignment

Topic: Educational Studies

[ABS-98]

Digital Transformation of HOTS Assessment in Elementary School Science Learning: Technological Challenges, Human Resource Readiness, and Contribution to SDG's Achievement

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Abstract

Digitalization of High Order Thinking Skills-based assessments plays a strategic role in supporting science learning in elementary schools, in line with the achievement of the Sustainable Development Goal for quality education. This study aims to identify the main challenges related to technology and human resource readiness in implementing HOTS-based assessment digitalization, as well as to offer strategic solutions to

support the sustainability of the program. The research method uses a mixed approach (qualitative and quantitative) through interviews with principals, teachers, and students. The results of the study indicate that technological challenges include limited infrastructure, internet access, and lack of standardized digital media. Meanwhile, low digital literacy of teachers and minimal pedagogical training are the main obstacles from the human resource side. On the other hand, digitalization of HOTS-based assessments has been shown to increase student motivation in science learning, with the potential for wider application through continuous training and infrastructure development. This study recommends the development of cloud-based assessment tools and offline modules for schools with technological limitations, hybrid training for teachers, and integration of national policies that support HOTS-based assessment digitalization. With this step, it is expected that the digitalization of HOTS-based assessments can encourage the development of 21st century skills and achieve inclusive and sustainable implementation.

Keywords: Digitalization, HOTS Assessment, Science, Elementary School, SDG's

Topic: Educational Studies

[ABS-108]
Improving Critical Thinking Skills in Learning Temperature and Its Changes with the Problem Based Learning with Argumentation Model

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Abstract

Critical thinking skills are skills needed in the 21st century. Because critical thinking skills are the basis of 21st century life skills. Therefore, critical thinking skills must always be trained to students. One of the learning models that can train critical thinking skills optimally is the Problem Based Learning with Argumentation (PBLA) Model. This PBLA model is the result of the development of the Problem Based Learning (PBL) model. Through a weak experimental research design, this PBLA model has been tested for its feasibility including validity, practicality, and effectiveness, but has not been compared with existing models, so it is not yet known which model is more effective, the PBLA model or the conventional model. This study aims to determine the effectiveness of the Problem Based Learning with Argumentation (PBLA) model in improving students' critical thinking skills on temperature material and its changes. This study is a quasi-experimental research with a pretest-posttest control group design in one of the junior high schools in Wates Kulon Progo, Yogyakarta for the 2022/2023 academic year with one class as an experimental class using the PBLA model and the other class using the discovery learning model. The results showed that the average calculation of the gain score of critical thinking skills in the experimental class was higher by 0.62 than that of the control class of 0.48. The results of this study are useful in the field of education, where the PBLA model can be used as a learning model to improve students' critical thinking skills, with the advantage of accelerating students' critical thinking skills.

Keywords: Critical Thinking Skills, PBLA, Temperature and Its Changes, Junior High School

Topic: Educational Studies

[ABS-368]
Learning from Real Problem: How the Students Develop Their Mathematical Communication Skills

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Abstract
In learning mathematics, real problems become one of the means for students to connect mathematics with everyday life, while developing strong and structured communication skills. One way to help develop math communication can be through a problem-based learning approach. This study focuses on the problem-based learning (PBL) model in mathematics education and its impact on students. The research involved 36 students from an Indonesian high school. Data collection methods included observation sheets and test questions. The study found that PBL in mathematics learning involves several stages: directing students to solve linear program problems, organizing student learning, facilitating individual and group investigations, developing and presenting student work, and analyzing and evaluating the problem-solving process. The research highlights that problem-based learning helps students connect mathematics with real-life situations and fosters the development of strong communication skills. The study provides valuable insights into the effectiveness of problem-based learning in mathematics education. The positive impact can be seen from 86.11% of students who were able to fulfill most of the indicators of mathematical communication skills, such as explaining or asking questions related to the mathematical model or graph/table given. However, some aspects that need to be improved include the ability to identify variables correctly, accuracy in modeling mathematical situations in the form of pictures, tables, or graphs, and determining the area of the solution set. These shortcomings are allegedly derived from the students' lack of habit in applying mathematical skills to solve problems. Overall, problem-based learning proved to be effective in helping the development of students' mathematical communication skills.

Keywords: Problem Based Learning, Mathematical Communication Skills, Linear Program

Topic: Educational Studies

[ABS-366]
Speaking English with Confidence: Tailored Needs for Pharmacy Students

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Abstract
Speaking skills are essential for pharmacy students to communicate effectively in both academic and professional contexts. This study aims to analyze the specific needs of pharmacy students in developing English speaking skills and their preferences for integrating technology into the learning process. The research involved students from SMK Muhammadiyah Bandongan and SMK Bumantara, utilizing a questionnaire to gather data on their objectives for learning English, the importance of speaking skills, and the role of technology in enhancing their abilities. The findings reveal that speaking skills are a primary concern for students, as they associate these skills with achieving career success and excelling in higher education. Many students expressed the need for practical and interactive learning methods, emphasizing

the importance of technology to support speaking practice. The results suggest that integrating suitable technological solutions can increase engagement, improve motivation, and address challenges faced by students in learning English. By tailoring the curriculum to these identified needs, vocational schools can better prepare pharmacy students for future professional demands

Keywords: English Speaking Skills, Pharmacy Students, Vocational Education, Technology Integration, Interactive Learning

Topic: Educational Studies

[ABS-101]
Problem-Based Learning vs. Role-Playing: Which Model Better Promotes Student Collaboration?

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Abstract

Problem-Based Learning (PBL) and Role-Playing are instructional models that facilitate students in constructing critical thinking skills relevant to daily life while fostering interaction among peers, embedding collaborative values. This study aims to examine the influence of PBL and Role-Playing models on student collaboration in primary schools. The research adopts a quantitative approach using a quasi-experimental design. The participants were divided into three groups: two experimental groups, each receiving instruction through PBL and Role-Playing models, and a control group that was not exposed to either model. The findings reveal a significant difference in the impact of PBL and Role-Playing on students' collaboration skills. Additionally, the results indicate that PBL outperforms Role-Playing, as evidenced by the higher average scores obtained by students taught using the PBL model.

Keywords: Problem-Based Learning (PBL), Role-Playing, Student Collaboration

Topic: Educational Studies

[ABS-372]
Education Based on Local Wisdom: An Alternative Model for the Integration in the School Curriculum in Indonesia

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Abstract

Amidst the rapid currents of globalization, preserving cultural identity poses a significant challenge to the education system in Indonesia. This research aims to develop a model for integrating cultural values into the school curriculum in Indonesia as an alternative approach to strengthening cultural identity amidst the challenges of globalization. The research method involves analysing national policies, developing culture-based curricula, providing teacher training, and collaborating with local communities. Data collection was conducted through document reviews, observations, and interviews with various stakeholders, including teachers, school principals, and cultural figures. The research findings demonstrate that integrating cultural values into education positively contributes to students' understanding of cultural diversity, enhances their engagement in learning, and strengthens their character and cultural identity. The research highlights various strategies, including policy dissemination, culture-based curriculum development, extracurricular

activities, collaboration with local communities, multicultural approaches, culture-based project learning, and teacher training and mentoring. It also emphasizes cultural preservation efforts through documentation and development. The proposed SINERGI model summarizes practical steps for integrating culture into education, ranging from school-community collaboration to exploring and preserving local wisdom. The proposed integration measurement methods include classroom observation, assessment of student work and attitudes, and statistical data analysis with comprehensive indicators, both qualitative and quantitative. This research aims to provide an effective framework for integrating cultural values to cultivate a generation rooted in culture and prepared to face the global world.

Keywords: Local wisdom, cultural integration, school curriculum, national identity

Topic: Educational Studies

[ABS-112]
Development of Question Instruments to Improve Student's literacy-numeracy Skills

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Abstract

This study aims to develop valid and reliable question instruments for math games designed to improve students' literacy-numeracy skills. This study is a type of development research using the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation. The subjects of the study were SIKC Poliban students in semester 1. The validity test was carried out with content and construct validity, while the reliability test was with Cronbach's Alpha. Content validity is proven through the assessment of two experts who measure with the Aiken formula, while construct validity is proven by the factor analysis method, namely Exploratory Factor Analysis (EFA). The results of this study are a set of arithmetic questions used in math games. There are 160 questions divided into four game stages, each with four levels. This instrument meets content validity where the question items have the lowest V Aiken score of 0.76 and the highest 0.85. For construct validity, the KMO-MSA value is 0.791 with Bartlett's significance value of 0.000, so it can be concluded that this research instrument is valid. For the Reliability Test, Cronbach's Alpha value is 0.8, so it can be considered reliable.

Keywords: Question Instrument, Literacy, Numeracy, Students

Topic: Educational Studies

[ABS-156]
Development of Islamic Religious Education Concepts in Creating an Excellent and Islamic Generation (A Study on PAI Students at Universitas Muhammadiyah Magelang

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Abstract

This research stems from the vision and mission of the Islamic Religious Education (PAI) Study Program at Universitas Muhammadiyah Magelang, which aims to produce future educators in Islamic studies with outstanding teaching competencies and Islamic character, in alignment with the demands of the digital era.

This study has three main objectives: (1) to analyze strategies in Islamic Religious Education for fostering students with excellence in knowledge, encompassing personal, pedagogical, professional, and social competencies in the digital era- (2) to examine the implementation of Islamic Religious Education in shaping students' Islamic character and behavior- and (3) to develop a conceptual framework for advancing Islamic Religious Education to produce superior and Islamic-oriented graduates within the PAI study program at Universitas Muhammadiyah Magelang. This research adopts a qualitative approach, conducted within the Islamic Religious Education Study Program at Universitas Muhammadiyah Magelang. The subjects include leaders, lecturers, and students of the PAI program. Sampling was carried out using purposive sampling, selecting informants based on their knowledge and relevance to the research issues. Data collection methods included observation, interviews, and documentation, which were then processed through a qualitative analysis involving four stages: data collection, data condensation, data presentation, and conclusion drawing/verification. Credibility was ensured through triangulation of sources, methods, and theories. The research findings indicate: (1) The strategies of the PAI Study Program to develop excellent students are implemented through curricular, co-curricular, and extracurricular activities. Curricular activities include integrating materials into General Compulsory Courses (MKWU), such as Creed and Morality in Al-Islam and Muhammadiyah Studies (AIK 1), Fiqh and Muamalah in AIK 2, Muhammadiyah Organizational Studies in AIK 3, and Information Technology in the Computer Application course. Co-curricular activities encompass student pesantren programs, Quranic literacy (BTQ), English language training, and computer skills courses. Extracurricular activities are facilitated by optimizing student leadership organizations, such as the Islamic Education Student Association (HMJ PAI). (2) The implementation of Islamic Religious Education faces several challenges, including students' low learning motivation, teaching approaches that are predominantly dogmatic and textual, the dominance of lecture methods, course content that is not fully aligned with students' needs and abilities, a campus environment lacking a culture of excellence and achievement, and an evaluation system focusing solely on cognitive aspects without concrete follow-up. (3) The development of Islamic Religious Education is oriented towards more dialogical and humanistic approaches, prioritizing sharing and caring, student-centered learning processes, case study methods, soft skills-based approaches, and the promotion of social and humanitarian activities. The course materials emphasize aspects of creed, worship, morality, Islamic law, and contemporary Islamic issues, supported by a comprehensive evaluation system.

Keywords: Competence, Islamic Religious Education, Excellence, Islamic, Digital Era

Topic: Educational Studies

[ABS-370]

The Lauh Method in Memorizing the Qur'an at the Kuttab Educational Institution in Morocco

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Abstract

Morocco is known as the land of Qur'an memorizers. UNESCO has recognized the Kingdom of Morocco as the world's leading country in terms of the number of Qur'an memorizers. In discussions among communities in the Middle East and North Africa, the term has become widely known 'The Qur'an was revealed in the land of Hijaz, printed and reproduced in Iraq, recited in Egypt, and preserved and memorized in Morocco'. The Qur'an is studied and memorized in Morocco through an educational institution called Kuttab. Most mosques across Morocco either have or establish a Kuttab integrated within the mosque or housed in a separate building. Kuttab serves as the first educational institution attended by the majority of Moroccan children in their early education, focusing specifically on teaching the Qur'an and providing religious studies as supplementary material. The Lauh Method is the approach used by this institution for teaching and memorizing the Qur'an, passed down through generations and still preserved

to this day. The aim of this research is to understand how this method is implemented in Kuttab Morocco for Qur'an memorization. This research uses a qualitative descriptive research method, with data collection techniques including observation, interviews, and documentation study.

Keywords: Lauh Method, Memorizing the Qur'an, Kuttab Morocco

Topic: Educational Studies

[ABS-371]
Students' Creative Thinking Process in Solving Integer and Fraction Operation Problems

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Abstract
This study aims to describe students' creative thinking processes in solving integer and fractional operations in terms of field-dependent and field-independent cognitive styles. The results of this study can be taken into consideration by the teacher to determine the creative thinking process of students so that teachers better recognize and pay attention to the creative thinking processes of their students when solving math problems because it can be used as an evaluation of student learning outcomes. This research is a qualitative descriptive study. The research subjects were two students, each from the field-dependent cognitive style and the field-independent cognitive style, and based on the recommendation of the thesis supervisor. The data was collected using the test and interview methods, while the instruments used were the GEFT test, creative thinking process test questions, and interview questions. The validity of the data was tested by using the triangulation technique. The results showed that the research subjects could be categorized at the level of students' creative thinking, namely the subjects with the field-independent category were both at level 3, meaning that the subjects were able to demonstrate fluency and flexibility in solving problems. The two field-dependent subjects are at different levels- the first subject is at level 3, meaning that the subject is able to demonstrate fluency and flexibility in solving problems. While the second subject is at level 0, which means the subject is not able to show fluency, flexibility, and novelty.

Keywords: Creative Thinking Process, Field Dependent and Field Independent Cognitive Style

Topic: Educational Studies

[ABS-129]
Gitmind-Based Mind Mapp Strategy Career Guidance For Improving Students' Career Planning

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Abstract
This study was conducted with the aim of determining the influence of career guidance with gitmind-based mindmapp strategies for improving career planning for Al Iman Junior High School students in Magelang City. The population in this study is 9th grade students of Al Iman Junior High School, Magelang City, which is 8 students. The research design uses pre-experimental: one group pretest-posttest design with purposife sampling technique. The data analysis technique used is the Paired sample t-Test with the

consideration that in this study one independent variable (Independent Variable) is used. The result of the influence test of this study is that there is an increase in career planning through career guidance with a gitmind-based mindmapp strategy. The level of career planning of students has increased after following career guidance with gitmind-based mindmapp strategies. This is seen from the increase in the results of the career planning scale before and after being given career guidance services by 23% and strengthened through an influence test using a t-test that shows -t count (-4,743) < -t table (-2,365) or Sig data (0.002) < 0.05.

Keywords: Career Planning, Career Guidance, Gitmind Techniques

Topic: Educational Studies

[ABS-379]
Dataset Measuring Organizational Culture, Motivation, and Interpersonal Communication Based on the Multicultural Teacher Performance

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Abstract

The data presented an examination of the multicultural teacher performance in Indonesia based on organizational culture, motivation, and interpersonal communication. The total number of participants was 150 multicultural teachers in Indonesia. A sample of participants from six school levels that were four multicultural elementary schools, one multicultural junior high school, and one multicultural high school. By documenting data information, the data article reveals the demographic characteristics of the participants, the reliability, and correlation of the actions involved. Data analysis can provide insight into the determining factors and predict the behavior of Islamic ethical work. Furthermore, the data will be useful for researchers and policymakers who are interested to know the organizational culture, motivation, interpersonal communication in today's multicultural schools in Indonesia. It can also be used as a reference to develop interventions, promoting, and facilitating performance in multicultural workplaces.

Keywords: Culture, Motivation, Interpersonal Communication, Multicultural Teacher Performance

Topic: Educational Studies

[ABS-140]
Exploration of Shadow Teacher and Core Teacher Collaboration in the Learning Process at Inclusive Elementary Schools in Surakarta

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Abstract

Collaboration between shadow teachers and core teachers in inclusive primary schools is important to support the learning of students with special needs, but often faces challenges such as coordination and division of roles. This study aims to explore the patterns of cooperation and challenges in collaboration between shadow teachers and core teachers in implementing learning in inclusive schools at SD Al Firdaus, Surakarta. This study used a qualitative approach with the subjects of mentor teachers, core teachers, and school principals. Data were collected through observation and interviews, then validated by triangulation. The results show that collaboration is effective through regular communication, clear division of tasks, and

differentiated teaching, although there are still obstacles such as lack of training and coordination time. The research highlights the importance of institutional support, improved training for shadow teachers and core teachers, and strengthened inclusive education policies. The implications of this research are relevant in the fields of inclusive education, educational psychology and curriculum development, with contributions to educational practice and related policies.

Keywords: Collaboration, Core Teacher, Inclusive Education, Learning for Students with Special Needs, Shadow Teacher

Topic: Educational Studies

[ABS-148]
Exploration of the Challenges of Children with Special Needs in the Learning Process at an Inclusive Elementary School in Surakarta

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Abstract

Inclusive primary schools are educational efforts that focus on integrating children with various special needs into the general education system. However, the learning process for children with special needs often faces challenges that affect the effectiveness of their learning. This study aims to explore the challenges faced by children with special needs in inclusive learning at Bromantakan Public Elementary School in Surakarta. This study used a qualitative approach with the subjects of children with special needs, core teachers and school principals. Data were collected through observation and interviews, then validated by triangulation. This research has implications for the fields of inclusive education and educational psychology, with the need to improve teacher training, adaptive learning strategies and peer involvement in supporting children with disabilities. The research highlights the importance of institutional support, improved training for shadow teachers and core teachers, and strengthened inclusive education policies. The implications of this research are relevant in the fields of inclusive education, educational psychology and curriculum development, with contributions to educational practice and related policies.

Keywords: Children with Special Needs, Inclusive Education, Learning Challenges, Learning Strategies

Topic: Educational Studies

[ABS-145]
Tawassul and Tabarruk Traditions at Aulia' Gunungpring Grave, Muntilan, Magelang from the Perspective of Islamic Education

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Abstract

This research aims to understand and analyze the Tawassul and Tabarruk Traditions at the Aulia Gunungpring Grave. Aulia Gunungpring Tomb is a burial complex located in the Gunungpring area, Muntilan, Magelang. One of the most famous figures is Kyai Raden Santri who was the older brother of Sultan Agung. Kyai Raden Santri is one of the Islamic preachers on the island of Java, especially the Kedu residency area. He contributed a lot to the spread of Islam on the island of Java. Because of his services, he

was buried on the Gunungpring hill. The tomb is often visited by pilgrims from various regions. On average, pilgrims come to perform tawassul and tabarruk. Tawassul is a prayer request to Allah through an intermediary by mentioning the names of prophets, friends, saints and pious people in the hope that the prayers offered will be answered. Meanwhile Tabarruk is the hope of blessings from these pious people. This research uses a qualitative approach with an inductive method, namely analyzing data from field research results by drawing specific data and then drawing more general conclusions. This research concludes that the Tawassul and Tabarruk traditions of pilgrimage have several values in Islamic education. Namely: (1) Faith Values, (2) Exemplary Values, (3) Moral Values and (4) Worship Values.

Keywords: Values, Tawassul, Tabarruk, Tradition, Education

Topic: Educational Studies

[ABS-152]

Unlocking Digital Language Assessment Literacy: Vocational School English Teachers' Perspectives

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Abstract

The integration of technology in education has expanded considerably, enabling practitioners in vocational education to utilize digital resources effectively. The primary objective of this research is to ascertain the extent of digital assessment literacy among English language teachers in a vocational high school, investigate the factors that may influence its development, and formulate recommendations for its enhancement. The researcher conducted semi-structured interviews, observations, and document analysis to explore digital literacy skills of the English teachers, based on Hague and Payton's framework. The study reveals that the English teachers have limited digital assessment literacy, primarily relying on traditional paper-based methods. Barriers include inadequate infrastructure and digital skills. Enhancing digital literacy among teachers could significantly improve assessment practices and student outcomes. The study emphasizes the need for enhanced teacher training in digital literacy, guiding curriculum development and policy formulation to improve vocational education's alignment with industry demands, thereby boosting student readiness for the workforce and enhancing educational outcomes.

Keywords: Digital Literacy, Vocational Education, Language Assessment Literacy

Topic: Educational Studies

[ABS-188]

The Effectiveness of Differentiated Learning Assisted by Video Feedback Technology on Students Football Playing Skills

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Abstract

Each student has different characteristics and abilities, so teachers need to be able to meet learning needs according to the level of ability of each student. This study aims to determine the effectiveness of

differentiated learning assisted by video feedback technology on students soccer playing skills in high schools. This study used an experimental method with a 2 x 3 factorial design. The research sample consisted of 84 students selected using a purposive sampling technique. The instrument used to measure soccer skills was the Games Performance Assessment Instrument (GPAI). Data were analyzed using a two-way Analysis of Variance (ANOVA). The results of the study provide an overview of the effect of differentiated learning assisted by video feedback technology on improving students soccer skills, as well as whether students initial ability levels affect the effectiveness of the treatment given. This study will reveal whether differentiated learning using video feedback technology is more effective than conventional learning, and how students ability levels interact with the treatment given. Recommendations for the development of differentiated learning in Physical Education, especially in improving sports skills by utilizing technology, and provide insight into the importance of considering students ability levels in designing effective learning.

Keywords: Differentiated Learning, Video Feedback Technology, Soccer Skills, Physical Education

Topic: Educational Studies

[ABS-199]
Class Agreements and Class Beliefs as Implementation of Positive Discipline in Elementary Schools

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Abstract

This study aims to describe the implementation of positive discipline through class beliefs and class agreements in elementary schools. This study is qualitative research with data collection in the form of interviews, observations, and documentation. The data sources for this study are the Principal and teachers elementary school whose members of the Program Sekolah Penggerak Batch 3 Magelang City. Data analysis in this study includes data reduction, data presentation, and conclusion. The results of the study indicate that the implementation of positive discipline through class beliefs and agreements in elementary schools has proven effective in conditioning students during class, both in terms of learning discipline and in terms of other disciplines in class. The implementation of positive discipline through class agreements raises students self-awareness to comply with what has been agreed upon in class. This is because class agreements also function as a result of class beliefs.

Keywords: Class Agreements, Class Beliefs, Positive Discipline, Elementary Schools

Topic: Educational Studies

[ABS-198]
Takhrij and Hadith Commentary the Rise of Knowledge: Challenges and Opportunities for Islamic Education

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Abstract

This research aims to analyze the hadith of the rise of science. The research uses a qualitative approach through the takhrij method. By using the takhrij hadith method, several things related to the hadith will be

analyzed. Among them is to know the hadith matan complete with its sanad and to know the main source (book) where the hadith comes from. Apart from that, to find out the narrator (rowi) of the hadith and their level of authority (ta'dil). And the last thing is to find out the quality of the hadith, whether it is a maqbul hadith or a mardud hadith. This research is library research. By using primary book sources Mukhtashor Ibn Abi Jamroh Lil Bukhari writen by Muhammad Bin Ali Asy-Syafi'i Asy-Syinwani. The data collection technique in this research uses the document study method by combining the Takhrij Bil-Ma'na method. The results of this research are : 1). The hadith about the withdrawal of knowledge in Abi Jamroh's book is found in the book of Shohih al-Bukhori number 98 in the book of Science, Chapter How Knowledge is Taken Away. 2). This hadith continues its transmission to the Prophet Muhammad saw (ittishal sanad), the narrators (rowi) are fair ('adil) people, In terms of the power of memorization (dlobit), most of the narrators (rowi) in this hadith received positive comments. 3). In the Matan analysis, this hadith meets the criteria for the validity of the matan. 4). The quality of this hadith is maqbul, with the title shohih lighoyrihi.

Keywords: Takhrij Hadith, The Rise of Knowledge, Islamic Education

Topic: Educational Studies

[ABS-232]
Digital Library Innovation and Challenges in Supporting Sustainable Development through Digital Transformation

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Abstract

Integrating digital libraries into the broader digital transformation framework is not just crucial, but also holds immense potential for advancing sustainable development. Digital libraries play a pivotal role in ensuring equitable access to knowledge, directly supporting several Sustainable Development Goals (SDGs). However, the innovation process in digital libraries faces various challenges, including technological adaptation, resource management, and inclusivity. This study aims to explore the innovations within digital libraries and identify the challenges they face in contributing to sustainable development through digital transformation. The research employs a qualitative approach, gathering data from case studies of digital library initiatives that align with sustainable development goals. Interviews with library professionals and analysis of institutional reports form the core of the data collection process. Findings reveal that while digital libraries innovate in open access, digitization, and user engagement, significant challenges remain in infrastructure development, digital literacy, and financial constraints. Primary Finding: The study highlights the importance of addressing these challenges to maximize the impact of digital libraries on sustainable development, particularly in education, economic growth, and reducing inequalities. Strengthening collaborations, enhancing technological infrastructure, and increasing investments are essential for digital libraries to contribute to the SDGs effectively.

Keywords: Digital Library, Digital Transformation, Sustainable Development, Innovation, Challenges, SDGs

Topic: Educational Studies

[ABS-222]

Comic Strip Projects for Enhancing Students' Writing Ability: An Integration of Multiple Intelligence Theory in ELT

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Abstract

This study explores the implementation of comic strip projects as an integration of MIT. It aimed at enhancing students writing ability focused on recount text. It was conducted in SMPN 1 Sawangan, Magelang Regency, Indonesia and involved 28 students with kinaesthetic, interpersonal, and visual-spatial were the dominant intelligences. They made comic strips through project-based activities which engaged them in brainstorming, drafting, peer-reviewing, and finalizing steps. The data were obtained through observation and test in the form of project. It employed observation checklist, project instruction, and rubrics as the instruments which have been validated. The data were analysed statistically using Wilcoxon. The findings revealed significant improvements in students' writing skills, particularly in organizing ideas, using past tense verbs correctly, and applying appropriate sequencing. Besides, the visual element of comic strips helped students with visual spatial intelligence better understand how to organize and present their recounts, as they were able to plot events sequentially using images and dialogue, reinforcing the text's chronological flow. Students with interpersonal intelligence collaborated effectively during group discussions and peer reviews. Those with kinaesthetic intelligence were involved in the hands-on activities of drawing, arranging, and physically manipulating elements of their comic strips. The study concludes that using comic strip in Project Based Learning effects students' ability in writing recount texts. Recommendations for educators include incorporating comic strips and other real-life projects to address multiple intelligences to maximize learning outcomes.

Keywords: Comic Strips, Multiple Intelligence, Recount Text, Writing

Topic: Educational Studies

[ABS-386]

Leveraging Interactive E-Learning Platforms to Enhance Problem-Solving Competencies in Science Learning: A Pathway to Achieving SDG 4 for Quality Education

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Abstract

The global education system, especially in Indonesia, needs help to enhance students' problem-solving skills, a key aspect of SDG 4: Quality Education. Traditional teaching methods have proven inadequate in developing students' problem-solving in complex science topics like the circulatory system, highlighting

the need for more effective, innovative solutions. This study aimed to analyze the effectiveness of STEAM-based e-modules in enhancing problem-solving skills among fifth-grade students and to assess the contribution of STEAM-based e-modules to achieving the Sustainable Development Goals (SDGs) within the context of primary education. This research employed an experimental design, specifically a True Experimental design with a Pretest-Posttest Control Group Design. The experimental group used STEAM-based e-modules installed on their devices as learning materials, while the control group used printed textbooks. One hundred two fifth-grade students participated, and the study was conducted at Supriyadi Elementary School in Semarang. The results indicated that students who used the STEAM-based e-modules showed significant improvement in all problem-solving indicators, with an overall increase of 0.68, which falls within the 'medium' range but approaching a 'high' criterion. In contrast, students who used printed textbooks also showed improvement, but their increase was only 0.28, which falls within the 'low' range. Using STEAM-based e-modules significantly contributes to achieving Sustainable Development Goal 4 by enhancing students' problem-solving skills and providing an inclusive and equitable approach to quality education in primary schools. In conclusion, using STEAM-based e-modules supported sustainable learning by enhancing students' problem-solving abilities and contributing to quality education in primary schools.

Keywords: E-modules, Primary education, Problem-solving, SDG 4, STEAM

Topic: Educational Studies

[ABS-206]

Analysis of the Use of the Hypnoteaching Method in Mathematics Learning for Elementary School Students

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Abstract

This study explores the application of the hypnoteaching learning method in mathematics instruction for students at SD Negeri 1 Sukamulya. The main research question is: How do elementary school students learn mathematics using the hypnoteaching method? To address this, a qualitative research approach with descriptive methods was employed. Data collection techniques included observation, interviews, and documentation. The data were then analyzed using qualitative descriptive analysis techniques. The findings revealed that the hypnoteaching method was implemented by the fourth-grade homeroom teacher during mathematics lessons. The study concluded that this method significantly enhances teacher-student interactions, making learning more engaging. Traditionally perceived as challenging, mathematics became more approachable for students, resulting in a shift in their attitudes toward the subject. Teachers were no longer seen as unapproachable or boring, and students felt more comfortable asking questions, fostering a more harmonious teacher-student relationship. Moreover, students displayed increased enthusiasm and motivation in learning mathematics. The positive affirmations and encouragement provided by teachers inspired students to work harder, boosted their curiosity, and improved their confidence. This method also encouraged students to participate actively in various positive activities during classroom learning, contributing to their overall personal development.

Keywords: Hypnoteaching Method, Mathematics Learning

Topic: Educational Studies

[ABS-387]

Improving the Competency of Tahfidz Al Qur'An at PPTQ Ahmad Dahlan Ponorogo Through the Implementation of Student Management

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Abstract

The development of tahfidz al-Qur'an Islamic boarding schools is growing and even many public schools/madrasas are also implementing the tahfidz al-Qur'an program. On the other hand, tahfidz al-Qur'an is starting to be used as a jargon of excellence. but many are unsuccessful due to various factors. PPTQ Ahmad Dahlan Ponorogo is one of the tahfidz al-Qur'an Islamic boarding schools which is capable of producing quality graduates with good tahfidz al-Qur'an competencies. This research is qualitative research with a case study approach to managing students at PPTQ Ahmad Dahlan Ponorogo in an effort to improve the competency of tahfidz al-Qur'an. Data collection through in-depth interviews, participant observation and documentation, researchers explored student management data at PPTQ Ahmad Dahlan Ponorogo in an effort to increase the competence of tahfidz al-Qur'an students and used triangulation as a data analysis method and source for this research. Through this research it can be concluded that the management of students at PPTQ Ahmad Dahlan Ponorogo goes through the process of 1) planning student input, observing and preparing the tahfidz al-Qur'an curriculum and 2) organizing is carried out through the division of teachers and students, 3) implementation and supervision carried out through regular monitoring and evaluation so that the management process can increase the competency of students in memorizing the Qur'an.

Keywords: Management, Learners, Islamic Boarding School

Topic: Educational Studies

[ABS-388]

The Impact of Using AI-Based Applications on Early Childhood Cognitive Development

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Abstract

This research aims to explore the impact of artificial intelligence (AI)-based applications on the cognitive development of early childhood through a qualitative approach. With the increasing use of technology in children's education, it is essential to understand how AI applications affect cognitive aspects such as problem-solving, creativity, and social skills. Data were collected through in-depth interviews with 20 parents and 10 educators, as well as direct observations of children's interactions with these applications. The analysis results indicate that AI-based applications can enhance children's learning interest, accelerate their understanding of basic concepts, and encourage creative exploration. However, there are also concerns regarding dependency on technology and negative impacts on social interactions, particularly as AI allows unrestricted access to the internet, which can lead to criminal implications. Parents reported that these applications often serve as effective tools to support learning, especially when accompanied by guidance. However, parents also need to provide adequate devices, which can incur significant internet costs. This

research highlights the importance of balancing technology use with conventional learning experiences and emphasizes the need for guidance for parents and educators in selecting appropriate applications.

Keywords: AI-Based Applications, Cognitive Development, Early Childhood Education

Topic: Educational Studies

[ABS-181]
Analysis of the Implementation of the Positive Discipline Development Model in Elementary Schools

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Abstract

The development of positive discipline in schools is still very diverse, has not been measured and has not been implemented properly. The urgency in handling this problem is related to the positive discipline development model, in order to develop student character. The purpose of this study was to: (1) What are teachers^ perceptions of the positive discipline development model- (2) When is the time for the positive discipline approach development model to be implemented in elementary schools- and (3) What steps are taken by schools to implement the development of a positive discipline approach model in elementary schools. The approach used in this study is a qualitative approach. The subjects of this study were Elementary School Teachers in Magelang Regency and were selected by purposeful sampling, namely one school in each sub-district. Data collection techniques were interviews. Data analysis was carried out using a coding system with coding based on the selection of criteria for the level of change obtained by interpreting the development of a positive discipline model. The results of this study indicate that the implementation of the positive discipline development model in elementary schools indicates a paradigm shift from a punishment-based approach to an approach that emphasizes self-awareness, personal responsibility, and positive relationships. Teachers play an important role by being role models and adapting methods according to student needs. Initial steps such as socialization, developing class agreements, and getting used to positive values &#8203-&#8203-help create active involvement. With the support of policies such as the Independent Curriculum, the implementation of this model is further strengthened, encouraging the formation of student character that is disciplined, has social awareness, and responsibility through positive communication and a supportive educational environment.

Keywords: Implementation, Positive Discipline, Development, Model

Topic: Educational Studies

List of Abstracts: Electrical Engineering

[ABS-314]
PLC Program Design Using State Diagram Method on Insert Nut Installing Machine

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Abstract

A method that can solve the solution of creating a program on a sequential machine includes the state diagram method. To solve the solution of sequential machine automation, it is not enough to use a flow chart as a problem-solving method. The application is in the form of an insert nut installation machine for connecting or joining learning sheet plates with PLC controllers, which is the object of research in this paper. The programming language used is Ladder Diagram (LAD). The state diagram method is applied as an alternative to the Ladder Diagram program design and compared with conventional algorithms such as flow charts. The final result is the design and implementation of the Ladder Diagram PLC program on the Insert Nut Installing Machine.

Keywords: PLC, Insert Nut Installer Module, State Diagram Method, Ladder Diagram, Automation

Topic: Electrical Engineering

[ABS-357]
Prototype of Early Warning System for Flood Disaster Detection and Mitigation Based on Internet of Things

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Abstract

This research is to design an early warning system to detect floods. This is motivated by flood disasters that often occur unexpectedly and without warning, so that people cannot make preparations to avoid these disasters. This research uses the wireless sensor network method to integrate several sensors used and the Internet of Things in its monitoring. This aims to provide early flood warnings to communities that are often affected by floods in real time and remotely quickly and accurately. This research uses the HC-SR04 ultrasonic sensor to detect the distance of the water surface level, the water flow sensor is used to detect the flow of water so as to provide the value of water discharge and volume. LED as a notification of water level status and turns on the Buzzer at a certain water level status. The results are displayed on LCD and Blynk. The test results of this research obtained an average error on the HC-SR04 ultrasonic sensor of 1.70% when detecting solid objects and an average error of 3.17% when detecting the height of the water surface. Water flow sensor obtained an average error when calculating water discharge of 6.59% and calculating water volume of 3.48%. The LED will light up and the Buzzer will sound according to the status of the water level, namely SAFE, WARNING, and DANGER. The results will be displayed in real time on the LCD and Blynk application as an early warning for flood detection and mitigation.

Keywords: Flood, Internet of Things, HC-SR04 Ultrasonic Sensor, Water Flow Sensor

Topic: Electrical Engineering

[ABS-358]

Internet of Things-based Intravenous Fluid Monitoring System Prototype and Drops Per Minute Control with MG996R Servo

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Abstract

A medical device called an intravenous is used to restore electrolyte balance in hospitalized patients with various diseases by replacing lost fluids. When a patient has an emergency, such as dehydration, seizures, high fever, malaria, diarrhea, or other illnesses, an IV is usually required. Intravenous monitoring of patients in health facilities by health workers is very important because it is part of one of the patient's treatment therapies. This is especially important because delays in intravenous changes or differences in intravenous flow rates in patients can be fatal to the treated patient. A system of tools is needed that aims to facilitate nurses in monitoring the condition of the intravenous volume, the number of intravenous droplets in the patient. Intravenous volume, the number of intravenous droplets per minute of the treated patient, and notification notification of intravenous fluid running out. This intravenous fluid monitoring system uses a Loadcell sensor to measure intravenous volume, Infrared sensor to detect intravenous droplets, and MG996r servo motor to adjust the speed of intravenous fluid drops automatically. The web monitoring platform of this system is used to display the condition of intravenous volume and droplets per minute in real-time. From the test results, the average value of Loadcell accuracy in measuring the mass of objects on 25 data reaches 99.08% and the average value of the accuracy of the MG996r Servo in adjusting the speed of the intravenous drops on 5 test data reached 96.96%. The Liquid Crystal Display will display the volume of intravenous fluid, TPM, counter, as well as the selected condition between Adult or Child while the Web will display the volume of the intravenous fluid, TPM, and pop up notification that the intravenous fluid will soon run out, when the intravenous fluid read by loadcell less than 100ml

Keywords: Intravenous, Loadcell, Infrared, Servo MG996r, Internet of Things

Topic: Electrical Engineering

[ABS-212]

Performance Evaluation of Control System in Series-Parallel Hybrid Vehicle: Simulation Study

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Abstract

A series-parallel hybrid vehicle is one of the primary solutions to reduce exhaust emissions and conserve fossil energy. This study aims to evaluate the performance of the control system in series-parallel hybrid vehicles, focusing on the use of Stateflow in simulating a continuous closed-loop feedback system. The evaluated control system comprises several key components: engine speed controller, motor speed controller, generator speed controller, and battery charging controller. The methodology involves simulating the control system using simulation software, emphasizing mode logic and continuous feedback to model and analyze system performance under various operating conditions. The simulation results indicate that the control system utilizing Stateflow effectively manages energy resources, maintaining an engine control efficiency of 92% and prioritizing battery energy usage by 65%. The proportion of energy sourced from the battery compared to the generator is adjusted according to operational demands. In conclusion, the application of Stateflow in the control system of series-parallel hybrid vehicles has proven

effective in optimizing performance and energy efficiency, supporting vehicle operations with enhanced performance and significant energy savings

Keywords: Energy Efficiency, Control Systems, Series-parallel Hybrid Vehicles, Stateflow

Topic: Electrical Engineering

[ABS-166]
Increasing 5G Network Capacity with Cell Layering

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Abstract

The widespread usage of devices like smartphones, notepads, and tablets that are always using data has increased the demand for high-speed data traffic on mobile devices. Mobile network operators need to develop up high-capacity networks to suit these requirements. The capacity of single and multi-layered cellular networks in 5G networks is examined in this research after we convert single cells into two and three layers. The capacity of single-layer and multi-layer cells is then simulated and compared after we utilize computer simulation to calculate the capacity for users at random locations connecting to the 5G base station in the cell center. By theoretical study and computer simulation, we found that the capacity of cells with a multi-layer strategy is greater than that of a single layer, showing that multi-layer is superior than Single layer in general. Based on simulation, cell with 2 layers has biggest capacity compared to the other scenarios. These results are expected to contribute to the development and implementation of multilayer cell in 5G networks.

Keywords: Layering cell, Capacity, 5G Network

Topic: Electrical Engineering

[ABS-26]
Bauxite Refinery Residue Neutralization Using Active Wet Carbonation technique

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Abstract
Bauxite refinery residues (Red Mud) is a solid residue of the alumina refinery industry in which bauxite ore undergoes an extraction process (Bayer Process) to produce alumina, which is then converted into aluminium. In fact, the amount of red mud (RM) is numerous, for each ton of aluminium product yields 0.5 to 2.5 tons of RM, depending on the grade of the mined bauxite ore. RM is caustic (pH 10-13) and carries valuable metals, notably rare earth elements and heavy metals. Its disposal entangles intricate processes-thus, conventional disposal practices comprise depositing it in an open dam. The volume of RM continues to accumulate, and these acts possess the potential disaster to harm both the environment and human health in the future if not properly managed. Previous research has shown that RM can be used as an environmental remedy, particularly for the capture of CO2 flue gas. This study examines the RM originated from Indonesia to neutralize using active wet carbonation. The resultant RM-clay-form is transformed into a 40% solid content slurry using a wet carbonation process using industrial-grade CO2 at a flow rate of 5 L/min for 120 min. According to the experiment's findings, CO2 has the potential to neutralize the alkalinity of RM and generate mineral-carbonate compounds with a sequestration capacity of 10.68 gram CO2/gram RM from the filtrate.

Keywords: CO_2 Sequestration, Wet Carbonation, Red Mud, Neutralization, Carbon Dioxide

Topic: Energy and Green Technology

[ABS-286]
The Effect of NPK Fertilizer Dose and Type on the Growth and Production of Scallions (*Allium fistulosum L.*)

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Abstract
This study was conducted with the aim to determine the effect of the right and optimal dose and type of NPK fertiliser on the growth and production of leek plants. The purpose to determine the optimum dose of NPK fertilizer, to determine the types of NPK fertilizer that can increase, and to determine the interaction between the dose and type of NPK fertilizer. This research was conducted in Kalibening District, Central Java, this research is used in the field of agriculture or specifically in the discipline of agrotechnology This research to determine the optimum dose of NPK fertilizer, to determine the types of NPK fertilizer that can increase, and to determine the interaction between the dose and type of NPK fertilizer. This research used Randomised Group Design (RAK). NPK dosage consisted of 4 levels and NPK variety consisted of 3 levels. Data were processed using Microsoft Excel with analysis of variance. The best NPK fertiliser dose

was 3.5/plant (140kg/ha) (K1).. The optimum type of NPK fertiliser is NPK 16: 16: 16 (M1). There is a significantly different interaction on the variable stem diameter (mm) at a dose of 7g/plant (300kg/ha) and NPK 15:09:20+TE fertiliser (M2K2).

Keywords: Scallions, Fertilizer, Dosage, Growth, Production

Topic: Energy and Green Technology

[ABS-34]
Hover flies (Diptera, Syrphidae) are pollinators of species of the genus Ferula L. 1753 in Uzbekistan

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Abstract
Perennial herbs of the genus Ferula are one of the most common and noticeable elements of ecosystems in Central Asia. Their seed productivity is important for preserving the biodiversity of the region. In turn, seed productivity depends on pollinators, the study of which is the subject of our research. In this article, we tried to study the dependence of different species of Ferula on pollinating flies of the Syrphidae family (Diptera), which are considered their pollinators. A total of 93 species of hovering flies belonging to 33 different genera have been identified that visit the flower heads of Ferula plants. Research has shown that the species of hovering flies and their numbers vary among different species of Ferula, and their changes are affected by plant varieties, inflorescence shape and growth height.

Keywords: Ferula, Pollinators, Syrphidae, Diptera

Topic: Energy and Green Technology

[ABS-47]
Analysis of the Influence of Wood Components on the Hydrogen Content of Syngas from Wood Sawdust Pyrolysis

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Abstract
This study investigates the biomass pyrolysis-gasification process utilizing a fixed-bed reactor to generate hydrogen-rich syngas. The primary focus is on analyzing how various wood components influence the quality of syngas, particularly the concentration of hydrogen produced. Three types of wood sawdust-teak, coconut, and jackfruit-were used as feedstocks in the experiments. The findings reveal that wood sawdust with elevated extractive content significantly enhances syngas quality, leading to increased hydrogen concentrations. Notably, both teak and jackfruit woods, characterized by their high extractive content, resulted in syngas with superior hydrogen levels. This research underscores the critical role of wood composition in optimizing syngas production, providing valuable insights for future applications in renewable energy.

Keywords: Biomass, Pyrolysis, Syngas, Hydrogen

Topic: Energy and Green Technology

[ABS-36]

Micro Energy Generators Use Transducer Technology in Harvesting Ambient Energy: A Review

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Abstract

There are demands for the global transformation of energy towards renewable energy to be an ongoing issue. One of the sectors involved in this energy transformation is the field of transducers, along with the transducer's ability to convert ambient energy in the form of light, magnetic induction, thermal, and mechanical energy into electrical energy, commonly also called photoelectric, piezoelectric, thermoelectric, and electromagnetic. The main focus of this review is a detailed summary of the working principle, transducer characteristics, signal conditioning circuit range, and examples of prototype results developed by the researchers. This review also presents a comparison of the power generator performance developed by previous researchers.

Keywords: Transducer, Ambient Energy, Photoelectric, Thermoelectric, Electromagnetic, Piezoelectric

Topic: Energy and Green Technology

[ABS-51]

Investigating the Impact of Biofuel Mangrove on the Performance and Emissions in an Gasoline Engine

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Abstract

Alternative biofuel fuels are the main choice to overcome the fuel stock crisis and negative effects such as air pollution. Biofuel Bioethanol mixtures are a priority considering the simple production process and flexible raw materials, but they are still sourced from the food program. Mangrove bioethanol is produced from raw materials of Rhizophora mucronata Mangrove fruit with abundant populations, and high carbohydrate content and is not used as a human food program. The purpose of the study was to observe the use of mangrove biofuel as fuel on engine performance and exhaust emissions produced by gasoline engines. Laboratory-based experiments with a concentration of mangrove bioethanol mixture of 5% (GE5), and 10% (GE10). Testing of pure gasoline fuel is a reference for comparing the performance and emissions produced by mangrove biofuel. The study showed the best results in the use of GE10 fuel than G100/GE5 which is possible due to the high octane number and oxygen content of the grove biofuel. The increase in GE10 fuel performance is 7.89% for BT, 7.89% for BP, 47.55% for BTE, 20.33% for EGT, and 98% for BSFC reduction. While on the emission side, there is a decrease in CO, and HC emissions, and an increase in CO2 emissions of 43,56%, 36,54%, and 59.42% respectively.

Keywords: Biofuel, Mangrove, Performance, Emissions, GE10

Topic: Energy and Green Technology

[ABS-55]

The Role of Renewable Energy in Improving Resilience to Natural Disasters (Case Study of the Implementation of Solar Energy Systems in Disaster-Prone Areas in Kupang City, East Nusa Tenggara Province)

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Abstract

Disaster-prone areas lack reliable energy sources, which is a problem in Kupang, East Nusa Tenggara. Reliable and sustainable, solar energy helps cut down on the consumption of fossil fuels. Research on solar energy in underdeveloped areas is rare, though. The study looks at how solar power systems solve issues with renewable energy implementation while simultaneously enhancing energy resilience and community preparedness. This research examines how solar energy systems might increase disaster resilience in places like Kupang, East Nusa Tenggara, that are prone to disasters. The study reveals that solar power, unlike conventional power systems susceptible to natural disasters, is both distributed and sustainable. Solar photovoltaic systems, particularly those equipped with battery storage, are capable of providing consistent energy without relying on the grid, thereby ensuring the continuity of emergency services. This paper evaluates the performance of disaster-prone solar energy systems generally. Descriptive analysis of secondary data helps one grasp the role of renewable energy in reducing disasters. The study centers on solar-powered disaster-prone regions. The study revealed in Kupang high initial costs, technical expertise gaps, and legal obstacles to solar energy. Notwithstanding these obstacles, solar energy could greatly increase disaster response and readiness. Using qualitative approaches and secondary data analysis, we evaluate solar system energy resilience. Key results suggest that solar energy systems can lower reliance on conventional generators and fossil fuels connected to disasters. To overcome implementation difficulties, the research also underlines the need for capacity building, government-private sector cooperation, policy reforms, resilient infrastructure investment, and community participation.

Keywords: Solar Energy, Renewable Energy, Resilience, Natural Disasters

Topic: Energy and Green Technology

[ABS-56]

Effects of Food Waste Composition on Black Soldier Fly Larvae Growth

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Abstract

Waste generation in 2023 reached 36 tons/year, which dominated by 41.05% of food waste. Black Soldier Fly Larvae (BSFL) can be used as a food waste bioconversion agent to produce economically valuable products such as animal feed, compost, and/or bioenergy. Food waste comes from different sources will have different

compositions and affect the quality and quantity of the converted product. This research aims to obtain optimum conditions for the sources and composition ratios of food waste to improve BSFL performance. Variations in the composition and ratio of food waste based on protein and carbohydrate macronutrient content. Food waste used as protein sources includes chicken waste (CW) and fish waste (FW), and carbohydrates include rice waste (RW) and bread waste (BW). The ratios of substrate feeding were 30:70- 40:60- 50:50- 60:40- 70:30 for each protein:carbohydrate. The feeding rate was 20 mg/larva, with a substrate feeding frequency once every 3 days. The results showed that the FW:BW (70:30) variation gave the best results for larval growth, with the highest final weight 0.186 grams/larvae and the highest growth rate 9.26 mg/larvae/day. This indicates that FW is more supportive for BSFL performance than CW, especially when combined with BW at the right protein-carbohydrate ratio.

Keywords: Bioconversion, Black soldier fly larvae, Food waste, Substrate composition

Topic: Energy and Green Technology

[ABS-99]

Analysis of the Effectiveness and Efficiency of Biodiesel Distribution in Indonesia's Kalimantan Region: A Case Study of the Ship-to-Ship Mechanism for Floating Storage in Balikpapan

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Abstract

The implementation of the mandatory use of biodiesel fuel in Indonesia has continued to increase, starting with a 2% blend in 2010, reaching 35% in 2024, and is expected to grow to 40% by 2025. The increase in biodiesel blending into diesel fuel presents significant challenges to the readiness of infrastructure supporting this policy. Kalimantan is a region with a relatively high volume of biodiesel usage in the industrial sector compared to other areas, but it faces constraints in terms of tank storage readiness and other supporting facilities. The need for adequate infrastructure for distribution and storage operations is crucial and must be met. Therefore, to support biodiesel distribution and storage in Kalimantan, a Floating Storage facility using the Ship-to-Ship method in the Balikpapan waters has been implemented as the main facility. This study aims to i) analyze alternative methods for transitioning biodiesel storage to land-based tanks, ii) evaluate the environmental impacts of the existing Floating Storage operation with the Ship-to-Ship method, and iii) create a financial model and efficiency assessment for shifting current operations to land-based tanks. The method used to write this manuscript is a Systematic Literature Review (SLR), with an approach based on academic databases and policy reports. The review findings indicate that the Floating Storage operation using the Ship-to-Ship method still faces several challenges, including technical aspects, operational costs, and marine pollution impacts. However, the government's policy steps for using Floating Storage with the Ship-to-Ship method have previously provided positive impacts on biodiesel distribution in Kalimantan. This study provides strategic recommendations to support the sustainability of biodiesel distribution operations in Kalimantan as part of the effective and sustainable implementation of mandatory biodiesel in Indonesia

Keywords: Biodiesel, Ship-To-Ship, Floating Storage, Infrastructure Readiness, Mandatory Biodiesel, Balikpapan, Government Policy

Topic: Energy and Green Technology

[ABS-335]

Material Flow Analysis of Used Cooking Oil as an Initiation of Used Cooking Oil Reverse Logistics Management

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Abstract

Used cooking oil represents one of the most significant sources of waste that can potentially pollute the environment and endanger human health if not managed effectively. Used cooking oil has the potential to be a sustainable alternative fuel. Meanwhile, the quantity of used cooking oil in Indonesian regions, including Yogyakarta City, has not yet been made available for analysis. Such data is essential for the design of effective reverse logistics management of used cooking oil. The objective of this study is to analyze the flow of used cooking oil in the Yogyakarta City area, to determine the potential quantity of used cooking oil and to gain insight into the costs associated with processing this flow of used cooking oil. The snowball sampling technique was employed to obtain data of the collectors. Subsequently, the analysis stage utilized the Material Flow Analysis (MFA) method with the assistance of Substance Flow Analysis (STAN) software and the Sankey Matic diagram. The research identified 22 collectors, including 15 waste banks. The areas receiving used cooking oil include Bantul and Semarang. The potential amount of used cooking oil collected in the Yogyakarta City area is 97,464 litres per year, which represents 0.001% of the national used cooking oil compliance target. The total management of the used cooking oil flow is estimated to cost IDR 87,647,800. The results of the study are expected to provide a foundation for the development of reverse logistics management strategies for used cooking oil, with the potential for broader applicability in other regions of Indonesia. In the long term, it is projected to create an ideal circular economy related to cooking oil management.

Keywords: Material Flow Analysis, Used Cooking Oil, Reverse Logistics

Topic: Energy and Green Technology

[ABS-61]

Integration of EPC Contracts in Enhancing Energy Efficiency in Sustainable Development Projects

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Abstract

The integration of Engineering, Procurement, and Construction (EPC) contracts offers a comprehensive approach to enhancing energy efficiency in sustainable development projects. By combining design, procurement, and construction into a single streamlined process, EPC contracts have the potential to optimize resource use and support the adoption of energy-saving technologies. This study investigates the role of EPC contracts in achieving energy efficiency objectives through case studies of sustainable projects, including renewable energy facilities, green buildings, and industrial developments. The findings indicate that EPC contracts facilitate the implementation of energy-efficient solutions by ensuring better coordination, optimized resource allocation, and adherence to project timelines. Moreover, the framework supports significant reductions in energy consumption and carbon emissions while maintaining cost-effectiveness. Key factors contributing to these outcomes include integrated planning, the use of advanced technologies, and efficient project execution practices. This research concludes that EPC contracts play a

vital role in promoting energy efficiency in sustainable development projects. The study provides recommendations for developers, contractors, and policymakers to leverage EPC frameworks effectively, contributing to global sustainability goals.

Keywords: EPC, Energy Efficiency, Sustainable Development, Project Management, Green Technology

Topic: Energy and Green Technology

[ABS-66]
Photocatalytic Degradation of Organophosphate Diazinon in Aqueous Solutions Using ZnO Photocatalyst Under Visible Irradiation

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Abstract
Diazinon is an important organophosphorus insecticide commonly utilized in the agriculture sector. But it poses a risk to both animal and human health if it persists in water and soil resources. The presence of diazinon in water resources impacts numerous non-target organisms, highlighting the urgency of effective removal strategies. This study explores the photocatalytic degradation of commercial diazinon in aqueous solutions using zinc oxide (ZnO) as a photocatalyst under visible light irradiation. The influence of various parameters, including photocatalyst dosage, initial pH, diazinon concentration, and irradiation time, were systematically optimized. Optimal degradation was achieved with 20 mg of ZnO, a neutral pH, an initial diazinon concentration of 30 mg/L, and 60 minutes of irradiation. Kinetic analysis revealed that the degradation followed a zero-order model (k = 1.118- R2 = 0.9962). Additionally, visible light irradiation proved more effective than sunlight in the degradation of diazinon. These findings provide valuable insights into enhancing photocatalytic efficiency for the remediation of diazinon-contaminated water

Keywords: Photocatalyst, Degradation, Diazinon, ZnO

Topic: Energy and Green Technology

[ABS-71]
Study Characteristics of Dye-Sensitized Solar Cells with Anthocyanin Pigments Solution Extracted from Purple Cabbage and Dragon Fruit Peel as Photo-Sensitizer

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Abstract
We have studied the anthocyanin pigment extracts from natural sources derived from dragon fruit (Hylocereus costaricensis) peel and purple cabbage (Brassica oleracea var. capitata F. rubra). The dyes have also investigated as photo-sensitizer in dye-sensitized solar cell (DSSC). Anthocyanin pigments were

extracted using a simple maceration technique in the methanol solution. DSSC devices with anthocyanin dye were fabricated to investigate the photovoltaic performance and it was characterized by current-voltage (I-V) measurements. DSSC with anthocyanin dye extracted from purple cabbage shows a better power conversion efficiency than dragon fruit peel dye, it is correlated to its higher dye adsorption to TiO2 semiconductor. The electrochemical impedance spectroscopy (EIS) characterization indicates that the DSSC with purple cabbage dye shows a low recombination rate at the TiO2/dye/electrolyte interface.

Keywords: Purple Cabbage, Dragon Fruit Peel, DSSC, Dye, Solar Cell

Topic: Energy and Green Technology

[ABS-77]
Effect of Adding Ethanol to Candlenut Seed Biodiesel - Pertadex Mixture on Diesel Engine Performance and Emissions

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Abstract

The use of biodiesel in diesel engine fuel mixtures has the constraints of increasing fuel consumption and NOx emissions. Ethanol is an alternative fuel with high oxygen content that can improve combustion quality and produce lower exhaust emissions. Therefore, this study was conducted to determine the effect of adding ethanol to a mixture of biodiesel and pertadex fuels on the performance and emissions of a diesel engine. The fuel mixture was tested on a YANMAR TF85H-di diesel engine with engine speed variations of 1500rpm to 2100 rpm, and coupled to a generator with a constant load of 1000watt. The results showed that the best effective power and torque was produced by B40 fuel. The best specific fuel consumption was produced by E10B40 fuel. The best thermal efficiency was produced by E10B40. The lowest gas opacity, NOx and CO2 emissions were produced by E10B40 fuel. Based on the experimental results, the addition of 10% ethanol to B40 fuel (40% candlenut seed (aleurites moluccana) biodiesel and 60% pertadex) is a potential fuel and is recommended to improve performance and reduce emissions of single-cylinder diesel engines among other fuels tested in this study.

Keywords: Biodiesel, Aleurites Moluccana, Ethanol, Diesel Performance, NOx Emissions

Topic: Energy and Green Technology

[ABS-84]
Optimal sizing of distributed generation using a genetic algorithm approach for IEEE 33 bus system

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Abstract

The electric power system consists of three main components, namely the generation, transmission, and distribution systems. The main problem that often occurs in distribution systems is voltage drops and power losses. So an effort is needed to overcome these two problems, one of which is by installing a small-scale generator or commonly called distributed generation (DG) in the electricity distribution system. To get optimal results, we need a method that can solve problems that are optimization in nature. In this final project Genetic Algorithm (GA) is a method used to solve a value search in the optimization problem of

determining DG capacity. From the results of capacity optimization, the most optimal results are obtained in scenario 3 with the number of DG 3 and a power factor of 0.95, the optimal capacity results for DG are 1057.52 kW, 1203.01 kW, and 1159.37 kW respectively. To produce a total power loss value of 54.495 kW.

Keywords: Optimal Sizing, Distributed Generation, Genetic Algorithm, IEEE-33 Bus, Wind Turbine

Topic: Energy and Green Technology

[ABS-90]
Extraction of Gadolinium and Neodymium from Tayan Red Mud

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Abstract

Redmud is a waste generated from the alumina production process. Redmud was previously categorized as hazardous waste due to its high alkalinity. In general, the mineral composition of red mud consists of Fe2O3 (30-60%), Al2O3 (10-20%), SiO2 (3-50%), Na2O (2-10%), CaO (2-8%) and TiO2 in amounts no greater than 25%. This composition varies widely around the world depending on the origin of the bauxite and redmud characterization results also have a rare earth element content of at least 0.03%. Rare earth element is classified as a critical metal, i.e. an essential material used and subject to supply risks as demand increases over time. Indonesia already produces at least 4.4 million tons of redmud per year, so more and more rare earth element will be wasted if we do not utilize the existing redmud. Laboratory-scale experiments were conducted to recover gadolinium and neodymium from Tayan red mud in sulfuric acid in atmospheric pressure acid leching condition. Maximum recovery of gadolinium (91.3%) was recorded with 3 M H2SO4 at 90&#8451-, solid/liquid ratio of 1/15 g/L and agitation rate of 700 rpm in 2 hours. While 81.5% neodymium recovery was achieved at 90&#8451- and solid/liquid ratio of 1/15 g/L in 2 M H2SO4.

Keywords: Redmud, Leaching, Gadolinium, Neodymium

Topic: Energy and Green Technology

[ABS-95]
Development of Microbial Consortia in Soil Contaminated with Low Density Polyethylene

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Abstract

Low-density polyethylene (LDPE) is one of the most widely used types of plastic and is difficult to recycle. Compared to incineration and recycling, biodegradation, with the use of microorganisms, would be the most efficient and environmentally friendly way to dispose of plastic. The current study aims to the isolation and characterization of microbial consortia formed on the surface of LDPE extracted from soil. The soil was amended with mineral salts under oxic and anoxic conditions. The consortia were obtained from the enrichment cultures cultivated on two mineral media. The tensile test and Fourier-transform infrared spectroscopy (FTIR) were used to assess the capacity of the consortia to degrade LDPE. The results showed that all consortia modified the mechanical and chemical properties of LDPE. It has been established that soil

amendment with dipotassium and diammonium phosphate salts under anaerobic conditions facilitates the increase of the population density of microorganisms in the consortia. The analysis of the colonial morpho-cultural properties and microscopic examination of microorganisms revealed that representatives of the genera Trichoderma and Penicillium were the predominant fungi, genus Pseudomonas was the most prominent among the bacteria, and genus Streptomyces prevailed among the actinobacteria.

Keywords: Microbial Consortia, Low-Density Polyethylene, Tensile Test, Fourier-Transform Infrared Spectroscopy

Topic: Energy and Green Technology

[ABS-356]
The Impact of Green Distillation on Various Types of River Water in Meeting Clean Water and Drinking Water Quality Standards

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Abstract

This study aims to evaluate the effectiveness of a distillation device in producing clean water from five different rivers: Progo, Oyo, Opak, Gajah Wong, and Code. The green distillation process utilized an organic waste combustion system to generate water vapor, which was subsequently condensed into liquid water. Parameters analyzed included the physico-chemical and microbiological characteristics of the water, following the quality standards set by the Indonesian Ministry of Health. The method involved collecting river water samples, distilling them, and analyzing the resulting water for compliance with clean and drinking water standards. Results indicated that while the distillation device successfully produced clean water, variations in efficiency were observed among rivers due to factors such as system leakage and combustion instability. Additionally, the distillation process altered certain chemical parameters, including pH and mineral content, although these changes remained within acceptable limits. These findings suggest that while distillation is effective in producing clean water from river sources, operational and design factors must be optimized to ensure consistent quality and efficiency.

Keywords: River Water, Green Distillation, Clean Water, Drinking Water, Water Quality Standards

Topic: Energy and Green Technology

[ABS-111]
Bioethanol Production from Oil Palm Empty Fruit Bunch (OPEFB) Waste with SSF Process using Yeast Concentration Modifications

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Abstract

The utilization of oil palm empty fruit bunches (OPEFB) as a raw material for bioethanol production is well-established, offering a sustainable solution without competing with food resources. Nevertheless, further optimization is necessary to enhance the efficiency and yield of the production process. The objective of this study is to optimize bioethanol production from OPEFB by evaluating the impact of varying substrate

loading on bioethanol yield. The OPEFB was subjected to a pretreatment process utilizing a 4% H&#8322-SO&#8324- and 10% NaOH solution, which was followed by a hydrolysis and fermentation stage conducted in a single reactor employing the Simultaneous Saccharification and Fermentation (SSF) process using the Cellic CteC 2 FPU & 20% Cellic HteC, and Saccharomices cerevisiae 0.5%, 5%, 7.5% (g/ml) enzymes. The morphology of the OPEFB was analyzed using scanning electron microscopy (SEM) before and after the pretreatment process, while the chemical structure underwent examination via Fourier transform infrared spectroscopy (FTIR). The bioethanol content was quantified through gas chromatography-flame ionization detection (GC-FID), the density was determined with a pycnometer, and the reducing sugar content was assessed with a refractometer. The SEM analysis demonstrated that the pretreatment process enhanced the porosity of the OPEFB surface morphology. The FTIR analysis indicated significant changes in the spectra of the lignin and cellulose groups. The highest bioethanol concentration, 12.93%, was achieved with 25 g of substrate and 5 g of yeast. The optimal bioethanol yield was 12.08%, which illustrates the efficacy of the SSF process for converting OPEFB into bioethanol.

Keywords: Bioethanol, OPEFB, SSF, Yeast

Topic: Energy and Green Technology

[ABS-103]

Green Innovation for Sustainable Performance: Insights from the TOE Framework

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Abstract

The issue of environmental degradation has intensified significantly over the past decade. Governments, society, and businesses have increasingly engaged in discussions on how to ensure the achievement of sustainable development. Following the Paris Agreement, the adoption of green innovation practices has garnered substantial attention worldwide. In Indonesia, MSMEs, as the backbone of the nation, play a crucial role in implementing green innovation to ensure sustainable performance. Using the Technology-Organization-Environment (TOE) framework, this study examines the determinants of green innovation and its impact on sustainable performance. A survey was conducted with 180 manufacturing MSMEs, and the data were analyzed using the partial least squares method. The results indicate that technology readiness, organizational readiness, and environmental readiness positively influence green innovation. Furthermore, green innovation is identified as a critical factor for achieving sustainable performance. This study contributes theoretically by expanding the development of models that investigate green innovation and sustainable performance. Practically, it offers insights into sustaining sustainable development by positioning MSMEs as key stakeholders.

Keywords: Sustainable Performance, Green Innovation, TOE Framework, MSMEs

Topic: Energy and Green Technology

[ABS-102]

The Potential of Imperata cylindrica for Phytomining and Soil Remediation of Red Mud Waste

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Abstract

As industrialization accelerates, the demand for metals, particularly aluminium, continues to rise. This growth has also led to an increase in by-products from the bauxite ore refining process, namely red mud. The highly alkaline nature of red mud, combined with its heavy metal content, poses significant environmental challenges. However, red mud also contains rare earth elements (REEs) that can serve as valuable secondary resources. An environmentally friendly approach to recovering these metals is phytomining, which utilizes plants and simultaneously contributes to land remediation. This study aims to evaluate the potential of Imperata cylindrica in metal recovery and the remediation of red mud waste. The research began by conditioning the pH of red mud through the addition of citric acid, fertilizers, and by adjusting the red mud composition to levels of 10%, 20%, 30%, 40%, and 50%. Phytomining was initiated once the pH of the substrate (a mixture of red mud and soil) reached an optimal range of 8.0-8.5. The results demonstrated that Imperata cylindrica was capable of absorbing several rare earth metals, including gadolinium (Gd), neodymium (Nd), and cerium (Ce), with concentrations of 119.5 mg/kg, 16.5 mg/kg, and 7.1 mg/kg, respectively, in its roots. Additionally, the plant showed the ability to absorb major components such as iron (Fe) and titanium (Ti), with the metals distributed throughout the plant's roots, stems, and leaves.

Keywords: Aluminium, Land Restoration, Phytomining, Rare Earth Elements, Red Mud

Topic: Energy and Green Technology

[ABS-113]

Effect of Collector Concentration on Lithium-ion Battery Recycling Using Froth Flotation

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Abstract

Lithium-ion batteries (LIBs) are extensively used in many applications such as mobile phones and electric vehicles. However, their limited lifespan results in environmental challenges due to the accumulation of heavy metal waste. Recycling LIBs is critical for mitigating pollution and recovering valuable materials, especially the cathodes. Froth flotation has emerged as a promising technique for separating cathode and anode materials- however, its recovery efficiency and optimal operating conditions remain poorly understood. This study aims to evaluate the recovery of graphite (anode) and metal oxides (cathode) in a froth flotation process by varying collector concentrations between 850 and 2500 g/t and pH condition between 4 - 9. The other impacting paramaters, namely frother concentration, agitation speed, and airflow rate, were systematically controlled. The results showed an optimum graphite recovery of 90.05% that was achieved at a collector concentration of 850 g/t, with a corresponding metal oxide recovery of 25.5%. Lower collector concentrations led to incomplete coverage of anode particles by the collector, while higher concentrations compromised its selectivity. These findings provide critical insights into optimizing froth flotation parameters to enhance LIB material recovery. And the recovery was obtained at pH 7 with a percentage 94.61%, with metal oxide recovery of 24.14%. Under acidic conditions, graphite was oxidized,

while in alkaline conditions, the collector interacted with hydroxide ions, which improved the effectiveness of flotation.

Keywords: LIB, Froth Flotation, Graphite, Metal Oxide, Recovery Efficiency

Topic: Energy and Green Technology

[ABS-114]
Enhanced Swelling Hydrogel of Cellulose by the Introduction of Fly Ash

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Abstract

Coal combustion as a source of steam power generation produces waste in the form of fly ash, which is an environmental pollutant. Fly ash's properties are influenced by its mineral concentration, which implies that it differs significantly depending on the coal source. In this work, an environment-friendly hydrogel is made from cellulose with fly ash to utilize coal waste. Environment-friendly hydrogel is used in various fields of science, such as health and agriculture. The preparation process involves two cellulose derivatives, Sodium Carboxymethyl Cellulose (CMC-Na) and Hydroxyethylcellulose (HEC), in 2% distilled water with a 3/1 ratio of CMC-Na/HEC. Citric acid (CA) is a crosslinking agent, and it is commonly used in various cellulose derivatives because it has non-toxic properties. The polymerization occurs during heating in an oven at 80&#8451- for 8 hours. The percentage swelling ratio and FTIR measurements investigate the addition of CA variation at the range of 1.75%-5% and the variation of adding silica-based fly ash such as sodium silicate and nano-silica. The results showed that the best percentage swelling ratio with the lowest CA content and 0.1% nano-silica gave the highest swelling ratio at 5800%. Adding silica-based fly ash material affects the swelling ratio of the hydrogel.

Keywords: Cellulose, Fly Ash, Hydrogel, Swelling Ratio

Topic: Energy and Green Technology

[ABS-117]
Optimization of Hybrid Renewable Energy Potential in Southeast Sulawesi Using HOMER PRO

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Abstract

This study explores the optimization of hybrid renewable system in Southeast Sulawesi using Homer Pro, aiming to maximize efficiency and minimize environmental impact through wind and solar integration. As global demand for renewable energy rises, Indonesia's abundant solar and wind resources make it prime candidate for hybrid energy solutions. By integrating solar photovoltaic (PV) panels and wind turbines, this system addresses the limitation of each energy source individually, enhancing both stability and efficiency. The study employs Homer Pro software to simulate and optimize this hybrid setup, focusing on economic and environmental outcomes such as cost of electricity, net present cost (NPC), and carbon emission. Analysis show that PV system meet over 80%of demand, with wind contributing around 10%, reducing grid

dependency to 0%. The optimized configuration achieved an NPC of -58,142,270, underscoring the financial viability and environmental benefit of hybrid system for the region. This combination not only meet the region's growing power demand but also provides a sustainable alternative with reduced greenhouse gas emission, making it a feasible energy solution for the future.

Keywords: Carbon Emitting, Homer, IPP, PV, Renewable

Topic: Energy and Green Technology

[ABS-120]
Biodiversity Conservation and Sustainable Urbanization: A Scientometric Review of Environmental Research

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Abstract

Urbanization impacts and affects biodiversity in a way that requires and incentives the addition of ecological perspectives in urban planning for sustainability. This work aims at carrying out a scientometric analysis in order to explore how the twin issues of biodiversity conservation and sustainable urban development has been addressed in environmental research. The goal is to outline the directions of further studies, important investigations and gaps in the cross-sectional field which influences therapeutic and preventive practices. A bibliometric analysis was conducted on 4,681 publications spanning the years 2015 to 2024, utilizing data extracted from the SCOPUS database. To visualize the citations, publications and identify the patterns of co-occurrence and other data few software's are used namely VOS viewer and CiteSpace, biblioshiny and power bi were used. The main result emphasizes the importance of biological diversity for the sustainability of cities and the fact that there is a need for more accurate measurement of ecosystem services in cities. This paper highlights the necessity of interdisciplinary cooperation and the use of biological diversity indicators in urban planning as a source of useful information on the achievement of global sustainable development objectives.

Keywords: Biodiversity Conservation, Sustainable Urbanization, Scientometric Review, Urban Ecology, Environmental Research, Urban Planning

Topic: Energy and Green Technology

[ABS-154]
Wastewater Recycling and NaOH Recovery at Fiber Industry As Cleaner Production Strategies

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Abstract

Rayon Fiber industry requires a large amount of water, reaching 55,700 m3/day, and generates wastewater containing NaOH. This study aims to identify the potential of wastewater recycling technology in the production process and the potential of NaOH recovery technology from wastewater produced in the Carbon Disulfide Adsorption Plant, considering economic feasibility and environmental aspects. The methods used for process water recycling and NaOH recovery include wastewater characteristic testing, analysis of clean water and NaOH usage rates, investment costs, and economic feasibility analysis using Net

Present Value (NPV), Benefit-Cost Ratio (BCR), and Payback Period (PBP). The test results for wastewater recycling technology using reverse osmosis achieved the removal of 96% TDS, 95% TSS, and 90% COD, while the water softener removed 70% of calcium and 60% of magnesium. Additionally, activated carbon removed 60% TSS and 75% COD. The test results for NaOH recovery technology using forward osmosis membrane electrodialysis with polytetrafluoroethylene diffusion dialysis membrane pre-treatment achieved reductions of 91.4% BOD, 99.4% COD, and 99.4% TSS. The economic analysis results for wastewater recycling showed an NPV of IDR 37,319,691,000,118.80, a BCR of 16.5, and a PBP of 3 months and 29 days. Meanwhile, the economic analysis for NaOH recovery yielded an NPV of IDR 109,489,480,132.46, a BCR of 58.81, and a PBP of 1 month and 22 days. The combined application offers a monthly profit of IDR 1,517,203,411 and equipment depreciation of IDR 16,844,206.11 per month. Additionally, it reduces water usage from the Citarum River by 86.7% and recover NaOH by 44%.

Keywords: Rayon Fiber Industry, Wastewater Recycle, NaOH Recovery, Cleaner Production

Topic: Energy and Green Technology

[ABS-121]

Empowerment of Solar Renewable Energy and Low-Cost Interlocal Telecommunication System for Economic Development of Panmutih Beach Fishermen Villages

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Abstract

This research aims to develop a solar power generation and telecommunication system based on LORA (Long Range) technology to support the economic development of fishing villages in Panmutih Beach, Kupang Regency, East Nusa Tenggara (NTT). The region faces challenges of limited electricity access and reliance on costly, non-renewable fossil fuels. Utilizing solar energy, this study proposes an energy cooperative model enabling fishermen to exchange fish catches for electricity, bypassing the need for internet connectivity. The research begins with an assessment of the regions solar energy potential, revealing an average solar irradiation of 5.8 kWh/m2/day. Infrastructure design and deployment include installing 20 solar panels (each with a capacity of 300 Wp), a 50 kWh energy storage system, and a LORA-based energy distribution network capable of connecting 15 households. System testing shows a 70% reduction in energy costs. The cooperative system facilitated the collection of 0.5 tons of fish monthly, converted to 2,500 kWh of electricity. Socially, 80% of participants expressed increased satisfaction with their energy reliability, while environmentally, CO2 emissions were reduced by an estimated 5 tons annually. This approach provides a scalable solution for renewable energy access in remote areas, contributing to sustainable development and economic empowerment of fishing communities

Keywords: Solar Energy, LORA Technology, Renewable Energy, Energy Cooperative, Economic Empowerment, Sustainable Development

Topic: Energy and Green Technology

[ABS-162]

Effect of Excess Air on the Performance and Emissions of Spark Ignition Engine Fueled Ethanol

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Abstract

Ethanol fuel has been widely used as fuel in several countries, such as the united states, brazil and Sweden. The ethanol usage within the motor requires alteration of the air supply. The appropriate air supply is required to gain an optimum performance of engine. The objective of this study to determine the effect of excess air in the performance and exhaust emissions of a spark ignition engine fueled ethanol. The research was conducted on a spark ignition engine 100 cc 4-stroke fueled a mixture of 60% ethanol and 40% pertamax (E60), with variations of engine speed and excess air. The SI engine was connected to a prony brake and gas analyzer to measure its performance and emissions. The use of ethanol (E60) increases torque and power until the excess air reaches 22 L/m, but more excess could decreasing power due to detonation. The lowest fuel consumption and CO emissions occur at 1200 rpm and excess air of 22 L/m.Optimal excess air settings and ethanol fuel (E60) can improve engine performance and reduce emissions. These findings are important for engine design with high fuel efficiency, reduction of CO and HC emissions and application of alternative fuels in the automotive and energy industries.

Keywords: Ethanol, Excess Air, Performance, Emissions

Topic: Energy and Green Technology

[ABS-164]

Performance Test of Solar Thermoelectric Generator on Metal Roof with Active Cooling System with Variation of Coolant Fluid

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Abstract

This research focuses on the performance of using a solar thermoelectric generator (STEG) as an alternative to generate electricity from the heat of metal roofs exposed to sunlight. The system consists of a thermoelectric module, and an active cooling system using waterblock. The research will vary the type of cooling fluid used. Some of the fluids to be tested include water and two types of engine coolant. Data collection will be done by using Arduino Esp 32 module, which will be presented through Google Sheet. The research is to determine the effect of the coolant on the voltage generated by the STEG. The data includes the voltage and electric current generated by STEG during the day at 09.00 until 17.00. The research shows that the waterblock with Y radiator, produces the highest average voltage (0.67 V), followed by X radiator (0.42 V), and plain water (0.19 V). Statistical analysis also revealed significant performance differences between the cooling conditions. A strong positive correlation was found between the temperature difference and the voltage generated. This study concludes that TEG has potential as an alternative energy, this result opens opportunities for further development of renewable energy technology

Keywords: Thermoelectric, STEG, Energy, Voltage

Topic: Energy and Green Technology

[ABS-167]

Enhancing Proton Conductivity in Direct Methanol Fuel Cell Membranes Using sPEEK/Al2O3 Composite Materials

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Abstract

Polymer electrolyte membrane (PEM)-based fuel cells are emerging fields with high efficiency, low pollutant emissions, and low material consumption. However, conventional membranes have poor thermal resistance and are expensive. Thus, alternative polymeric membranes with qualities and characteristics have been developed to address this issue. In this study, a sulfonated polyether ether ketone (sPEEK) membrane was fabricated with varying alumina (Al2O3) content via the simple dry phase inversion. Fourier-transform infrared (FTIR) spectroscopy, scanning electron microscopy (SEM), water uptake, swelling degree, and ionic exchange capacity (IEC) are performed for the characterization of the membranes. The fabricated sPEEK-Al2O3 membranes showed that with the addition of 10 wt% of Al2O3, the water uptake, swelling degree, and IEC significantly increased in comparison with the pristine sPEEK membrane. The results suggest that sPEEK membranes loaded with low Al2O3 concentration are promising candidates for polymer electrolyte membrane-based fuel cells.

Keywords: Polymer Electrolyte Membrane, Polyether Ether Ketone, Direct Methanol Fuel Cell, Alumina

Topic: Energy and Green Technology

[ABS-168]

Recovery of the energy system of Ukraine towards the development of renewable energy

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Abstract

In view of the Europe-wide energy crisis and global climate change, Ukraine could contribute to the development of the entire European energy network if it rebuilds its energy system after the war in accordance with the principles of climate neutrality. The aim of the research was to identify options for the development of renewable energy in Ukraine as a prerequisite for the modernization of its energy industry towards climate neutrality. The research is based on the analysis of the existing structure of energy supply in Ukraine, which in 2022 consisted of 68.63% of climate-damaging energy sources. The relevant comparison of the levelized cost of electricity of various technologies and analysis of the regional distribution of the natural potential for the production of renewable energy was a methodological basis for the selection and forecast of the development of renewable energy in Ukraine. It was found that wind energy production is the most cost-effective option for future electricity production in Ukraine, following solar energy. It was argued that the share of renewable energy in Ukraine could increase to 60% in primary energy consumption and to 70% in electricity supply by 2050.

Keywords: Renewable Energies, Recovery, Energy Ssystem

Topic: Energy and Green Technology

[ABS-172]

Sustainable Business Model: Transforming Goat Manure Waste Combined with Egg Shells into Economical and Environmentally Friendly Products

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Abstract

The large number of people who keep goats in their residential areas has caused the accumulation of goat waste in Cangkring Village, Bantul, Yogyakarta. This often occurs due to a lack of understanding of effective waste management. On the other hand, egg shells waste from production activities in home industries such as cake shops in Bantul also causes similar problems. This study aims to identify an effective integrated management method for utilizing goat waste and egg shells to produce valuable products, such as organic manure enriched with calcium and nutrients for plants. With a circular economy approach, this study involved field observations and interviews with residents in Cangkring Village, Bambanglipuro, Bantul, and several cake shop entrepreneurs in Bantul Regency. The results of this study indicate that processing goat manure and egg shells waste can significantly reduce waste volume while providing added value for the public through more efficient and high-value fertilizer production and helping to open up new business opportunities that can support the local economy. This study provides an important contribution to sustainable organic waste management, it not only emphasizes waste reduction but also transforms wasted resources into solutions that benefit the ecosystem in local communities.

Keywords: Goat Waste, Egg Shells, Waste Transformation, Circular Economy, Sustainable Business

Topic: Energy and Green Technology

[ABS-178]

Effects of Magnetic Field on Droplet Combustion and Physical Properties of Avocado Seed Biodiesel

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Abstract

Single droplet combustion will be influenced by three factors, namely fuel, oxygen, and heat source. The physical properties of the fuel will produce different combustion characteristics. Avocado seed oil was chosen to be used as biodiesel as fuel. Avocado seed oil can be used as biodiesel because it has a high fatty acid content. Avocado seed biodiesel is considered to comply with SNI and can be used as diesel engine fuel singly or mixed. There needs to be a new breakthrough to optimize the results of single droplet combustion. The application of permanent magnets to combustion can focus more on the fuel oxidation reaction. This study was conducted by analyzing the behavior of the magnetic field orientation in the combustion of single droplets of avocado seed biodiesel. Oxygen is paramagnetic so that its molecules can be attracted by a magnetic field and the combustion results will be more stoichiometric. Four magnetic field orientations were given, namely U-S, S-U, U-U, and S-S. The combustion characteristics produced by the attractive magnetic field are more optimal than the repulsive one. The reaction of oxygen and hydrogen is more reactive in attractive magnetic field conditions. The resulting droplet combustion flame will be more stable, shorten the

ignition delay time, and increase the temperature. By optimizing single droplet combustion, it will produce more efficient combustion and increase the speed of combustion reaction. This development is the first step in fuel magnetization analysis that can be applied to diesel engine combustion.

Keywords: Droplet Combustion, Avocado Seed Biodiesel, Magnetic Field

Topic: Energy and Green Technology

[ABS-192]
A Review of Waste Incineration Machine as a Place for final waste processing

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Abstract

Nowadays, the waste problem has become a national issue that has to be handled seriously. Every member of society should be responsible for waste sorting into organic, non-organic, and B3 waste. Organic waste, including biomass waste from wood and food waste, can be utilized as fertilizer and animal feed. Non-organic trash, such as plastic bottles, other plastics, and used clothing, can be converted into new products or recycled. The purpose of this study was to look at the incinerator machine utilized at the waste processing site and the exhaust gas produced. The method of this study is a literature review, which entails gathering and assessing publications regarding the ultimate waste processing system. The findings obtained were that waste-to-energy (WtE) incinerators are frequently a useful option. These incinerators are intended not only to decrease waste volume but also change it into usable energy, such as electricity or heat. They often use modern pollution control systems to reduce emissions of pollutants such as NOx, SO2, and particulate matter. However, no waste-to-energy incineration facilities have been developed in Indonesia. Furthermore, Indonesia has a non-commercial waste-to-energy plant in Bantar Gebang that produces 100 tons per day, as well as a commercial waste-to-value facility in Sunter that produces 2200 tons per day, which might address the ultimate waste problem in the environment.

Keywords: Waste, Incinerator, Machine, Emissions, Pollutants

Topic: Energy and Green Technology

[ABS-213]
Carbon Footprint in Potato Chips Agro-industry Supply Chain (A Case Study in Garut, West Java, Indonesia)

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Abstract

Supply chain activities in potato chips agro-industry contributed to carbon emissions, including transportation of potato from field to factory (scope 1), product processing in factory (scope 2) and delivery of product to retailers (scope 3). The objectives of this research were to establish carbon footprint model in potato chips agro-industry considering the environmental impacts, determine the highest emission contributor and suggest managerial improvement for reaching more sustainable supply chain. To reach these goals, Life Cycle Assessment (LCA) approach was applied. The results showed that carbon footprint in production of potato chips prepared in semi-mechanical processes reached 16.77 kgCO2-eq per 1 kg of

potato chips. Furthermore, it was noteworthy that scope 3 obviously generated the greatest emission of 10.940 kgCO2-eq, regarded as the highest carbon footprint compared with other scopes. Therefore, strategic attempts to reduce carbon footprint were proposed in scope 3. This carbon footprint research was conducted to support the green supply chain in the traceability system in potato chips agro-industry.

Keywords: Carbon footprint, Green House Gases, Life Cycle Assessment, Potato Chips, Supply Chain

Topic: Energy and Green Technology

[ABS-251]
A Bibliometric Analysis of Industrial Symbiosis Research in the ASEAN Region

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Abstract

Industrial Symbiosis (IS) is considered to play an important role in realizing Sustainable Development. Furthermore, studies on IS have the potential to address the significant challenges currently facing the ASEAN region. Nevertheless, thus far no study has been conducted an overview of the research dynamics conducted out by regional researchers. This study aims to identify core literatures on IS and emerging research topics in the ASEAN. In addition, this study also analyses future IS-related research opportunities for the ASEAN region. A bibliometric analysis was conducted on articles sourced within the ASEAN region. The VOSviewer was employed to process, analyze and visualize the bibliometric data in an efficient and structured manner. Journal of Cleaner Production is the leading source of research on IS. Current research areas include Optimizing Water Use, Environmental Conservation, Energy Optimization, and Sustainable Development Policy. Meanwhile, future research may use Pinch Analysis and Mathematical Modeling to optimize energy and material flows to maximize the potential of IS. This bibliometric analysis helps researchers identify avenues for further research on IS, particularly within the ASEAN context. It also helps them assess the likelihood of publishing their findings in a suitable journal.

Keywords: Industrial Symbiosis, ASEAN region, Sustainable Development, Bibliometric Analysis

Topic: Energy and Green Technology

[ABS-265]
Sustainable Cabbage Microgreen Production Through the Utilization of Locally Available Substrates for Urban Farming

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Abstract

Cocopeat, carbonized rice hull (CRH), perlite and cocopeat (PC, equal parts), and vermiculite were used as substrates to determine their effects on the growth cabbage (Moonlight cv) microgreens. Microgreens were grown under ambient conditions with a temperature of 30 plus/minus 2 &#730-C and relative humidity of 60 plus/minus 5% for 12 days after emergence (DAE) or until the true leaves were evident. Results showed

that those microgreens grown in cocopeat, CRH, and PC were harvested at 8 DAE, while microgreens grown in vermiculite were harvested at 12 DAE. Moreover, substrates significantly influenced the other growth attributes, such as microgreen height, hypocotyl length, fresh weight per microgreen, and yield. CRH exhibited taller microgreens, longer hypocotyls, higher fresh weight of each microgreen, and a higher yield, followed by cocopeat. Vermiculite exhibited yields that were two times lower than those of CRH and cocopeat. However, the total soluble solids and root length displayed no significant variation among the substrates. Results indicate that a sustainable supply of microgreens all year round can be achieved, CRH is the suitable substrate due to its excellent growth and yield, which was better than the other substrates. Likewise, CRH is a locally available substrate that can sustain supply for microgreen production. Cabbage microgreen production using CRH can be used for urban farming.

Keywords: carbonized rice hull, CRH, functional tiny food, short-period microgreens, sustainable agriculture and urban farming

Topic: Energy and Green Technology

[ABS-257]
Bicycle Injection System Design 4-Stroke Motorcycle

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Abstract
This research discusses the design of an injection system for 4-stroke motorcycles, aiming to reduce harmful substances in exhaust emissions by changing the conventional system to an EFI system. In addition, this study also aims to determine how much impact the application of the EFI system on a 4-stroke motorcycle has on torque and power, as well as how much exhaust emissions and fuel consumption are produced after the application of the EFI system. The method used in this research is experimentation. This activity was carried out in 3 test locations, namely at the FT UNP automotive workshop, Teqleck Speedshop, and the straight line of the Minangkabau Airport highway along 1 km. The results showed that the power generated by the designed EFI system decreased by 4.33% or 0.23 kW. Torque also decreased by 6.95% or 0.57 kW. In addition, the HC exhaust emission content decreased by 394.58% or 365.66 ppm, the CO content decreased by 39.13% or 0.63%, and the CO2 content in the exhaust emissions of the 4-stroke motorcycle converted to the EFI system increased by 68.99% or 2.67%. Finally, fuel consumption is more efficient, increasing by 31.85% or 21.98 Km/L.

Keywords: Injection System Design, Power, Torque, Exhaust Emissions, Fuel Consumption, EFI, Motorcycle

Topic**:** Engineering

[ABS-259]
The Effect of Reprogramming the Programmable ECU of a 4-Stroke Motor with Injection Modification on Engine Performance with Variations in Injection Timing, Ignition Timing and Fuel Type

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Abstract
This study discusses reprogramming the control system during injection and also the ignition on a 4-stroke motorcycle using a programmable ECU with variations in injection timing, ignition timing and fuel type. The purpose of this study is to determine the effect of modification of a 4-stroke carburetor motorcycle that has been modified into injection on torque, power and exhaust emissions on a 4-stroke motorcycle using a programmable ECU and to determine the effect of fuel injection timing, ignition timing and fuel variations on torque and power on a 4-stroke motorcycle. This type of research is experimental. The results of this study are a comparison of exhaust emissions produced by using variations in pertalite fuel with standard ECU ethanol at idle speed. The best emissions are found in a mixture of 80% pertalite and 20% ethanol, namely a mixture of 20% pertalite ethanol, CO of 1.21%, CO2 of 3.26%, and HC of 76 (ppm). Meanwhile, the

maximum ethanol mixture is found in the variation of 60% Pertalite fuel with 40% ethanol, but in this condition the engine is already experiencing excessive heat in 4-stroke engines.

Keywords: Engine Performance, Injection Timing, Ignition Timing, ECU

Topic: Engineering

[ABS-258]
Vehicle Temperature Identification Based on Vehicle Dimensions during Vehicle Parking

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Abstract
Increased car temperature when parked in sunlight results in discomfort for the driver and passengers, and can damage the inside the car, including the dashboard, seats, and control panel. Research This study was conducted to measure the increase in vehicle cabin temperature when parked in the sun from 08.20 - 16.20 WIB. This research aims to compare the test results between the two objects studied, namely cabin temperature increases in avanza type G 1.3 year 2010 and innova type G 2.0 year 2010. Data was collected using data logger gauges placed at four points in the vehicle cabin. four points in the vehicle cabin. The results showed that the highest measured temperature rise occurred in the avanza vehicle, and the point with the highest in-cabin highest temperature in the cabin is at sensor 1 and sensor 2.

Keywords: Vehicle Temperature, Vehicle Dimension, Thermocoule

Topic: Engineering

[ABS-7]
A Framework for Green Road Implementation in Roads Construction Projects: A Case Study in Purworejo Regency

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Abstract
Framework is a simplified set of theoretical principles and practical guidance for carrying out implementation. Green roads are road construction projects that are planned and developed to a level of sustainability that is much higher than existing standard practices and use green and low-pollutant materials during the construction process. An organization needs to implement a framework because a framework not only provides a general overview but also detailed information about the content of each framework element and its relationship with other elements. This research aims to model a framework for implementing green roads on road construction projects in Purworejo Regency. The data used in this research is primary data obtained by filling out questionnaires by respondents. The analysis method used in this research is TOPSIS which is part of Multi Criteria Decision Making (MCDM). The framework created in this research includes ranking of green roads sub-categories with the criteria of ease of implementation and waste reduction. Based on data analysis, it was found that the ease of implementation criteria received

a higher weight when compared to the waste reduction criteria. The framework for implementing green roads in Purworejo Regency consists of six categories, namely 1) environment, water, air and nature- 2) transportation and society- 3) construction implementation activities- 4) material and natural resources- 5) pavement technology for vehicles- 6) pavement technology for pedestrians. This framework can be used by contractors, planning consultants and project owners to create green roads construction.

Keywords: Framework, Green Roads, TOPSIS

Topic: Engineering

[ABS-260]
An Analytical Study on the Impact of Additional Body Installation on Exhaust Gas Flow Dynamics in Vehicle Exhaust Systems

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Abstract
This study aims to evaluate the impact of adding an auxiliary component to the vehicle exhaust tip, with an emphasis on utilizing exhaust gas flow as a source of electrical energy. The exhaust system employed in this research is sourced from a Toyota Avanza, with the additional component consisting of blades driven by the exhaust gas flow. The movement of these blades drives a small generator that produces electrical voltage, thereby converting the kinetic energy of the exhaust gases into electrical energy. The research methodology involves simulations using SolidWorks software, where the exhaust model is created in CAD at a 1 to 1 scale. The simulations vary exhaust gas flow velocities at 10, 15, and 20 m/s, with a temperature of 300 degrees Celcius, to assess the effects of the additional component on parameters such as velocity, pressure, and temperature. The study also examines the potential back pressure effects resulting from the installation of the additional component, which could impact the overall efficiency of the exhaust system.

Keywords: Exhaust System, SolidWorks Simulation, Back Pressure

Topic: Engineering

[ABS-5]
Corrosion evaluation of patch repair material using seawater mixed mortar

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Abstract
Infrastructure development in rural and urban areas has been advancing rapidly. Mortar is a crucial component in construction due to its essential role in infrastructure. This study continues to find the formula of patch repair material using seawater mixed mortar to control corrosion risk, using cube-shaped test specimens (15 cm per side) with 2 reinforcements (12 mm diameter) and cover thicknesses of 3 cm and 10 cm, exploring three coating variations: non-coating, still coating, and surface coating. The corrosion potential was measured using the Half-cell Potential (HCP) method on specimens Z 356 and AK, aged 352

days. Results show that specimens with 3 cm cover thickness have more negative corrosion potential values than those with 10 cm thickness. Carbonation depth was highest in specimens exposed to dry conditions, followed by the dry-wet cycle, and finally, wet towel conditions. These parameters suggest potential applications for patch repair materials in concrete, helping to control corrosion in infrastructure.

Keywords: Corrosion, Carbonation, Half-Cell Potential, Mortar, Patch Repair

Topic: Engineering

[ABS-263]

Enhancing Production Quality and Sustainability in Aluminum-Based MSMEs Through Defect Reduction Using Six Sigma Methodology

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Abstract

AS Aluminium, a Micro, Small, and Medium Enterprise (MSME), specializes in producing various aluminum-based products such as thick and thin cake molds, including waffle, laker, pukis, and terang bulan molds. However, the production process is hampered by high defect rates, reaching 8.26% for thick molds and 8.52% for thin molds, based on data from November and December 2022, far exceeding the company's target of a maximum 2% defect rate. This study aims to identify the root causes of these defects and propose effective solutions to reduce their occurrence. Using the Six Sigma methodology and the DMAIC (Define, Measure, Analyze, Improve, Control) framework, the study identifies several key factors contributing to defects, including incomplete aluminum melting, the absence of standardized work procedures, dirty molds, worker fatigue, limited employee skills, and low-quality raw materials. Corrective actions were implemented, such as the procurement of thermoscanners, the development of Standard Operating Procedures (SOPs), raw material selection, and meticulous mold cleaning. After two weeks of implementing these measures, the defect rates dropped significantly to 4.37% for thick molds and 4.83% for thin molds, demonstrating the effectiveness of the proposed improvements in enhancing production quality and efficiency.

Keywords: Defect Reduction, Six Sigma DMAIC, Sustainable Manufacturing Production, Quality Improvement

Topic: Engineering

[ABS-269]

Effect of Injector Timing Variations Using a Programmable ECU on Exhaust Gas Emissions of FI Motorcycles

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Abstract

This research discusses changes in the value of CO and HC exhaust emission levels on FI motorcycles with the use of programmable ECU with 5 treatments on injector timing. The purpose of this study is to determine

how much influence the use of programmable ECU has on the exhaust emissions produced by the object of research. This type of research is experimental research. The object of this research is FI motorcycles. The lowest CO levels produced by FI motorcycles with the use of programmable ECU were obtained in the treatment when the injector timing was 355 ATDC, while the lowest HC levels were obtained in the treatment when the injector timing was 360 ATDC.

Keywords: Exhaust Emissions, FI Motorcycles, Programmable ECU, Injector Timing

Topic: Engineering

[ABS-266]

Assessing and Improving Work Postures in the Manufacturing Industry to Mitigate Musculoskeletal Disorders Using Rapid Upper Limb Assessment (RULA)

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Abstract

Manufacturing industries often encounter issues related to Musculoskeletal Disorders (MSDs) due to non-ergonomic work postures. This condition leads to fatigue, long-term injuries, and decreased worker productivity. Addressing poor work postures is crucial for creating a healthier and more efficient work environment. The aim of this study is to evaluate the risks of musculoskeletal disorders (MSDs) caused by non-ergonomic work postures in manufacturing industries and to develop effective ergonomic solutions to mitigate these risks. This study applies the Rapid Upper Limb Assessment (RULA) method to assess work postures. Data on worker postures were collected, analyzed, and scored using RULA to identify ergonomic risk levels and provide recommendations for posture improvements. The analysis of worker positions and movements during material lifting in manufacturing industries using the RULA method resulted in a score of 7 (red), indicating the need for immediate investigation and correction. After implementing assistive device design, the final score improved to 2 (green), demonstrating that the intervention was effective in reducing MSDs and making the workers movements acceptable. The findings of this study suggest that the use of assistive devices can significantly reduce the risk of musculoskeletal disorders (MSDs) in workers. Ergonomic design improvements not only enhance comfort and safety but also have the potential to increase productivity and work efficiency in manufacturing industries

Keywords: Work Postures, MSDs, RULA, Biomechanics

Topic: Engineering

[ABS-11]

Design of a Banana Chip Slicing Machine to Improve the Quality and Quantity of MSME Products

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Abstract

The problem faced by banana chip MSMEs is producing banana chip products manually. This causes the maximum number of products not to be produced. Apart from that, the resulting product also has a non-

uniform thickness and size. Banana chip business operators in Salo Palai village once purchased a cutting machine but it could not be used because it could not produce the appropriate/desired product. There are other alternative machines, but the prices are quite expensive, so for MSMEs the benefits obtained do not match the costs incurred. This research aims to produce a cutting machine design to produce banana chips for food MSMEs. It is hoped that the results of this research will be useful in improving the quality and quantity of banana chip MSME products in Salo Palai Village. This machine design process provides several alternative design options. This is intended so that users can select and determine designs that comply with the design criteria. Machine design that can increase product quantity and quality is beneficial for banana chip MSME business actors in Salo Palai village. Even though the resulting machine design is still not perfect, it can help business actors in their efforts to increase sales turnover. The results of this research provide implications for increasing the quantity of products produced by MSME banana chips businesses. The quality of the product produced is also getting better because the size of the chips becomes more uniform.

Keywords: Design, Slicer Machine, Banana Chips, MSME, Quality

Topic: Engineering

[ABS-12]
Analysis of Electric Car Driver Seat Considering Anthropometric Ergonomic Aspects

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Abstract

Electric cars are very important since they can reduce air pollution and noise of the engine. The automotive industry is growing in worldwide and in Indonesia. The production of cars very massive. Cars typically run-on gasoline, but now many companies are creating and improving to production of electric cars. Generally, products should be designed according to the size of the user body. If the design is good and comfortable, the body position while driving will be good too. The ergonomic analysis aims to make the driver feel comfortable when driving. The convenience driving must be provided on electric cars. The aim of this research was to provide the position of electric car driver seat using a goniometry tool to match the sitting angle with the body measurements of Indonesian individuals. This research conducted in several stages by namely setting the existing car driver seat, documenting human as sitting on the driver car seat, a then measuring the images, particularly the body joint angles such as necks angle, shoulders angle, elbows angle, wrist angle, torsos angle, hips angle, knees angle and ankles angle by using goniometer. Measurement of body joint angles, they result were used to determine the comfortable of electric car driver seat. The convenience of electric car driver seat was formulated based on the findings of this study, including the seat backrest should be adjustable, the bottom seat should be adjustable for driver to reach accelerator and brake pedal.

Keywords: Ergonomics, Anthropometry, Driver Seat, Software Jack 8.2

Topic: Engineering

[ABS-16]
Assessment of Service Efficiency Using Public Service Models

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Abstract

The intensification of mutual competition in the modern complex market economy requires the improvement of the quality and efficiency of service providing, as in all fields. As a result, new types of services must be introduced, their quality improved, and new methods of measuring their effectiveness developed. The current evaluation methods are based on the statistical analysis of survey data from service consumers. In contrast to previous methodologies, the suggested method is based on evaluating the efficiency of a service type using mathematical models from public service theory. An objective function comprising the service quality indicator, organizational expenses, service profit, and the value of the time customers spend using the service is suggested as an evaluation indicator. On the basis of mathematical models of public service, the objective function's coordinators were chosen. The minimal value of the objective function determines how effective the suggested service type is. The obtained results allow to calculate the costs and profits of the company offering the service, and thus to evaluate the effectiveness of the service. The suggested model considers both the interests of the service's users and the corporation providing the service.

Keywords: Public Service Models, Service User Flow, Service Time, Service Devices, Time Spent

Topic: Engineering

[ABS-28]
Designing a Multi-Modal Vehicle Data Capture System for Forensic Accident Analysis

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Abstract

Traffic accidents and road incidents are major concerns for governments, transportation safety agencies, and the public. Statistics indicate an increase in the number of accidents in Indonesia over the past few years. The primary contributing factors to these accidents include human, vehicle, and environmental elements. However, collecting evidence or data often poses challenges, particularly regarding driver statements and witness accounts. To address these issues, this study develops a data recording system for motor vehicles. The system records data such as speed, location, time of occurrence, vehicle tilt, as well as audio and video inside the cabin, using a Raspberry Pi 4 Model B and ESP32 as the main controllers. Testing was conducted on a car with simulations on provincial roads and highways to evaluate the performance of each sensor. The test results showed good performance, with the MPU6050 sensor error rate ranging from 0.028% to 0.123%, the Beitian Be-220 GPS sensor error rate at 2%, and latitude-longitude coordinates with an error margin of 0.000661% to 0.001403%. This system is expected to support traffic investigations and assist regulatory authorities by providing more accurate evidence, while also increasing awareness of road safety.

Keywords: ESP32, Traffic Accidents, Transportation Safety, Raspberry Pi, Data Recording System.

Topic: Engineering

[ABS-27]

Statistical Analysis of Temperature Effects on Brake Force and Efficiency in Vehicle Braking Systems: A Comprehensive Study

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Abstract

The vehicle braking system plays a crucial role in maintaining road safety particularly under high temperature conditions resulting from friction during braking. Thermal stress in braking components was observed to diminish braking efficiency primarily due to the degradation of friction materials which negatively impacted overall performance. Situations involving frequent or intense braking such as on steep descents or at high speeds elevated brake temperatures and lowered the friction coefficient resulting in reduced braking torque and longer stopping distances. Studies have shown that approximately 30percentage of accidents were associated with brake related issues with thermal effects being a significant factor. This research examined braking efficiency at four operational temperatures: 30degrees celsius 100degrees celsius 150degrees celsius and 200degrees celsius. Descriptive statistical methods summarized the data while inferential analyses ANOVA assessed the impact of temperature on braking performance. The results revealed a notable decline in braking efficiency between 100degrees celsius and 150degrees celsius with efficiency dropping from 75percentage at 30degrees celsius to 35percentage at 200degrees celsius. Box plot analysis demonstrated consistent trends across temperature categories while chi square tests confirmed a significant relationship between elevated temperatures and reduced efficiency. These findings underscored the necessity for advanced brake materials and cooling mechanisms. Future research was recommended to explore alternative materials such as composites and investigate innovative cooling strategies to enhance thermal resilience and performance under extreme conditions.

Keywords: Brake Efficiency, Temperature Effects, Braking Force, Thermal Threshold

Topic: Engineering

[ABS-30]

Assessing the Efficacy of Contraflow Strategies and Ripple Effects on Peripheral Road Network Performance: Insights from Brigjen Sudiarto Road, Semarang

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Abstract

Traffic congestion is a significant challenge in Semarang, Indonesia, a rapidly urbanizing metropolitan area. To address this issue, a contraflow strategy was implemented on Brigjen Sudiarto Road, aiming to alleviate congestion and enhance traffic efficiency. The assessment of the contraflow system's effectiveness utilized the Indonesian Highway Capacity Manual (PKJI). Data were obtained through direct observation and secondary sources, focusing on traffic volume, road capacity, and level of service (LOS) comparisons before and after implementation. Findings revealed a 75% reduction in westbound traffic saturation, attributed to the addition of one lane, while eastbound congestion increased slightly due to lane reduction. The analysis also highlighted the contraflow's impact on surrounding roads, such as Soekarno Hatta and Supriyadi Streets, which serve as alternative routes during peak hours. Simulations indicated that the contraflow

system improves flow efficiency and travel time, especially during morning and evening rush hours. This evaluation underscores the potential of contraflow strategies as practical interventions for managing urban traffic, providing insights for cities facing similar challenges globally.

Keywords: Contraflow, Traffic Management, Urban Congestion, Road Network Performance, Semarang

Topic: Engineering

[ABS-32]
Aerodynamic Study of Two Racing Motorcycle in Slipstream Condition

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Abstract
The performance of modern racing motorcycle is greatly influenced by their aerodynamics. During a race, there must be a condition where a rider follows closely behind another rider, especially on a straight track. This is called slipstreaming. The effect can reduce aerodynamic drag and increase the overall speed for the rider behind. This study investigates the aerodynamic effects of slipstreaming on a racing motorcycle using computational fluid dynamics. In this case, not only its effect on drag force but also the downforce that affects the stability of the motorcycle is considered. A 3D CAD model of a racing motorcycle and a rider with a crouching position was used as the object of research. CFD simulations were carried out using the RANS Steady State solver with the k-&#969- SST turbulence model. Various distances between motorcycles were simulated to evaluate their effect on slipstream performance, in addition to varying the speed of the motorcycles. The results not only show the effect on drag force but also the downforce for the trailing motorcycle. This is due to the shielding effect of the motorcycle in front, which creates a low-pressure zone behind it. Additionally, the turbulence behind the racing motorcycle also affects its downforce. By optimizing the distance between motorcycles in the slipstream, riders can obtain additional overtake performance and reduce the adverse effects on motorcycle stability because the slipstream also affects the downforce. And also, can be used to develop aerodynamic modifications to racing motorcycles that can utilize the slipstream more effectively.

Keywords: Aerodynamic, Motorcycle, Computational Fluid Dynamics, Slipstream

Topic: Engineering

[ABS-290]
Site-Specific Earthquake Performance: Assessing Structural Resilience Using Finite Element and Pushover Analysis

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Abstract
The safety, performance, and sustainability of buildings are crucial, particularly in seismically active regions. This study evaluates the structural performance of buildings designed under older and newer Indonesian seismic codes when subjected to earthquakes induced by site-specific faults. The analysis focuses

on 1- to 8-story buildings, using finite element modeling and pushover analysis to assess their seismic vulnerability. The results demonstrate significant differences in building responses between the older and newer seismic codes. Buildings designed under older codes show greater vulnerability to site-specific seismic events, highlighting the limitations of outdated provisions in addressing localized seismic risks. These findings underline the necessity of updating design practices to enhance building resilience, particularly in fault-prone regions. Additionally, the study emphasizes the importance of modern seismic standards in promoting sustainable infrastructure. By reducing the need for extensive reconstruction, minimizing material waste, and improving long-term building safety, these standards contribute to the development of more resilient cities. This research offers valuable insights for engineers and policymakers in regions facing similar seismic challenges, reinforcing the global effort to improve seismic safety and ensure sustainable urban development.

Keywords: Seismic Performance, Building Resilience, Sustainable Infrastructure

Topic: Engineering

[ABS-65]
Design of a Synchronizer Control System for a Dual Fuel Fuel System in a Biogas Engine

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Abstract

Biogas is a new and renewable energy source that offers numerous advantages. It is renewable, environmentally friendly, capable of reducing dependence on fossil fuels, and economically valuable. Additionally, biogas has a high-octane rating, making it suitable for use in high-compression engines. The use of biogas as engine fuel requires adequate quality control, as not all biogas can be used effectively as fuel. Based on previous research, the quality of biogas fuel can be categorized into several clusters: Cluster one: Biogas contains a high level of methane, making it easy to use for engine operation. Cluster two: Biogas has a moderately low methane content, which makes it difficult to use for engine operation. Cluster three: Biogas has a very low methane content, rendering it unsuitable for engine operation. This study focuses on addressing issues related to the utilization of second-cluster biogas. For this cluster, a synchronizer control system is employed to manage the transition process from gasoline to biogas as fuel. The method involves designing an electronic synchronizer control system that operates in multiple steps. The resulting design regulates the entry of biogas through the following steps: The control system deactivates the gasoline check valve. The system opens the first biogas check valve. The system opens the first and second biogas check valves. The system opens the first, second, and third biogas check valves. The designed engine operates smoothly during the transition from gasoline to biogas. However, the control system design does not yet account for factors such as engine temperature, environmental conditions, or the integration of artificial intelligence. These factors can be considered for inclusion in future developments of the synchronizer control system.

Keywords: Synchronizer Control System, Biogas, Methane Gas, Engine

Topic: Engineering

[ABS-296]

Effect of Ignition Timing Variations Using a Programmable ECU on Power and Torque of FI Motorcycles

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Abstract

This research discusses the effect of variations in ignition timing on the power and torque produced by FI motorcycles using programmable ECU. The purpose of this design research is to find out how much influence ignition timing variations have on the power and torque produced by the object of research. Based on the research conducted, it can be concluded that after ignition timing variations (6 BTDC, 7 BTDC and 4 BTDC, 3 BTDC) using the programmable ECU, it can be concluded that there is an increase in power and torque produced by the vehicle. Based on the research conducted, several things can be known as follows. First, the highest power increase occurred in the ignition timing treatment advanced two degrees with an increase in power of 5.56 Kw to 5.58 Kw or an increase of 0.75%. Second, the highest increase in torque occurred when the ignition timing was set back two degrees with the resulting average torque of 8.21 N.m to 8.28 N.m or an increase of 0.97%.

Keywords: Power, Torque, FI Motorcycles, Programmable ECU, Ignition Timing

Topic: Engineering

[ABS-42]

Smart Tools for Smart Learning: IoT-Based Landslide Early Warning System with TILT Sensors and Apps

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Abstract

This study focuses on the design, application, and validation of an IoT-based Landslide Early Warning System (EWS) utilizing TILT sensors and the BLINK application. The goal is to develop an educational yet functional system to enhance students' understanding of landslide mechanics and real-time monitoring for early warning. The system integrates TILT sensors to detect slope movement and slope angle changes. These sensors are connected to the BLINK application, which serves as an easy-to-use interface for data visualization and real-time alerting. The system is then tested in a simulated environment to validate its accuracy. Results show a detection accuracy of 95% for slope instability events, with alerts sent to the BLINK application within milliseconds. Additionally, user trials involving high school students revealed significant improvements in their understanding of landslide triggers and the role of early warning systems. These findings highlight the dual benefits of this system as both an educational tool and a functional early warning tool. By combining IoT technology with hands-on learning, this approach bridges theoretical knowledge and practical application, empowering students to understand and mitigate landslide risks.

Keywords: Landslide EWS, IoT, TILT Sensor, Smart learning

Topic: Engineering

[ABS-48]

Finite Element Analysis of Fermentation Frame Design for Cocoa Beans with ASTM A36 Material

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Abstract

Farmers in Berau Regency continue to conduct the cocoa bean fermentation process traditionally. In this traditional method, farmers use wooden boxes, which can lead to corrosion contamination due to the use of nails and other materials, potentially affecting the safety and quality of the resulting cocoa beans. The need for efficient fermentation technology has driven the development of a robust and safe frame design to support the cocoa bean fermentation process. This study aims to analyze the strength of the fermentation frame design made from ASTM A36 material using the finite element method (FEM) in Autodesk Inventor Professional 2024. The analysis includes stress distribution (Von Mises), displacement, and safety factor. The method begins with the frame design, followed by determining the frame dimensions and analyzing the frame using FEM under a load of 637 N. The simulation was performed to determine the maximum stress distribution, displacement value, and safety factor to ensure the design meets the required safety standards. The study results show a maximum Von Mises stress of 7.19443 MPa, a displacement of 0.0693914 mm, and a safety factor of 15. Based on these findings, the simulated frame design is technically categorized as safe from critical limits, and the cocoa bean fermentation device can operate effectively.

Keywords: Design, FEM, ASTM A36, Von Mises, Cocoa Bean Fermentation

Topic: Engineering

[ABS-63]

Prediction of Surface Distress Index Using Pavement Condition and Deterioration Factors: A Machine Learning Approach

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Abstract

The Surface Distress Index (SDI) is a crucial parameter to consider when determining road conditions as part of an effective maintenance strategy. This study aims to develop an SDI prediction model using road surface distress data to enhance maintenance planning. The model was trained using two years of surface distress data collected from 40 road sections managed by the citys road maintenance division. Variables used included Composition, Condition, Depression, Patches, Damage types, Crack Area, and Crack Width. The developed Artificial Neural Network (ANN) model resulted in an optimal structure with two hidden layers comprising 8 neurons and 4 neurons, respectively. The results demonstrated high accuracy in predicting SDI, with model performance achieving R-Squared 0.86, RMSE 0.11, and MAE 0.054. This model can be applied to optimize the efficiency of road maintenance strategies.

Keywords: SDI, ANN, Road Condition, Road Maintenance, Predictive Modeling

Topic: Engineering

[ABS-57]
Mobile-based Decision Support System for Action Recommendations for Weather Conditions

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Abstract

Dynamic and unpredictable weather conditions often influence strategic decision-making across various sectors, including transportation, agriculture, and disaster management. This study aims to design and develop a decision-making system that provides actionable recommendations based on weather condition analysis. The system integrates machine learning technologies, real-time weather data processing, and decision-making algorithms to deliver precise recommendations across diverse weather scenarios, both normal and extreme. The research methodology consists of collecting weather data from global weather Open API in openweathermap.org. The system is designed to identify potential weather risks, such as heavy rain, strong winds, or extreme temperatures, and to provide specific action suggestions, such as prepare an umbrella, rescheduling activities, initiating evacuations, or implementing preventive measures. The trial results indicate that the system with a weather prediction accuracy rate of 92%. This research is expected to make a significant contribution to weather-based risk management and serve as a reliable solution for supporting smarter, faster, and more effective decision-making. The system also opens opportunities for further development by integrating Internet of Things (IoT) technologies and artificial intelligence to enhance its functionality.

Keywords: Mobile, API, Decision Support System, Smart Decision-Making

Topic: Engineering

[ABS-323]
Design and Development of a Portable Diagnostic Tester for Fault Detection in EFI Vehicle Control Systems

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Abstract

Almost all engine technology in vehicles today uses electronic control systems. Apart from the purpose of efficiency and improving engine performance, one of the features presented in this technology is the ease of diagnosing faults through fault codes that can be seen from the blinking of the check engine indicator, commonly referred to as the mallfunction indicator lamp (MIL). In fact, each vehicle manufacturer has a different coding so that technicians need to have experience / need to look at the manual to translate the code. This research aims to create a portable device that can read the malfunction code seen on the MIL. This tool uses a light sensor to detect the light emitted by the MIL, a microcontroller as the data processing centre, and an LCD to display the fault information. From the research results, it is found that this tool can accurately detect the fault based on the MIL.

Keywords: Fault Code Diagnosis, Portable Device, Light Sensor, Automotive Electronics

Topic: Engineering

[ABS-64]

Heavy Metal Contamination in Swiftlet Feathers: A Comparative Study of Chromium and Arsenic Levels in Industrial and Non-Industrial Areas of East Java, Indonesia

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Abstract

This study examines the levels of chromium (Cr) and arsenic (As) in the feathers of edible-nest swiftlets (Aerodramus fuciphagus) from two distinct environments: an industrial area in Gresik, and a non-industrial area in Nganjuk, Indonesia. Feather samples were collected from swiftlet houses in both locations and analyzed using an X-Ray Fluorescence (XRF) Analyzer. The results revealed that the average Cr concentration in feathers from Gresik was 3.36 ppm, compared to 1.49 ppm in Nganjuk. Similarly, the average as concentration in Gresik was 2.34 ppm, whereas in Nganjuk obtained it was 1.22 ppm. These differences may be attributed to factors such as air quality in flight areas, the drinking water consumed by the birds, and the quality of their food sources. The findings indicate that swiftlets inhabiting industrial regions are exposed to higher levels of heavy metals, highlighting the influence of environmental conditions on bioaccumulation. This study underscores the potential of swiftlet feathers as bioindicators of environmental pollution.

Keywords: Biomonitoring, Swiftlet, Chromium, Arsenic, X-Ray Flourescene, Pollution

Topic: Engineering

[ABS-69]

Finite Element Analysis of Bumper Beam with Thickness Variation Based on Natural Fibre Composite Material

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Abstract

Composite material consists of several materials. Currently, composite materials, such as bumper beams, have been widely applied in the automotive field. Natural fibres that are more environmentally friendly are one of the factors for making composite materials, one of which is coconut fiber bamboo fiber with epoxy matrix which has been done by previous researchers. In this study, finite element analysis was carried out, namely, von Misses stress, deformation, safety factor, and comparison of bumper weight between bumper beam steel weight. The results of the analysis obtained the highest Von misses stress at a thickness of 3 mm bumper beam of 7.0908 Mpa. The results of the study on the deformation obtained by the 3 mm bumper beam is 1.0575 mm. The results of the safety factor analysis obtained on the bumper beam thickness of 6 mm and 9 mm are 15,000 safety factors. The results of the study of the weight comparison of the bumper beam at a thickness of 3 mm, 6 mm, and 9 mm can reduce the weight by 85.37%, 68.48%, and 52.82%.

Keywords: Finite Element, Bumper Beam, Material Composite

Topic: Engineering

[ABS-326]

Utilization of Vehicle Exhaust Gas Through Generator Engineering to Generate Voltage for Vehicle Batteries

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Abstract

Motor vehicles use chemical energy from fossils that have been buried for thousands of years to move chemical energy from fossils that have been buried for thousands of years. The chemical energy is converted into motion energy that can move the motor vehicle. But over time, its availability is dwindling and the pollution it causes is also very impact on human life and the environment. Therefore, the author has a design to change the chemical energy used by utilizing alternative energy, one of which is by utilizing energy from electrolysis of water. But in this electrolysis process, it requires a high voltage from the battery, causing the battery to decrease. Therefore, research was conducted to find a battery supplier by utilizing exhaust gas on the vehicle. By giving some tools such as generators and propellers that will convert the exhaust gas of the vehicle, rotate the propeller and turn the voltage into a voltage that can supply the battery. In this research, focusing on the generator where the number of windings will be varied with a comparison of number of turns below the standard, standard and above the standard as well as with several speeds, namely 30, 50, and 60 km / hour. The results obtained from the windings 114, 124 and 129 twists compared to the standard state or the number of 104 turns, experienced an increase of, 6.7%, 8.5%, and 17%. After calculating the data obtained, it can be concluded that the treatment of less than the standard or the number of turns of 99 turns has decreased by 1.21% against the standard treatment or the number of turns of 104 turns.

Keywords: Motor Vehicles, Exhaust Gas, Generator

Topic: Engineering

[ABS-81]

A Simple Determination of Runoff Coefficient in Open Pit Mine Areas

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Abstract

The runoff coefficient is one of the factors in determining runoff discharge. Determining the coefficient can be done by calculating the slope of an area, then obtaining the appropriate runoff coefficient value. Open-pit mines have the characteristic areas that do not have vegetation cover, and commonly included in the slope category >15% with a coefficient value of 0.9. In fact, open-pit mining areas sometimes have land slopes of <15% at some open-pit mining locations. This research aims to determine the runoff coefficient based on the slope of open mining land with the help of google earth, by analyzing contour map data of mining areas in South Kalimantan province. From several open mine locations, it was found that the land slope value ranges from 7% -13% so that the runoff coefficient value for open mines is 0.7.

Keywords: Runoff Coefficient, Open Pit Mine, Google Earth

Topic: Engineering

[ABS-74]

Development of Brake Pads from Teak Wood Powder and Rice Husk Ash using Hotpress

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Abstract

Teak wood powder and rice husk ash brake pads have been made as alternative brake pad materials, but have not met the SAE J661 brake pad standards. The use of a hot press of 180C and improvement of the composition of brake pad materials are needed to improve the quality and meet the brake pad testing standards based on SAE J661. The study used an experimental method with three samples. Sample variations in the form of a mixture of teak wood powder and rice husk ash and a mixture of epoxy, aluminum, and magnesium. The samples were made using a hot press with a temperature of 180C. The tests carried out included hardness, wear, heat resistance, and density tests. The samples were tested on two-wheeled vehicles to test the braking distance. The results showed the highest hardness test of 53.79 HV, the highest wear test of 5.17X10 mm/kg, the highest density test of 1.18 gr/cm, the best sample heat resistance test on sample 3 and the best braking distance test of 3.60 m with a deceleration of 17.11 ms. Testing of brake pads made of teak wood powder and rice husk ash still does not meet the SAE J661 standard. Further research needs to replace the brake canvas material with a natural material with a higher level of hardness.

Keywords: Teak Wood Powder, Rice Husk Ash, Brake Pads, Hotpress

Topic: Engineering

[ABS-75]

Exhaust Manifold Fatigue Life Prediction Using Finite Element Method

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Abstract

Exhaust system (Exhaust Manifold) functions as a channel that channels exhaust gas from the engine cylinder into the exhaust system. The Exhaust Manifold functions to conduct heat from the combustion chamber, thereby reducing the heat that occurs in the engine. The Exhaust material must be able to withstand high temperatures and corrosion caused by exhaust gas. Stainless Steel was chosen as the material for the Exhaust Manifold because Stainless Steel is resistant to high temperatures and is resistant to corrosion, Stainless Steel also has good mechanical properties in withstanding thermal cycles and mechanical loads. This study examines the prediction of fatigue life using the finite element method. The exhaust manifold design uses Autodesk Inventor Professional 2024, while the finite element analysis uses Ansys Workbench 2021 R1. The Exhaust Manifold is subjected to a load of 30 kg from the muffler load with a full Reserved loading type. The predicted fatigue life uses the Gerber average stress theory. The exhaust manifold material is structural steel. The simulation results show that the exhaust manifold has a fatigue life of up to 1 x 10'6 cycles with a safety factor of 1.1715.

Keywords: Exhaust Manifold, Fatigue Life, Finite Element Methode

Topic: Engineering

[ABS-80]

PLC-Based Cooking Oil Filling Machine Automation to Increase Production Efficiency

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Abstract

Packaging cooking oil in home industries has the disadvantage of inaccurate volume measurements and inefficient filling processes due to the limitations of operators in performing the packaging. For that reason, it is necessary to create a tool that can help improve efficiency while also ensuring that the packaging volume matches its size. This tool is PLC-based, so the packaging process is done automatically and more accurately. This tool consists of several modules, namely the control module, buffer tank module, and wagon module. The electronic components required to run the PLC program are created in the 'Zellio Soft' software using ladder language. The final stage is conducting performance testing in the form of error percentage testing and filling speed. Based on the research, the error data obtained is 0.19%. Meanwhile, the average filling speed is 148 grams/second or 579.13 liters/hour. This result is much better compared to the manual process where the average error is 0.65%. The average filling speed in the manual process is 139.53 grams/second or 545.98 liters/hour. The production capacity through this automation system is capable of increasing the production capacity by 226 liters/day, which is better than the manual method.

Keywords: PLC, Cooking Oil, Filling Machine, Efficiency

Topic: Engineering

[ABS-82]

Chemical Functional Groups of Biocomposite Based on Polyvinyl Alcohol/Cassava Starch Filled by Lemon Peel Fiber

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Abstract

This study reports the chemical functional groups of Polyvinyl Alcohol (PVA) and cassava starch biocomposite with lemon peel fiber as filler. Lemon peel fiber was prepared using alkali treatment by NaOH 1%. Biocomposite is produced by the solution casting method. The produced samples were then characterized using Fourier Transform Infra-Red (FTIR) analysis. The result is that PVA/Cassava starch filled with 3% lemon peel fiber has the highest transmittance among other filled variations. This is evidenced in the 1700 cm-1 to 1740 cm-1 wavebands which indicate an increase in fibers in the matrix of this blend thereby increasing the formation of hydrogen bonds, which in turn reduces the number of free O-H groups present in the biocomposite. These results prove that the addition of lemon peel fiber fillers can bind well with the matrix so that it has the potential to become an environmentally friendly plastic product.

Keywords: Polyvinyl Alcohol (PVA), Cassava Starch, Lemon Peel Fiber, Biocomposites, Chemical Functional Groups

Topic: Engineering

[ABS-83]
Improving Slope Stability in Coal Mines: A Case Study

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Abstract
Coal mining is an industry susceptible to slope failures, which can lead to significant economic losses and casualties. To mitigate this risk, a study was conducted to assess the stability of a post-landslide slope in the Cendana pit. The Factor of Safety (FOS) was calculated before and after slope improvement using Slide 6.0 software and the Bishop method. Results indicated that the initial FOS was 1.19, categorizing the slope as ALERT. After improvement, the FOS increased to 2.46, classifying the slope as STABLE. The primary cause of the landslide was identified as groundwater activity, exacerbated by large cavities and cracks in the slope material. To address these issues, three potential mitigation measures were proposed: slope geometry modification, counterweight installation, and geomembrane application. This study highlights the importance of FOS analysis and appropriate mitigation measures in ensuring the safety and sustainability of coal mining operations.

Keywords: Factor of Safety, Slope Stability, Coal Mine

Topic: Engineering

[ABS-85]
Optimizing Carbon Sequestration and Biomass Yield of Setaria Grass for Net-Zero Goals in Karst Ecosystems

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Abstract
Achieving Indonesia net-zero target by 2060 requires innovative carbon sequestration strategies, particularly in marginal karst ecosystems with low fertility and limited organic carbon content. This study evaluates the potential of Setaria grass to enhance biomass production and carbon storage under varying doses of organic liquid fertilizer. Above- and below-ground biomass measurements were used to quantify total carbon storage. Fertilizer application significantly increased dry biomass, ranging from 8.46 to 18.20 kg/m2. Below-ground biomass (BGB) accounted for the majority of carbon stored, highlighting the critical role of root systems in carbon sequestration and soil improvement through root exudates. Additionally, increased above-ground biomass (AGB) not only contributes to carbon storage but also supports local livestock by enhancing forage availability. Total carbon storage ranged from 7.34 to 37.26 tons/ha, depending on fertilizer dosage. These findings demonstrate the effectiveness of organic liquid fertilizer in optimizing carbon storage and biomass productivity, providing a scalable approach for restoring degraded ecosystems. This approach could be scaled to similar marginal ecosystems globally, offering dual benefits for carbon sequestration and sustainable agriculture.

Keywords: Carbon Sequestration, Setaria Grass, Karst Ecosystems, Organic Fertilizer, Net-Zero Goals

Topic: Engineering

[ABS-339]

Analysis of Abrasive Wear on Teeth Bucket of Caterpillar Mini Excavator 305.5E2 Using Finite Element Method

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Abstract

This study aims to find the abrasive wear on the bucket teeth of the Caterpillar model 305.5E2 compact excavator utilizing ANSYS software. Teeth bucket abrasive wear is an important issue in the construction and mining industries, as it impacts operational efficiency and equipment longevity. This research included analyses of stress, tension, and strain to identify important locations prone to wear. The geometric model of the teeth bucket and its interface with the soil were built and simulated using ANSYS, representing various operational situations to yield realistic results. The analytical results indicated the distribution of deformation, stress, and strain across the tooth bucket, emphasizing regions subjected to the greatest mechanical loads. The greatest deformation occurred at the tip of the teeth bucket in direct contact with the earth, signifying that this region is more likely to wear. Stress analysis indicated elevated stress in the contact regions, implying a risk of material breakdown from fatigue. Maximum strain was observed in the identical region, signifying recurrent plastic deformation. This study's results demonstrate that the finite element method utilized with ANSYS effectively predicts wear patterns on the tooth bucket. Recommendations for enhancement encompass utilizing more wear-resistant materials and reinforced designs in essential regions. These discoveries are anticipated to enhance the efficacy and durability of toothed buckets in industrial applications.

Keywords: Abrasive Wear, Teeth Bucket, Excavator, Finite Element Method

Topic: Engineering

[ABS-346]

Development of Design Concepts Driving Factors for Technology Acquisition in Small and Medium Aluminium Industries

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Abstract

The Small and Medium Enterprises (SMEs) in the aluminium sector in Yogyakarta play a strategic role in supporting both the local economy and other industries. Observations indicate that 41 aluminium SMEs have low production capacities, primarily due to their reliance on traditional technologies. This study explores the relationship between factors driving technology acquisition-organizational motivation, partner involvement, desired technology, and acquisition scenarios-and the intention to adopt new technology within the aluminium SMEs in Yogyakarta. Using the Spearman rank correlation test and SPSS software for data analysis, the study involves five aluminium SMEs: TS Aluminium, ED Aluminium, SP Aluminium, WL Aluminium, and Kripton Gamajaya Aluminium. The results show a significant relationship between organizational motivation and the intention to acquire technology, with a correlation value of 0.844. Positive relationships were also found between partner involvement, desired technology, and acquisition scenarios and the intention to acquire technology, with correlation values of 0.703, 0.712, and 0.837, respectively. This

research aims to assist the Technical Implementation Unit for Metals (UPT Logam) in encouraging aluminium SMEs to pursue technology acquisition.

Keywords: Small and Medium Enterprises (SMEs), Aluminium SMEs, Technology acquisition

Topic: Engineering

[ABS-344]
Analysis of Primary Coil Voltage on Spark Ignition Engine Using Flash Cable

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Abstract
Innovation in the ignition system of injection motorcycles is very important to improve engine performance. This study aims to analyze the primary coil voltage of injection motorcycles that use flash cables. Flash cables have three types of coils, namely 11, 16, and 21 coils and are tested to determine the increase in voltage produced. This study uses an experimental method that uses a peak voltage adapter measuring instrument connected to a digital multimeter. The results show that variations in the length of the flash cable significantly affect the primary coil voltage, where the flash cable with 21 coils provides the highest voltage increase of 261.625 V, compared to conditions without flash cables which only reach 219 V. The use of flash cables can improve ignition efficiency, performance, and fuel efficiency of injection motorcycles.

Keywords: Coil Primary Voltage, Spark Ignition Engine, Flash Cable

Topic: Engineering

[ABS-92]
Experimental Study of The Application of Air-Water Two-Phase in Peltier Based Cooling Systems

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Abstract
Recently, peltier-based cooling systems have been widely developed in the automotive sector, the cooling systems developed so far are limited to single-phase fluid flow of liquid or gas, while the use of two-phase flow has been developed in heat exchangers in the industrial sector. This study was conducted to determine the effect of two-phase air-water flow on peltier-based cooling systems. In this study, the experimental method was carried out using a constant superficial water velocity of 0.19 m/s, then the superficial air velocity was varied at 0 m/s, 3.7 m/s, 7.5 m/s, 11.7 m/s, 15.6 m/s, and 19.5 m/s, and 3 waterblock models were tested to see if they had any differences in reducing the temperature of the peltier-based cooling system. Visual observations were also carried out to determine the flow patterns that occurred in each variation of the superficial water and air velocity. From the experiments that have been conducted, data on flow patterns (without flow patterns, roll wave, pseudo slug, entrained droplet), liquid thickness, temperature drop in each variation of superficial water velocity and superficial air velocity in 3 waterblock models, and a

comparison of the minimum temperature obtained from 3 waterblock models were obtained. From the multiple linear regression statistical test, it was found that the superficial water velocity did not have a significant effect while the superficial air velocity had a significant effect. Using the one-way anova statistical test, it showed a significant difference in the minimum temperature achieved by the three waterblock models.

Keywords: Peltier, Two-Phase, Heat Transfer

Topic: Engineering

[ABS-94]
Machine Learning (ML) Based Repair-Count and Periodic Maintenance Policy for Multipurpose CNC Machinery

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Abstract

This study deals with developing a maintenance policy framework using a machine learning approach for multipurpose CNC machinery in an automotive part manufacturer. Throughout 30000 minutes of observation, the mean time to failure (MTTF) and mean time between failure (MTBF) indicate improper maintenance policy, with 10201 and 1100.81 minutes, respectively. Several factors are utilized to predict failure times using machine learning algorithms, such as process temperature, air temperature, rotational speed, and torque. It is found that extreme gradient boosting (XGBoost) outperforms other classification algorithms with 96.43% accuracy in validation and test data. The best model from the XGBoost algorithm is used to predict future failure times using the additional data from 15000 minutes of observation. The predicted failure times then become the input for obtaining optimal maintenance policy by considering its statistical distribution. This study observes the repair-count policy (policy 1) and the periodic policy (policy 2) to produce a minimum cost as the manufacturer's interest. The perfect-repair action in policy 1 will be performed if only the repair frequency reaches the threshold number (i.e., k). Policy 2's perfect repair is based on a predetermined perfect-repair time (i.e., t). Subsequently, policy 1 produces a lower cost with the expected cost rate of 32241.03 and an optimal failure threshold of k = 19. Meanwhile, policy 2 has an expected cost rate of 32538.13 at the optimal periodic time of t = 39000.56. Finally, the proposed framework allows the manufacturer to establish an optimal maintenance policy with minimal cost interests.

Keywords: CNC machinery, Machine Learning, Predictive Maintenance, Repair-count, Periodic Maintenance

Topic: Engineering

[ABS-354]
Remanufacturing: A Case Study in PT. SKF Indonesia

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Abstract

Global warming, pollution and climate change are the main effects of greenhouse gases, especially carbon dioxide. The manufacturing industry in Indonesia contributes 28% in releasing carbon emissions. One of the efforts to reduce carbon emissions is through collection end of life products to be reused. Remanufacturing

is the process of restoring product value to be the same as new or better than before with the same quality and warranty as new products. The motivations for remanufacturing are lowering costs, shorter manufacturing times, and reducing resources to achieve better profitability. Remanufacturing management is more complex because there are specific stages, such as a collection of used products, component removal, cleaning, repair, and reassembly. This study aims to determine the remanufacturing practiced conduct by area PT. SKF Indonesia. It investigates the reason, purpose, process and difficulty faces by PT. SKF Indonesia to do remanufacturing. The study highlighted how the company collected the end-of-life product, efficiency, process, demand and marketing strategy of remanufacturing products

Keywords: Remanufacturing, Product Recovery, Bearing, SKF

Topic: Engineering

[ABS-100]
Digital Transformation in Concrete Curing: Hot Water Curing with IoT Integration

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Abstract
Curing plays a vital role in concrete construction by providing the necessary moisture and temperature to support the hydration process, which is crucial for achieving the required strength. Traditional curing methods, often involving water curing over a 28-day period, are time-consuming and may not align with the rapid project timelines of modern construction. To address this challenge, this study investigates hot water curing as a viable alternative. By using heated water, the curing process is accelerated, enabling concrete to achieve its target strength in a reduced timeframe. While hot water curing is commonly applied to precast concrete elements, this research introduces a smart curing system leveraging the digital technologies by integrating the components such as an Arduino microcontroller, breadboard, relay, solenoid valve, and thermostat to optimize curing efficiency, reduce water wastage, and facilitate early strength gain. Experimental results reveal that curing concrete with hot water at 60 degree Celsius for 12 hours effectively meets the required compressive strength, presenting a sustainable and time-efficient solution for concrete curing.

Keywords: Concrete, Hot Water Curing, Hydration Process, Smart Curing, Time

Topic: Engineering

[ABS-106]
Experimental Analysis of a Hybrid-Configured Battery Thermal Management System Using Paraffin Oil and Fan

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Abstract
Lithium-ion batteries are considered to be one of the best energy storage systems for electric vehicles. However, lithium-ion batteries generate heat during use, which can reduce battery life and pose a hazard if

not properly managed. A Battery Thermal Management System (BTMS) is needed to maintain the operating temperature within safe and optimal limits. The hybrid cooling method, which combines active and passive cooling, has been shown to be effective in overcoming high thermal issues. This study compared three cooling schemes: no cooling system, passive cooling with paraffin oil, and hybrid cooling with paraffin oil and fan. In this study, the average temperature of the battery without cooling was 35.515&#8451-, using a passive cooling system (paraffin oil) 34.328&#8451-, and the battery using a hybrid cooling system (paraffin oil and fan) 33.344&#8451-. The results showed that the hybrid cooling system was the most effective in maintaining battery temperature, although it required additional energy that caused battery power.

Keywords: Lithium-Ion Battery, Hybrid Cooling, Paraffin oil

Topic: Engineering

[ABS-362]
Evaluation of the Building Information Modelling (BIM) Implementation in Construction Projects on Lombok Island Using Analytical Hierarchy Process (AHP) and SWOT Analysis

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Abstract
Building Information Modelling (BIM) is a breakthrough in the construction world. BIM facilitates data validity with excellent visualization. In addition, data accuracy is also a major advantage of BIM applications for construction work. In this study, an evaluation of the implementation of BIM in construction work on Lombok Island was conducted. The evaluation resulted in strategies that can be applied to overcome obstacles to using BIM in the field. The data in this study were obtained by giving questionnaires to 30 respondents spread across 4 large construction projects on Lombok Island. Furthermore, data processing was carried out by utilizing the Analytical Hierarchy Process (AHP) as a determinant of variables that influence the obstacles to the use of BIM and SWOT analysis to compile a method that is expected to be able to solve problems based on existing variables. Based on the data processing results, 21 variables were obtained, and six aspects were considered obstacles in the application of BIM. In accordance with the ranking using AHP, 12 variables were obtained as a reference in determining strategies using SWOT. Then, seven strategies were obtained that can be applied to resolve the obstacles to applying BIM.

Keywords: BIM, Obstacles, AHP, Strategies, SWOT

Topic: Engineering

[ABS-109]
Experimental Study on Crashworthiness in Double Crush Tubes of Polylactic Acid Material

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Abstract
The crush tube for crashworthiness is one of the automotive components crucial for absorbing impact energy when an accident occurs. It is necessary to pay attention to determining the crush tube material depending

on the automotive components used. The research aims to analyze the ability to absorb energy in double tubes of Polylactic Acid material made on a 3D Printing machine to test the compression. The double crush tube combines a round outer tube and an inner tube which varies in shape: round, triangular, rectangular, pentagonal, hexagonal, hexagonal, and octagonal. The method is to create samples of crush tubes using a 3D printer machine and then conduct experimental compression testing to obtain a graph of the distribution load for each crush tube. The crashworthiness parameters used are absorption of specific energy (SEA), maximum collapse force (Fmax), and efficiency of crush force (CFE). The results obtained by the smallest total energy absorption (TEA) of 98.77 Joules were for a tube in a rectangular shape. Meanwhile, the tube that absorbs the most energy is a round tube of 149,154 Joules.

Keywords: Crashworthiness, Polylactic Acid, Compression Test

Topic: Engineering

[ABS-363]

The Development of Batik Stamping Tools to Support Micro, Small, and Medium Enterprises in Pela Tourism Village, East Kalimantan, Indonesian, to Support Sustainable River Fish Conservation

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Abstract

Batik MSMEs that the activity is on the water, such as in Pela Village, East Kalimantan, where the river flow below is also a typical habitat for East Kalimantan's endemic fish and its existence must be preserved, so special treatment is needed, namely helping to maintain the safety of water content in the river that is its habitat. So, in the process of making batik, it is necessary to use environmentally friendly materials. Environmentally friendly dyes are easy to get, but for environmentally friendly batik wax materials are still very difficult to get. For this reason, a batik stamp tool is needed that in the dyeing process does not require batik wax material. The method used is Quality Function Development (QFD) which consists of the stages of product planning, assembly, process planning, and process control. After the QFD stage is carried out, the result obtained is a stamp tool that has a barrier component in the form of a motif mold that clamps the fabric from the top and bottom, stainless steel material, dimensions 280 cm x 140 cm x 125 cm. With the existence of batik printing tools with the technique of clamping cloth from above and below, it is very helpful for batik MSMEs that are above the sea as a habitat for endemic fish that are being preserved, greatly supporting the efforts of the local government in sustainable efforts in the field of nature conservation.

Keywords: Design Innovation, Batik Stamp, MSME, Sustainability, Endemic Animals

Topic: Engineering

[ABS-110]

VISSIM-Based Assessment of Road Performance Under Proposed Bicycle Lane Scenarios: A Case Study of Indonesian Road

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Abstract

The integration of bicycle infrastructure into existing road networks presents significant challenges for urban transportation planners, particularly in developing countries where road space is limited. This study aims to assess the impact of implementing dedicated bicycle lanes on road performance using VISSIM microsimulation modeling, taking Adi Sumarmo Road in Karanganyar Regency, Indonesia as a case study. The methodology involved comprehensive data collection including geometric surveys, traffic counts, and speed measurements, followed by VISSIM model development, calibration using driving behavior parameters, and validation through GEH statistics and MAPE values. The microsimulation results revealed that implementing a Type A, physically protected bicycle lane, would maintain acceptable road performance levels, with only minimal changes in average travel speed (from 40 km/h to 39 km/h) and travel time (maintained at 44 seconds), despite a moderate increase in degree of saturation (from 0.22 to 0.30). These findings suggest that dedicated bicycle infrastructure can be successfully implemented on similar urban arterial roads without significantly compromising traffic flow performance, providing valuable insights for transportation planners in developing countries seeking to promote sustainable mobility solutions.

Keywords: VISSIM Microsimulation, Bicycle Lane Design, Road Performance Analysis, Sustainable Transportation

Topic: Engineering

[ABS-125]

Risk Analysis of Heat Exchanger Machines Using the Semi-quantitative RBI 581 Method

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Abstract

The heat exchanger machine's lifetime and availability are detrimentally affected by poor management, improper coolant usage, scheduling errors, and a lack of manual maintenance. The objective of the research on risk-based maintenance analysis with Risk Based Inspection (RBI) on heat exchanger machines is to evaluate the effectiveness of RBI in reducing failure risk, identify the corrosion rate, and analyze the design of methods and appropriate inspection scheduling. This study employs a semi-quantitative approach to Risk Based Inspection (RBI) analysis, which integrates qualitative risk analysis with semi-quantitative research to examine the maintenance of heat exchanger devices using quantitative data. The Risk Based Inspection (RBI) analysis of heat exchanger devices indicates a low risk level, which permits the implementation of an inspection program without risk mitigation. The RBI analysis results serve as the foundation for the maintenance concentration on the shell and tube sheet components. The corrosion rate case study demonstrates a substantial degree of variability, with an average corrosion rate of 54.50 mpy. The corrosion rate is the foundation of the risk maintenance plan, which enables inspections to be customized to meet the specific requirements. The fuel gas filter separator is at minimal risk, as indicated by the damage mechanism analysis, which enables the efficient application of visual inspections. The

optimal maintenance of the Heat Exchanger machine can be assisted by the selection of inspection techniques that are based on the level of risk and effectiveness

Keywords: Heat Exchanger, Corrosion Rate, Shell, Tube Sheet, Risk-Based Inspection (RBI)

Topic: Engineering

[ABS-118]
Visual Quality of the Paroki Hati Kudus Yesus Church in the Historical Kayutangan Area of Malang

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Abstract

Paroki Hati Kudus Yesus Church or Kayutangan Church, is one of the historic churches located on Kayutangan Street in Malang City, East Java. Kayutangan Church is a landmark of Malang City, built in the 1930s, and features Art Deco architecture that combines European elements with local characteristics. In addition to serving as a place of worship, Kayutangan Church is also a cultural heritage site that attracts both locals and tourists. This study aims to identify the visual quality of Kayutangan Church. The method used is qualitative analysis with a descriptive analytical approach. The steps taken include field observations and photo sequence analysis along the pedestrian path. The photo sequences are identified and redrawn using CAD, then processed and analyzed using Excel to obtain visibility percentages. The results show the visibility value from the pedestrian path. From the pedestrian path, factors that obstruct the pedestrian's view can be identified, such as trees and billboards, which have a significant impact on the visual quality of Kayutangan Church. These issues can be addressed by regulating the placement of billboards and pruning tree branches, which can be done by the relevant authorities.

Keywords: Visual Quality, Kayutangan Church, Historical Area

Topic: Engineering

[ABS-127]
Development of Additive Manufacturing Expert System (AMES) for Automotive Plastic Parts in Indonesian Small and Medium Industries

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Abstract

Additive manufacturing (AM) is currently widely used by small and medium industries (SMIs). In Indonesia, SMIs that utilize 3D printing are slowly starting to grow. However, the challenge of selecting and formulating the right additive plastic components is often an obstacle in improving efficiency and product quality. This research aims to develop an expert system to assist SMIs in determining the optimal type, composition, and application of additive plastic components. The survey method was conducted in the industry by considering aspects of knowledge, technological capabilities, and component production

volume requirements. The verified variables were classified and the findings of the variables were used to develop the expert system. The expert system was developed using a multi-attribute decision-making method, namely analytical hierarchy process (AHP). Fuzzy logic was added to provide better accuracy in assigning values to alternatives. The expert system was developed using PHP programming and MySQL database. The evaluation results show that the system is able to provide accurate and relevant recommendations, with a user satisfaction rate of 87%. The implementation of this expert system can increase productivity, reduce formulation errors, and encourage innovation in industries that produce automotive plastic parts. Thus, this research makes a significant contribution to the development of technology that supports the competitiveness of SMIs in the digital era

Keywords: Additive manufacturing, Expert System, Automotive Plastic Parts, ISMIs

Topic: Engineering

[ABS-119]
Spatial Management Strategy in Houses in Gedong Sepuluh Kampung Bustaman Semarang

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Abstract

This article discusses the strategies applied by urban communities in responding to the challenges of limited land. The aim of this article is to find strategies applied in processing space and daily activities in responding to limited land. Using qualitative methods with a case study approach, and carried out by observation to find out how residents use their space. The data preparation is presented by describing activities and spatial changes from time to time. The findings from this paper prove that limited land gives users strategies to maximize their daily activities. The strategy in question is a spatial management strategy in the form of spatial transformation and adaptation. This strategy for arranging space creates several zones of territoriality which not only impact the occupants of the space itself but also impact the surrounding space. This strategy for arranging space in a community to respond to limited land can be a reference in planning and developing livable urban space programs more generally

Keywords: Local Practice, Daily Life, Limited Land, Spatial Strategy

Topic: Engineering

[ABS-139]
Influence of AA2024-O Inserted Material on Microstructure and Mechanical Properties of FSWed AA5083-H112 Joints

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Abstract

The present paper is aimed to study microstructural and mechanical characteristics of friction stir welded AA5083-H112 aluminum alloy butt joints fabricated by inserting AA2024-O aluminum alloy thin plate. In this research, a thin AA2024-O foil with the size of 2 mm x 3 mm x 300 mm was inserted between the faying surfaces of two AA5083-H112 plates to be joined. Friction stir welding (FSW) process was conducted using

tool rotational speed of 1500 rpm, tool traveling speed of 30 mm/minute and tool tilt angle of 2o. After welding, microstructural, hardness and tensile properties of the FSWed joints with and without inserted materials were compared. Results showed that FSWed joints with inserted AA2024-O material have ultimate tensile strength (UTS) of 249,8 MPa which was higher than that of the conventional FSW joints (220,8 MPa). Similarly, the weld nugget zone (WNZ) fabricated using inserted materials have high hardness compared to that produced by conventional FSW. The improved mechanical properties of the FSW joints with inserted AA2024-O materials could be related to the occurrence of diffusion from the inserted material into AA5083-H112 plates combined with precipitation hardening.

Keywords: Friction Stir Welding (FSW), AA5083-H112 Aluminum Alloy, Insert Material, Microstructure, Mechanical Properties

Topic: Engineering

[ABS-144]
Assessment of Shoreline Changes in Plumbon Estuary Due to the Development of Coastal Protection

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Abstract
Severe coastline changes in the Plumbon estuary have been observed in the last two decades. These coastal changes become a high potential hazard to the sustainable development of local fishermen, pond farmers, and the home industry of Mangunhardjo Village. Shore and offshore breakwater have been deployed to reduce that hazard since 2008. However, this mitigation couldn't decrease the hazard scale. Based on field observation and a hydrodynamic model, this study discusses the causes of the failure of mitigation efforts to reduce the threat. The delft3d model determines wave and current distribution along the coastal line and breakwaters. The model result is compared to field data obtained in previous surveys and current site visits. The results indicate that the existing coastal protection could not stand to prevent wave abrasion and current scour. Furthermore, another option of coastal protection should be studied to find more resilience mitigation shortly.

Keywords: Erosion, Coastal Structures, Field Observation, Hydrodynamic, Estuary

Topic: Engineering

[ABS-149]
Research Mapping in Smart Cities: A Scientometric Study on IoT and AI Applications

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Abstract
Smart cities are rapidly becoming one of the most significant spheres of overcoming the difficulties of urbanization using IoT and artificial intelligence. The present research proposes to develop a scientometric review of IoT and AI incorporated with smart cities. It thereby maps out innovative and collaborative intellectual terrains and characterizes them. The aim of this research is to review and identify patterns in the

publications of this field, frequent topics and important authors and organizations. A bibliometric approach was used to analyze data that were obtained from the leading academic databases. For the benchmarking and assessment studies, as well as for the identification of the thematic clusters, the network visualization and the co-citation analysis have been used. The findings note the accelerated trend of publication in the past decade, with focus on energy management, transportation and safety. Major findings stressing the crucial role of interdisciplinary collaborations and noting that certain institutions and countries are leaders in the field. Published as part of this project, this article advances the knowledge of the evolutionary pattern of research in smart city and helps to identify probabilistic scenarios for further development.

Keywords: Smart Cities, IoT, Artificial Intelligence, Scientometric Analysis, Bibliometrics, Urban Innovation

Topic: Engineering

[ABS-151]
Minimizing Distortion in Flux Cored Arc Welding of A36 Steel Plates by Preheating and Its Effect on Weld Mechanical Properties

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Abstract

Welding technology is one of the joining processes that is widely used in the ship industry, but it poses challenges such as distortion and residual stress due to local heating. Welding distortions can affect the precision and appearance of ship structures. This study aims to reduce welding distortion through preheating and evaluates its influence on mechanical properties, including strength and hardness. Experiments were conducted on ASTM A36 steel plates using flux cored arc welding (FCAW) with E71T11 filler metal. Welding parameters used including welding current, arc voltage and speed of 110 A, 19.2 Volt and 1.5 mm/s respectively. Preheating treatments were applied using electric heater bands at various temperatures (100, 200, and 250 C), and temperatures during welding were recorded with K-type thermocouples attached to the data acquisition. Measurements included distortion, microstructure observation, hardness, and tensile testing. The results showed that the increasing preheat temperature reduces welding distortion, with the best reduction at 250 C. Preheating also caused microstructural changes in the weld metal region and heat affected zone (HAZ) with the amount of ferrite being increased with increasing preheating temperature. As a result, the ultimate tensile strength (UTS) of conventional weld metal, typically 629.9 MPa reduces to 547.6 MPa after preheating at temperature of 250 C but this strength reduction is compensated by its improved ductility. The mechanisms of welding distortion and strengthening under preheating treatments are discussed in this paper.

Keywords: FCAW, A36 Steel, Preheating, Distortion, Strength

Topic: Engineering

[ABS-150]

Microstructures and Mechanical Properties of Friction Stir Dissimilar AA2024-O/AA6061-T6 Welded Joints at Varying Tool Rotational Speeds

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Abstract

Friction Stir Welding (FSW) is an innovative solid state welding technique, especially for joining unweldable metals or even dissimilar metals. In this study, FSW processes of dissimilar metals between AA2024-O and AA6061-T6 were done by varying tool rotational speeds of 910, 1500 and 2280 rpm at a constant welding speed of 30 mm/min. The aim of this research was to improve mechanical properties of dissimilar FSW joints. The tool having a cylindrical pin was selected and it was tilted at the angle of 2 degree. Afterwards, microstructural observations, microhardness and tensile tests were conducted. The results showed that increasing tool rotation increased the peak temperature accompanied by better mixing of different metals in weld nugget zone (WNZ) hence resulting in improved microstructural homogeneity. The hardness distributions for all dissimilar FSW joints were marked by the presence of high hardness region along WNZ with a peak of hardness, 125 VHN was found at the center of WNZ of the dissimilar FSW joint produced at 1500 rpm. In addition, the FSW joint at 1500 rpm revealed the best ultimate tensile strength (UTS) around 170.38 MPa which could be resulted from precipitation hardening combined with a better homogeneity in WNZ.

Keywords: Friction Stir Welding, Dissimilar Metals, Tool Rotational Speed, Strength, Microstructure

Topic: Engineering

[ABS-183]

Carbonation Induced Corrosion Effect on the Seawater Mixed Mortar as Patching Material

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Abstract

The construction of infrastructure in both rural and urban areas is progressing swiftly over time. Mortar is a focal point of advancement in the construction industry, as its use is intricately linked to contemporary infrastructure development, particularly in the remediation of corrosion-related damage. This test used a cubical shaped test specimen with dimension 15x15x15 cm, including two reinforcements with a diameter of 12 mm at cover thicknesses of 3 cm and 10 cm, and included three types of coating methods as non-coating, continuous coating, and surface coating. The present investigation included carbonation testing using a phenolphthalein solution that has been aged for 352 days. The findings of this investigation indicated that the corrosion stress value of the Z and AK test specimens, subjected to various cover thicknesses, revealed that the 3 cm cover thickness exhibited a greater negative value than the 10 cm cover thickness variation. The carbonation test findings indicated that the carbonation depth of the test specimen under dry laboratory circumstances was the greatest, followed by the wet-dry cycle, with the wet condition yielding the lowest value. Infrastructure building in both rural and urban regions has markedly escalated over time.

Mortar, integral to contemporary infrastructure development, is a crucial element in construction innovations, especially for the remediation of corrosion-related damage. This study used a cube-shaped test specimen with dimensions of 15 centimeters per side. The specimen had two reinforcements with a diameter of 12 millimeters and cover thicknesses of 3 centimeters and 10 centimeters. Three coating techniques were utilized: non-coating, static coating, and surface coating. Carbonation tests used a phenolphthalein solution that had been aged for 352 days. The study's results revealed that, for corrosion stress values in the Z and AK test specimens, a cover thickness variation of 3 centimeters was more deleterious than a 10-centimeter variation. Furthermore, the carbonation test findings indicated that under arid laboratory settings, the test specimen demonstrated the maximum carbonation depth. The subsequent condition was the wet-dry cycle, whereby the wet condition exhibited the minimal carbonation depth.

Keywords: Carbonation, Corrosion, Patching, Dry-Wet Cycle

Topic: Engineering

[ABS-173]

Measurement Mental and Physical Workload in Final-Year Thesis Students at Muhammadiyah University of Cirebon's Faculty of Engineering

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Abstract

Students who are writing a thesis often experience difficulties. The difficulties faced are diverse, ranging from a lack of understanding of the phenomenon being studied, a lack of mastering the theory, limited references, and so on. This will cause a mental burden that impacts student fatigue which causes a decrease in efficiency, endurance, and work capacity. The research was conducted at the Industrial Engineering, Faculty of Engineering, Muhammadiyah University of Cirebon. This study uses the NASA-TLX and CVL methods which aim to measure the physical and mental workload of the final project students at the Industrial Engineering Study Program and make proposals for improvement and comparison of the results of physical and psychological workload scores. The results showed that the NASA-TLX score load on mental demand, physical demand, temporal demand, performance, effort, and frustration level was 79.37, 59.61, 65.5, and 64.5. CVL score load obtained physical workload value 6 students have CVL value of 30% - 60% which falls into the category of needed improvement. There are 14 students with a CVL value of 30% falls into the category of no fatigue. After being given recommendations for proposed improvements, the results of CVL 6 students have decreased CVL results. Based on the results of the two methods, CVL is more dominant than the results of the NASA-TLX method. Proposed improvements given to reduce mental and physical workload are a closed workspace layout, providing music, and conducting ESQ training.

Keywords: Physical and Mental Workload, NASA-TLX, Cardiovascular Load (CVL)

Topic: Engineering

[ABS-169]
Design and Development of an Innovative Universal Rotor Holder Automotive Tool for Operational Efficiency of Partner

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Abstract

This study developed a universal rotor holder as a supporting tool to facilitate vehicle maintenance and repair processes for both cars and motorcycles. The tool functions as a rotor holder, ensuring that rotating vehicle components remain stable during repair activities. In collaboration with industry partners, the universal rotor holder was designed to adapt to various rotor dimensions and shapes, with one or two additional features integrated to enhance its multifunctionality. The design process utilized SolidWorks software to create precise 3D models. Static load simulations were conducted to evaluate the tool's strength under operational loads by analyzing von Mises stress, displacement, and strain parameters. The results indicated that the maximum stress remained below the material's yield strength of alloy steel, which is 620.422 MPa, confirming the tool's structural integrity and safety. Prototype testing was performed on various types of vehicle rotors to assess the tool's compatibility and capability in securely holding rotors during installation and removal. The tests demonstrated that the tool could withstand torque and operational loads without showing any signs of damage, deformation, or functional failure. This research contributes to the development of practical, adaptive, and multifunctional tools for vehicle maintenance applications.

Keywords: Innovation, Rotor Holder, Design

Topic: Engineering

[ABS-176]
Detection of Surface Damage on Components of Heavy Equipment Machine Using Convolutional Neural Network (CNN)

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Abstract

Damage to components of heavy equipment, particularly crankshaft or camshaft elements, can be identified through visual inspections of the components. Conducting a visual examination of heavy machinery components' surfaces is crucial during the reconditioning or repair procedure. The visual inspection technique may serve as a guideline for component replacement prior to measuring all criteria by consulting the manual. An automation system is required to accelerate the damage identification procedure during the visual inspection of machine components. This project will investigate the application of convolutional neural network (CNN) technology as an auxiliary method for identifying surface degradation in components. The application of CNN for identifying surface damage on crankshafts and camshafts has not been previously investigated. This study uses Convolutional Neural Networks (CNN) to execute the classification procedure. This study classifies component damage into seven kinds, drawing from the Applied Failure Analysis (AFA) literature pertaining to heavy equipment units. CNN categorizes images into ten classifications, comprising seven AFA classes and three fracture classes. The testing used a CNN

model with fourteen layers and 161,626 computational parameters. The test results for the CNN model indicated an accuracy of 73.8% in classifying component damage. Consequently, the efficacy of CNN in automating damage classification can be enhanced.

Keywords: Convolutional Neural Network, Visual Inspection, Crankshaft

Topic: Engineering

[ABS-193]
Mini OLT Power Supply Alarm Bot for Internet Disruption Prevention

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Abstract

PT Telkom Witel Magelang needs to maintain the quality of service for the increasing number of Internet users in Indonesia. The problem is the existence of Mini Optical Line Terminal (Mini OLT) devices, which frequently experience interference due to power loss. This problem is caused by the lack of an early warning system when the power supply is cut off, so the device shuts down before preventive measures are taken. Based on this background, this research aims to develop a Telegram bot as an early warning notification tool to prevent mass disruption of Telkom Internet services. This research uses the waterfall model system development method, which includes the stages of needs analysis, system design, implementation and testing. The built system uses the electrical voltage sensor on the Mini OLT to detect the ACVolDown condition, which indicates the disconnection of the power supply. The results show that the Telegram bot is able to provide accurate and timely notifications, with the fastest response time being 6 seconds and the longest being 33 seconds. Blackbox testing proves that all bot commands work properly on various Telegram platforms.

Keywords: Mini OLT, ACVolDown, Power loss prevention

Topic: Engineering

[ABS-217]
Supply Chain Management Performance Analysis Using the SCOR Method at PT. Bertho Chrisanta

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Abstract

This study aims to assess the company's Supply Chain Management (SCM) performance and evaluate the results to provide suggestions for improvement. This study combines the Supply Chain Operation Reference (SCOR) framework for measuring and analyzing supply chain performance and the Analytic Hierarchy Process (AHP) method for decision making and prioritization in SCM performance evaluation. The assessment results show that the overall SCM performance of PT Bertho Chrisanta achieved a score of 85.682, which indicates performance in the 'good' category. This finding provides a positive picture of the effectiveness of the company's current supply chain management. Based on these results, it is concluded that although the company's SCM performance is good, there is still room for improvement. This research

provides a solid basis for the company to identify areas that require improvement and implement appropriate strategies for supply chain optimization

Keywords: Performance Measurement, Supply Chain Management, SCOR, AHP

Topic: Engineering

[ABS-194]
Optimizing Bus Rapid Transit Performance Through Route Analysis: Evidence from Trans Metro Deli Medan

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Abstract
Public transportation systems play a vital role in urban mobility, with Bus Rapid Transit (BRT) emerging as a cost-effective solution for medium-sized cities. This study aims to evaluate the operational performance of Trans Metro Deli BRT system in Medan, Indonesia, and propose optimization strategies for underperforming routes. The research employed a comprehensive data collection approach, combining on-board dynamic surveys and static terminal observations. Performance metrics were analyzed using standardized indicators from the Directorate General of Land Transportation guidelines, while Geographic Information System (GIS) analysis and mathematical demand modeling were utilized for route optimization assessment. The study revealed that while Corridors 1-4 maintained satisfactory performance metrics, Corridor 5 significantly underperformed with load factors of 48% during peak hours and 15% during off-peak hours. Route optimization analysis incorporating major educational institutions showed potential daily ridership of 26,190 passengers for Corridor 5, requiring 19 vehicles for optimal service. These findings demonstrate the importance of route alignment with major activity centers and provide transit planners with evidence-based recommendations for BRT system optimization in developing cities.

Keywords: Bus Rapid Transit, Operational Performance, Route Optimization, Load Factor

Topic: Engineering

[ABS-237]
Optimization of Exhaust Emissions on FI Motorcycle using Programmable ECU and Ethanol Mixture with Taguchi Method

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Abstract
This study examines the variations in carbon monoxide (CO) and hydrocarbon (HC) levels in exhaust emissions from fuel-injected (FI) motorcycles equipped with programmable ECU. The research involves three variations in injection timing and ignition timing, the use of three different spark plug types, and three ethanol mixtures for each test. The aim of the study is to identify the optimal conditions to minimize exhaust emissions. This experimental research applies the Taguchi method, with FI motorcycles as the primary research object. The findings indicate that the optimal average CO emission levels are achieved with factor

combinations A2 (2.59%), B3 (2.81%), C1 (2.67%), and D3 (1.63%). Meanwhile, the optimal average HC emission levels are observed with factor combinations A2 (257.33 ppm), B3 (252.44 ppm), C3 (295.22 ppm), and D3 (230.89 ppm).

Keywords: Exhaust Emissions, FI Motorcycles, Programmable ECU, Ethanol, Taguchi Method

Topic: Engineering

[ABS-187]
Risk Analysis of Mining Construction Activities on Hydrogeological Vulnerability in Dompu District, East Sumbawa, West Nusa Tenggara

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Abstract

Indonesia is rich in natural resources due to its location at the meeting point of the Indo-Australian, Pacific, and Eurasian plates. Areas like East Sumbawa are prone to soil shifts from volcanic activity and mining. The fragile soil and mining increase the risk of soil structure changes and groundwater disruption. This research aims to examine the effects and risks of mining construction in fragile limestone regions on soil structure alterations and shifts in groundwater basin or aquifer positions. The map overlay method will visually detect landscape changes from mining, while the HVSR method will analyze subsurface phenomena like landslides. Archie's theory will aid groundwater basin layer analysis. Archie's theory and geoelectrical methods can identify groundwater basins for early detection and final verification of research. The HVSR method and blasting modeling software simulate ground vibration effects and their impact on soil structure and groundwater basins. Changes in soil structure and associated risks can be detected early. Overlaying existing maps with simulation software results provides early hazard detection information. This can be utilized to design community development activities, avoiding potential risks from construction and mining activities on fragile limestone lands

Keywords: Risk, Construction in Mining, Aquifer, HVSR, Blasting

Topic: Engineering

[ABS-195]
Design of Purchase Intention Strategy in the Makeover Independent Retail Using Kansei Engineering

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Abstract

Although it has been marketed through independent retailers (IR) in 25 cities, Makeover product sales through IR have not increased, and even tend to stagnate, due to competition between local and international brands. This study aims to design a strategy to improve product sales performance in IR using the Kansei Engineering method. Strategy design is carried out by analyzing factors that influence emotional

appeal (Kansei) and creating new strategy attributes to improve the sales performance of Makeover cosmetic products in IR. The submission of these strategy attributes aims to touch the emotions (Kansei) of consumers so that they are interested in visiting and making purchases at IR Makeover. A total of 20 Kansei words were analyzed using the Factor Analysis and Principal Component Analysis (PCA) methods to obtain strategy attributes that need to be improved and created. The respondents of this study were 80 people from the millennial and Z generations with an age range of 15-39 years. The study results showed that strategy attributes that need to be improved to improve IR performance include information quality, testing experience, store experience, travel size, bundling series, and relevant influencers. Meanwhile, the attributes that need to be created include loyalty programs, resellers, payment method partnerships, exclusive product sales, and holding a recycling program campaign with the theme 'Beauty in Change'.

Keywords: Independent Retailer, Kansei Engineering, Purchase Intention, Strategy Design

Topic: Engineering

[ABS-175]
Evaluation of Dimensional Accuracy on SLM Product Using 3D Laser Scanner

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Abstract

Dimensional accuracy is a critical factor in additive manufacturing, especially in Selective Laser Melting (SLM). Recently, many studies had investigated the SLM process and products, but studies on the evaluation of SLM printing product to check the dimensional accuracy have not been explored. This study investigates the dimensional accuracy of SLM products by employing a 3D laser scanning technology and evaluate the compatibility between CAD designs and the final SLM printed products. The 3D laser scanning is performed using a high-precision 3D laser scanner, then continued by comparison with the CAD model through Geomagic Control X software. Dimensional accuracy was measured using visual and statistical parameters such as color graphic and deviation. Results showed that deviation of SLM printed products was within the tolerance range of 0.03 mm. The main factors that affect accuracy are printing laser speed and print orientation. The 3D laser scanning technology proved to be effective for evaluating the dimensional accuracy of SLM printed products. This study contributes to develop the quality control methods in the field of metal-based additive manufacturing

Keywords: 3D Laser Scanning, Additive Manufacturing, Dimensional Accuracy, Geomagic Control, Selective Laser Melting

Topic: Engineering

[ABS-210]

Energy Efficiency in Sustainable Buildings: Implementation of Green Design and Technology in Karawang Regency

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Abstract

Energy efficiency in sustainable buildings is a strategic approach to support environmentally friendly development and contribute to climate change mitigation. This study examines the implementation of green design and technology to enhance energy efficiency in buildings located in Karawang Regency, Indonesia. The research focuses on technologies such as energy-efficient lighting systems, thermal insulation materials, and optimized natural ventilation in building construction. A mixed-methods approach was employed, combining qualitative and quantitative analyses. Data were collected through field surveys, interviews with developers, and document reviews on the application of green technologies. The findings indicate that the integration of green design and technology can reduce energy consumption by up to 25% compared to conventional buildings. Additionally, public awareness and local government policy support play critical roles in the success of these initiatives. However, the study also identifies challenges, including the high initial cost of green technologies and limited public understanding of energy efficiency's importance. Recommendations include strengthening stakeholder collaboration, providing incentives for adopting green technologies, and raising public awareness about the significance of sustainable development. This research provides valuable insights for policymakers, urban planners, and civil engineers in designing buildings that are both energy-efficient and sustainable. The findings contribute to the broader discourse on integrating green technology into sustainable infrastructure development globally.

Keywords: Energy Efficiency, Sustainable Buildings, Green Technology, Environmentally Friendly Design

Topic: Engineering

[ABS-252]

The Effect of Magnetic Rotor Variations on Motorcycle 4 Steps Injection Modification on Engine Performance as a Potential Application of Bioethanol

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Abstract

Various innovations in technology continue to be developed to improve engine performance and optimize the combustion process in the combustion chamber. Perfect combustion can improve the performance of the engine, while also maximizing the ignition system by modifying the pulser magnetic pickup to increase the spark from the spark plug in the combustion chamber, so that the air and fuel mixture burns more efficiently and the combustion is more complete. This research aims to explore the effect of variations in the magnetic rotor on a 4-stroke injection motorbike on engine performance, especially in the application of bioethanol fuel. The rotors used in this research include standard rotors that have been issued by the manufacturer of the vehicle, and the use of rotors that are modified by increasing the length of the mold by 2 mm, and the rotor is shortened by 2 mm. The experimental method used in this research, and the results show that a fuel mixture with 30% Pertamax and 70% ethanol produces a torque of 8.15 N.m and can produce a power of 5.9

kW, which is produced by treating the rotor. In this research, torque and power increased better than using standard rotors.

Keywords: Combustion Engine, Bioethanol, Variations in Fuel Mixture

Topic: Engineering

[ABS-254]
The Effect of Gear Variations on the Wind Turbine Alternator Side on the Voltage and Electric Current Generated in a 4-Stroke Motorcycle

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Abstract
Hydrogen fuel is widely used but requires greater voltage and electric current. To get additional current and voltage by utilizing the flow of motorbike exhaust gas which rotates the alternator through a turbine. Based on previous research, a small voltage and current was produced, therefore in this research, to get a higher current and voltage, we innovated with a variation of the gear on the turbine shaft connecting to the alternator shaft. In this research, an experimental method was used which was tested at varying speeds. From research carried out on a 4 stroke motorbike at a speed of 40 km/hour, a voltage of 3.1 V and a current of 0.07 A was obtained, at a speed of 50 km/hour a voltage of 4.0 V and a current of 0.27 A were obtained, at at a speed of 60 km/hour, a voltage of 4.9 V and a current of 0.36 A is obtained. At a speed of 70 km/hour, a voltage of 5.9 V and a current of 0.43 A are obtained. Based on the research results, the installation of additional gear has significant influence resulting in increased voltage and current on the alternator.

Keywords: Gear, Altenator, Turbine, Voltage, Current

Topic: Engineering

[ABS-255]
Vibration Welding and Mechanical Properties Improvement on the Aluminum Alloy Welds: A Systematic Literature Review

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Abstract
Welding aluminum alloys is highly prone to porosity formation during the solidification phase of the weld metal, resulting directly in diminished, mechanical strength properties of the weld. This research, therefore, uses a systematic literature review method to identify the previous studies related to vibration welding. The purpose was to determine the effect of vibration welding on improving the mechanical properties of aluminum alloys. The findings showed that vibration welding could break the secondary dendritic arm and form new solid-phase nuclei during the solidification process. Meanwhile, forming new solid-phase nulclei

usually leads to smaller and finer grain size. This method was, therefore, able to refine the grain size from 200 mikron to 115 mikron and increase the tensile strength from 287 Mpa to 295 Mpa.

Keywords: Aluminum, Vibration Welding, Mechanical Strength

Topic: Engineering

List of Abstracts: Health Studies

[ABS-262]
Scientific Inquiry into Herbal Claims in Traditional Medicine: Dissecting Deceptive Claims and Unraveling Active Compounds and Their Pharmacological Properties

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Abstract
The scientific examination of herbal claims within traditional medicine is imperative in discerning genuine therapeutic benefits amidst a backdrop of falsification. This study endeavors to dissect deceptive claims associated with herbal remedies while concurrently unraveling the active compounds and their pharmacological properties. Traditional medicine, steeped in cultural heritage, often presents a wealth of herbal remedies purported to offer myriad health benefits. However, the proliferation of falsified or exaggerated claims poses a significant challenge, undermining the integrity of traditional medicinal knowledge. This research aims to elucidate the truth behind these claims. The study utilized a comprehensive database from the Indonesian National Agency of Drug and Food Control (BPOM), accessed on November 6, 2024, to identify and classify herbal products containing synthetic pharmaceutical compounds. The data revealed a concerning prevalence of synthetic drugs, including sildenafil, paracetamol, and dexamethasone, in herbal formulations. These compounds, misrepresented as natural ingredients, raise significant safety concerns, including improper dosages and adverse health risks. By analyzing therapeutic claims, associated hazards, and regulatory challenges, the findings underscore the need for enhanced consumer education, stringent regulatory enforcement, and collaborative efforts among stakeholders to restore trust and ensure the safety and authenticity of herbal medicines.

Keywords: Traditional Medicine, Herbal Claims, Active Compounds, Pharmacological Properties, Scientific Exploration

Topic: Health Studies

[ABS-268]
Prescribing Profile at a Pharmacy in Yogyakarta During the Period August-October 2024

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Abstract
A drug prescription profile is a list of drugs prescribed or required by a service and is one of the bases for preparing a pharmacy's drug planning. This study aims to ascertain the prescribing habits of a Yogyakarta pharmacy over the August-October 2024 period. The method used in this study is descriptive-observational. The population used in this study were all prescriptions for drug use at one of the pharmacies in Yogyakarta in August-October 2024. The type of data used in this research is secondary data, namely data taken directly

from recipes by collecting observational data. The results obtained from the study showed that the sample size was 168 recipes. Prescriptions with a treatment period of 5 to 10 days (75.60%), prescriptions utilizing 1-3 types of medication in a single recipe sheet, women (55.36%), and those over 60 (45.24%) are the most commonly prescribed demographics. The most frequently prescribed drug is an antihypertensive drug from the CCB dihydropyridine group, namely amlodipine (54.76%). Based on the research results, it can be concluded that the most frequently prescribed drug prescription by doctors is for hypertension patients with a single use, namely amlodipine. Prescribing amlodipine as a single antihypertensive is effective in lowering blood pressure.

Keywords: Prescribing, Drug, Pharmacy

Topic: Health Studies

[ABS-274]
Contribution of Food, Nutrition, and Health Dimensions to the Fourth Antenatal Care Visit Service

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Abstract
The coverage of Antenatal Care (ANC) K4 services is an important indicator of maternal health. Multidimensional factors such as food, nutrition, and health play a significant role in achieving this. This study aims to analyze the relationship between the dimensions of food, nutrition, and health to the coverage of ANC K4. Using the multiple linear regression method, data were analyzed on 33 samples with food, nutrition, and health dimensions as predictors. The results show that the regression model is significant (F=20.484- p=0.000) with a variable contribution of 67.2%. The health dimension had the most dominant influence (*p* value=0.471- p=0.001), followed by the food dimension (*p* value=0.332- p=0.017) and nutrition (*p* value=0.262- p=0.022). This study emphasizes the importance of integrated interventions on the food, nutrition, and health dimensions to improve ANC coverage K4, ultimately supporting maternal and infant health.

Keywords: ANC K4, Food Dimension, Nutritional Dimension, Health Dimension, Maternal Health

Topic: Health Studies

[ABS-23]
Comparative Abalysis of Antioxidant Activity in Arabica Coffee (Coffea arabica L.) with Varous Post-Harvest Processes: Luwak, Honey, Fullwash, and Natural

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Universitas Ahmad Dahlan

Abstract
This study examines the impact of various post-harvest processes-Luwak, Honey, Fullwash, and Natural-on the antioxidant activity, Total Flavonoid Content (TFC), and Total Phenolic Content (TPC) in Arabica coffee beans. The DPPH method was used to measure antioxidant activity, AlCl3 for TFC, and the Folin-Ciocalteu method for TPC. The results indicate significant differences in antioxidant activity, with coffee

processed through the Honey method showing the highest antioxidant activity (IC50 76.31 ppm). Luwak coffee exhibited the highest TFC (1.40 mg QE/g extract), while Fullwash coffee had the highest TPC (83.47 mg GAE/g extract).

Keywords: Antioxidant, Arabica Coffee, Post-Harvest, TPC, TFC

Topic: Health Studies

[ABS-280]
Quasi Experimental Study: The Economic Burden Management of Family Caregivers of Schizophrenia Patients in the Tidal Flood Area

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Abstract

Family caregivers of Schizophrenia patients have an important role in carrying out Schizophrenia treatment. However, Schizophrenia family caregivers in carrying out their duties feel a heavy burden. Especially for family caregivers of Schizophrenia who live in flooded areas, the economic burden in the treatment of Schizophrenia is felt to be quite high. Economic burden management training is a solution for family caregivers with Schizophrenia which can help the family's economic stability in managing family income and expenses, so that the family's economic resources can be sufficient in carrying out Schizophrenia treatment. The purpose of this study is to determine the effect of economic burden management on the self-efficacy of family caregivers of Schizophrenia patients. Thestudy used a quasi-experiment with control group with the number of respondents in each group was 43 respondents taken by purposive sampling. The intervention group was given economic burden management training by regulating the income and utilization of family economic resources. Data collection used a self-efficacy questionnaire on family caregivers Pratama & Widodo (2017). Data analysis using an independent t-test obtained the result that economic burden management in family caregivers of Schizophrenia patients had an effect on self-efficacy (p=0.001). The increase in economic efficacy after being given economic burden management training is supported by increasing in family caregiver knowledge and skills in managing family economic resources as an indicator of self-competence. The adequacy of family caregiver knowledge and skills leads to a positive self-perception so as to increase self-confidence in caring for Schizophrenia patients.

Keywords: Economic Burden Management, Family Caregiver, Schizophrenia, Self-Efficacy, Tidal Flood

Topic: Health Studies

[ABS-282]
SCOBY Biosorption in Reducing Crom (Cr) From Batik Wastewater

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Universitas Pekalongan

Abstract

Abstract. Batik wastewater contains dangerous heavy metals such as lead (Pb), cadmium (Cd), and chromium (Cr). The heavy metal chromium has toxic properties and is included in dangerous toxic waste (B3). One effort to reduce chrome levels in water is by the biosorption method. SCOBY is a consortium of microbes produced from the tea fermentation process in the form of white gel sheets. This research aimed

to determine the ability of SCOBY to reduce levels of chrome contamination in batik wastewater with different incubation times. This research is quasi-experimental. Sampling was carried out using a purposive sampling technique in the Small and Medium Industry in Pekalongan City. The research results were analyzed using the paired T-test for printed batik data and the Wilcoxon test for written batik and stamped batik. The results of measuring the chrome content of 9 samples originating from printed batik waste, written batik, and stamped batik waste showed that 5 samples had chrome content that exceeded the quality standard (<1 mg/L). The test results for SCOBY's ability to absorb chrome metal showed that 53% effectiveness of reducing Cr levels in written batik wastewater, in stamped batik was 44%, and in printed batik reached 71%. The best reduction in Cr levels reached 71% in printed batik wastewater with an incubation period of 3 hours.

Keywords: Cr, Batik, SCOBY, Wastewater

Topic: Health Studies

[ABS-283]
Literature Review: The Effectiveness of Adaptive Physical Activity on Improving Motor, Cognitive and Functional Abilities in Post-Stroke Patients

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Abstract
Stroke is a non-communicable disease capable of causing long-term problems for patients, as well as increasing the economic burden on families and the country. Some of the risks that can be experienced by stroke patients include disruption of bodily activity and limited physical activity, which become a burden on the family. Therefore, this research aimed to investigate the effectiveness of adaptive physical activity (APA) in improving motor and functional abilities in post stroke patients. A literature search was conducted through electronic database, Google Scholar, reputable Scopus journals, and Pubmed based on a review of clinical and articles published between 2018 and 2024. The results showed that all 8 articles selected had the effectiveness of adaptive physical exercise in improving motor and functional ability of stroke patients.

Keywords: Stroke, Adaptive Physical Activity, Motor Skills, Functional Abilities

Topic: Health Studies

[ABS-29]
Medicinal Usage of Clitoria Ternatea Flower Petal, A Narrative Review

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Sekolah Tinggi Ilmu Farmasi Yayasan Pharmasi Semarang

Abstract
The plant Clitoria ternatea, commonly known as 'Butterfly pea,' has a rich history of traditional use where different parts of the plant are utilized to meet health concerns. Beyond its medicinal uses, the flowers of C. ternatea have been traditionally used as a natural food colorant. This review article aims to explore recent advancements in the medicinal uses and study of phytochemicals from C. ternatea flowers, focusing on their

potential biological activities. By examining these developments, the paper seeks to provide valuable insights into the therapeutic potential and diverse applications of C. ternatea flowers, opening new avenues for further research in this promising area of study. This review article provides an overview of the current phytochemical and pharmacological research as well as the traditional and medical applications, especially of the flower petal.

Keywords: Butterfly Pea Flower, Clitoria Ternatea, Extract, Flower Petal, Medicinal

Topic: Health Studies

[ABS-299]
Formulation and Physical Evaluation of Gnetum gnemon L. Peel Extract Tablets Using Variation Concentration of Na-CMC and Starch 1500

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Abstract
Gnetum gnemon L. peel extract contains flavonoid compounds, which are used to lower cholesterol levels. To maximize the potential of the Gnetum gnemon L. peel extract, it needs to be formulated into tablets. This research aims to determine the effect of variations in concentrations of Na-CMC and starch 1500 on the physical properties of granules and tablets. The method used was wet granulation, using variations in Na-CMC and starch 1500 concentrations Formula 1 (5%: 6%), Formula 2 (3%: 8%), and Formula 3 (1%: 10%). The evaluation included the physical properties of granules (flow rate, angle of repose, compressibility) and the physical properties of tablets (organoleptic, weight uniformity, hardness, friability, and disintegration time). The data obtained were then analyzed statistically. The results showed that the addition of Na-CMC binder and starch 1500 disintegrant affected the granules and tablets. Formula 1 produces granules and tablets with better physical properties compared to Formula and Formula 3. This research concludes that the concentration of Na-CMC and starch 1500 affects the physical properties and Formula 1 is the best formula with a ratio of Na-CMC (5%) and starch 1500 (6%).

Keywords: Gnetum gnemon L. Tablets, Na-CMC, Starch 1500

Topic: Health Studies

[ABS-41]
Exploration of Cadres Empowerment Implementation in Household Waste Management in Citarum Watershed

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Abstract
Garbage is a problem of environmental pollution in Indonesia. Household waste is the main problem in the Citarum watershed including plastic waste which is the main pollution. Health promotion is needed to the community to improve behavior in managing waste, especially household waste. The existence of community empowerment cadres is a form of health promotion in the community based on the utilization

of human resources in the surrounding environment. There are factors in community empowerment, namely individual factors and community factors. The purpose of this study was to explore the implementation of cadre empowerment in household waste management in the Citarum watershed. The research design used is descriptive qualitative. Data were collected by in-depth interviews with seven community empowerment cadre participants who revealed the factors that influence community empowerment in the Citarum watershed. The results were analyzed using the Braun & Clarke thematic analysis. Based on the results of research on the experiences of community empowerment cadres in household waste management in the Citarum watershed, it is described in the following themes: 1) Community activity and cohesiveness 2) Community Awareness, and 3) Cadre Activity 4) Collaboration with agencies and related parties, 5) Frequency of routine activities 6) Pandemic situation. The theme resulting from the analysis of the experience of community empowerment cadres in household waste management in the Citarum watershed can be interpreted that the community in managing household waste in the watershed is something that must always increase their awareness and awareness of the cleanliness of the surrounding environment.

Keywords: Exploration of Implementation, Empowerment Cadres, Household Waste, Citarum Watershed

Topic: Health Studies

[ABS-291]
Factors that Influence Ambulance Response Time in Handling Emergency Cases in Magelang, Central Java

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Abstract

Ambulance response time is an important factor in emergency medical services (EMS) outcomes. The Magelang region is an area with diverse conditions. However, the government has implemented a 'one village one ambulance' program to improve emergency services to the community. Timely treatment can have a significant impact on patient survival and recovery. This study aims to identify and analyze factors that influence ambulance response times in handling emergency cases in the Magelang area. Using a combination of quantitative methods, data were collected from a variety of EMS providers, including urban and rural areas providing emergency services. This study examines variables such as geographic location, traffic conditions, communications, availability of ambulance units, time of day, call volume, weather conditions, and dispatch system efficiency. The sample used was the Magelang area ambulance team. The results showed that the characteristics of the respondents were 82% village ambulances, 15% volunteer ambulances and 3% government ambulances. The majority of respondents, 88%, have worked for 1-5 years and 87% already have an ambulance training certificate. Of the 34 respondents, the average response time was 11-20 minutes (47%) and the average was 21-30 minutes (26%). Factors that influence the response time to the incident location are difficult/distant locations (88%) and 6% stated a lack of effective communication. Meanwhile, factors that influence the response time from the incident location to the health service center are sometimes traffic congestion, no communication between the ambulance team and the referral health service location, and the ambulance team's preparedness is still lacking. This study also found that 88% of respondents stated that ambulance management was not yet effective and 97% of respondents wanted continuous ambulance team training.

Keywords: Response Time, Ambulance, Emergency Medical Services, Integrated Emergency Management System, Pre-Hospital Services, Magelang

Topic: Health Studies

[ABS-301]

GC-MS Metabolite Profiling, Total Phenolic, Antioxidant Activity, and In Silico Approach in Chronic Anti-inflammatory Ethanol Extracts of Polyscias scutellaria (Burm.f.) fosberg Leaves

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Abstract

Polyscias scutellaria is a medicinal plant traditionally used as an anti-inflammatory. Numerous studies have demonstrated that it contains compounds with biological activities, such as anti-proliferative, anti-inflammatory, anti-parasitic, and anti-diabetic. This study aimed to profile the metabolites and predict their activities against four anti-inflammatory receptors obtained from the Protein Data Bank (RCSB PDB), COX-2 (5IKT), IL-6 (1ALU), IL-1B (8C3U), dan TNF-Alpha (7JRA) using an insilico approach with AutoDock 1.5.6 software and prediction of toxicity ligands. Validate the receptor with the Root mean Square Deviation (RMSD) value. The metabolite profile of 90% ethanol extracts (EEPS) was analyzed using GC-MS. We also examined the phenolic total compounds. The Folin-Ciocalteu reagent and aluminum chloride colorimetric techniques were employed for measuring the total phenolic content of the extracts. Spectrophotometry UV-Vis was also used to look at the antioxidant activity of the 90% ethanol extract using the ABTS and FRAP assays. The 90% ethanol extract showed a total phenol content of 21.59%. The putative identification of metabolites in EEPS was revealed. Ten compounds exhibiting more than 90% similarity with the database were subsequently filtered based on the relative abundance level of compounds. The identification results showed two main compounds, namely (S-Z)-Heptadeca-1,9-dien-4,6-diyn-3-ol and phytol. It has been validated before docking is carried out, with an RMSD value < 2. Molecular docking showed that (S-Z)-Heptadeca-1,9-dien-4,6-diyn-3-ol binds better to COX-2 (5IKT) and IL-6 (1ALU) receptors than phytol does. However, phytol binds better to TNF (7JRA) and IL-1 (8C34) receptors. (S-Z)-Heptadeca-1,9-dien-4,6-diyn-3-ol and phytol, which is a natural terpenoid. The finding may represent a novel pharmacological agent for chronic anti-inflammatory treatments. Nevertheless, additional investigations, including in vitro, in vivo, and clinical trials, must be done to assess the efficacy, safety, and tolerability of novel drugs.

Keywords: Anti-Inflammatory, Cytokine, Insilico, Molecular Docking, Polyscias Scutellaria

Topic: Health Studies

[ABS-320]

Antioxidant Activity of Red Pidada Leaf Extract (sonneratia caseolaris Engl.) ABTS Method (2,2 Azinobis (3-Ethylbenzothiazoline)-6-Sulfonic Acid

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Abstract

Red Pidada leaf (Sonneratia Caseolaris Engl.) contain chemical compounds including alkaloids, steroids, flavonoids and phenols. Flavonoids are compounds that can protect against UV rays. Antioxidants are compounds that are used to neutralize free radicals by donating electrons to free radical compounds. The

extraction process used in this study was the maceration method using 96% ethanol. The qualitative analysis using the phytochemical screening test showed positive presence of phenol, flavonoid and tannin compounds, while the quantitative analysis used the antioxidant activity of red pidada leaf extract (Sonneratia caseolaris Engl.). Measurement of antioxidant activity was carried out using the ABTS method (2,2 azinobis (3 ethylbenzothiazoline) 6 sulfonic acid). The results showed that the ethanol extract of red pidada leaves (Sonneratia caseolaris Engl.) the average an IC50 value of 37.671 ppm. So it can be concluded that the antioxidant activity of red pidada leaf extract (Sonneratia caseolaris Engl.) is strong category.

Keywords: PRed Pidada Leaf, Antioxidant, ABTS

Topic: Health Studies

[ABS-311]
Understanding Adolescent Risk Behaviors: Insights from a School-Based Health Survey

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Abstract

Adolescence is a critical phase for establishing lifelong health behaviors but is often marked by risky practices that pose significant public health challenges. This study explores the prevalence of risky health behaviors among 252 high school students aged 15-18 years using the Global School-Based Student Health Survey (GSHS). The survey assessed reproductive health awareness, smoking habits, HIV/AIDS knowledge, and physical activity levels. The findings revealed substantial knowledge and behavior gaps. Over half (53%) of the students lacked basic awareness of reproductive health, including safe practices and risk identification. Smoking was reported by 19% of students, with some initiating as early as age 10, influenced significantly by peer pressure. Awareness of HIV/AIDS was also low, with less than 40% of students understanding its transmission and prevention. Furthermore, physical inactivity was prevalent, with more than 60% of students engaging in less than the recommended 60 minutes of daily physical activity. These results highlight critical deficiencies in adolescent health knowledge and behaviors, emphasizing the need for targeted, school-based health education programs. Comprehensive initiatives focusing on reproductive health, smoking prevention, HIV/AIDS awareness, and physical activity promotion are essential to empower students to make informed choices and adopt healthier lifestyles, reducing their long-term health risks.

Keywords: Adolescent Health, Risky Behaviors, GSHS

Topic: Health Studies

[ABS-319]
The Chemical Composition and Antibacterial Activity of Curcuma aeruginosa Roxb. Essential Oil Against Acne-Causing Bacteria

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Abstract

Curcuma aeruginosa Roxb is used empirically for various treatments, including to maintain healthy skin. However, adequate research is needed before use for medicinal purposes. This study was proposed to

determine the chemical content and antibacterial activity of C. aeruginosa against acne-causing bacteria. The essential oil was isolated by steam and water distillation. Furthermore, its organoleptic, yield, and refractive index were observed. Identification of its components was done by gas chromatography-mass spectrometry (GC-MS). Antibacterial activity was tested using the diffusion method against Staphylococcus aureus, S. epidermidis, and Propionibacterium acnes. Determination of minimum inhibitory concentration (MIC) and minimum bactericide concentration (MBC) was performed by microbroth-dilution. The obtained essential oil had a bitter taste, an aromatic odor, and a brownish color with a yield of 0.66% and refractive index of 1.4921. GC-MS analysis reveals 5 dominant components: eucalyptol, curzerenone, curdione, camphor, and 2-nonanol. The inhibition zone diameter varies based on the test bacteria. The essential oil inhibited P. acnes to a greater extent than against S. aureus and S. epidermidis. The MIC and MBC values of the essential oil against P. acnes were 0.07% and 0.15%, respectively. The essential oil of C. aeruginosa has the potential to be developed into anti-acne preparations.

Keywords: Diffusion methods, GC-MS, MIC, Propionibacterium acnes, Staphylococcus aureus

Topic: Health Studies

[ABS-349]

Anti-Aging Activity of Microalgae Aurantiochytrium sp. Extract on Hairless Rat Dorsal Skin and Its Analysis of Bioactive Components by Gas Chromatography-Mass Spectrometry

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Abstract

Aging is characterized by the appearance of lines and wrinkles on the face. Materials including microalgae can be used to prevent aging. Aurantiochytrium sp. is a microalga that produces useful secondary metabolites. This study aims to determine the anti-aging activity of microalgae Aurantiochytrium sp. extract on hairless rat dorsal skin and its analysis of bioactive components. The extraction follows the Folch method. The extract was analyzed by gas chromatography-mass spectrophotometry (GC-MS). The anti-aging activity was implemented using 24 hairless rat dorsal skin and divided into 6 groups (normal, positive control, negative control, test group content 0.5%, 2.5%, 12.5%). Exposure was carried out with a UV B Kernel KN-4003 lamp for 2 weeks. Observation of anti-aging on wrinkle and blemish parameters by visual scoring with the Bissett method. Moisture parameters, skin softness, and skin oil with a CR-302 skin analyzer. The data obtained were analyzed using the SPSS statistical test. The results of GC-MS showed fatty acids and squalene in the extract. the test group content of 12.5% was at least wrinkle and stain scores (0.25 and 0.42). Furthermore, it had the highest moisture (3.00), softness (4.13), and oil content scores (4.38). There was a significant difference between the negative control and the test group (p&#8804-0.05). The conclusion was that Aurantiochytrium sp. microalgae extract contains fatty acid and squalene has antiaging activity on hairless rat dorsal skin exposed to UV-B rays. Increasing the concentration of Aurantiochytrium sp. microalgae extract provides better antiaging activity.

Keywords: Anti-Aging, Aurantiochytrium sp., Bioactive

Topic: Health Studies

[ABS-76]

Citronellal Acetylation Using Ni-Co Metal Impregnated Hierarchical Zeolite Catalysis and Its Potential as an Antimicrobial and Antioxidants

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Abstract

An essential oil from fragrant lemongrass plants (Cymbopogon nardus L) or citronella has many health benefits. The main components contained in citronella essential oil are citronellol, geraniol and citronellal. Isopulegyl acetate is one byproduct of citronellal acetylation. The objective of this research was to determine the catalytic activity of Ni-Co Metal Impregnated Hierarchical Zeolite in the acetylation reaction of citronellal with acetic anhydride and its potential used for antimicrobial, antifungal and antioxidants activities. The morphological characterization of modified-naturals zeolite analyzed by X-Ray Diffraction-Surface Area Analyzer and SEM to see the structure enhancing its function as heterogeneous catalysts. Synthesized isopulegyl acetate made from citronela that analyzed by ATR-FTIR and GCMS confirmed that isopulegyl acetate produced from the reaction are valids. In Vitro evaluation is done to show the antioxidants activity and it concluded that there are no significant activity from isopulegyl acetate. the results of antimicrobial evaluation of isopulegyl acetate show that this synthesized compound shown that it is such an effective agent of antimicrobial due to its ability to eliminate the staphylococcus aureus, and its decent activity of antifungal to inhibit the development of candida albicans.

Keywords: Antimicrobial, Citronella, Hierarchical Zeolite, Impregnation

Topic: Health Studies

[ABS-342]

The Trends of Physical and Mental Health as Indicators of Non-Communicable Diseases in Families: A Descriptive Study

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Abstract

Physical discomfort due to chronic illness can occur in any individual. Especially non-communicable diseases, these chronic diseases occur due to lifestyle factors in the family, genetics, and aging. Non-communicable diseases can be prevented with early detection and prevention efforts. The purpose of this study is to see an overview of the incidence of non-communicable diseases in the community. The research design uses a descriptive study. The research was conducted in the in the Wonopringgo Health Center work area. The samples were taken using simple random sampling technique. The number of samples was 973 respondents with a minimum age of adolescence. The instrument used was a demographic questionnaire with a survey of the type of disease suffered. The analysis used frequency distribution and obtained the results that as many as 67 respondents suffered from physical diseases with an average age of 54.36 years. A total of 53 respondents had hypertension and 14 respondents had diabetes mellitus. A total of 4 respondents suffered from mental disorders with an average age of 48.5 years. The majority of respondents with physical and mental problems are women. The results of the study were obtained that the average healthy respondents were 26.45 years old. This proves that the disease is not contagious and becomes

chronic in the elderly. Therefore, early detection efforts are important in determining efforts to prevent non-communicable diseases from early on by assessing risk factors in the family.

Keywords: Early Detection, Diabetes Mellitus, Hypertension, Non-Communicable Diseases

Topic: Health Studies

[ABS-107]

Potential of Bangle Rhizome Extract (Zingiber montanum) as an Antiaging Agent through Inhibition of Elastase and Tyrosinase Enzymes and Its Application in Cream Formula

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Abstract

Bangle rhizome (Zingiber montanum) is known to have potential as an antiaging agent through the mechanism of inhibiting elastase and tyrosinase enzymes. This study aims to evaluate the elastase and tyrosinase inhibitory activity of bangle rhizome extract, and to develop a cream formula based on the extract as an antiaging cosmetic preparation. The test results showed that bangle rhizome extract had a tyrosinase inhibitory activity as IC50 of 1333.44 mg/L compared to kojic acid as a standard (480.72 mg/L). In addition, the elastase inhibitory activity of bangle extract reached IC50 of 919.44 mg/L, compared to gallic acid as a standard (325.25 mg/L). The developed cream formula has physical characteristics that meet the standards of topical preparations, with organoleptic descriptions in the form of a yellow cream with a specific aroma, oil-in-water (o/w) emulsion type, good homogeneity, pH 4.585, viscosity 4712 cP, spread ability 6.95 cm, and sticking power 2.22 seconds. Based on these results, bangle rhizome extract has the potential as an active natural ingredient in antiaging cosmetic preparations.

Keywords: Zingiber Montanum, Antiaging, Elastase, Tyrosinase, Extract

Topic: Health Studies

[ABS-361]

Systems Theory Approach in Mapping the Resolution of Malnutrition Problems in Purworejo, Sragi, Pekalongan Regency

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Abstract

Background: Nutritional problems in Indonesia are still a major problem and priority. Based on the 2022 Indonesian Nutrition Status Study Survey (SSGI), the prevalence of malnutrition in Indonesia is 7.7%. This figure has increased from 2021 which was 7.1%. The trend of malnutrition cases is still increasing in several districts, including Pekalongan district. Several factors causing the incidence of malnutrition include those related to nutritional intake, parenting patterns, sanitation hygiene, and other factors such as family income level, purchasing power and accompanying cultural factors that have been extensively researched. Meanwhile, there has not been much mapping of solutions to the problem of malnutrition. The aim of the research is to determine the mapping of solutions to the problem of malnutrition in Purworejo, Sragi, Pekalongan Regency, Central Java, Indonesia using a systems theory approach containing input, process and program output. The research method uses a qualitative approach with case studies with village heads,

health programmers and health cadres as well as mothers of toddlers. Using source triangulation and research method triangulation. Data collection techniques used in-depth interviews and focus group discussions. Data processing uses coding, pattern matching, and drawing conclusions. The results of the research obtained input for solving the problem of malnutrition in Purworejo, Sragi, Pekalongan district in the form of human resources, funding for overcoming malnutrition from village funds, donations to supplementary feeding programs, development of a screening program and mentoring for malnourished toddlers. The process of handling malnutrition is carried out with integrated posyandu, providing PMT breast milk, exclusive breastfeeding campaigns. The output of screening and assistance for malnutrition has been implemented well, but there are several obstacles that must be resolved with sustainable synergy across programs and across sectors. The conclusion of mapping the resolution of malnutrition problems using a systems theory approach can facilitate the development of health programs related to appropriate resolution of malnutrition in Purworejo, Sragi, Pekalongan district, Central Java, Indonesia.

Keywords: Systems Theory, Mapping, Malnutrition

Topic: Health Studies

[ABS-351]
Review on Application of Spectrophotometry UV-Vis for Identifying BKO in Jamu

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Abstract

WHO reports that herbal medicines are used by more than 75% of the world's population, especially in developing countries, in an effort to maintain health. Jamu is an Indonesian cultural heritage made from herbal ingredients which has a great opportunity to become an export commodity. However, Indonesia is in the top 20 biopharmaceutical exporting countries in the world with a market share still below 0.70%. The main strategy that producers of jamu must undertake is to improve the quality of jamu to maintain the reputation this product and enhance global competitiveness. However in fact, the presence of pharmaceutical chemicals drug material or in Indonesia it is called 'Bahan Kimia Obat' abbreviated as BKO in jamu is still found, this of course reduces the quality and image of Indonesia, so as a consequence there is a need to develop a reliable method to identify BKO ingredients using spectrophotometry UV-Vis. This review highlighted some articles about analytical methods spectrophotometric UV-Vis comprise sample preparation, types of effective solvents, as well as the advantages and disadvantages of identifying BKO, namely diclofenac sodium, sibutramine hydrochloride, paracetamol, and dexamethasone which are applied for jamu safety studies. Articles were searched online over a period of 10 years, using keywords on trusted websites. The spectrophotometric UV-Vis analytical method that has been reviewed can be applied to daily analysis of the identification of jamu containing BKO diclofenac sodium, sibutramine hydrochloride, paracetamol, and dexamethasone. The type of solvent that provides effective results in the analysis of diclofenac sodium and sibutramine hydrochloride is distilled water, ethanol solvent for paracetamol, and methanol for Dexamethasone.

Keywords: Diclofenac Sodium, Sibutramine Hydrochloride, Paracetamol, Dexamethasone, Adulteration, Herbal Medicine

Topic: Health Studies

[ABS-104]

a-Amylase Inhibition by Curcuma aeruginosa Fractions: In Vitro, In Silico, and Bioactive Compound Identification for Diabetes Management

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Abstract

a-Amylase is an enzyme responsible for breaking down carbohydrates into glucose and simple sugars. Inhibiting a-amylase activity can reduce glucose levels, offering potential for the prevention of diabetes mellitus. In this study, we explored the potential of a-amylase inhibitors extracted from Curcuma aeruginosa as a novel approach for managing hyperglycemia in diabetic patients. The objectives of this study were to determine the percent inhibition of a-amylase activity in the hexane-soluble fraction (NHSF), ethyl acetate-soluble fraction (EASF), ethanol-soluble fraction (ESF), and insoluble fraction (IF) of Curcuma aeruginosa, compare the inhibition activities across these fractions, identify the compounds responsible for a-amylase inhibition in the active fraction through in silico analysis, and measure the total phenolic and flavonoid content in the fractions. Sequential fractionation using hexane, ethyl acetate, and ethanol produced NHSF, EASF, ESF, and IF. a-Amylase inhibition was assessed in vitro using a multiplate reader, while GCMS analysis was performed to identify the compounds in the active fraction. In silico analysis was conducted using AutoDock Tools, and the total phenolic and flavonoid content was measured by UV Vis spectrophotometry. The results indicated that NHSF exhibited the highest a-amylase inhibition activity at 68.74 which was identified as the active fraction. GC-MS analysis identified 23 compounds in the active fraction, followed by in silico testing, which identified three bioactive compounds curcumenol, isocurcumenol, and 8,9 dehydro 9 vinyl cycloisolongifolene as the most potent inhibitors. Molecular docking, Lipinski rule of five, and ADMET predictions confirmed that these bioactive compounds meet the criteria for a-amylase inhibitors with potential antidiabetic properties. Furthermore, NHSF exhibited the highest total phenolic content 64.37mgGAE/g sample, while EASF showed the highest flavonoid content

Keywords: a-Amylase inhibition, Curcuma aeruginosa, in vitro, in silico, GCMS

Topic: Health Studies

[ABS-365]

The Effect of Health Promotion on Compliance with Diabetic Foot Exercises in Increasing Foot Sensitivity and Controlling Blood Sugar Levels

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Abstract

Background: The increasing population of diabetes mellitus sufferers has an impact on increasing the incidence of diabetic foot ulcers as a chronic complication of diabetes mellitus, as many as 15-25% of diabetes mellitus sufferers will experience diabetic foot ulcers (Singh et al., 2005). Diabetic foot exercises are activities or exercises carried out by people who suffer from diabetes mellitus to prevent injuries and help improve blood circulation in the feet. Objective: determine the effect of health promotion on compliance with diabetic foot exercises in increasing foot sensitivity and controlling blood sugar levels in people with diabetes

mellitus in Magelang Regency. Method: quasi experimental pre and post test with control group. The sample was 62 respondents in the intervention group and 62 respondents in the control group, proportional random sampling technique. Results: There is a difference in adherence to diabetic foot exercises and foot sensitivity before and after being given health promotion in the intervention group and the control group, p value 0.000. Conclusion: There is an influence of health promotion on compliance with diabetic foot exercises in increasing foot sensitivity and controlling blood sugar levels. Suggestion: given an appropriate health promotion model to manage diabetes mellitus.

Keywords: Diabetes Mellitus, Health Promotion, Diabetic Foot Exercises, Foot Sensitivity

Topic: Health Studies

[ABS-377]
Anti-inflammatory of *sida rhombifolia* : Insights from Bibliometric Analysis

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Abstract

Sidaguri (Sida rhombifolia L.), is a traditional medicinal plant with potential as a medicine. In general, this plant contains alkaloids, calcium oxalate, tannins, saponins, phenols, amino acids, and essential oils. This research aims to describe the research trends of the plant Sida Rhombifolia as an anti-inflammatory in journals or proceedings using the Google Scholar database from 2014-2024. Data collection was conducted using the Publish or Perish application with the search keywords 'Sida Rhombifolia AND anti-inflammatory. Data storage was done in Microsoft Excel (format CSV and RIS). Microsoft Excel is used to analyze the development of the number of publications, author productivity, and the top articles most frequently cited. The VOSViewer application version 1.6.17 is used to analyze the relationships between research topics, trends, and the most frequently researched topics. The results of this study show that there are 200 published articles with a total of 2,219 citations from 2014 to 2024, averaging 221.9 citations per year. The average citations per article is 11.10, and the average number of authors per paper is 3.42. There is a trend of increasing publication numbers each year, with the highest number of publications occurring in 2023, totaling 30 publications. The 5 most productive researchers in publishing articles from 2014-2024 are Rosa, HS DA who produced 6 published articles- Nworah, FN who produced 6 published articles- Nwankwo, NE who produced 6 published articles- Ezeako, EC who produced 4 published articles- and Natsir who produced 4 published articles. In this study, the most cited topic is Indonesia. The visualization of the research network is divided into 5 clusters. The current topics based on data from articles in this study, namely ethanolic leaf fraction, hydroethanolic extract, cytotoxicity, and ethnomedicinal use, are the most published topics in 2022. Topics with low density or those that have not been extensively studied include anti-inflammatory potential, diabetes, and cytotoxicity. This research can help provide methodological guidance for pharmacological testing and determine the latest and least studied topics, especially related to the Sida Rhombifolia plant as an anti-inflammatory, thus providing an impact on the development of pharmaceutical science.

Keywords: Bibliometric, Sida Rhombifolia, Antiinflammatory, VosViewer, Publish or Perish

Topic: Health Studies

[ABS-367]

Menstrual Patterns in Women with Chronic Kidney Failure in the Hemodialysis Room of RSUD Tidar Magelang City

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Abstract

Background: Patients with kidney failure in the final stages will experience a loss of kidney function of up to 90% or more, so that the body's ability to maintain fluid and electrolyte balance is disrupted, excretory function becomes inadequate, hormonal function is disrupted and the condition of uremia or azotemia occurs. Patients who undergo hemodialysis will cause their menstrual cycle to decrease and stop and even their reproductive function will decrease. Because women who suffer from chronic kidney failure for a long time in their bodies will experience an increase in endocrine, prolactin, leptin. These three elements are involved in reducing the secretion of Gonadotropin-releasing hormone (GnRH) in the hypothalamus, which results in estrogen not being able to stimulate Follicle Stimulating Hormone (FSH) and Luteinizing hormone (LH) so that there is no increase in the corpus luteum which will result in changes in pattern. menstruation. Objective: to determine menstrual patterns in women suffering from chronic kidney failure in the hemodialysis room at Tidar Regional Hospital, Magelang City. Method: The research design used was descriptive quantitative with a cross sectional design involving 27 respondents. Results: 20 respondents (72%) experienced menstrual cycle disorders, 14 respondents (51.9%) experienced oligomenorrhea, 15 respondents (55.15%) experienced hypomenorrhea and almost all patients experienced cycle changes at the beginning of undergoing hemodialysis, 23 respondents (85%). Conclusion: Some respondents experienced changes in menstrual patterns both according to their menstrual cycle and the amount/volume of bleeding

Keywords: Chronic Renal Failure, Hemodialysis, Menstrual Patterns

Topic: Health Studies

[ABS-122]

In Silico, In Vitro and In Vivo Study of the Potential of Bawang Dayak Extract (Eleutherine bulbosa (L) Merr.) as Anti-Cholesterol

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Abstract

Cholesterol is fat produced by the body and comes from plants or animals' food. Moreover, cho-lesterol can be made by the liver. Total cholesterol is the amount of cholesterol that is carried in all cholesterol carrier particles in the blood. The study aimed to determine the potential of bawang dayak extract as an anti-cholesterol. In silico study was carried out using GC-MS analysis and continued with screening using Lipinski's Rule of Five. In Vitro study was carried out using a cholesterol reagent that read in Multimode Reader. In Vivo study was carried out by cholesterol level measurement against egg yolk-induced rats. The results of in silico study using the Lipinski's Rule of Five was active Compound in bawang Dayak was Undecanoic Acid. Undeca-noic acid is ethyl ester compound with Log P <5. Molecular validation produced reference ligand compounds on the IHW9 receptor. The results of the in vitro study showed the largest percentage of cholesterol decrease was at a concentration of 50 ppm with a value of 40.04 %. The in vivo study showed the largest percentage of cholesterol decreasing were in the positive control group (simvastatin) with a value of 23.02% and in bawang dayak extract group with a dose of 250 mg/kgBW with

a value of 24.70 %. Bawang dayak has an activity as anti-cholesterol that proven by in silico, in vitro and in vivo study

Keywords: Anticholesterol, Dayak Onion Extract, In Silico, In Vitro, In Vivo

Topic: Health Studies

[ABS-132]
Antidiabetic activity Test of Okra Fruit Extract (Abelmoschus esculentus L.) on Glucose Levels and Wound Healing of Diabetic Ulcer

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Abstract

Introduction: People with Diabetes Mellitus (DM) are at great risk of developing complications, both acute and chronic. One of the complications of DM is the formation of a wound that is very difficult to heal called a diabetic ulcer. Okra fruit extract has been shown in previous studies to lower normal blood glucose levels, those suffering from alloxan or streptozocin induced diabetes. Purpose: To test the ability of okra fruit extract as wound healing for diabetic wounds. Method: Testing was carried out on white rat test animals induced with alloxan 150 mg/Kg WB divided into 5 treatment groups, namely the extract group with a dose of 100mg/Kg WB and 200 mg/Kg WB- glibenclamide group with a dose of 5 mg/Kg WB- a positive control group and negative control group with four repetitions for each test group. Diabetic mice had a 1 cm long ulcer wound on the dorsal part. Main Finding: A dose of 100 mg/Kg WB has been able to restore blood glucose levels comparable to the positive control group and can accelerate the reduction of wound area in diabetic rats. Implication: Administration of Abelomoschus esculentus extract has an effect on lowering blood sugar and wound healing of diabetic ulcers.

Keywords: Extract, Abelmoschus esculentus L., Glucose Levels, Diabetic Ulcer

Topic: Health Studies

[ABS-123]
The Bibliometric Analysis of Telepharmacy: Future Research Opportunities

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Abstract

Several countries adopted e-pharmacy systems during the COVID-19 pandemic, enabling online operations and order delivery via email or web portals. This study aims to determine the development map of telepharmacy research in the world. The study was conducted in May 2016 by searching through the Scopus database in 1998-2022 with the keyword telepharmacy. The search data is then analyzed descriptively based on the year of publication, the country that publishes the development of research results on telepharmacy topics, the name of the journal/publication, the productivity of the researcher, and the research subject. Map of research development, the data is exported into Comma Separated Values (CSV) file format. The export data are then processed and analyzed using the VOSViewer application program to determine the

bibliometric map of the development of telepharmacy research. The results showed that the number of publications of telepharmacy had increased significantly. The country that contributes the most publications to telepharmacy research results is the United States. The most prolific researchers who publish research results on the topic of telepharmacy are Petterson and Scott, while Margusino-framinan and Morillo-verdugo r. The topic of telepharmacy is still a new issue and has not been widely studied. Although it has increased from year to year, this topic is still considered a new thing in the world of scientific publications. The scopus database found only 260 documents. Therefore, telepharmacy should be a research priority. Telepharmacy provides many opportunities and opportunities for researchers to develop service models in the context of pharmacy education, diabetes, treatment management, regulation, hospital and ambulatory so as to have a real impact on the development of science and technology in the future.

Keywords: Telepharmacy Development, COVID-19, Pharmaceutical Services, E-Pharmacy and Technological Innovation, Bibliometric Analysis of Telepharmacy

Topic: Health Studies

[ABS-208]
Treatment of Hypertensive Patients in Community Pharmacies in Yogyakarta

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Abstract

Introduction Hypertension is one of the degenerative diseases that has quite high mortality and morbidity. Rational drug management in hypertensive patients has become an increasingly important topic to make optimal use of the treatment to provide the highest possible standard of health care. Continuous assessment of rational drug prescription and use should be carried out in patients. This study aims to determine the pattern of drug prescription and the use of antihypertensive groups in hypertensive patients in community pharmacies in Yogyakarta in 2024. Methode of this study was to conduct a retrospective cross-sectional study of prescription patterns in hypertensive patients in the community. The review of drug prescription characteristics includes gender, age, comorbidities, duration of treatment, and number of drugs used. The results showed that 56.06% of hypertensive patients were male patients, the dominant age in this study was over 60 years (59.09%). The duration of treatment in this study was dominated by 5-10 days (79.55%). Hypertensive patients usually have 1-3 comorbidities so that be will affect the treatment received. As many as 84.85% of hypertensive patients use a single hypertension drug. Conclusion, rational use of hypertension drugs in community pharmacies can increase the effectiveness of therapy in hypertension patients. Amlodipine is a CCB group that is the first line of hypertension treatment in the community. The combination of treatments that often used is a combination of the CCB group (amlodipine) with the diuretic group (furosemide).

Keywords: Hypertensive, Prescribing Pattern, Community Pharmacies

Topic: Health Studies

[ABS-134]

The Role of Environmental Microbiota in Shaping Human Gut Health: Ecological Perspectives

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Abstract

The human gut microbiota is central to maintaining health, influencing immune regulation, metabolic functions, and disease susceptibility. Environmental microbiota-the microbial communities in soil, air, and water-play a crucial role in shaping gut microbiota composition and functionality. However, urbanization, industrialization, and modern lifestyles have significantly reduced exposure to these environmental microbes, leading to diminished microbial diversity and associated health risks. This paper investigates the pathways through which environmental microbial communities interact with human gut microbiota, the implications of urbanization on microbial diversity, and the consequent health outcomes. It highlights key mechanisms linking gut dysbiosis to diseases such as autoimmune disorders, allergies, and metabolic syndromes. Furthermore, it explores interventions, including urban greening, traditional dietary practices, and engineered probiotics, that can mitigate microbial loss. Finally, this paper identifies knowledge gaps and proposes future research directions to enhance our understanding of microbial ecosystems and their role in human health.

Keywords: Environmental Microbiota, Gut Health, Microbial Diversity, Urbanization, Human Microbiome

Topic: Health Studies

[ABS-135]

A Green Synthesis and DFT Evaluation of 3D Hierarchical Tin Disulfide Nanoflowers for Biomedical Applications

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Abstract

Tin disulfide (SnS2), a 2D transition metal chalcogenide family, has recently drawn tremendous attention due to its unique stack geometry, precisely controllable structure and properties, tunable band gap, and biocompatibility allowing for a wide range of applications in nanosensors and diagnosis. In this study, 3D hierarchical SnS2 nanoflower (f-SnS2) was synthesized using a facile and environmentally friendly ultrasound treatment at ambient temperature. The as-synthesized f-SnS2 was characterized by SEM-EDX, dynamic light scattering, and Raman spectroscopy, which revealed homogeneous material distribution, microstructural properties, and an excellent elemental ratio of Sn1Sn~2. Moreover, their electronic band gap and active-site distribution were elucidated using density functional theory calculations. The overall results indicated the successful synthesis of f-SnS2 via green chemistry approach and the predominant electrostatic potential distribution at edge structure regions, enabling further potential application as transducer materials for sensor development.

Keywords: SnS2, Nanoflowers, 2D nanomaterials, Sonochemical synthesis, DFT calculation

Topic: Health Studies

[ABS-155]
Ergonomics Risk Assessment with Environmental Interventions

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Abstract
Small and medium enterprises are companies that still use human labor as workers. The use of humans as workers should get attention related to the risk of hazards that are often experienced by IKM TS Aluminum is a metal casting industry that produces woks. Based on observations, it appears that the molding workstation has the highest workload because operators work in a standing position for 8 hours a day. In addition, the operator also lifts 35 kg of molding weight. This resulted in unergonomic work postures, such as excessive bending, head bowing and body twisting, causing waste that could potentially lead to fatigue, physical injury and health problems. This study aims to determine the factors that can cause waste of motion, assess the posture of workers during pan molding activities and analyze the impact of the posture assessment on body health. The approach used in this research is lean ergonomics, which combines lean manufacturing and ergonomic principles to identify and reduce waste. The methods used are process flow maps to determine the flow of production activities, REBA to identify non-ergonomic postures, and smartwatches for heart rate monitoring to measure worker fatigue levels.

Keywords: Ergonomic, Risk, Environment, Lean

Topic: Health Studies

[ABS-240]
Formulation of Granola Bar Based on Soybean and Moringa Leaf Flour as Alternative Snack for Adolescent

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Abstract
Malnutrition in adolescents occur as a result of unhealthy eating behavior. Providing nutritious snacks contribute to prevent malnutrition in adolescents. Some local nutritious food ingredients that can be given to adolescents are soybean and moringa leaves. The aims of this study were to analyze the sensory properties of granola bar formulations based on soybean and moringa leaf flour, and to analyze the nutritional content of the selected formula. This study was experimental research using a completely randomized design with three treatments. The formulations of granola bar in the ratio of soybean flour and moringa leaf flour were F1 (90:10), F2 (80:20), and F3 (70:30). Observations included sensory and nutritional contents analysis. The sensory data analysis used the parametric type ANOVA test with a follow-up Duncan test. The nutritional content data was analysis using descriptive statistics. The result of sensory test showed that there was no significant differences in color, taste, and texture ($p<0.05$). However, there was a significant different of aroma among the formulas ($p=0.000$). The overall sensory test showed that F1 was a selected formula. The nutritional content of F1 in 100 grams was 433 kcal of total energy, 149.4 kcal of energy from fats, 16.6 gram of fats, 16.6 g of protein, and 54.3 g of carbohydrates. F1 meets the requirements for claims of protein sources, namely contributing 27.6% of nutritional adequacy per 100 grams. Snack bar based on soybean and moringa leaf flour in F1 had the potential to be an alternative snack for adolescent.

Keywords: Adolescent, Granola Bar, Moringa Leaf, Soybean

Topic: Health Studies

List of Abstracts: Information and Communication Technology

[ABS-256]
A Bibliometric Analysis of Tablet for Early Child from 2014-2024 using VOSviewer

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Abstract
Tablets are one of the technologies that are widely used by everyone. The use of tablets along with technological advances can be used at home and currently the use of tablets in schools is taken into account. The purpose of this study was to analyze the development of studies on the use of tablets in early childhood education environments in 2014-2024. This study uses bibliometric analysis with the help of the VOS Viewer application. The findings obtained were 253 articles related to the use of tablets in early childhood education environments. Data collection based on articles using Perish or Publish (PoP). This study provides a forward-looking view of the development of research related to the use of tablets in early childhood education environments.

Keywords: Bibliometric, Tablet, Early Child, Preschool, Kindergarten

Topic: Information and Communication Technology

[ABS-14]
Reimagining Corporate Branding in a Digitally Interconnected Society: Challenges and Opportunities for Media Industries

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Abstract
This study examines the rebranding process of GRID Network, as part of Kompas-Gramedia (KG) media group, adapting digitally to this technology disruption. GRID network needs to cater technological and behavioral change in order to survive in this era, thus reimagining corporate branding in KG print media Group, is a necessity. Aims of this study is specifically to identify internal and external response to challenges during the rebranding of Grid Network and generally to assess the impact of digital transformation on brand equity and consumer loyalty within Indonesia's magazine and tabloid case within a digitally interconnected society. This article attempts to focus on a single case-study through qualitative interviews with employees across management, comparing and confirming the branding and rebranding conceptual framework. The main findings show that GRID Network's brand strategy, initially reactive to digital trends, may lack the strategic depth needed to build a unique identity, as it appears focused more on adapting to the interconnected, digital landscape than on establishing a cohesive brand image. This cautious entry into digital media may impact both employee alignment and consumer perception, with both groups potentially struggling to find relevance and consistency in the brand's message. Recommendations include developing a unified brand identity that integrates core values, engages employees, and effectively bridges generational differences among consumers would help create a stronger brand presence and foster loyalty

by aligning GRID Network's digital transformation with clear, cohesive values that resonate across all audiences.

Keywords: Branding, Digital Society, Media Company, Rebranding, Interconnected Society

Topic: Information and Communication Technology

[ABS-17]
Optimizing Digital Marketing for SMEs in the Digital Communication Era: Insights from a Brand Awareness Perspective

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Abstract
In the digital communication era, small and medium enterprises (SMEs) are increasingly reliant on digital marketing strategies to enhance their brand visibility and drive purchase decisions. Therefore, such enterprises are practicing digital marketing strategies in order to expand the outreach of their brands and influence the buying processes. The present research seeks to examine how optimization of digital marketing practices impacts purchase decisions of SMEs with particular emphasis on the role of brand awareness as a moderation variable. The case study comprises the Gallery UMKM Satui located in Indonesia engaging the marketing-oriented web pages, engaging social networks, content marketing to see how these factors change consumer's perspective and purchase intentions. The data for the study were collected from seventy equivalents using structured questionnaires and were analyzed using multiple linear regression and path analysis methods. The study found out that the brand equity of the company increases with the application of the digital marketing strategies, which leads to favorable purchase decisions among consumers. Moreover, brand awareness is confirmed as a mediator in the relationship between marketing activities and purchasing results, revealing its role in digital marketing strategies. There are useful recommendations offered to SMEs that emphasize the need for them to enhance their marketing strategies with the view of increasing the level of brand awareness and consequently, the level of trust in consumers and the ability of SMEs to compete. Practical Marketing Strategic Applications for SMEs pertaining to the current research directions in digital marketing optimization are provided

Keywords: digital marketing- SMEs- brand awareness- digital communication

Topic: Information and Communication Technology

[ABS-275]
The Role of ICT and Health Adoption in Improving Institutional Performance in Diverse Markets

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Abstract
This study examines the influence of information and communication technology (ICT) adoption, health, and market size on institutional performance. Institutional performance is considered an important variable in supporting economic and social growth in various sectors. The main objective of this study is to explore

the extent to which these factors significantly affect the performance of the institution. The method used was multiple regression analysis with data from 33 samples. Independent variables include ICT adoption, health, and market size, while the dependent variable is institutional performance. The results showed that the adoption of ICT and health had a significant positive influence on institutional performance, with significance values of 0.029 and 0.016, respectively. In contrast, the market size has a negative effect with a significance value of 0.000. The regression model showed a determination coefficient of 51.7%, which indicates the contribution of independent variables to the performance of the institution. The implication of this study is the need to strengthen ICT and healthcare infrastructure as a strategy to improve institutional performance, especially in regions with varying market sizes.

Keywords: institutional performance, ICT adoption, health, market size, regression analysis

Topic: Information and Communication Technology

[ABS-331]
Corporate Social Responsibility Communication Model in Realizing Sustainable Development Goals Based on Artificial Intelligence (Studies in Indonesia and China)

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Abstract

The Corporate Social Responsibility (CSR) program is not only to improve the company's image, but can also provide solutions to problems in society. In practice, many companies still face problems in conveying their CSR messages so that they are accepted by the public. Companies that can provide CSR programs with the right targets will increase their positive reputation and have good relations with the community. Therefore, innovation is needed in collecting information that is in accordance with community needs. In the digital era, Artificial Intelligence (AI) has emerged to increase the effectiveness of CSR programs by helping practitioners to gather information about CSR strategy needs. The background to this research looks at how the CSR Program in Indonesia has become an important part of national development because it is included in supporting the Golden Indonesia Vision 2045. In 2024, the national priority program includes increasing the Human Development Index (HDI) as part of CSR's contribution to social welfare and economy especially in realizing SDGs. Many companies in Indonesia have successfully implemented CSR programs that have had a significant impact, including state-owned companies and energy companies. Corporate Social Responsibility (CSR) programs in China have developed rapidly in recent years, especially with the emergence of new technologies and approaches such as Artificial Intelligence (AI) in CSR communication practices. Some large companies such as Intel China have taken the lead in releasing CSR reports that demonstrate a focus on sustainability, inclusivity and social responsibility. Indonesia and China have similarities in realizing CSR programs that can be a solution to social problems but also have differences in cultural, social values and expectations from society. The research objective is to develop an AI-based CSR communication model to increase effectiveness and efficiency between companies and stakeholders. AI will explore potential CSR programs that companies can carry out based on information collected in Indonesia and China. The research method uses qualitative case studies method by conducting a in depth interview with Ministry of State-Owned Enterprises of Indonesia and China, and literature review on CSR in Indonesia and China. The collected data will be analyzed by identifying patterns and themes related to the use of AI in the CSR communication process. An AI-based CSR communication model will be developed according to the findings and data analysis. The output of research on artificial intelligence (AI)-based CSR program communication models in Indonesia and China will be very relevant in understanding how this technology can increase the effectiveness of CSR communication in various sectors. This model is expected to facilitate transparency, broader stakeholder involvement, and optimize digital CSR reporting, which is one of the challenges in implementing CSR in Indonesia. This research was conducted with a focus

on developing practical models that can be implemented by companies. The results of the research offer solutions for practitioners and academics in increasing the effectiveness of CSR communication by utilizing AI technology. Many CSR programs in Indonesia and China have been integrated into the SDGs sector. Companies can utilize artificial intelligence to increase community involvement in implementing CSR, especially in supporting the achievement of SDGs. The existence of an AI-based communication model is an alternative for optimizing CSR in supporting the SDGs. This research has the impact of creating an AI-based CSR communication model to support more optimal achievement of the SDGs. Corporate Social Responsibility- Communication Model- Sustainable Development Goals- Artificial Intelligence.

Keywords: Corporate Social Responsibility, Communication Model, Sustainable Development Goals, Artificial Intelligence.

Topic: Information and Communication Technology

[ABS-285]
Information System Design: INTRA-NET to Support Digital Transformation for Indonesia Engineers

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Abstract

Digital transformation has become essential in various sectors, including engineering in Indonesia, necessitating an efficient information system to facilitate collaboration, knowledge sharing, and innovation among engineers. Despite the significant potential, many Indonesian engineers face challenges accessing information and collaborating effectively, leading to decreased productivity and innovation. This study aims to design an intra-net to support Indonesian engineers in their digital transformation journey, enhancing information accessibility and strengthening community collaboration. Using a qualitative research approach with case studies, data were collected through interviews, surveys, and analysis of existing documentation. SWOT analysis was employed to assess the strengths, weaknesses, opportunities, and threats of the proposed intra-net, complemented by thematic analysis to identify user needs and expectations. The findings indicate that the designed intra-net effectively meets the engineers' requirements for information access and collaboration, highlighting features such as discussion forums, integrated document storage, and project-sharing platforms. In conclusion, the proposed intra-net serves as a valuable tool for accelerating digital transformation among Indonesian engineers while promoting a culture of knowledge sharing and collaboration. Recommendations include involving engineers in the implementation and further development of the intra-net, providing training and outreach to maximize effective use, and ensuring continuous development and periodic evaluations to adapt to users' evolving needs.

Keywords: Digital Transformation, Information System, Collaboration, Engineering, Indonesia

Topic: Information and Communication Technology

[ABS-31]

Driving Sustainable Performance: Digital Transformation, Technological Capability, and Innovation in MSMEs

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Abstract

This research examines the role of digital transformation, technological capability, and innovation in driving the sustainable performance of Micro, Small, And Medium Enterprises (MSMEs). Using data from 136 MSMEs across various sectors, the study employs Structural Equation Modeling (SEM) to evaluate relationships among variables. Results indicate that technological capability significantly enhances digital transformation and innovation, which in turn have a positive and direct impact on sustainable performance. However, technological capability does not directly influence sustainable performance, highlighting the critical mediating roles of digital transformation and innovation. Despite its contributions, this study is limited to the Solo Raya region, and the use of cross-sectional data restricts long-term causal inferences. Nevertheless, the findings offer valuable insights for policymakers and MSME leaders, emphasizing the need for strategic investments in IT infrastructure, digital skills training, and innovation processes to sustain growth. Future research should adopt a longitudinal approach and explore additional regions to validate these results. This study establishes a critical framework for understanding how technology and innovation drive sustainable MSMEs performance in a rapidly digitalizing world.

Keywords: Sustainable Performance, Digital Transformation, Technological Capability, Innovation, MSMEs

Topic: Information and Communication Technology

[ABS-324]

Study Control System through IOT based on SIPENYET to accelerate student studies at Islamic Universities

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Abstract

Completion of studies on time is not a personal problem for students but concerns the quality of academic governance in a university. With this perspective, IAIN Kendari implements the SIPENYET application which functions as a control tool in completing student studies. The application involves three-way interaction, namely: lecturers, students, and education staff. The interaction process begins when students submit research titles, the guidance process, exams, to graduation. This research found that the use of IOT in the form of the SIPENYET application has a very large impact on the following aspects: 1) availability of correspondence records between lecturers and students- 2) monitoring the progress of student study completion- 3) creating effectiveness and efficiency in completing student studies.

Keywords: Study Control System, IOT- SIPENYET, Acceleration of Study

Topic: Information and Communication Technology

[ABS-33]

Critical Success Factors for Innovation in Local Governance: Evidence from Magelang City

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Abstract

Innovation has become a cornerstone of local governance to address dynamic challenges and improve public services. In Magelang City, the Regional Development Planning, Research, and Development Agency (BAPPEDA) plays a crucial role in managing innovation through its Innovation Management System (IMS). This study aims to identify and evaluate the critical success factors (CSF) that influence the successful implementation of innovation processes and products. Using a mixed-methods approach, data were collected through surveys and semi-structured interviews with stakeholders, including local government officials, innovation actors, and community representatives. The analysis employed the Delphi method and Analytical Hierarchy Process (AHP) to prioritize six CSF categories: innovation actors, pioneer institutions, development processes, stakeholder evaluations, implementation speed, and interactions between innovation actors and objects. Results highlight the dominance of institutional readiness and cross-sectoral collaboration as key drivers of innovation success. The discussion explores the practical implications of these findings for enhancing innovation governance in Magelang and provides recommendations for sustaining innovation in local governments.

Keywords: Critical Success Factor, CSF, Innovation Management System, Innovation, Local Governance

Topic: Information and Communication Technology

[ABS-293]

Leveraging ICT Tools to Foster Digital Communication and Digital Society Responsibility in ELT Classrooms

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Abstract

In an era defined by rapid technological advancements, fostering digital communication and responsibility is crucial for preparing learners to thrive in a digitally interconnected society. In English Language Teaching (ELT), the integration of Information and Communication Technology (ICT) tools and Internet of Things (IoT) technologies offers transformative opportunities to enhance learning outcomes while promoting ethical digital practices and global communication skills. A qualitative case study was conducted with 15 English language educators from secondary and tertiary institutions. Data from semi-structured interviews, questionnaires, and document analysis revealed that ICT tools significantly improve student engagement and communication. Platforms like Google Classroom and Schoology were noted for facilitating collaborative discussions, while virtual tools such as Zoom enhanced real-time interaction and intercultural exchanges. Collaborative tools like Padlet and IoT-enabled devices supported interactive, context-rich learning environments. Findings showed that 85% of participants observed improved digital literacy and communication skills among students, particularly in group projects and global virtual exchanges. However, challenges such as technical limitations and teacher readiness were highlighted. AI tools like ChatGPT fostered learner autonomy, though some educators expressed concerns about ethical use. This

study emphasizes the transformative role of ICT and IoT in fostering global digital communication and responsibility in ELT, underscoring the need for teacher training and resource optimization.

Keywords: Digital Communication, Digital Society Responsibility, ICT in ELT, IoT in Education

Topic: Information and Communication Technology

[ABS-44]
Campaign Strategy of PERHUMAS Muda Yogyakarta in Improving Public Relations Literacy among Yogyakarta College Students Through Instagram Account @Perhumasmudayk in 2023

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Abstract

The use of social media such as Instagram is now one of the effective ways to run various campaign activities, including campaigns on public relations literacy. This study aims to identify and analyze the campaign strategy of PERHUMAS Muda Yogyakarta (PMY) in improving public relations literacy among Yogyakarta college students through the @perhumasmudayk Instagram account in 2023. This research uses a qualitative method with a case study approach, which is supported by data collection through interviews and documentation. The analysis focused on the five main aspects of the campaign management model by Antar Venus namely planning, development, implementation, monitoring, and evaluation. The results of this research show that PMY has strategically utilized Instagram features to improve public relations literacy by implementing structured educational content like Kamis Kamus PR, Humas Bisa Apa, and Riset Isu Terkini, as well as real-time interaction through live Instagram with the PR Talks program. However, there are several obstacles, such as less optimum analysis of data insights and lack of alignment between content segments. This study recommends strengthening data-based analysis, improving program development by aligning one program with another, and improving internal communication. The findings are expected to provide guidance for similar organizations in maximizing the potential of social media for literacy campaigns.

Keywords: Campaign Strategy, Public Relations Literacy, Instagram, Campaign Management Model

Topic: Information and Communication Technology

[ABS-46]
Implementing Visum Technology within the Framework of School Transportation Planning

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Abstract

In Indonesia, the lack of reliable public transportation services for students has become a critical issue, leading to increased traffic safety concerns and limited mobility options. This challenge is particularly pronounced in regions where public transport systems have ceased operations, leaving students dependent on private vehicles or unsafe travel alternatives. To address this issue, integrating advanced technologies such as PTV Visum into school transportation planning offers a strategic solution for enhancing safety, efficiency, and sustainability. This study employs a case study approach, focusing on Klaten Regency, to

demonstrate the application of PTV Visum in designing effective school transport systems. Data collection includes origin-destination surveys and government-provided secondary data to model demand and optimize routes. The findings recommend two optimized routes and the deployment of Isuzu NQR 71 EC E2-1 Variant 6 vehicles, accommodating 45 passengers per trip, with operational schedules designed to meet peak student mobility needs. This research highlights the broader applicability of Visum technology in Indonesia for creating data-driven, sustainable school transportation frameworks, thereby addressing the challenges of urbanization, traffic safety, and environmental concerns.

Keywords: PTV Visum, Transportation Planning, School Transport

Topic: Information and Communication Technology

[ABS-68]
Comparative Study of Schoology and OpenLearning E-Learning Platforms for Enhancing English Skills

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Abstract

This study investigates the interactions between different teaching strategies and student Cumulative Academic Score (CAS), particularly their effects on the English scores of students at the University of Muhammadiyah Surakarta. It aims to determine if significant differences exist in English Proficiency Exam (EPE) scores among students using conventional methods, the Schoology platform, and OpenLearning, while controlling for CAS. The results indicate a statistically meaningful interaction between teaching strategies and CAS, indicating that the instructional approach can influence English proficiency outcomes. Notably, students utilizing the Schoology platform achieved the highest average EPE score, suggesting its effectiveness in enhancing student performance. The analysis also highlights significant differences in EPE scores across the three learning clusters and a positive correlation between CAS and EPE scores, reinforcing the link between academic achievement and assessment performance. Based on these results, the study recommends that the university implement an online learning policy focused on the Schoology framework, while reconsidering other mandatory implementation of OpenLearning, to provide a more effective learning experience for students

Keywords: Comparation, E-Learning, Learning Management System

Topic: Information and Communication Technology

[ABS-329]
Utilization of Data Mining Techniques in SIMPUS towards Smart Library at IAIN Kendari

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Abstract

The use of data mining techniques in the Library Management Information System (SIMPUS) has great potential to support the transformation of conventional libraries into Smart Libraries. This study aims to analyze the application of data mining techniques in SIMPUS at IAIN Kendari, in order to improve the

efficiency of library management and provide smarter services to users. By using algorithms such as association rules, clustering, and classification, historical data on borrowing and collection management can be processed to produce valuable insights, such as user behavior patterns, book need predictions, and collection recommendations. The results of the study indicate that the implementation of data mining techniques can improve the quality of library services, facilitate strategic decision making, and provide a more personalized experience to users. This study concludes that the integration of data mining in SIMPUS is a strategic step to support the digitalization and modernization of technology-based libraries at IAIN Kendari.

Keywords: Data Mining, SIMPUS, Library Smart, Library Digitalization

Topic: Information and Communication Technology

[ABS-333]

Utilization of the Internet of Things (IoT) through the SIMADU application to Improve Employee Discipline and Work Efficiency at IAIN Kendari

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Abstract

The use of Internet of Things (IoT) technology is increasingly developing in various sectors, including in human resource management in Islamic universities. This study aims to examine the application of IoT through the Integrated Management Information System (SIMADU) application in improving employee discipline and work efficiency. The SIMADU application is designed to integrate IoT devices, such as biometric-based attendance sensors, real-time activity tracking, and automatic notifications, to monitor and manage employee performance more effectively. The results of the study show that the application of IoT through SIMADU can increase employee discipline levels by up to 25%, accelerate the decision-making process, and minimize administrative errors. These findings prove that IoT can be an innovative solution in supporting the efficiency of human resource management in Islamic universities.

Keywords: Internet of Things, SIMADU, Employee discipline, Work efficiency

Topic: Information and Communication Technology

[ABS-78]

The Digital Transformation of the Qur'an: Green Technology, Materiality, and New Religious Culture in Indonesia

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Abstract

The present study examines media transition in the delivery of the Qur'anic text, from printed manuscript to digital applications, as well as the implications of this shift on its sacredness. This research argues that digital format is not merely abstract data but possesses its own materiality, which reinforces religious conviction in the modern era. The transformation into a digital format not only raises discussions about

whether the digital Qur'an can retain its sacredness akin to printed text but also contributes to green technology principles. By reducing the need for paper, ink, and the energy required to print and distribute physical mushafs, digital Qur'an supports environmental preservation efforts through natural resource conservation. This study involves respondents having various backgrounds who use digital Qur'an applications in major cities across Indonesia, employing ethnographic research design that allows the researcher to directly observe and hear the experiences and perspectives of users. The findings depict that through interactive features such as audio recitation, digital exegesis, and aesthetic visual elements, digital Qur'an applications deepen users' religious experiences. With advancing technology that increasingly integrates sacred texts into daily life, the digital Qur'an not only preserves its sacred value but also supports environmental sustainability, providing a sustainable alternative that enriches the spiritual experience of Muslims in Indonesia.

Keywords: Green Technology, Digital Qur'an, Materiality, Religious Culture

Topic: Information and Communication Technology

[ABS-378]
Feasibility Study and Needs of the Growth and Development of Child Information System (SI-GoChild) in Daycare

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Abstract

The growth and development of infants and toddlers is very important. Childcare centers have a crucial role in supporting optimal growth of children. However, monitoring child growth and development consistently is often a challenge. This study aims to examine the need and feasibility of developing a Growth and Development of Child Information System (SI-GoChild) as a tool to monitor the growth and development of infants and toddlers in Childcare Centers in Pekalongan Regency. This study uses a quantitative method by distributing questionnaires to 100 respondents, namely TPA caregivers and parents who entrust their children to TPA. Database development uses the Entity Relationship Diagram (ERD) method and the database is tested for feasibility using the Normalization test. In addition, the SI-GoChild system development is also carried out using the Waterfall method. The results of the study indicate that there is a high need for an information system to monitor child growth and development. The most expected features are growth monitoring, healthy food menus, and child development reports. As many as 85% of respondents strongly agreed that SI-GoChild can help improve the quality of services in childcare centers. Database testing shows that the table design is quite good and has met the Third Normalized Form (3NF). System testing on a computer laboratory scale shows that SI-GoChild functions well and meets user needs. SI-GoChild has great potential to be an effective tool in monitoring the growth and development of children in Pekalongan Regency Childcare Centers. The development of this system can improve the quality of services, provide accurate information to parents, and support optimal child growth

Keywords: Development, Growth, Information System

Topic: Information and Communication Technology

[ABS-124]

An Analysis of Corporate Environmental Communication on the Asian Mining Corporate Websites

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Abstract

The study aims to investigate the company environmental communication through the corporate website using samples from the Asian mining industry. Websites are a communication medium that must be used by companies to convey information and their environmental commitments to stakeholders because they are relatively cost-effective and timely. Websites can also be used as a means of communication for companies to shape their image and reputation. We applied content analysis to each of the websites of Asian mining companies for 2023. The unit of analysis of this study is all the websites of mining companies in Asia including the homepage to the coders clicked on each link. All menus on the company website are clicked and opened to ensure that all the information needed has been gathered to answer this research question. The results show that most companies communicate their environmental responsibilities on websites, such as general environmental considerations and statements. Some entities go a step further by prominently displaying environmental information on their homepages, dedicating more pages to it, and even creating a special menu for environmental communication. This research has practical and social implications. For practical implications, the research framework presented herein offers a practical tool for organizations to evaluate and enhance their environmental information disclosure practices in alignment with prevailing standards in the Asian mining industry. For social implications, the findings of this study can strengthen investors' trust on the company by accessing the company website.

Keywords: Web-based Corporate Environmental Communication, Website Content Analysis, Corporate Environmental Responsibility, Online Communication

Topic: Information and Communication Technology

[ABS-137]

IoT-based Soil Condition Monitoring for Efficient Pakcoy Watering System

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Abstract

Pakcoy is one of the most popular vegetables in Indonesia due to its nutritional value and its wider stems and leaves compared to regular mustard greens. However, the growing demand for pakcoy has not been effectively met due to declining soil fertility, excessive use of chemical fertilizers, and suboptimal farming techniques. This research proposes a solution to overcome these problems by developing an IoT-based soil condition monitoring system for watering and fertilization. The Rapid Application Development (RAD) method was used to design and implement the system. The system uses an Arduino ESP8266 microcontroller integrated with a soil moisture sensor, DHT11 temperature sensor, and pH sensor to monitor plant conditions. Data is collected and sent to the server every 10 seconds and displayed to the monitoring system. The system automatically regulates watering and fertilization to ensure optimal soil moisture and pH levels. Field testing in a greenhouse by comparing pak coy plants with the traditional way and with the IoT-based system. The results showed significant improvements in plant health, reduced susceptibility to pests, and increased leaf width, with an average increase from 5.8 cm (traditional) to 6.7 cm

(IoT-based). This research demonstrates the potential of IoT technology to improve pakcoy farming efficiency, yield quality, and sustainability.

Keywords: Pak Coy, Monitoring System, IoT-Based- Rapid Application Development, Greenhouse

Topic: Information and Communication Technology

[ABS-153]
Using Ellis Model for Analysis of Information Seeking Behavior on Digital Literacy

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Abstract
Essential skills must be possessed in line with the development of information and communication technology to search, evaluate, and use information about digital literacy. The contribution of information seeking behavior regarding digital literacy that is less than optimal has an impact on the quality of knowledge, learning, research and self-development obtained by students in higher education. Analysis of information seeking behavior related to digital literacy by students is proposed to improve the quality of education, overcome the spread of information that is not credible, and support competency development. The Ellis model was used for analysis based on data collection with questionnaires from 864 students. 24 questionnaires with 4 answer choices calculated the percentages for 6 interpretations. The analysis produces indicators with interpretations of Generally (browsing and ending), Most (starting, extracting, and monitoring), More than Half (differentiating), and Less Than Half (chaining and verifying). The highest level of digital literacy information seeking behavior occurs in final year students who are taking their final assignments, while the lowest occurs in initial level students. Chaining and verification indicators are the basis for creating strategies regarding digital literacy information seeking behavior to improve interpretation. Analysis provides an overview of information seeking behavior, supports effective strategic decision making, and supports the development of technology-based skills.

Keywords: Ellis Model, Digital Literacy, Behavior, Information Seeking, Student

Topic: Information and Communication Technology

[ABS-161]
Integrating Technology Acceptance and Social Information Models: A Framework for Effective E-Dakwah in the Digital Era

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Abstract
The integration of information technology into religious outreach, known as e-dakwah, has transformed the way Islamic messages are conveyed to a global audience. However, challenges remain in understanding and improving the acceptance of e-dakwah platforms among diverse user groups. This study proposes a

framework integrating the Technology Acceptance Model (TAM) and Social Information (SI) to explore factors influencing the effectiveness and adoption of e-dakwah systems in the digital era. The research employed a mixed-methods approach, incorporating literature reviews, focus group discussions, and structural equation modeling (SEM) for data validation. Key factors, such as perceived ease of use, perceived usefulness, infrastructure, and social influences, were identified and analyzed to develop a robust e-dakwah framework. Findings reveal that user perceptions of content credibility, platform usability, and alignment with cultural and religious values significantly influence acceptance. Social information dynamics, such as peer recommendations and community engagement, further amplify adoption rates. The proposed framework provides practical guidelines for designing adaptive and user-centered e-dakwah platforms. Implications include enhancing the inclusivity and scalability of digital Islamic outreach while addressing cultural and technological diversity. This research contributes to bridging technological innovations with religious practices, offering a sustainable model for future e-dakwah development.

Keywords: E-Dakwah, Technology Acceptance Model, Social Information, Digital Islamic Outreach, Framework Development

Topic: Information and Communication Technology

[ABS-163]

IoT Integration with Water Cooler for Temperature Control Automation in Arowana Ornamental Fish Aquarium

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Abstract

The maintenance of ornamental fish, especially arowana fish (Scleropages formosus), requires special attention to temperature stability and water quality to prevent stress and disease. This study develops an Internet of Things (IoT) based system integrated with a water cooler to automate temperature control in ornamental fish aquariums. This system is designed to monitor important parameters such as temperature, PH and ammonia levels in real time using sensors connected to a mobile application, and provide automatic notifications if there are unsafe changes in conditions. The method use involves the design of hardware based on temperature sensors, pH, and IoT modules integrated with applications for remote monitoring and control. Testing was carried out by simulating an aquarium environment to evaluate the effectiveness of the system in maintaining temperature stability and water quality. The result of this study showed that the developed IoT system was able to maintain water temperature within the optional range of 26-30 C and provide automatic warnings via a mobile application when the temperature goes beyond safe limits. The implementation of this system also reduces manual intervention by aquarium owners, increases maintenance efficiency, and saves energy consumption with more control water cooler operation. The implications of this research include contributions to the development of IoT technology for aquaculture, making it easier for aquarium owners to maintain fish health, and inspiring further innovation in the field of IoT based fisheries. This research in expected to be a reference in creating a healthier and more environmentally fiendly aquarium environment.

Keywords: Arowana Fish Aquarium, Automatic Temperature Controller, IoT, Water Cooler, Water Quality

Topic: Information and Communication Technology

[ABS-186]
Social Media as Knowledge Management for Fashion Upcycling Practices: Case Study on Instagram Account @poppyluclothing

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Abstract
Fashion upcycling has become a significant movement driven by the need for sustainable practices in light of environmental challenges. This study delves into the connection between fashion upcycling and social media, particularly Instagram, as a platform for knowledge management. As awareness of the harmful effects of fast fashion on the environment grows, designers and consumers are seeking innovative solutions. Upcycling, the process of transforming discarded materials into new fashion items, reduces waste and fosters creativity and individuality. Instagram acts as a powerful tool for sharing information and building a community around sustainable fashion. Through visually compelling content, women entrepreneurs and content creators like @poppyluclothing showcase their creations, share their stories, and educate their followers about sustainability. This research explores how Instagram facilitates knowledge management of upcycling practices, encourages consumer participation, and shapes public perceptions of fashion sustainability. By analyzing Instagram accounts like @poppyluclothing, this study highlights the role of social media in influencing consumer behavior and promoting environmentally conscious choices. The findings suggest that Instagram not only amplifies the voices of upcycles but also serves as a knowledge management tool. Ultimately, this research underscores the potential of Instagram as a knowledge management platform for fashion upcycling and for fostering a more sustainable future in the fashion industry. In this context, the study contributes to the broader discussion on sustainable fashion practices and the role of digital platforms in driving social change

Keywords: Fashion Upcycling, Knowledge Management, Sustainability Environment, Social Media, Instagram

Topic: Information and Communication Technology

[ABS-231]
Integrating YOLOv8, EasyOCR, and GTTS for Text Detection in Assistive Technology for the Visually Impaired

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Abstract
Technology for visually impaired individuals has advanced, but accessing text-based information remains challenging. Accurate text detection, clear reading, and voice conversion are essential. YOLOv8, EasyOCR, and Google Text-to-Speech (GTTS) are cutting-edge technologies that can be integrated to address this need. This study aims to develop a system combining YOLOv8 for text detection, EasyOCR for text recognition, and GTTS for text-to-speech conversion, focusing on improving accessibility for the visually impaired. The system operates in several stages. First, YOLOv8 detects text in images in real-time. Next, EasyOCR extracts text from the detected regions. Finally, GTTS converts the recognized text into clear speech. A diverse text image dataset was used for training and testing the detection model, while user testing was conducted to assess system usability and effectiveness. The developed system successfully detects and reads text with high accuracy and converts it into clear speech. System evaluation revealed significant improvements in information accessibility for the visually impaired, with users responding positively to its speed, accuracy,

and ease of use. Integrating YOLOv8, EasyOCR, and GTTS into a single solution presents an innovative approach to text detection, recognition, and conversion for visually impaired individuals. This system demonstrates significant potential to enhance independence and quality of life by improving access to text-based information. The study contributes to assistive technology development and opens doors for further research into practical applications and system refinement.

Keywords: GTTS, Visual Impaired, EasyOCR, YOLOv8

Topic: Information and Communication Technology

[ABS-245]
Exploring the Role of Pageant Influencers on Social Media Campaign in Indonesia

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Abstract

As a Pageant, an individual is responsible for sharing information across various domains aligned with their title. With the rise of social media, the information and campaigns produced by beauty pageants have transformed into powerful social media initiatives. The aim of this study is to explore the role of pageant influencers in social media campaign activities in Indonesia. The research utilized a qualitative approach through semi-structured interviews with 15 pageant influencers involved in social media campaigns by creating video content for their social media accounts. This study follows Miles and Huberman's (1984) three-stage data analysis: Data Reduction, Data Display, and Conclusion Drawing. Based on the analysis of the interview results, three types of campaigns were identified: Culture, Promotion, and Education. By utilizing platforms such as Instagram and TikTok, the objectives of these campaigns are both informational and persuasive. Pageant influencers, categorized as nano-, micro-, and macro-influencers, serve as channels for advocacy in social media campaigns. Their role is to increase awareness, foster engagement, and inspire audiences.

Keywords: Campaign, Social media, Influencer, Pageant, Role

Topic: Information and Communication Technology

List of Abstracts: Law Studies

[ABS-278]
Shaping the Future of Sharia Compliance *Rahn* through Price Estimator Machine

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Abstract
Ar-rahn activity is a way to get cash. One of its processes is estimating the *marhun* price. However, the price estimation in current application is based on the market price or the listed-official prices. Many researchers have criticized this way as it leads to estimation mistake due to human error. Based on the invention of price estimator machine, this research aims to shape the future of Sharia compliance *rahn* that employ artificial technology to minimize human error. This study is normative and experimental discussion. It analyzed qualitatively through various data collected from primary (the experimented-price estimator) and secondary (journals, patents, research reports, legal texts) sources. Based on the experiment of the price estimator, the estimation of pawned object could be done accurately. Thus, this machine could be involved in *ar-rahn* activity to ease the *ar-rahn* mechanism. This study could be very useful in financing industry such as Islamic Pawnshop or Conventional Pawnshop. Especially in this context is its usage in Indonesia

Keywords: Future, Shariah, *Rahn*, Price, Estimator

Topic: Law Studies

[ABS-284]
Interfaith Marriage in Indonesia: Legal Challenges and *Fraus Legis*

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Abstract
Interfaith marriage in Indonesia presents a complex challenge within the national legal system due to discrepancies between the provisions of the Marriage Law (Law No. 1 of 1974) and social realities. Article 1 of the Marriage Law states that marriage aims to form a blessed and eternal family based on the Almighty God, conducted according to the religious laws of each partner. However, interfaith marriages lack a solid legal foundation as they do not meet the validity criteria set by this law. This legal ambiguity often leads couples to marry abroad to circumvent restrictions, a practice known as *fraus legis* (legal smuggling) which creates additional challenges when these marriages are registered domestically. The absence of clear regulations on interfaith marriages has significant implications, particularly for the legal status of couples and their children. Children from such unions face uncertainty regarding inheritance, citizenship, and other legal rights, exposing them to potential discrimination. Additionally, Indonesia's plural legal system adds layers of complexity, as remnants of old regulations, like the HOCI (Indonesian Christian Marriage Ordinance), sometimes still apply. This paper examines the complexities surrounding interfaith marriages within the context of Indonesian Private International Law The research focuses on the legal requirements for marriage, prohibitions against interfaith unions, personal status regulations, and the implications of *fraus legis* (Legal Smugling). The study identifies key problems, including the conflict between religious laws and civil law, legal recognition of marriages conducted abroad, and the status of children born from such unions.

The methodology involves a doctrinal legal analysis, examining relevant Indonesian laws such as UU No. 1/1974, the Civil Code (KUHPerdata), and jurisprudence, as well as comparative analysis with international legal practices. The findings reveal that interfaith marriages often lead to legal uncertainties due to the lack of recognition under Indonesian law, resulting in complications related to inheritance, child legitimacy, and marital rights. Legal circumvention practices, where couples marry abroad to bypass domestic prohibitions, are also analyzed, exposing their long-term legal risks. The paper concludes with recommendations for legal reforms to address these issues and ensure better protection for all parties involved, particularly children.

Keywords: Interfaith Marriage, Legal Challenge, *Fraus Legis*, Legal Smuggling

Topic: Law Studies

[ABS-287]
Legal Mechanisms in Ship Mortgage Execution and Ship Arrest in Indonesia: A Critical Analysis of Maritime Law'

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Abstract

Indonesia, strategically located between Asia and Australia and bordering major international maritime routes, plays a critical role in global maritime trade. With 40% of the world's maritime traffic passing through its waters, Indonesia's strategic position highlights the importance of maritime navigation and its impact on national development. The maritime sector, which relies heavily on large-scale financing, often uses ship mortgages as collateral. However, the enforcement of ship mortgages faces significant challenges due to issues related to ship detention and the complexities of maritime law. The primary issue in Indonesia's maritime law is the difficulty in executing ship mortgages due to the potential for ship operators to evade enforcement actions. Legal principles such as *Rijdende Beslag* and restrictions on detaining ships ready for departure create uncertainty for creditors seeking to secure their claims. Additionally, the legal process of ship detention, introduced under Indonesia's 2008 Maritime Law, remains unregulated due to the absence of implementing regulations, creating legal and procedural uncertainties. This paper analyzes the legal mechanisms for ship mortgage execution in Indonesia, focusing on the methods of ship detention (*Penahanan Kapal*) and judicial enforcement. The study examines current maritime law frameworks, including the role of ship arrest and maritime liens, and compares them with international conventions. The research also explores legal cases and practical applications to understand the challenges and effectiveness of the current system. The findings highlight that while the introduction of ship detention in Indonesia's Maritime Law offers a promising solution for enforcing maritime claims, its practical implementation is hindered by the lack of clear regulations. Although ship detention can prevent operators from moving detained vessels, the absence of a specific legal framework complicates its use. Furthermore, the study reveals that while some legal actions have been taken in ship detention cases, the process remains uncertain and inconsistent, suggesting the need for clearer regulations and a more effective legal framework to secure creditors' interests in the maritime sector.

Keywords: Ship Arrest, Maritime Law, Ship Mortgage

Topic: Law Studies

[ABS-313]
Urgency of Face Recognition Technology in Criminal Investigation Process

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Abstract

Face recognition technology is a system that utilizes face images from photos or videos to identify an individual. This system works by comparing face data obtained from images with a database sourced from the Civil Registration Office and internal police databases. In this study, the author reviews and analyzes the development of face recognition technology as an artificial intelligence technology that is used to facilitate the tasks of law enforcement. This research aims to determine the urgency of face recognition technology in the criminal investigation process. Using a normative-empirical research type and a qualitative approach, this study is expected to reveal the challenges, benefits, and legal implications of using this technology. This technology plays a role in accelerating the identification process, increasing the accuracy of investigation results, expanding the scope of investigations, and supporting other investigative methods. This research contributes to identifying current knowledge gaps and is expected to provide practical solutions to existing problems and boost the efficiency and effectiveness of face recognition technology in Indonesia.

Keywords: Face Recognition Technology, Criminal Investigation, Criminal Law

Topic: Law Studies

[ABS-350]
Driving SMEs Towards SDGs: Power, Legal Protection, and a Sustainable Future

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Abstract

This paper explores the role of Small and Medium Enterprises (SMEs) in achieving the Sustainable Development Goals (SDGs), focusing on their challenges, contributions, and the importance of legal protection within the Indonesian context. While SMEs form the backbone of the national economy, they face significant barriers in adopting sustainable practices, including limited access to financing, lack of awareness, and technical expertise. This research employs a multi-level perspective using social and legal perspective approach to analyze hidden power influencing SMEs' engagement with SDGs. Through in-depth interviews with SME managers across various industries in Indonesia, key insights are drawn and adapted to the Indonesian context. Findings reveal that collective potential outweighs individual limitations, emphasizing the need for supportive policies and legal frameworks. The study highlights the critical role of government, international organizations, and larger corporations in creating an enabling environment for SMEs to contribute effectively to sustainable development. This research underscores the necessity of holistic strategies that address both structural and operational challenges, ensuring that SMEs can play an active role in achieving the SDGs.

Keywords: SMEs, SDGs, Sustainable Development, Legal Protection

Topic: Law Studies

[ABS-315]

Potential Development of Integrated Transportation Policy in Borobudur Area, Magelang Regency

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Abstract

The Borobudur area is a popular tourist destination in Magelang Regency. The purpose of this study is to determine the potential design concept for integrated tourist transportation in the Borobudur area, Magelang Regency. This study was conducted from July to October 2022 in the Borobudur tourist area. The research method used was qualitative descriptive with data analysis using SWOT. The research findings indicate that the Borobudur region has the potential for progressive tourism growth in the sectors of natural and cultural tourism. As a strategic tourism area, Borobudur has 4 tourism development zones, namely natural and cultural tourism, natural tourism, volcanology tourism, and village tourism. Based on this potential and legal references, a master plan model for spatial planning guidelines for Magelang Regency can be created. According to survey data, the majority of tourists in the Borobudur area, in addition to visiting Borobudur Temple, tend to visit other attractions such as Punthuk Setumbu, Gereja Ayam, Mendut Temple, Sumbing Mountain, Mangli Sky View, Telaga Bleder, Curug Silawe, Nepal van Java, Ketep Pass, and Pawon Temple. From this information, the potential and threat retention regarding the implementation of integrated tourism area development will be identified, and policy proposals for tourism development will be presented. The conclusion of this study shows that the Borobudur Temple area has diverse tourism potentials that can be developed comprehensively by creating an integrated transportation system model, which will be outlined in a special regional regulation aimed at protecting the area

Keywords: Tourism, Model, Temple, Village, Culture

Topic: Law Studies

[ABS-72]

Juridical Review and Implementation Regional Regulation of Purworejo Regency No 12 of 2022 on Appointment and Dismissal of Village Apparatus

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Abstract

Purworejo District issued Regional Regulation (Perda) No. 12 Year 2022 on the Appointment and Dismissal of Village Apparatus. This Perda is designed to serve as a guideline for village governments in implementing the dismissal and appointment of village officials. This research is important because its implementation is often misinterpreted or causes problems. This study aims to understand how the regulation of filling the position of Village Officials in Purworejo Regency is based on the applicable local regulations. In addition, this study also aims to identify various difficulties that arise during policy implementation. This research uses an empirical juridical method, which is an approach that compares legal norms (Perda) with their implementation practices in the field through empirical data and experiences from relevant stakeholders. Firstly, Perda needs to regulate the timing of the start of the selection stage, a problem that may lead to vacant positions. Second, regulating the requirements for village apparatus candidates, especially about the domicile of candidates, contradicts the regulation in the Village Law. Third, the

Selection Team established under this Perda is less effective. The findings provide recommendations for the revision of the Perda: clarify when the selection stage begins so there are no vacancies, harmonize the regulation of candidate requirements in the Perda with the law, and clarify the function of the Selection Team.

Keywords: Local Regulation, Purworejo, Village Devices

Topic: Law Studies

[ABS-79]
International Environmental Law Violations Conflict Analysis: Israel v. Gaza in 2024

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Abstract

This study examines the environmental consequences of the Israel-Palestine conflict, highlighting the significance of International Environmental Law (IEL) in mitigating and addressing these impacts. Armed conflict profoundly affects ecosystems, infrastructure, and public health, exemplified by the severe environmental deterioration in Gaza, characterized by water source contamination and the obliteration of essential infrastructure. This research employs a doctrinal legal study technique employing secondary data to analyses the role of International Environmental Law in alleviating the detrimental environmental impacts of this conflict. This study articulates the issue of how International Law might alleviate environmental degradation caused by combat and investigates the function of International Organizations in protecting the environment during conflicts. The assessment encompasses the role of international organizations, particularly the United Nations (UN) and the United Nations Environment Programme (UNEP), in safeguarding environmental conservation and human rights amid violent conflicts. Research demonstrates that, notwithstanding international accords, the absence of ratification by key nations and insufficient enforcement mechanisms hinder effective environmental protection. The study highlights the imperative for improved legal structures and global cooperation to prevent further environmental degradation and foster lasting peace in war zones.

Keywords: Armed Conflict, International Environmental Law, United Nations, United Nations Environment Program

Topic: Law Studies

[ABS-353]
The Role of The State Towards Data Protection In The Use of Artificial Intelligence Through The Cooperation Between Countries In ASEAN

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Abstract

Cutting-edge technology is a necessity to support human work. Artificial Intelligence is designed to help human jobs to do their jobs automatically. Artificial Intelligence, equipped with data and information, is

intended to replace humans' role in carrying out essential activities. The acquisition of this massive amount of data is not necessarily safe for the owner. Considerations of data security, privacy, and direct human involvement in legal decision-making are current and future challenges. This research aims to find out the role of the Indonesian state in data protection in the use of AI in daily life and how the Indonesian state strives to implement data protection through cooperation between countries in ASEAN. This research is normative juridical research. The researcher analyzes and examines legal aspects as rules related to the research topic discussed. The research is conducted through library research, which includes the study of legal regulations, literature studies, studies of scientific paper and library materials. This research uses a conceptual approach, analytical approach, and case apporach. The available data is analyzed qualitatively. Indonesia provides legal certainty regarding the protection of personal data through Law No. 27 of 2022 in Personal Data Protection. Regarding the application of AI in supporting human activities, Minister of Communication and Information Circular Letter No. 9 of 2023 on Artificial Intelligence Ethics was issued as a guide for electronic system administrators to support the implementation of technology-based activities to be more effective. Cross-border personal data protection causes Indonesia as a member of ASEAN to need to organize data protection cooperation with other ASEAN countries. Indonesia has carried out bilateral, multilateral, and regional cooperation. At the regional level, Indonesia participated in formulating a framework for personal data protection called the 'ASEAN Framework on Personal Data Protection', which is a guideline for ASEAN countries to carry out data protection. This framework is not a binding regulation, so there is no obligation for countries to comply with all the provisions in it. Nevertheless, the data protection principles contained in this framework are guidelines for member countries in drafting national regulations, including for Indonesia.

Keywords: Artificial Intelligence, Personal Data Protection, ASEAN Framework

Topic: Law Studies

[ABS-355]
The Role of Individual Companies in Enhancing the Business Enabling Environment (BEE) Index from a Corporate Law Perspective

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Abstract

The World Bank is currently developing the Business Enabling Environment (BEE) as a replacement for the Ease of Doing Business (EoDB) to assess the global business climate. Its objectives include promoting economic reforms, facilitating policy dialogues, and fostering knowledge sharing between governments, civil society, the World Bank Group (WBG), and other development institutions. The BEE will also provide simplified data for socio-economic research and detailed information for policy recommendations. To achieve these goals, the Indonesian government has formulated various policies to facilitate business establishment, particularly Individual Companies, in accordance with the provisions of the Company Law. This study analyses the relationship between the welfare state theory and the government's efforts to improve BEE in Indonesia, as well as the impact of Individual Companies under the Omnibus Law on corporate law systems. The BEE focuses on new entrepreneurs who often face obstacles when entering the formal economy. These obstacles include regulatory quality, digital services, and the efficiency of starting a business. By evaluating these aspects, the challenges new entrepreneurs face in formalizing their business ideas can be addressed. Compared to the EoDB, BEE indicators will cover broader and new issues. Regulatory quality for business entry is a new focus area, where simplified business-starting processes play a crucial role in fostering formal entrepreneurship. In the business entry sector, digital technology and information transparency can encourage businesses to register and promote private sector growth. Digital

public services can reduce compliance costs and address entrepreneurs' concerns when interacting with government authorities. Initiatives such as electronic business registration and electronic payments are part of e-Government efforts to encourage business formalization. BEE will assess best practices for starting a business and entry restrictions, incorporating international aspects and covering both domestic and foreign private enterprises. This study employs a juridical analyses method with a statutory and conceptual approach. Data were gathered from literature reviews, including the Omnibus Law, the Limited Liability Company Law, and relevant legal theories such as welfare state theory and Economic Analysis of Law. The data were qualitatively analyzed to understand the relationship between these elements. The findings reveal a correlation between welfare state theory and efforts to enhance the BEE through government intervention, as reflected in policies on Individual Companies. This demonstrates the application of welfare state theory and Economic Analysis of Law to support economic growth. However, the study also identifies regulatory disharmony related to Individual Companies, which could potentially create legal uncertainty.

Keywords: Business Enabling Environment, Digitalization, Company Law, Economic Analysis

Topic: Law Studies

[ABS-359]
Striking the Balance: Global Frameworks for Regulating Internet Content and Combating Hate Speech in a Borderless Digital Era

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Abstract

The rapid proliferation of internet content and the growing prevalence of hate speech in digital spaces have created unprecedented challenges for global governance. The internet's borderless nature complicates efforts to regulate harmful content while upholding the fundamental right to free expression, which is enshrined in international human rights law. This research critically examines the emerging frameworks and mechanisms aimed at addressing these issues, focusing on international legal instruments, regional strategies, and voluntary corporate standards. The primary objective is to identify gaps, inconsistencies, and areas for improvement in enforcement and cooperation across jurisdictions. The study reveals several key findings, notably the fragmented and inconsistent regulatory landscape. Varying definitions of hate speech across cultural and legal contexts exacerbate these challenges, leading to discrepancies in enforcement and outcomes. The tension between international norms and domestic policies further complicates the development of cohesive solutions. Despite these challenges, promising advancements include the European Union's Digital Services Act and voluntary codes of conduct adopted by technology companies, which offer valuable lessons for harmonizing global regulatory efforts. Key conclusions emphasize the urgent need for a cohesive, multistakeholder approach. Effective governance must involve collaboration among states, international organizations, technology companies, and civil society. The research advocates for clearer definitions of hate speech, robust safeguards to prevent overreach, and enhanced cross-border cooperation to address enforcement challenges. Such a framework can balance free speech with regulation, providing a more equitable, consistent, and effective global approach to internet governance in a digital age.

Keywords: Hate Speech, Freedom of Speech, Internet

Topic: Law Studies

[ABS-376]

Shariah Traditional Market in Indonesia in Legal Politics Perspective

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Abstract

This article examines the role of legal politics in supporting the development of the Islamic market through Sharia-based regulations, legal infrastructure support, and government involvement. Fundamental principles of the Islamic market, such as the prohibition of riba (usury), gharar (uncertainty), and maysir (gambling), along with concepts of partnership and transparency, form the foundation for this sector's development. Regulations such as the Sharia Banking Law, the State Sharia Securities Law (SBSN Law), and the Halal Product Assurance Law support the growth of the Islamic market, strengthened by the role of the National Sharia Council-MUI and the policies of the Financial Services Authority (OJK). However, challenges such as low Islamic financial literacy, competition with conventional markets, and limited infrastructure hinder the optimization of the Islamic market. The prospects for developing the Islamic market in Indonesia include the growth of the halal economy, digitalization, and support from the government and international communities. With a robust legal political strategy, synergy among the government, industry players, and society is expected to position Indonesia's Islamic market as a globally competitive pillar of the national economy.

Keywords: Sharia Market, Legal Politics, Islamic Law, Indonesia

Topic: Law Studies

[ABS-383]

Dynamics of Customary Reaction in the Era of Society 5.0: Challenges and Opportunities

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Abstract

The rapid and unlimited development of technology brings people's lives to the era of society 5.0 which has emerged since 2019. The changes that occur in the era of society 5.0 are very significant and affect various fields of community life. The influence of this era is also found in the provision of customary reactions as a form of conflict resolution in community life. The purpose of this research seeks to provide an explanation regarding the influence of the society 5.0 era on the dynamics of giving customary reactions and seeks to explain the challenges and opportunities. This research uses a juridical-normative method based on secondary data collected through a literature study of primary, secondary and tertiary legal materials. The data analysis technique uses qualitative data analysis and is presented descriptively-deductively. The results of this study conclude that the era of society 5.0 aims to provide convenience for the community in solving social problems by utilizing technological developments. This situation raises the assumption that giving customary reactions is an old-fashioned way of resolving conflicts and can be said to be the toughest challenge that must be faced. The influence of the society 5.0 era actually does not always provide challenges but will provide opportunities in providing customary reactions when it can understand its nature as part of customary law. The dynamic and adaptive nature inherent in customary law is a great opportunity to provide the existence of giving customary reactions in the era of society 5.0, because these two characteristics

make customary law always able to keep up with developments in society and technology. This research is expected to be useful for developing insights and understanding of the community in facing the era of society 5.0 and criminal law reform that accommodates customary law.

Keywords: Criminal Law, Customary Law, Customary Reaction, Era Society 5.0

Topic: Law Studies

[ABS-158]
Environmental Law as a Pillar in the Renewable Energy Transition Towards Sustainable Development in Indonesia

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Abstract

Renewable energy transition is essential for sustainable development in Indonesia, but faces challenges such as suboptimal regulations, minimal incentives, and conflicts of interest. Environmental law plays a strategic role in supporting this transition, but its effectiveness in encouraging clean energy development and ensuring social justice still needs further research. This study examines the challenges of renewable energy transition in Indonesia, the role of environmental law in supporting clean energy, protecting the environment, ensuring social justice, and evaluating its effectiveness towards sustainable development. This research uses normative juridical, analyzing renewable energy regulations and environmental law through a study of primary and secondary legal materials, conceptual approaches, and a comparison of international practices to formulate recommendations for energy transition law. Previous research has found that the renewable energy transition in Indonesia is hampered by suboptimal regulations, minimal incentives, and conflicts of interest. Environmental law has strategic potential, but its effectiveness needs to be strengthened through policy adjustments and adoption of international practices to accelerate the energy transition and support sustainable development and social justice. This research is useful for the legal, public policy, and sustainable development domains. Its findings help strengthen renewable energy regulations, formulate green energy transition policies, and ensure social justice. This research is relevant for policymakers, academics, legal practitioners, and environmental activists to promote inclusive sustainable development.

Keywords: Environmental Law, Public Policy, Sustainable Development, Energy Regulation, Renewable Energy

Topic: Law Studies

[ABS-160]
Battery Waste Management Policy Model in Realizing Sustainable Development in the Digital Era

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Abstract

The large use of electronic goods in the digital era has negative impacts, one of which is the accumulation of battery waste. However, until now there has been no policy regulating the management of battery waste, so this condition supports environmental pollution which will develop into environmental damage. The

policy not only targets users but also the responsibility of corporations if battery waste hinders the realization of sustainable development. The purpose of this study is to explain the regulatory aspects in e-waste management that are increasing along with the development of digital technology, as well as the legal mechanisms needed for responsible recycling and waste management practices. This research method uses a normative legal method with a legal principles approach to examine regulations, legal theories through various references and obtain data both qualitatively and quantitatively related to the increasing trend of battery use in Indonesia and other countries to support the findings of this research. The author uses Mendeley Reference in the inclusion of citations to support the use of references in this study. The results of this study are the existence of a policy model related to the management of electronic waste, especially batteries as waste with toxic and hazardous materials, and reviewing the comparative feasibility of electronic waste management according to international standards to be implemented in Indonesia. The usefulness of this research can be a reference and reference related to ongoing research on topics around electronic waste management regulations by academics, from the perspective of practitioners this research also serves to provide an understanding of corporate responsibility related to the management of electronic waste that falls into the B3 category and provide special attention to companies engaged in the electronics or energy industry that maximize the use of batteries in their products.

Keywords: Policy, Battery, Sustainable Development, Digital

Topic: Law Studies

[ABS-196]
Bridging Technology and Justice: The Role of AI in Law Enforcement Through Pancasilas Ideals

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Abstract

Within the legal sphere, Artificial Intelligence (AI) has emerged as a transformative force, significantly bolstering the roles of judges, prosecutors, police, and lawyers through an array of computer programs and tools. This integration has led to remarkable advancements in law enforcement, unveiling innovative applications like predictive court decision systems and AI-assisted trials, promising unparalleled benefits including heightened accuracy, efficiency, increased access to justice, expedited dispute resolution, cost efficiencies, and facilitation of various law enforcement tasks. However, AI challenges with a particular focus on social and ethical considerations (AI replacing human decision-makers in trials), data privacy, fairness, public participation, and human values. This research aims to examine the involvement of AI in law enforcement through the lens of Pancasila's principles. The research used a qualitative research approach utilizing Statute and Conceptual Analysis. Secondary data, comprising primary and secondary legal materials, is gathered through extensive library research. Furthermore, the data analysis employs a descriptive qualitative method. The results of this study showed that the incorporation of AI in law enforcement in Indonesia resonates with the principles enshrined in Pancasila, specifically emphasizing social justice and equality for all citizens. This alignment underscores AI capacity to fortify fairness and impartiality within the legal framework, serving as a potent instrument to augment the justice system. Ultimately, it stands as a pivotal enabler, ensuring equitable legal processes for all Indonesians, transcending social backgrounds or ethnicities, in harmony with Pancasila's principle of social justice.

Keywords: Artificial intelligence, Law enforcement, Pancasila, Social justice, Legal equality

Topic: Law Studies

[ABS-197]

The Challenges of Cybercrime Jurisdiction in Transnational Legal Systems: Towards a Unified Framework

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Abstract

The rise of cybercrime as a global phenomenon has exposed significant weaknesses in existing legal frameworks governing jurisdiction in transnational criminal cases. The borderless nature of cyberspace enables offenders to exploit jurisdictional gaps, resulting in challenges for effective investigation, prosecution, and enforcement. The research explores existing international conventions, such as the Budapest Convention on Cybercrime, and evaluates their efficacy in harmonizing jurisdictional disputes. Furthermore, it identifies gaps in current frameworks, particularly the lack of universally accepted norms for determining jurisdiction over cyber offenses. By employing a comparative legal analysis of domestic and international practices, this study highlights inconsistencies that undermine global efforts to combat cybercrime. This research aims to examines the complexities of cybercrime jurisdiction in transnational legal systems, focusing on issues such as overlapping jurisdictions, conflicts of laws, and the limitations of traditional territorial principles in addressing crimes conducted through decentralized digital networks. The study uses a descriptive qualitative approach with a comparative legal analysis. Secondary data, comprising primary and secondary legal materials, is gathered through extensive library research. Furthermore, the data analysis employs a descriptive qualitative method. The research proposes the development of a unified framework for cybercrime jurisdiction. This framework incorporates principles of subsidiarity, mutual legal assistance, and enhanced cooperation between states while respecting sovereignty and the diversity of legal systems. It also emphasizes the importance of integrating technological advancements, such as blockchain-based evidence authentication and cross-border digital forensics, to strengthen enforcement mechanisms. By offering practical recommendations, this research aims to support policymakers, legal practitioners, and international organizations in creating a collaborative approach to jurisdictional challenges, paving the way for more effective transnational responses to cybercrime.

Keywords: Cybercrime, Jurisdiction, Transnational Legal Systems, International Law, Unified Framework

Topic: Law Studies

[ABS-203]

A Civil Law Review of Liability in Accidents Involving Electric Vehicles with Autonomous Control Systems

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Abstract

The development of electric vehicles (EVs) is rapidly advancing in various countries, supported by regulations that encourage the adoption of this environmentally friendly technology to reduce carbon emissions and dependence on fuel. In addition, electric vehicles integrate Artificial Intelligence technology, which gives rise to autonomous control systems. The implementation of these autonomous systems is expected to reduce the incidence of accidents often caused by human error. However, the implementation of electric vehicles with autonomous control systems presents new challenges, particularly regarding accident risks. Accidents involving electric vehicles based on autonomous control raise the question of who is responsible for such incidents-whether it is the manufacturer, the developers of the Artificial Intelligence,

or the vehicle owner? The purpose of this research is to analyze the legal regulations related to liability concerning autonomous control systems in electric vehicles. The research method employed is normative juridical, involving the analysis of applicable laws and regulations, reviewing literature, and utilizing references from current books and journals to ensure their standards and relevance to the current context. The research findings indicate that Indonesia is still in the early stages of developing regulations related to the liability of electric vehicles with autonomous control systems. As a result, there are no specific regulations governing the feasibility testing and use of electric vehicles with autonomous driving systems, making it difficult to determine the responsible party, especially when accidents are caused by software failures or Artificial Intelligence in autonomous electric vehicles. This research has significant implications for legal reform, policy development, and automotive technology innovation, particularly in Indonesia, which is transitioning to the use of electric vehicles with autonomous driving systems. These findings may serve as a foundation for the creation of better and more adaptive regulations in the future.

Keywords: Electric Vehicles, Liability, Legal Regulations, Autonomous Control

Topic: Law Studies

[ABS-211]
Integration between Islamic Law and Customary Law (Adat) in Minangkabau Traditional Poetry

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Abstract

The relationship between Minangkabau customs and Islam often experiences topics of discussion in the realm of research. This is related to the kinship system referred to by the Minangkabau people, namely the maternal lineage so that it does not look in line with Islam. However, the Minangkabau people also hold tightly to the teachings of Islam as a reference for daily life. The purpose of this study is to describe the relationship between Minangkabau customs and Islamic law in Minangkabau Traditional Poetry with Paul Ricouer's hermeneutic approach. This research method is a qualitative study with a content analysis approach. The data was analyzed with symbolic, metaphorical, and interpretive stages. The results of this research show that in the Minangkabau Traditional Rhyme, it specifically shows that Islam underlies everything that is regulated in traditional life in Minangkabau. The Pillars of Islam are also separately contained in the Minangkabau Traditional Rhymes which show that Islamic rules are the basis for determining customary law in Minangkabau. The results of this study have implications for strengthening the legitimacy of the Minangkabau matrilineal system in the context of Muslim society and become a reference in resolving potential conflicts between customary law and Islamic law in the community. These findings also contribute to the development of a model of religious-cultural relationship analysis that can be applied to similar studies in other regions using a hermeneutic approach.

Keywords: Adat (Customary Law), Islamic Law, Hermeneutics, Minangkabau, Traditional Poetry

Topic: Law Studies

[ABS-214]

Legal Policy for the Protection of the Super Priority Tourist Destination Borobudur Temple by Using Traditional Tools with Appropriate and Environmentally Friendly Technology

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Abstract

Borobudur Temple, a world cultural heritage site, holds significant historical, architectural, and spiritual value. It is crucial to preserve Borobudur for future generations while leveraging its tourism potential to boost local income, create jobs, and enhance community welfare. However, as a vulnerable historical site, Borobudur faces risks of environmental damage and structural degradation, necessitating appropriate policies and public awareness for its preservation. This study explores the daily impact of tourism on Borobudur, government conservation policies, and their effectiveness in maintaining the site as a world heritage landmark. The research employs an empirical juridical approach, combining qualitative and quantitative methods for objectivity. Using a sociological (socio-legal) and descriptive approach, the study examines the implementation of regulations related to environmental conservation in tourist destinations and identifies existing challenges. Findings provide insights into the condition of Borobudur Temple, the impacts of tourism, and the formulation of government conservation efforts. This research serves as a reference for evaluating and enhancing policies aimed at preserving Borobudur Temple and offers a foundation for future studies on government initiatives to safeguard this invaluable cultural heritage.

Keywords: Borobudur, Legal Policies, Protection, Tourist Destinations, Appropriate and Enviromentally, Friendly Technology

Topic: Law Studies

[ABS-230]

The Transformation from Fault Liability to Strict Liability: A Cutting-Edge Indonesian Maritime Tort Law

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Abstract

Strict liability has gained recognition in Indonesian law, particularly following Indonesia's ratification of several international conventions in the late 1990s. The Indonesian tort law system often contrasts strict liability with fault-based liability. Article 536 of the Commercial Code stipulates that 'all collisions are due to his fault,' requiring the plaintiff to prove fault in maritime collision cases. This provision aligns with the fault-based liability principle, which places the burden of proof on the claimant. However, this approach differs from environmental law and international conventions on marine pollution, which adopt the principle of strict liability. The International Convention on Civil Liability for Oil Pollution Damage (1969, amended in 1992) mandates strict liability for oil pollution incidents. Despite this international precedent, Indonesian courts frequently rely on fault-based liability in environmental cases, as reflected in decisions grounded in Article 1365 of the Indonesian Civil Code. Plaintiffs often face challenges when advocating for strict liability, with many judges rejecting such arguments in Favor of traditional fault-based principles. Given the specific rules governing compensation in environmental cases, fault-based liability is increasingly considered outdated and ineffective. Consequently, strict and fault-based liability shapes marine pollution compensation in Indonesia. While strict liability is not a novel concept in Indonesian law, its application

remains limited due to persistent challenges and legal hurdles. Addressing these obstacles is crucial for evolving the legal framework, particularly in pollution and maritime collision cases, where a shift from fault-based liability to strict liability is necessary. This study, conducted through a legal analysis with an analytical-descriptive focus, utilized legal materials collected through library and field research. The findings emphasize the need for Indonesia to adopt strict liability in environmental pollution cases while maintaining fault-based liability for other tort cases. This transformation is essential for aligning Indonesian tort law with international standards and improving legal remedies' effectiveness in marine and environmental pollution cases.

Keywords: Maritime, Tort, Fault liability, Strict liability, Pollution

Topic: Law Studies

[ABS-224]
The Urgency of the Mutual Insurance Policy Guarantee Program in Indonesia

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Abstract
The inclusion of the policy guarantee program in the Omnibus Law, specifically Law Number 4 of 2023 concerning the Development and Strengthening of the Financial Sector, represents a significant advancement for the Indonesian public, particularly for policyholders, including those holding mutual insurance policies. The Deposit Corporation is designated as the institution responsible for implementing this program. Considering the ongoing challenges faced by mutual insurance companies in Indonesia, such as Bumiputera 1912, the immediate realization of this program is crucial. This research aims to analyze the urgency of implementing a mutual insurance policy guarantee program in Indonesia. The study employs a normative juridical research method supported by a comprehensive literature review. In conclusion, this study highlights the urgency of implementing a mutual insurance policy guarantee program in Indonesia, which serves to: (1) rebuild public trust in the insurance industry; (2) restore stability in the financial sector; (3) create opportunities for the growth of the insurance industry; (4) provide support to struggling insurance companies to prevent their collapse; (5) uphold the constitutional mandate as outlined in the 1945 Constitution; and (6) safeguard the interests of policyholders while adhering to the mandate of the International Association of Insurance Supervisors (IAIS).

Keywords: Policy Guarantee Program, Deposit Insurance Institutions, Policy Holders, Mutual Insurance

Topic: Law Studies

[ABS-225]
Urgency of Bolar Provision Regulation on Patented Drugs for Access and Availability of Generic Drugs for Public Health

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Abstract
The limited availability of medicines is a serious problem in fulfilling the right to public health. The monopoly of patented drugs by the pharmaceutical company that owns the patent results in generic drug

pharmaceutical companies not being able to access information about the patented drug even though the patent has expired. This certainly hinders the immediate circulation of generic versions after the patent expires. Generic drugs are important because of easier access, more availability, and cheaper prices than patented drug versions. To overcome this problem, a legal instrument called bolar provision is arranged. Bolar provision is a license granted by the state to a generic drug pharmaceutical company to use a patented invention to develop and deliver drug information without the permission of the patent owner 5 (five) years before the patent protection period expires. Generic drug pharmaceutical companies can then market generic versions after the patent expires. The purpose of implementing the Bolar provision is to provide generic versions of essential drugs that are cheap and affordable after the patent expires. Until the time of writing this article, bolar provision is only regulated in Article 167 letter b of Law No. 13 of 2016 concerning Patents and there is no implementing regulation that specifically regulates bolar provision so that bolar provision cannot be implemented. Therefore, it is important to research how appropriate regulations are for the implementation of bolar provisions. This type of research is normative legal research. The problem approach used is a legislative approach and a conceptual approach.

Keywords: Regulation, Bolar Provision, Medicine, Patent, Public Health

Topic: Law Studies

[ABS-226]
The Potential of BUMDESA as a Legal Entity Listed on the Stock Market to Achieve Village Economic Resilience

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Abstract

BUMDESA is a Business Entity with Legal Status established by the government. Its capital is wholly or predominantly owned by the village, with additional contributions from third parties. Based on this, there is potential for BUMDESA development through raising funds from the wider public, one of which is by offering shares on the Stock Exchange. The purpose of this research is to examine whether Indonesian legal regulations allow BUMDESA to become one of the business entities listed on the Indonesia Stock Exchange. This study employs normative legal research using a statute approach, conceptual approach, and comparative approach. BUMDESA, as a business entity with its own legal status, cannot be listed on the stock exchange due to conflicts with capital market regulations in Indonesia. In contrast, the United States does not require a business entity to adopt the Limited Liability Company (PT) form for listing. Only the business units of BUMDESA that have independent legal status, such as Limited Liability Companies (PT), can be listed on the stock exchange. The potential for BUMDESA as a legal entity with separate assets from its shareholders to be listed on the stock market could bring positive impacts for its development. However, this cannot currently be realised due to the constraints imposed by Indonesian capital market regulations, which require listed entities to adopt a limited liability company form, thereby limiting BUMDESA's development.

Keywords: BUMDESA Development, Stock Market, Village Economy Development

Topic: Law Studies

[ABS-228]

Analysis of Halal Certification as an Instrument for Assessing the 5C Principles in Credit Provision for MSME Entrepreneurs

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) require capital to develop their businesses. One way to meet this need is by obtaining loans from banks. Banks, in disbursing loans, must adhere to prudential principles, including assessments based on the 5C principles. Halal certification serves as one of the assets owned by MSME entrepreneurs when applying for bank loans. This study aims to determine whether halal certification can be used as collateral for credit and how banks use halal certification as an instrument for credit assessment based on the 5C principles. Before granting loans, banks are obligated to perform a 5C analysis on prospective borrowers, which includes examining character, capacity, capital, collateral, and economic conditions concerning both the borrower's profile and their business profile. This research employs a normative methodology with legislative and conceptual approaches. The findings indicate that, in terms of character, halal certification reflects the honesty of MSME entrepreneurs in maintaining the halal status of their products, thus ensuring consumer safety. Capacity reflects the ability of prospective borrowers or entrepreneurs to manage their businesses effectively. Halal certification also represents capital or an intangible asset owned by the entrepreneur. Additionally, halal certification serves as an intangible collateral that provides assurance for debt repayment. Entrepreneurs with halal certification are better positioned to compete in both local and global markets. The 5C principles can be utilised by banks as an instrument to assess whether a prospective borrower is eligible for a loan. This study is expected to contribute to bank policies concerning halal certification as collateral and to provide MSME entrepreneurs with alternative access to capital without requiring tangible collateral.

Keywords: Halal Certification, 5C Principles, Intangible Asset

Topic: Law Studies

[ABS-229]

The Effectiveness of Arbitration to Resolve Disputes in ASEAN Countries'

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Abstract

Arbitration has emerged as a vital mechanism for resolving disputes in ASEAN countries, playing a key role in fostering a stable legal environment essential for economic growth and investment. The ASEAN Charter underscores the importance of peace, security, and cooperation, aligning with the region's aim to create a competitive economic landscape. However, the effectiveness of arbitration faces challenges, including the enforcement of arbitral awards and the potential for annulment requests, which can delay resolution and undermine legal certainty. This study examines the regulatory framework and practical implementation of international arbitration within and beyond ASEAN member states, focusing on notable cases such as Vietnam and Indonesia. Using an analytical-descriptive and normative legal research approach, the paper evaluates the legal principles and international agreements governing arbitration in ASEAN. Findings reveal both strengths and weaknesses: while arbitration offers flexibility and confidentiality, inconsistencies in award enforcement and the potential misuse of annulment procedures

pose significant hurdles. Enhanced legal clarity and robust frameworks are necessary to strengthen arbitration's effectiveness, ensuring it remains a credible dispute-resolution tool in the region.

Keywords: International Arbitration, Regulatory Framework, Enforcement

Topic: Law Studies

[ABS-233]
Implementation of Sustainable Development Principles in the Development of E-Government in Indonesia

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Abstract

The global climate crisis has led nations to adopt sustainable development principles as a foundation for governance. Concurrently, digital advancements have pushed governments to develop e-government systems to enhance administrative efficiency and service delivery. In Indonesia, this intersection raises critical questions about the alignment of e-government initiatives with sustainability, particularly as the country grapples with balancing economic investments and environmental preservation. This study examines the extent to which sustainable development principles are incorporated into Indonesia's e-government framework. Using a literature-based approach, relevant legal documents and academic resources were sourced through Lens.org, followed by a deductive analysis based on ESG (Environmental, Social, and Governance) criteria and the SDGs (Sustainable Development Goals). The analysis reveals that Indonesia's e-government development is largely oriented towards meeting market demands. Efforts have primarily focused on procedural and administrative improvements, while substantive integration of sustainability principles-especially those addressing broader environmental impacts-remains insufficient. These findings highlight the need for greater commitment to embedding ESG and SDG principles into Indonesia's digital governance strategies. The study offers critical insights for policymakers to recalibrate their approach and serves as a reference for further research on designing e-government systems that align with global sustainability standards.

Keywords: Sustainable Development, E-Government, Good Governance, Environment

Topic: Law Studies

[ABS-234]
Transformation of Fintech Law in Indonesia: Harmonization Between Digital Innovation and Legal Certainty

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Abstract

The transformation of financial technology (fintech) in Indonesia has triggered rapid development in the financial services ecosystem, introducing various digital innovations that offer convenience and inclusivity. However, this progress is also accompanied by legal challenges, particularly in ensuring legal certainty, consumer protection, and the validity of agreements made through fintech platforms. This research aims to analyze the transformation of fintech law in Indonesia, focusing on the harmonization between the need for digital innovation and legal certainty, including its implications for the validity of agreements. A juridical-

normative approach is used to examine the existing regulations, including the policies of the Financial Services Authority (OJK), Bank Indonesia, and the principles in the Civil Code related to agreements, as well as the concept of contracts in Islamic law. The research results show that although fintech regulations in Indonesia have evolved to support innovation, there are challenges in ensuring the validity of digital agreements. This includes issues of party agreement, the legality of the object of the agreement, and compliance with formal requirements such as legally recognized electronic signatures. Additionally, agreements on fintech platforms involve consumers who often do not fully understand the legal implications of their consent, thereby potentially leading to disputes. To achieve harmonization, it is necessary to strengthen regulations that ensure digital agreements meet the valid agreement requirements as stipulated in Article 1320 of the Civil Code and the concept of contracts in Islamic law, as well as to enhance legal education for fintech users.

Keywords: Fintech, Legal Transformation, Validity of Agreements, Digital Innovation, Fintech Regulation

Topic: Law Studies

[ABS-243]
Effectiveness of the National Mangrove Restoration Program (RMN) in Achieving Net Zero Emission (NZE) Targets in Indonesia

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Abstract

Indonesia faces significant challenges in achieving the Net Zero Emission (NZE) target within the 2024-2060 timeframe, with the forestry and coastal sectors playing a strategic role in climate change mitigation efforts. In this regard, the National Mangrove Restoration Program (RMN) represents a crucial strategy for carbon emission reduction and enhancing carbon sequestration capacity in coastal areas. Mangroves possess a remarkably high ability to absorb and store carbon (blue carbon), far exceeding the carbon storage capacity of terrestrial forests, thus making them a vital component of national climate change mitigation strategies. In addition to contributing to the achievement of NZE, the RMN also plays a central role in realizing Indonesia's vision of a Sustainable Ocean. Mangrove restoration not only enhances carbon sequestration but also improves the quality of coastal ecosystems, supports biodiversity, and strengthens the resilience of coastal communities against the impacts of climate change, in alignment with the established Sustainable Development Goals (SDGs)This study aims to analyze the implications of the National Mangrove Restoration Program (RMN) on the achievement of the Net Zero Emission (NZE) target in Indonesia, with a focus on evaluating the potential for carbon sequestration, environmental impacts, and its contribution to the national climate change mitigation strategy. The research employs both quantitative and qualitative approaches through literature review, secondary data analysis, and field surveys. Data collection methods include Measurement of carbon stocks in mangrove areas, Spatial analysis using satellite imagery, In-depth interviews with relevant stakeholders, Comparative assessment of carbon emission calculation models. The research indicates that the National Mangrove Restoration Program has the potential to reduce carbon emissions by 0.5 to 1.2 million tons of CO2 per year. The rehabilitated mangrove areas are capable of sequestering carbon at an average rate of 200 to 350 tons per hectare. The analysis reveals that mangrove restoration could contribute approximately 7-12% of the national emission reduction target. The National Mangrove Restoration Program is a critical instrument in Indonesia's efforts to achieve the Net Zero Emission target, but it requires sustained commitment from various stakeholders. The significant potential of mangroves as a nature-based solution for reducing carbon emissions represents a key strategy for global climate change mitigation.

Keywords: Mangrove restoration program (RMN), Net zero emission (NZE), Climate change mitigation

Topic: Law Studies

[ABS-235]
Transnational Online Child Pornography as Transnational Organized Crime

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Abstract
UN Convention of Transnational Organized Crime is the main international legal instrument to combat transnational organized crime which is supplemented by three protocols: Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children- the Protocol against the Smuggling of Migrants by Land, Sea and Air- and the Protocol against the Illicit Manufacturing of and Trafficking in Firearms, their Parts and Components and Ammunition. While the convention's first protocol concerns about the trafficking in persons, especially women and children which is committed by a structured group, the Optional Protocol to the Convention on the Rights of the Child on the Sale of Children, Child Prostitution, and Child Pornography stipulates the crime against children. Considering the gravity of the crime, it is urgent for international society to have a specific law to fight against Transnational Organized Online Child Pornography. This study discusses the regulatory framework of transnational organized crime and transnational online child pornography, the modus operandi and the implication of the crime against children and, nonetheless, the urgency of the law to combat the crime.

Keywords: Online Child Pornography, Transnational Organized Crime

Topic: Law Studies

[ABS-244]
Proposing Digital Copyright Law Enforcement through Internet Court in Indonesia

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Abstract
Advancements in technology have increased digital copyright violations, costing Indonesia over USD 2.5 billion annually. Despite existing laws, enforcement remains slow and ineffective. An Internet Court offers a faster, fairer solution, ensuring creators' rights, deterring piracy, and fostering a healthier digital ecosystem, as proven in other countries like the U.S. and China. This article analyzes the urgency and implementation of the Internet Court in enforcing digital copyright laws in Indonesia. This article employs a juridical-normative methodology, focusing on analyzing legal frameworks and secondary data. Data collection was conducted through literature review. The result shows that Internet Court is an effective and efficient solution for addressing digital copyright violations, ensuring quick and fair decisions, fostering healthy digital ecosystems, and protecting creative industries. This article will benefit digital copyright law enforcement, intellectual property rights, legal technology, creative industry protection, and policy development in digital governance and e-commerce.

Keywords: Digital copyright, Enforcement, Internet court

Topic: Law Studies

[ABS-238]

Problematics of Implications of The Execution of The Constitutional Court Decision as a Judicial Making in Realizing Legal Certainty

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Abstract

Normatively-legally, the Constitutional Court's decision is final and binding since it was pronounced in a plenary session that is open to the public. However, the implementation of the Constitutional Court's Decision often causes polemics in the Indonesian State Administration System. Departing from this, the author is interested in conducting further research by raising 2 (two) problem formulations in this study, namely: (1) How are the problems of executing the Constitutional Court's decision against the position of the Constitutional Court as judicial making; and (2) How are efforts to optimize the implementation of the execution of the Constitutional Court's decision in order to create legal certainty. This study uses a normative legal method, namely an approach carried out with library research correlated with related laws and regulations so that data is obtained regarding problems in the implications of executing the Constitutional Court's decision and solutions to optimize the execution of the Constitutional Court's decision that is experiencing obstacles. Then related to the analysis method used, namely qualitative descriptive, the results of this study indicate that the problems of the Constitutional Court's Decision that are not implemented are due to several factors, including the Constitutional Court which is naturally a negative legislature- the absence of special enforcement agencies- the absence of a deadline for implementing the decision- the absence of laws and regulations that specifically regulate the consequences of ignoring the Constitutional Court's decision.

Keywords: Problems, Execution of Constitutional Court Decisions, Legal Certainty

Topic: Law Studies

[ABS-246]

Strategies for Addressing the Lack of AI Regulations to Protect Consumers in Digital Communication

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Abstract

The rapid development and implementation of Artificial Intelligence (AI) present substantial legal challenges for the digital society. While AI has the potential to offer numerous benefits, concerns about commercial exploitation and unforeseen technological risks have led many countries to seek appropriate legal frameworks to prevent potential harms. This research aims to analyze two key areas: (1) strategies to address the legal gaps surrounding AI in order to protect consumers in digital communications, and (2) essential aspects of AI legislation that safeguard consumer rights. Employing normative legal research methods, the study utilizes a statutory regulation approach, drawing on both primary data sources and secondary legal materials. All data is analyzed qualitatively. The findings indicate that strategies to tackle

the legal void concerning AI and consumer protection include educating consumers about their autonomy and privacy, as well as developing user-friendly AI applications. These applications should be designed with the liability of service providers in mind, ensuring they can detect and respond to harmful or unlawful content. Furthermore, regulations must be established to enhance consumer rights rather than undermine them, particularly in preventing unfair commercial practices. The implications of this study highlight a critical intersection between law, technology, and communication in consumer protection, emphasizing the need for proactive measures to safeguard individuals in a rapidly changing digital landscape influenced by AI.

Keywords: Artificial Intelligence, AI Law, Digital Communication, Consumer Protection

Topic: Law Studies

[ABS-312]
Palestinian - Israeli Conflict: Analysis Framing Online Media in Indonesia (BBC and Republika)

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Abstract
The Palestinian-Israeli conflict has been going on for a year, starting on October 7, 2023, and is still going on today. The cause of this conflict actually happened years ago, when the UN decided to divide the territory between the Jewish and Arab states. The media has an important role in conveying information related to this conflict to the public, which contributes to shaping their understanding and views of the situation. Republika is an Islamic media institution founded by the Indonesian Muslim Scholars Association. Therefore, Republika is considered a media that upholds Islam and still exists today. Meanwhile, the British Broadcasting Corporation (BBC) was established by the United Kingdom, which consists of England, Scotland and Wales. The UK is a country that has provided extensive military and diplomatic support to Israel. The purpose of this research is to analyze the news related to the conflict between Palestine and Israel using Robert N Entman's framing method. This research uses a qualitative method. The main data sources presented are news from the Republika and BBC Indonesia websites. The results showed that there was news related to the war that occurred on October 7, 2023 between Hamas and Israeli military forces, causing many casualties and leading to a war between Palestine and Israel. The results are online media can provide news that can inform and influence people's stigma regarding the conflict between Palestine and Israel from media that have different backgrounds, how news is presented with different concepts.

Keywords: Conflict, Online media, Framing theory

Topic: Political Science Studies

[ABS-159]
Protection Policy on Domestic Workers in Indonesia: Framing Analysis of Online Media detik.com and Kompas.com

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Abstract
Cases of violence experienced by domestic workers increase every year, until there are 2,641 cases of violence. In the form of unpaid wages, termination of employment, to human trafficking which shows the weakness of human rights and protection in labor. As well as weak justice for perpetrators of violence cases in the form of disproportionate punishment, even absent from justice. Ideally, the government should have a law that protects domestic workers, but in reality, the draft on the protection of domestic workers in Indonesia has been stagnant for 20 years. Komnas Perempuan in its press release urged the government to immediately pass the law, by demanding the House of Representatives to immediately resume discussions. This case is interesting to report because the role of the media as a social control of government policy focuses on issues that require special attention and is studied from the communication side with framing

analysis. This research aims to see construction of news coverage of government policies on the protection of domestic workers in two online media, namely detik.com and Kompas.com. The data source is news documentation related to the protection policy for domestic workers in 2024 as the issue is discussed again. Data collection uses documentation or archiving, with data analysis techniques in the form of Framing Analysis by Entman. Namely constructing mass media through four elements, namely define problems, diagnose causes, make moral judgment, and treatment recommendations, through data validity techniques, namely data triangulation. There is news related to the issue of protection of domestic workers in the online media detik.com and Kompas.com. The construction of the news on domestic workers issues and policies has the result that the draft law on the protection of domestic workers already exists but has not been ratified immediately. The cause of the problem in media coverage is the government that has not passed the law.

Keywords: Women, Gender, Law, Government

Topic: Political Science Studies

[ABS-247]
Mindfulness Techniques as an Effort to Increase Family Resilience in Early Marriage Couples

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Abstract
Family resilience is a dynamic state where families and their members have the tenacity, toughness, physical, material and mental abilities to live independently. Married couples who choose to get married at a young age are prone to risks, the impact that occurs not only from a physical perspective but also from a psychological and social perspective can also occur. This study was conducted to determine the effectiveness of mindfulness techniques as an effort to increase family resilience in early marriage couples. This study is pre-experimental research with a one group pre-test - posttest design, sampling technique using random sampling. Problems that often occur in couples who marry at a young age include verbal quarrels, domestic violence, poor adjustment to a new environment, unfulfilled daily needs, divorce due to unpreparedness to play a role and be responsible as husband and wife. This problem occurs because this young couple is not ready and not mature enough in attitude and decision-making and not ready to build a household. These problems make family resilience low. Family resilience is a condition that shows that the family has toughness, tenacity, and has the physical ability to achieve the goal of a harmonious and happy marriage both physically and mentally. The level of family resilience is also illustrated by, among others, mutual respect and affection for family members, good relationships, and communication patterns in childcare. Mindfulness can be applied to increase family resilience. With full awareness can be used to think and feel the conditions that are happening. Mindfulness techniques can be used as an effort to increase family resilience in early marriage couples. This is evidenced by the results of the paired sample t-test with a probability value of Sig. (2-tailed) is 0.001 smaller than the level of significant 0.05.

Keywords: Mindfulness, Family resilience, Early marriage

Topic: Psychology Studies

[ABS-88]
Investigation of Employees Performance of Indonesian Electricity Company

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Abstract
Paying attention to the performance of employees in vital sector companies is important. PLN as a government company responsible for providing electricity in Indonesia certainly requires human resources with optimal performance. Therefore, research is needed to find out the factors that influence the performance of PLN employees. This study aims to determine the effect of psychological capital, learning agility, and psychosocial safety climate factors on employee performance. The research conducted is a

quantitative study using the survey method. This research was conducted on PLN employees in the DIY-Central Java Region, using the convenience sampling method. The results of the study showed a significant effect of psychological capital, learning agility, and psychosocial safety climate on employee performance. The Adjusted R Square value shows a value of 0.505. Through the results of this study, it can provide implications for developing employee performance through improvement on psychological capital, learning agility, and psychosocial safety climate factor in the company.

Keywords: Performance, Psychological Capital, Learning Agility, Psychosocial Safety Climate

Topic: Psychology Studies

[ABS-182]
Religiosity and Entrepreneurial Behavior: The Role of Religiosity Factors in Entrepreneurial Behavior Among Muslim Entrepreneurs

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Abstract

Currently, businesses with Islamic characteristics are increasingly prevalent in Indonesia. The personal or individual factors of entrepreneurs play an equally important role. A business can only achieve economic value if there is someone who acts to transform their entrepreneurial intentions and motivations. This study aims to explore the influence or role of religiosity factors on entrepreneurial behavior. The research was conducted using a case study method through in-depth interviews and observation. The study involved Muslim entrepreneurs. The findings indicate that religiosity factors influence entrepreneurial behavior, where belief in Allah SWT affects the values upheld in entrepreneurship, impacting the following aspects: 1) Problem Coping, 2) Business Management/Ethics, 3) Human Resource Management, 4) Customer Service, and 5) Concern for Others. Based on the results above, it is hoped that this research will serve as a foundational knowledge regarding the role of religiosity in entrepreneurship. In addition, it can be used as a reference for studies related to entrepreneurship, particularly concerning the factor of religiosity among Muslim entrepreneurs.

Keywords: Behavior, Entrepreneurship, Religiosity, Entrepreneur, Muslim

Topic: Psychology Studies

[ABS-369]
The Impact of Digital Technology on Psychological Wellbeing

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Abstract

Digital technologies have become an integral part of modern life, providing convenience in communication and access to information. However, its use also poses psychological challenges, such as anxiety, stress, and addiction. The impact of digital technology on individual psychological well-being is becoming an increasingly relevant issue to research, especially in the era of hyper-digitization. This study aims to explore how the use of digital technology affects individuals' psychological well-being, focusing on the positive and negative experiences of its use. This study used descriptive qualitative methods. Data were obtained through in-depth interviews with 20 participants aged 18-30 years old who actively use digital technology

for various purposes, such as social media, work, and entertainment. Thematic analysis was used to identify patterns of psychological impact. The results showed that digital technology provides benefits such as increased social connectivity and easy access to psychological resources. However, excessive use triggers addiction, sleep disturbances, and feelings of isolation. The user experience is strongly influenced by the individual's ability to manage the time and limits of technology use. This study emphasizes the need for digital literacy to help individuals make healthy use of technology and prevent negative impacts on psychological well-being. These results can also serve as a basis for designing interventions that support the balanced use of technology.

Keywords: Technology, Psychological Well-Being, Digitalization

Topic: Psychology Studies

[ABS-115]
Posttraumatic Growth in Women of Domestic Violence

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Abstract

Domestic violence can have serious psychological, physical and emotional effects on victims. But some victims are able to recover through posttraumatic growth a positive change following trauma. This study explores the dynamics of posttraumatic growth in female domestic violence victims, examining processes, contributing factors, differences the process in the between early and late adulthood age groups. This research uses a descriptive qualitative approach with phenomenological methods to understand in depth the experiences of the participants consisting of two female victims of domestic violence. Data was collected through in-depth interviews focusing on aspects of post-traumatic growth. The results showed that there were several differences in the process of post-traumatic growth in early adulthood, with the subject focusing more on self-development, exploring new careers, expanding their network of friends, and demonstrating independence and personal resilience. On the other hand, the late adulthood category emphasized happiness in small moments with family, deepening existing relationships, the ability to deal with conflict and higher spiritual changes. This difference in focus reflects the influence of age phase on priorities and coping strategies in achieving post-traumatic growth, with early adulthood tending to seek change and exploration, whereas late adulthood prioritizes emotional stability and acceptance of life. The results of this study are expected to be the basis for improving and accelerating the achievement of victims of domestic violence at the posttraumatic growth stage.

Keywords: Domestic Violence, Posttraumatic Growth, Women

Topic: Psychology Studies

[ABS-239]
The Dynamics of Forgiveness in Women Victims of Domestic Violence (DV) Who Choose to Stay in Their Marriage

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Abstract

Domestic violence (DV) is a serious issue with widespread impacts, particularly on victims. The majority of DV victims are women. This study aims to explore the dynamics of forgiveness in wives who are victims of

DV and continue to live with their husbands. The sampling technique used in this study was purposive sampling, with criteria including women who are victims of DV, have experienced violence for more than two years, still live in the same household as the perpetrator, are still legally married, continue to experience DV, reside in Magelang Regency, remain in the marriage with the perpetrator, and are willing to participate in the study. This research employed a descriptive qualitative method, using in-depth interviews to understand the forgiveness process experienced by the participants. The findings reveal that DV victims experienced three types of forgiveness: hollow forgiveness, silent forgiveness, and total forgiveness. The forgiveness process involves a shift in motivation, starting from avoidance and revenge to acts of kindness, although the continuity of the marriage varies. In conclusion, although the victims chose to forgive, the abusive relationship makes the forgiveness process complex. The implications of this study highlight the importance of appropriate interventions to support DV victims in understanding and processing forgiveness in a healthy manner.

Keywords: Domestic Violence, Dynamics of Forgiveness, Hollow Forgiveness, Silent Forgiveness, Total Forgiveness

Topic: Psychology Studies

[ABS-364]

Analysis of Factors Influencing Lecturers Behavior in Maintaining Academic Integrity Using the Fuzzy Interpretive Structural Modeling (FISM) Method

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Abstract

Academic integrity is a cornerstone for maintaining the quality and credibility of higher education systems. As key stakeholders, Lecturers play a critical role in upholding ethical principles and serving as role models in academic settings. However, globalization and increasing demands in higher education have introduced complexities, such as publication pressures, administrative burdens, and institutional inconsistencies, which challenge academic integrity. This study aims to identify and analyze factors influencing lecturers' behavior in maintaining academic integrity within Indonesian higher education institutions. Employing the Fuzzy Interpretive Structural Modeling (FISM) method, the research explores complex interactions between internal and external factors, enabling the construction of a hierarchical model to prioritize key influencing factors. The findings reveal that institutional support, consistent policies, academic ethics education, and external pressures significantly impact lecturers' behavior. The hierarchical model developed using FISM identifies critical factors and their interdependencies, providing actionable insights for higher education institutions. The study concludes with strategic recommendations for policy enhancement and institutional initiatives to strengthen academic integrity, including continuous ethics training and the establishment of robust enforcement mechanisms. These findings contribute to theoretical discourse on ethical behavior in academia and practical approaches to fostering an ethical academic culture in Indonesia.

Keywords: Academic Integrity, Lecturers Behavior, Higher Education, Fuzzy Interpretive Structural Modeling (FISM), Ethical Behavior

Topic: Psychology Studies

[ABS-9]

The Collaborative Empowerment of Rural Women in Bandung-Indonesia to Contribute for Environment Conservation: Integrating Faculty Expertise with Transnational Insights

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Abstract

This study discusses the empowerment of rural women to conserve the environment. The case study was conducted in Sindang Sari Village, Bandung, Indonesia. The discussion highlighted collaborative efforts that combine the expertise of academics with Indonesian women living in the United States. This program encourages global insights that encourage sustainable practices and the use of green technology in rural Indonesia. To evaluate the program of initiatives from academics with the Indonesian diaspora in the United States to encourage rural women in Sindang Sari, Bandung-Indonesia to participate in environmental conservation. The research method is mixed, namely by conducting surveys, participatory workshops, and case studies conducted in the Sindang Sari Village-Bandung, Indonesia. Collaboration between a team of academics and women with experience in an international environment has the potential to improve the ability of rural women to protect their environment through increasing environmental awareness and adopting green technologies that already exist in their villages. This study provides valuable insights into the potential of women in contributing to sustainable development and how to build environmental conservation, as well as the determination of women's empowerment programs that are in accordance with the characters of the village.

Keywords: Empowerment, Rural Women, Environment, Green Technology, Indonesia

Topic: Sociology Studies

[ABS-281]

Communication as a Major Conflict Causing Factor: A Case Study on Small Traditional Medicine Businesses in Cilacap Regency

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Abstract

Conflict is something that is commonly encountered in daily life, whether in household life, in an organization, in a small or large company, or in the field of traditional medicine. The purpose of this study is to identify the factors that cause conflict so that it can be used as a basis for resolving conflict controversies and seeking conflict resolution in the field of traditional medicine in Cilacap Regency. The benefits of this research are expected to enrich research and development related to conflict resolution that has never been done by researchers before. This research is qualitative research with a case study approach. The informants in this study are workers at Traditional Medicine Small Businesses (next written TMSB) in Cilacap Regency.

The data was obtained directly using in-depth interviews by the researchers. The sampling techniques used are purposive sampling and snowball sampling. The data analysis of this study uses an interactive model, starting with data reduction and data presentation, then drawing conclusions/verification. This study succeeded in identifying several factors that cause conflict in TMSB, namely communication as the biggest factor, lack of cooperation, differences in personal values/individual characters, unpredictable policies, role conflicts, differences in perceptions, resource conflicts, and gaps. The results of this study show that conflict can have both positive and negative impacts. This study shows that communication is the biggest causative factor- other causative factors are lack of cooperation, differences in personal values/individual character, unpredictable policies, role conflicts, differences in perceptions, resource conflicts, and disparities. This is expected to be used as a basis for resolving conflicts and seeking conflict resolution, as well as a reference and recommendation for resolving conflicts that occur.

Keywords: Conflict, Factors, Management

Topic: Sociology Studies

[ABS-318]
Communication Management in Facing the Eruption of Mount Merapi (Case Study of Babadan Hamlet, Magelang Regency)

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Abstract

Magelang Regency is a disaster-prone area because it is close to the active Mount Merapi. Babadan Hamlet, is a settlement around Mount Merapi that is at high risk of being affected by the eruption. Effective disaster communication will increase community awareness, facilitate disaster evacuation, and accelerate the post-disaster recovery process. This research aims to analyze disaster communication management in Babadan Hamlet, as well as identify factors that influence its effectiveness. The research used a qualitative case study method, collecting data through interviews with disaster management authorities, the Regional Disaster Management Agency, and residents. Data validation was conducted through source triangulation. The results showed that disaster communication management in Babadan Hamlet has been running well, but there are still challenges in increasing public awareness of the threat of Mount Merapi. Therefore, a structured and sustainable education program is needed, in order to increase community preparedness in facing potential eruptions. This research is useful in the Babadan Hamlet area of Magelang Regency, focusing on the discipline of disaster communication management. The results of the study can be used to improve community preparedness policies and programs and provide insights for academics and practitioners in the field of disaster mitigation.

Keywords: Disaster Communication Management, Mount Merapi, Mitigation, Magelang District

Topic: Sociology Studies

[ABS-337]
Communication as a Major Conflict Causing Factor: A Case Study on Small Traditional Medicine Businesses in Cilacap Regency

Yuniariana Pertiwi[1], Kintoko[2], Suliyanto[3], and Nursanti[1]

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[2] Universitas Ahmad Dahlan, Yogyakarta, Indonesia
[3] Universitas Jendral Soedirman, Purwokerto, Indonesia

Abstract

Conflict is something that is commonly encountered in daily life, whether in household life, in an organization, in a small or large company, or in the field of traditional medicine. The purpose of this study is to identify the factors that cause conflict so that it can be used as a basis for resolving conflict controversies and seeking conflict resolution in the field of traditional medicine in Cilacap Regency. The benefits of this research are expected to enrich research and development related to conflict resolution that has never been done by researchers before. This research is qualitative research with a case study approach. The informants in this study are workers at Traditional Medicine Small Businesses (next written TMSB) in Cilacap Regency. The data was obtained directly using in-depth interviews by the researchers. The sampling techniques used are purposive sampling and snowball sampling. The data analysis of this study uses an interactive model, starting with data reduction and data presentation, then drawing conclusions/verification. This study succeeded in identifying several factors that cause conflict in TMSB, namely communication as the biggest factor, lack of cooperation, differences in personal values/individual characters, unpredictable policies, role conflicts, differences in perceptions, resource conflicts, and gaps. The results of this study show that conflict can have both positive and negative impacts. This study shows that communication is the biggest causative factor- other causative factors are lack of cooperation, differences in personal values/individual character, unpredictable policies, role conflicts, differences in perceptions, resource conflicts, and disparities. This is expected to be used as a basis for resolving conflicts and seeking conflict resolution, as well as a reference and recommendation for resolving conflicts that occur.

Keywords: Communication, Conflict, Factor, Management

Topic: Sociology Studies

List of Abstracts: Other Social Sciences & Humanities

[ABS-276]
Education and Cultural Expression as a Predictor of Literacy Culture

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Abstract
Literacy culture has an important role in improving the quality of society, but the influence of education and cultural expression on literacy culture still needs further research. This study aims to analyze the relationship between education and cultural expression to literacy culture and identify the extent to which these two variables affect literacy culture. This study used a quantitative approach with multiple linear regression analysis. Data were collected from 35 respondents and analyzed using a regression model with a value of R2=0.571R2=0.571. The results showed that education had a significant positive influence on literacy culture (B=0.814,p<0.001B=0.814,p<0.001), while cultural expression had a significant negative influence (B=&#8722-0.246,p=0.008B=&#8722-0.246,p=0.008). The two variables together explain 57.1% of the cultural variation of literacy. Improving the quality of education contributes significantly to the strengthening of literacy culture. However, the need to manage cultural expressions to support literacy is the focus of policies and programs.

Keywords: Education, Cultural Expression, Literacy Culture, Regression Analysis, Literacy Improvement

Topic: Other Social Sciences & Humanities

[ABS-288]
Public Reality Construction: Framing Theory by detik.com in Packaging PSI Political Information

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Abstract
This research is motivated by the existence of mass media in shaping people's views on political issues. Many people still do not understand how the political process in Indonesia works. In the context of this study, researchers took the case of framing analysis conducted by the mass media on the political news of the Partai Solidaritas Indonesia. Public response becomes very important in this case to influence their participation in the democratic process. The purpose of this research is to analyze how online media, particularly detik.com, frames political news related to the Partai Solidaritas Indonesia (PSI) using the framing theory proposed by Robert N. Entman. This research aims to understand how the media presents political information that is not only informative but also strategic in shaping public opinion about PSI in the midst of a complex political landscape. The method used is a qualitative research method with a case study approach. This research uses secondary data review of research methods through data analysis, observation and analysis of information through narratives from detik.com. The object of study of this research also focuses on the form of framing carried out by detik.com. Mass media, particularly detik.com, plays an important role in shaping public opinion regarding the Partai Solidaritas Indonesia (PSI) through

framing techniques. The framing done by detik.com highlights certain aspects of PSI's political news, such as party leaders' official statements and reactions to current political issues, which can strengthen or weaken PSI's image in the eyes of the public. The results of this study contribute to the understanding of the dynamics of political communication in the digital era, as well as the importance of the media's role in the democratic process and public participation. Consider using mixed methods (qualitative and quantitative) to enrich the data and analysis such as surveys to measure the impact of news on public opinion that can complement the analysis of news content. This research could also be compared to other political parties in terms of news coverage of PSI to see differences in framing and how it affects public perception.

Keywords: Reality Construction, Framing Theory, Mass Media

Topic: Other Social Sciences & Humanities

[ABS-39]
Cyber Public Relations Strategy of Project Child Indonesia in Promoting One Fine Volunteer Day

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Abstract

Cyber Public Relations (Cyber PR) is a modern approach to public communication using digital platforms such as social media, websites, and email to reach audiences more effectively. With limited resources, non-profit organizations (NGOs) such as Project Child Indonesia utilize digital media to increase visibility, attract more volunteers, and build a positive image as an organization that cares about social issues such as education and children's welfare. In this research, Project Child Indonesia uses cyber-PR to increase the number of volunteers participating in One Fine Volunteer Day (OFVDAY) activities. This research uses a descriptive qualitative method with a case study approach, collecting data through interviews and analyzing documentation. The results show that Project Child Indonesia cyber-PR strategy uses the PESO model (Paid, Earned, Shared, Owned Media), focusing on social media Instagram, TikTok, and websites relevant to youth as the target audience. This strategy involves relationship, reputation, and relevance elements, effectively increasing public participation and building community engagement. With informative and inspirational content, Project Child Indonesia succeeded in attracting volunteers to participate in OFVDAY activities. This research hopefully can be a reference for other non-profit organizations to increase the amount of public participation in an activity through cyber-PR efforts.

Keywords: Cyber Public Relations, Project Child Indonesia, Communication Strategy, Social Media

Topic: Other Social Sciences & Humanities

[ABS-35]
The Therapeutic Communication Process of Counselors with Drug-Addicted Clients at Moelya Bangka Mental Rehabilitation

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Abstract

The increase in drugs in Indonesia is very concerning, especially on Bangka Island, which has a relatively high prevalence rate each year. This research focuses on the stages of therapeutic communication processes

in the recovery of drug-addicted patients at the Moelya Bangka Mental Rehabilitation Center. The main objective of this study is to understand and describe how the therapeutic communication process between counsellors and drug-addicted clients at the Moelya Bangka Mental Rehabilitation Foundation. Additionally, this research is expected to enhance knowledge and contribute to improving the quality of therapeutic communication between counsellors and clients at the Moelya Bangka Mental Rehabilitation Center. This research uses a descriptive qualitative method with a snowball sampling technique. They collected data through interviews, observations, and documentation. The research results show that the therapeutic communication process is carried out with comfort and trust between the counsellor and the client. In the recovery process, there is also a pre-interaction phase where the client is detoxified, and the counsellor gathers data and assesses the client's anxiety. In the orientation phase, the counsellor starts communicating and sharing, and the client participates in programs such as morning briefings. The final phase is the termination phase, where the client has recovered from rehabilitation but continues to attend counselling sessions at the rehabilitation center regularly.

Keywords: Communication, Therapeutic, Drug, Rehabilitation, Counselors

Topic: Other Social Sciences & Humanities

[ABS-58]
Public Relations Marketing Strategy in Building a Brand Awareness Bulk Store Vert Terre in 2023

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Abstract

Domestic waste has been the main cause of problems that almost occur in every region, including Indonesia. The Special Region of Yogyakarta, Indonesia, experiences similar handling related to waste management. The low level of public awareness of the importance of preserving the environment is caused by ignorance. One company that concerns about waste management in its business operations is Vert Terre. Vert Terre runs a store with the concept of ecofriendly bulk goods, organizing environmental awareness activities and other campaigns with young people. For six years running, Vert Terre experienced an engagement decreasement on its Instagram account in 2023, hence, Vert Terre's brand awareness still has not reached a strong level. In building brand awareness, Vert Terre used a marketing public relations (M-PR) strategy. This research aims to explain the marketing public relations strategy in building Vert Terre's brand awareness by using descriptive method with qualitative approach. Using three ways strategy which consists of pull strategy, push strategy, and pass strategy, with seven tools, namely publicity, social activities, media identity, events, sponsorship, news and presentations. The data were obtained through interviews and documentation. The result shows that the strategies implemented by Vert Terre are pull strategy, push strategy and pass strategy. The strategy is implemented by using tactics such as publicity, events, news, presentations, media identity and social activities. This implementation has not had a significant impact on increasing brand awareness in the public eyes as well as Vert Terre's profit in 2023.

Keywords: Marketing Public Relations, Brand Awareness, Three Ways Strategy, Ecofriendly

Topic: Other Social Sciences & Humanities

[ABS-53]
Yogyakarta City Police Campaign Strategy in Realizing Peaceful General Election in 2024

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Abstract

The General Election is an essential moment in the democratic life of a country. However, along with the development of the current digital era, the challenges in organizing elections are increasingly complex. Therefore, this study aims to determine the campaign strategy implemented by the Yogyakarta City Police in realizing a peaceful 2024 Election using the Ostergaard campaign model. This study used a qualitative descriptive method through data collection techniques, namely interviews and documentation. The results of this study show that the Yogyakarta City Police implemented campaigns directly and through social media to reach all levels of society. The campaign was carried out in several stages, first conducting a comprehensive situational analysis of a problem that was happening and second, implementing a campaign that had been designed, such as determining campaign objectives, campaign channels, and campaign targets. Finally, there is campaign evaluation through media monitoring and the success of the election process in Yogyakarta City.

Keywords: Campaign Strategy, General Elections, Yogyakarta City Police

Topic: Other Social Sciences & Humanities

[ABS-303]
Women in Horror Stories in Java

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Abstract

Women in the horror genre are of interest to readers around the world. Apart from the storyline, another thing that attracts attention is the tense scenes which are able to leave an impression in the hearts of the audience. The aim of this research is to analyze the recurrence of things related to women who appear in horror stories in Java and to explore the meaning behind this phenomenon by studying the narrative structure of Vladimir Propp. The object of this research is horror stories in Java. Data collection was carried out by document study of 10 horror stories in Java that had been published in the mass media. Data analysis was carried out using the Miles and Huberman model through three stages, namely (1) data reduction-identify the story structure related to function. after finding the recurrence, meaning is carried out, (2) presenting the data in tabular form, and (3) drawing conclusions. The findings of this research show the recurrence of female characters as main characters, trips to sacred places, entering the supernatural world, understanding the causes of humans becoming ghosts, the presence of friends or family figures. Of these six elements, there are three elements that are dominant and present in every story, namely women as the main characters, journeys to sacred places, and entering the supernatural world. This can be interpreted as a reversal of the understanding of patriarchy. Female characters in horror stories are depicted as brave and curious about sacred places.

Keywords: Horror Stories, Sacred, Women, Land of Java

Topic: Other Social Sciences & Humanities

[ABS-300]
Ecological Justice-Based Tourism Village Governance in the Area Around Borobudur Temple

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Abstract

The management of tourist villages around the Borobudur Temple area has great potential to support sustainable tourism while maintaining ecological balance. This study aims to formulate a model of ecological justice-based tourism village governance, which integrates environmental, social, and economic aspects harmoniously. This approach is based on the principles of sustainability and justice, while paying attention to the rights of local communities and environmental conservation. The research method used involved a qualitative approach with in-depth interview techniques, field observations, and analysis of related documents. The results of the study indicate that an effective governance model requires collaboration between local governments, local communities, temple managers, and the private sector. The main strategies include wise management of natural resources, empowerment of local communities in tourism activities, and strengthening regulations that support environmental conservation. With the implementation of this model, it is hoped that tourist villages around Borobudur Temple can develop sustainably, provide economic benefits to local communities, while maintaining environmental sustainability as part of cultural and natural heritage. This study recommends strengthening participatory policies and continuous monitoring to ensure the implementation of the principle of ecological justice.

Keywords: Governance, Tourist Villages, Ecological Justice, Sustainability, Borobudur Temple

Topic: Other Social Sciences & Humanities

[ABS-87]
Supportive Communication Between Caregivers and Intellectual Disabilities Students in Increasing Self-confidence at Bina Siwi Orphanage Yogyakarta

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Abstract

This research discusses the lack of self-confidence in children with intellectual disabilities due to obstacles in communicating and expressing themselves. Students with intellectual disabilities need support and motivation from their surroundings. The research aims to explain the application of supportive communication by caregivers in increasing students' self-confidence at Bina Siwi Orphanage Yogyakarta. The method used is descriptive qualitative with in-depth interviews with informants selected by purposive sampling- three pairs consist of caregivers and students with intellectual disabilities. The results showed supportive communication used in six dimensions. In the description dimension, caregivers build relationships through explanation in direction and reprimand. The problem-oriented dimension encourages students to take responsibility by finding solutions together, and the empathy dimension creates comfort for students. The equality dimension makes them feel valued, increasing self-confidence and independence. The provisionalism dimension helps students to dare to give criticism and suggestions. The spontaneity dimension shows caregiver differences in honesty- some are always honest, and others choose to be more discreet in conveying information. Supportive communication creates an inclusive environment and

increases learners' confidence. It is recommended that caregivers continue to improve supportive communication skills by integrating them into programs at the orphanage.

Keywords: Supportive Communication, Caregivers, Students, Intellectual Disabilities, Confident

Topic: Other Social Sciences & Humanities

[ABS-309]
Optimizing Mushroom Cultivation for SMEs: Development of a Frugal Innovation-Based IoT-Enabled Smart Kumbung System

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Abstract

The study formulates an IoT enabled Smart Kumbung system, adhering to the concepts of frugal innovation, to enhance mushroom farming for small and medium enterprises (SMEs). Conventional mushroom cultivation encounters considerable obstacles, such as erratic yields, elevated production expenses, and ecological susceptibilities. This project seeks to utilize economical IoT technology to deliver a cost efficient and accessible solution designed for small scale farmers. The Smart Kumbung incorporates IoT elements, including temperature and humidity sensors, a misting system and automated lighting, all managed via a smartphone interface. Field testing confirmed the system's capability to sustain ideal environmental conditions, maintaining temperature stability (24 to 26 Celcius) and humidity levels (about 85 percent) while minimizing water and energy usage. Local farmers indicated significant satisfaction with the systems user friendliness and operational effectiveness. This study emphasizes the possibility of integrating IoT technology with frugal innovation to tackle agricultural difficulties, improve productivity, and foster sustainable practices in small and medium sized enterprises (SMEs). The results indicate that scalable and cost effective IoT systems can enable local farmers, enhance yields, and strengthen economic resilience.

Keywords: Internet of Things, Frugal Innovation, Smart Kumbung, Mushroom Cultivation, Sustainable Agriculture

Topic: Other Social Sciences & Humanities

[ABS-62]
Interpersonal Communication Style of Pre-marriage Couples in Toxic Relationships

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Abstract

This study describes the interpersonal communication styles exhibited by couples in toxic pre-marriage relationships and the impact of these communication styles. The method used in this research is descriptive qualitative. Data were collected through in-depth interviews. The data validity test technique uses data triangulation. The data analysis techniques in this study include data collection, data reduction, data presentation, and verification. The research results show that the communication style of couple A and B is the dynamic style because, during communication, they tend to be aggressive and often threaten, criticize, and blame each other to make their partner act according to their wishes. C and D use the controlling style of communication because there are many behaviors of controlling, forcing, and limiting the attitudes and

actions of their partner. E and F have the withdrawal style of communication due to the lack of communication between both parties, often diverting issues and avoiding communication. The impact caused by toxic communication styles includes discomfort, pressure, depression, stress, anxiety, and even self-harm. Advice for couples in toxic pre-marriage relationships is to end the relationship if it is toxic to avoid toxic behaviors and their impacts.

Keywords: Communication Style, Pre-marriage Couple, Toxic Relationship, Impact of Toxic Relationship, The Controlling Style

Topic: Other Social Sciences & Humanities

[ABS-67]
Digital Transformation for Sustainable Development: A Systematic Literature Review

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Abstract

Digital transformation cannot be separated from sustainable development that is happening in many countries. Indonesia is one of the countries that uses digital technology such as artificial intelligence for sustainable development. This research aims to map and compare scientific publications in Indonesia and other countries in Asia such as Japan, South Korea and China. The study combines qualitative and quantitative research methods using bibliometric procedures. The research was conducted through several stages: (1) data preparation by determining the eligibility criteria for information sources, (2) searching for Scopus-indexed journals from 2021 to 2024 using Publish or Perish, including titles, abstracts, and authors. By using several key terms such as digital transformation, artificial intelligence (AI), sustainable development, Indonesia, Japan, South Korea, and China, (3) the process of selecting research journals was carried out by synthesizing data in Mendeley's bibliographic management, resulting in the selection of 497 articles, (4) data analysis using VOSviewer. The study results show the importance of publishing scientific papers on a country's digital transformation, which encourages the use of technologies such as artificial intelligence, subsequently stimulating the achievement of sustainable development. Future studies can focus on digital platforms or assessment frameworks in Indonesia or in the Asian region.

Keywords: Digital Transformation, Sustainable Development, Sustainable Development Goals, Indonesia, Artificial Intelligence

Topic: Other Social Sciences & Humanities

[ABS-70]
Marketing Communication Strategy of Por Aqui Stay & Dine Hotel Yogyakarta to Increase Consumer Number in 2024

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Abstract

The lifestyle of tourists who enjoy visiting can influence business growth in Yogyakarta. The numerous hotels in Yogyakarta can create market competition. This market competition is also experienced by Por Aqui Stay & Dine, which is a hotel that combines the concept of Mexican bohemian and nature. Because of

the increasing number of businesses in the hospitality industry, appropriate marketing communication strategies are needed to increase the number of consumers. This research aims to identify the marketing communication strategies implemented by Por Aqui Stay & Dine hotel to increase consumers in 2024. The research methodology uses qualitative descriptive research. This study employs data collection techniques through interviews and literature review. This research uses promotional mix analysis and STP. The results show that Por Aqui Stay & Dine implements a strategy that focuses more on promotional activities, but the hotel also strives to maximize the quality of its products, facilities, prices, and services to meet customer needs. The marketing promotion activities carried out by advertising at Por Aqui Stay & Dine include internet media (social media), public relations (collaborating with mass media and curated local tenants), and direct marketing such as through phone calls and brochures. This is done so that the hotel does not fall behind its competitors.

Keywords: Increase Consumers Number, Marketing Communication, Hotel, Strategy

Topic: Other Social Sciences & Humanities

[ABS-330]
Message Design Logic as a Form of Marketing (Qualitative Content Analysis on @Ibarbo Instagram Account Content)

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Abstract

Social media platforms, especially Instagram, offer significant opportunities for visual marketing. Ibarbo Park leverages this by marketing its new Cartoon City rides, using the visual appeal of attractive cartoon cities. This study aims to analyze the message design logic within Cartoon City content on the @ibarbopark Instagram account to determine its effectiveness in building brand awareness. Employing a qualitative approach and qualitative content analysis, this study examines content from the @ibarbopark Instagram account featuring Cartoon City. The results indicate that Ibarbo effectively combines expressive and rhetorical message design in its Cartoon City content. Expressive design is evident through mascots and story elements, while rhetorical design is showcased in persuasive slogans such as 'A Happy Place for All Ages.' These findings underscore the importance of engaging visual and narrative strategies in successful social media marketing. This research suggests further investigation into the comparative effectiveness of different message design logics across various social media platforms and target demographics.

Keywords: Social Media, Digital Marketing, Message Logic Design

Topic: Other Social Sciences & Humanities

[ABS-86]
Empathic Communication of Employers with Domestic Helpers in Realizing Work Comfort

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Abstract

The working relationship between employer and domestic helper is often characterized by communication problems that affect work comfort. Lack of empathic communication, such as lack of attention, emotional

distance, and limited dialogue space, are the main factors that cause discomfort. This study explains the empathic communication process between employers and helpers in realizing work comfort. The method used in this research is descriptive qualitative. The data collection technique used was in-depth interviews with three pairs of employer and helper informants, which were conducted using a purposive sampling technique based on research needs. The results showed different conditions in each couple when carrying out empathic communication. The MR-LA couple revealed that the helper felt comfortable working with empathic employer communication, such as providing space for dialogue and understanding. In the WW-SP couple, the helper felt uncomfortable because they were not given space for dialogue, and the employer was passive. The AI-RA pair shows an employer more focused on professionalism so that empathic communication could be more optimal. Empathic communication will result in work comfort if it is carried out effectively and attention is paid to its dimensions. Employers can open a space for inclusive dialogue and balance professionalism for work comfort.

Keywords: Empathetic Communication, Employer, Domestic Helper, Work Comfort, Working Relationship

Topic: Other Social Sciences & Humanities

[ABS-105]
Training Needs for Class I Probation and Parole Office Samarinda Clients: Opportunities and Challenges

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Abstract

The correctional center is a technical implementation unit that has the authority and obligation to provide guidance to correctional clients, both adults and children. One of the objectives of the activities carried out by Bapas is work activities aimed at providing clients with abilities that can be developed and meet their needs. It is currently felt that the achievement of this goal is still not optimal, this is due to limitations both from correctional clients and from the skills training carried out. To answer the problems that occur at the Correctional Center, the research team carried out research to determine the appropriate training needs for correctional clients, as well as anticipating challenges or problems that might occur. This research was conducted at the Samarinda Class I Correctional Center, involving adult clients. Data was collected by distributing questionnaires to correctional clients, as well as conducting interviews with Correctional Center employees. The data analysis used is quantitative and qualitative analysis. Training activities that can increase the economic independence of correctional clients selected based on interests and hobbies will have a more positive impact. Apart from that, the choice of type of training is also directed at having benefits not only for clients but also between correctional institutions. The results of this research provide implications for improving the skills of correctional clients. Production continuity can also be maintained because it can meet the needs of other correctional institutions.

Keywords: Training Needs, Skills Enhancement, Correctional Clients

Topic: Other Social Sciences & Humanities

[ABS-347]

Peer Communication Patterns in LSBA- Creating an Inclusive Social Environment for Children with Autism Disorder

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Abstract

The process of adjusting to others requires individuals to possess the ability to interact with their environment. During adaptation, children may struggle to adjust, especially when it comes to peer relationships. Children with autism spectrum disorder (ASD) often face communication challenges when interacting with others, particularly peers. This research aims to explore the communication patterns among peers of children with autism at LSBA (London School Beyond Academy). This study is descriptive research using a qualitative approach. The data collection involves observational techniques in a computer skills class and interviews with teachers. This method aims to gather information about the communication patterns through social interactions between LSBA students and their peers, as well as the communication barriers they face. Additionally, secondary data is gathered through literature review. Data analysis is conducted based on social interaction theory, investigating peer communication patterns at LSBA with a focus on both verbal and nonverbal communication implications.

Keywords: Peer Communication, Communication Pattern, Social Environment, Autism Disorder, Inclusive School

Topic: Other Social Sciences & Humanities

[ABS-382]

'Pemuda Hebat' as a Virtual Community in Tourism Branding at Ponorogo

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Abstract

Virtual communities bring together people with different values and common interests massively through the internet. Virtual communities present a new form of urban life, and as a result of adaptation of the technological environment people in them build identities. Pemuda hebat is one of the virtual communities, where this community seeks to brand tourism in ponorogo. This research is qualitative research with a case study design. This study aims to describe and analyze pemuda hebat as a virtual community in branding tourism. The results of this study show that tourism branding efforts through virtual communities have a positive impact on tourist site visits. The interaction built in the virtual community provides support between individuals to exchange information and abilities in terms of branding tourism potential in their respective villages. Researchers suggest that in order for this community to be sustainable, there needs to be attention from the government because it has an important role in the progress of tourism in the area.

Keywords: Virtual Community, Tourism, Branding

Topic: Other Social Sciences & Humanities

[ABS-93]

Communication Patterns between Coaches and Mualaf in Realizing the Steadiness of Islam at the Mualaf Development Center Daratan Maju Kuat Mandiri (Muda Makudiri) Yogyakarta

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Abstract

Converts often need help with challenges, such as a lack of understanding of Islamic teachings, social pressure, and difficulty building social relationships. Effective coaching is critical in helping converts overcome these challenges. However, this coaching process often faces various obstacles, such as the lack of communication intensity between coaches and converts and the lack of confidence. This research aims to find effective communication patterns in the coaching of Mualaf Daratan Maju Kuat Mandiri (Muda Mukadiri) in Yogyakarta. The method used in this research is descriptive qualitative. Data collection techniques through in-depth interviews and observation. The data validity test technique uses source triangulation. Data analysis techniques in this study include data collection, reduction, presentation, and conclusion drawing. The results showed that the communication patterns used in the coaching of Muda Makudiri convert are top-down communication patterns when the coach delivers the coaching, bottom-up communication patterns when converts respond to the coaching material and informal communication that occurs outside the coaching activities. Muda Makudiri also has a WhatsApp group where coaches and converts can share information about various converts' activities. This research implies the need for openness and confidence of converts so that communication can run effectively.

Keywords: Group Communication Patterns, Mualaf, Mualaf Coaching, Top-Down, Bottom-Up, Informal Communication

Topic: Other Social Sciences & Humanities

[ABS-138]

Harvard Gender Analysis in Gender Relations of Womenpreneurs in the Spice Tourism Village of Madura in the Era of Green Technology and Digital Society Synergy

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Abstract

Bunten Barat Village in Sumenep Regency, East Java, is a spice tourism hub where womenpreneurs manage spice-based businesses. Green technology and digital society innovations offer opportunities yet challenge gender balance. Using the Harvard Gender Analysis, this study explores women's access, control, and benefits in socio-economic dynamics. This study examines gender dynamics among womenpreneurs in Bunten Barat Village, the impact of green technology and the digital society, and offers recommendations for women's empowerment policies using a gender analysis approach. Qualitative method, case study approach- tools: semi-structured interviews, direct field observations- participants: womenpreneurs, community leaders, stakeholders- analysis: Harvard Gender Analysis- frameworks: gender and technology- method: thematic analysis. Womenpreneurs in Bunten Barat Village contribute to economic sustainability through product diversification and digital marketing. Gender gaps persist in technology control and decision-making. Green technology improves efficiency, while digitalization increases workloads, necessitating gender-inclusive strategies. The findings are useful for developing gender-inclusive policies

in rural economic development, digital transformation, and green technology adoption. Relevant for disciplines such as gender studies, communication, development studies, and technology management, particularly in areas like Bunten Barat Village and similar rural communities integrating innovation with traditional economic systems.

Keywords: Pleaharvard Gender Analysis, Womenpreneurs, Gender Relations, Green Technology, Digital Society

Topic: Other Social Sciences & Humanities

[ABS-143]
Intercultural Communication and Innovation in Women's Empowerment within the Madurese Gastronomy Industry

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Abstract

Intercultural communication plays a crucial role in fostering innovation in women's empowerment, particularly in the traditional culinary industry deeply rooted in local cultural values. This study aims to explore how women entrepreneurs (womenpreneurs) in Madura utilize intercultural communication competencies to innovate in their products and marketing strategies for Madura's signature cuisine. Employing a qualitative approach, the research examines intercultural interactions between Madura womenpreneurs and customers from diverse cultural backgrounds through in-depth interviews and participatory observation. The findings reveal that the ability of womenpreneurs to understand and adapt to cultural differences significantly contributes to expanding their market reach. The innovations generated include flavor adaptations tailored to international consumers' preferences, product packaging that reflects Madura's cultural values, and marketing narratives based on local cultural storytelling. Intercultural communication is critical for developing innovation in women's empowerment, especially in the traditional food business, which is profoundly anchored in local cultural norms. This study seeks to investigate how women entrepreneurs (womenpreneurs) in Madura use intercultural communication skills to innovate in their products and marketing tactics for Madura's characteristic cuisine. Using a qualitative approach, the study investigates intercultural relationships between Madura womenpreneurs and customers from various cultural backgrounds via in-depth interviews and participant observation. The findings show that womenpreneurs' ability to recognize and adapt to cultural variations has a substantial impact on their market reach. The innovations produced include flavor adjustments matched to the preferences of foreign consumers, product packaging that reflects Madura's cultural values, and marketing storylines based on local traditional storytelling. The study also highlights that cross-cultural collaborations, both locally and internationally, are key factors in promoting Madura's culinary heritage to global markets. The implications of this research suggest that empowering women through intercultural communication training not only strengthens local cultural identity but also enhances the economic sustainability of local communities. This study provides new insights into the importance of intercultural communication as an instrument of innovation in women's empowerment and traditional culinary branding, offering a practical framework for culturally based policy development.

Keywords: Intercultural Communication, Innovation, Women's Empowerment, Madurese Cuisine, Gastronomy

Topic: Other Social Sciences & Humanities

[ABS-146]

Family Communication Patterns Between Children and Parents Residing at Tresna Wreda Yogyakarta Nursing Home

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Abstract

The growing population of elderly individuals in urban areas, such as Yogyakarta, has raised concerns regarding the emotional well-being of aging residents, particularly in relation to their communication with family members. As family interactions often diminish in frequency and depth, the emotional support provided to elderly parents may be affected. This study investigates the communication patterns between children and elderly parents residing at Tresna Wreda Yogyakarta nursing home. Utilizing a qualitative descriptive approach, data were gathered through in-depth interviews and validated via triangulation methods. The analysis followed a systematic process of data collection, reduction, presentation, and conclusion drawing. The findings reveal three distinct communication patterns based on Fitzpatrick's typology: consensual, protective, and laissez-faire. Subject SS exemplifies a consensual pattern, characterized by open and meaningful conversations that promote emotional closeness. Subject SW reflects a protective pattern, engaging in surface-level discussions to prevent causing concern for her children, which results in limited emotional depth. Subject KS demonstrates a laissez-faire pattern, with infrequent and superficial interactions, leading to emotional detachment and loneliness. The study emphasizes the need for enhancing communication quality and frequency to strengthen emotional bonds and improve the overall well-being of elderly individuals.

Keywords: Family Communication Patterns, Ederly Parents, Children, Nursing Home, Fitzpatrick's Typology

Topic: Other Social Sciences & Humanities

[ABS-165]

Communication Patterns of Eyek Magelang Community in Facebook Group

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Abstract

Eyek business is a potential micro, small and medium enterprise in Magelang district. According to data, there were 2,301 eyek traders in Magelang in 2022. They are also organized in one community, namely vegetable & eyek traders in Magelang. The community develops in the digital realm through the Facebook platform, with the name of the Magelang vegetable & eyek traders community group. This digital community is interesting to study from the angle of digital communication. The analytical knife used is the concept of communication patterns and the main theory of Interaction Theory and Community Development. This research uses a qualitative approach. Primary data sources are comments and interactions on the Facebook Group of Magelang vegetable & eyek traders community group. As well as the results of interviews with informants. Data collection techniques are interviews with admins and members of the Magelang vegetable and eyek trader community group. Informant selection technique using purposive sampling technique. Data analysis technique interactive analysis. Meanwhile, data validation techniques using data triangulation. The results in this study show that communication patterns in this community are hybrid, combining elements of star and wheel patterns. Meanwhile, the analysis of

interaction and group development shows that this community has experienced the orientation phase, conflict phase, emergence phase, and reinforcement.

Keywords: Communication Pattern, Facebook, Online Community

Topic: Other Social Sciences & Humanities

[ABS-177]
Building Environmental Awareness through Cultural Rituals: A Study of the Madek Mare Ritual in West Nusa Tenggara

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Abstract
The Madek Mare ritual is a traditional fishing practice in the Rambitan region of West Nusa Tenggara. Locals perform this ritual when the sea water recedes, spending five days on the beach in traditional huts. However, since this ritual takes place in a tourist area, some people believe it harms the beauty of the beach. This study looks at the Madek Mare ritual as a way to show local environmental awareness. It highlights practices that are good for the environment and beneficial for the community. This research used a descriptive qualitative method, conducting in-depth interviews with local residents, the management of the Mandalika area, and representatives from the West Nusa Tenggara Tourism Office. This study found that the Madek Mare ritual helps teach young people about the environment. It shows them how to understand natural conditions and catch fish using traditional, non-toxic methods. Moreover, the ritual brings the community together. To keep the Madek Mare ritual as a valuable ecotourism attraction, the local community and the Government need to work together to preserve the ritual while promoting environmental care and sustainable tourism.

Keywords: Environmental awareness, Environmental knowledge, Cultural ritual

Topic: Other Social Sciences & Humanities

[ABS-179]
The Integration of Digital Culture and Men Participation on Promoting Food Waste Management on Social Media

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Abstract
Food waste as one of environmental issues have become a concern in various countries, including Indonesia. The 2024 Food Waste Index launched by UNEP has once again titled Indonesia as the country that contributes the most food waste in Southeast Asia, and the second largest in the world. Women tend to be more concerned on negative in impact of food waste. However, addressing gender issues in food waste management can offer a comprehensive understanding of the allocation of roles in the utilization of financial resources and the potential economic benefits. Some research found that women and men showed differences in perspective, level of awareness, and concern about food waste. This study aims to explore the integration of digital culture and men participation on social media on promoting food waste management on social media. This research used qualitative content analysis applied to analyzed 154 contents on

Instagram and X in promoting food waste reduction. Less than half content post by men in promoting food waste reduction. Men generally use simpler messages than female user. Men tend to less participation in promoting food waste management on social media. There is an inequality of gender-based responsibilities in food waste management.

Keywords: Digital Culture, Food Waste, Gender, Social Media, Campaign

Topic: Other Social Sciences & Humanities

[ABS-205]
Social Environment in Prisons and Mental Health Recovery: Doctor-Patient Interaction at Lapas Kelas II A Bekasi under SDG 3 Frameworks

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Abstract

This study explores the impact of the social environment in prisons on mental health recovery, focusing on the interaction between doctors and inmates at Lapas Kelas II A Bekasi. Using Social Penetration Theory as a framework, the research investigates how interpersonal communication influences the healing process within the constraints of a correctional facility. Aligned with Sustainable Development Goal (SDG) 3-ensuring healthy lives and promoting well-being for all-the study employs a qualitative approach through in-depth interviews and field observations. Findings reveal that a supportive social environment, characterized by trust, empathy, and effective communication, plays a critical role in addressing mental health challenges among inmates. The results highlight the importance of fostering humane and inclusive healthcare practices in prisons, contributing to the broader agenda of sustainable health and social equity. This study underscores the need for integrating mental health interventions within the context of prison environments to achieve global health goals.

Keywords: Social Environment, Prison, Mental Health, SDG 3, Interpersonal Communication

Topic: Other Social Sciences & Humanities

[ABS-216]
Bibliometric Analysis of Digital Leadership: Research Opportunities in Immigration Sector

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Abstract

Digital leadership rises as a result of digital technology development that attaches leaders' new features to face challenges in the digital era. In public organization context, digital leadership has been employed to enhance organizations' performance, however, it is still not fully adapted to immigration sector regardless of its various digital technologies adoption. This study aims to analyze the research trend of digital leadership to especially discover opportunities for future research in the immigration sector. This study utilized bibliometric analysis to analyze research publications from Scopus database and create as well as visualize maps based on network data using VOSviewer software. Three hundred and thirty-one (331)

documents were taken with the keyword “digital leadership”. The results showed that the early discussion of digital leadership started in 2015 and significantly increased in 2024. Indonesia contributed the most research compared to other countries. This study was mostly affiliated with Bina Nusantara University and conducted by Abbu, H. The visualization result showed this study connected six clusters focusing on digital transformation, innovation, technology utilization, digital skills, human resources, and work behavior. The absence of public sector cluster especially immigration sector implies that this study gives opportunities to guide future research among scholars and practitioners.

Keywords: Bibliometric, Digital Leadership, Immigration

Topic: Other Social Sciences & Humanities

[ABS-200]
Social Assistance Data Integration Through Jakarta Smart City and Pusat Data Informasi Dinas Sosial DKI Jakarta Province

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Abstract

The integration of social welfare data in Indonesia faces various challenges, including diversity of data sources, non-standardization, limited technology infrastructure, data security and privacy concerns, lack of inter-agency coordination, limited human resource capacity, funding constraints, lack of real-time data availability, and bureaucratic complexity. These challenges result in public grievances regarding data inaccuracy, lack of transparency and accessibility, inequality and discrimination, lack of communication and socialization, and poor data integration. To overcome these challenges, collaborative efforts from multiple stakeholders are necessary. Jakarta Smart City (JSC) and UPT Pusat Data Informasi Kesejahteraan Sosial (Pusdatin Kesos) Dinas Sosial DKI Jakarta demonstrate how COVID-19 impacts ICT and data development through applications and integration. This case study research collects primary data from interviews and secondary data from statutory regulations, meeting minutes, survey results, and other supporting documents. Interview sources were selected using purposive sampling. The triangulation method verifies data collection results. The DKI Jakarta Provincial Government has taken steps to integrate social welfare data by combining information from different sources and involving community members in the data improvement process. The government uses the integrated data to formulate policies and distribute social assistance, ensuring public accountability and accessibility. Sharing data among regional apparatus organizations helps reduce bureaucratic silos and facilitates problem-solving.

Keywords: Data integration, Interoperability, Jakarta smart city, Pusdatin

Topic: Other Social Sciences & Humanities

[ABS-218]
Language Politeness Strategy for Foreign Students in the Multicultural Context

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Abstract
One of the most important things toward sustainable communication is creating effective communication. To achieve this culture and language play an important role in a person's process of learning a second language. In the Indonesian context, we understand how Indonesia has various cultures (multicultural). This is certainly a challenge for foreign students studying in Indonesia. Therefore, cultural differences have led them to use various strategies to enter the cultural sphere. The pragmatic strategy of foreign language students previously still focused on the maxims of politeness in terms of begging and complaining about situations. Have not identify at aspects of differences in men's and women's language strategies in the context of second language learning. The aim of this research is to determine: (1) the forms of pragmatic strategies of male and female foreign students when asking for help- (2) forms of pragmatic strategies of male and female foreign students when apologizing. The theory that will be used in this research refers to Brown and Levinson's theory & the research method is a qualitative case study. Researchers used observation, recording and interview techniques. Data analysis was carried out using Data analysis using the Miles and Huberman flow model. The validity of the data is achieved by a credibility test, a transferability test, a dependability test and finally an objectivity test. The results of this research show that there are differences in foreign students' language politeness strategies in a multicultural context. This difference is reinforced by the fact that there are different politeness strategies in asking for help and apologizing.

Keywords: Politeness strategies, Men and women, Second language

Topic: Other Social Sciences & Humanities

[ABS-219]
Qur'an and Hadith as the Basis for Creating Religious Pantun in Malay Pantun

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Abstract
Pantun is an original form of Malay poetry (especially in Indonesia and Malaysia). The oral tradition of pantun is transmitted through daily life activities as well as through more formal means, such as rituals and customs. From a religious perspective, pantun emphasizes balance, harmony and flexibility in interactions and relationships between people. The internalization of the Qur'an and Hadith is contained in the Pantun Agama of the Malay community. This Pantun Agama is found in the book Pantun Melayu published by Balai Pustaka. The purpose of this study is to describe the internalization of the Qur'an and Hadith as the basis for the creation of Pantun Agama in Pantun Melayu. This research is descriptive qualitative research. The object of this research is the internalization of the Qur'an and Hadith, and the subject of this research is Pantun Agama in the Pantun Melayu Nostalgia Literature Series published by Balai Pustaka. Data were

collected by conducting the following research stages. (1) the stage of identifying data in the form of internalization of the Qur'an and Hadith, (2) then analysis and interpretation were carried out, and (3) the final step was conclusion and interpretation based on the results of the analysis. The results of the research show that the Qur'an and hadith related to monotheism, morals, sharia, worship, the end of days and worldly life are the sources for the creation of religious pantuns in Malay pantun.

Keywords: Internalization, Qur'an, Hadith, Religious pantun

Topic: Other Social Sciences & Humanities

[ABS-223]
Ecolution as a Community Development Initiative to Enhance Environmental Awareness and Foster a Sustainable Green City in Bekasi

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Abstract

In 2022, Bekasi City was listed as one of the largest waste contributors in West Java and ranked among the top 10 waste-producing cities in Indonesia, highlighting the urgent need to address its growing environmental impact. In response to this challenge, the community development program at the LSPR Institute in Bekasi, called 'Ecolution' was launched as an educational initiative aimed at increasing public awareness of climate change and the importance of building a sustainable green city. This program aligns primarily with the 11th SDG (Sustainable Cities and Communities) and the 13th SDG (Climate Action) under the Sustainable Development Goals framework. It seeks to educate the public through a collaborative and innovative approach involving various stakeholders, including students, local communities, and the government, ensuring its sustainability. This research employs qualitative methods, including interviews, observations, and document analysis, supported by theories of environmental awareness and sustainable development. The findings indicate that Ecolution has significant potential to enhance community understanding and participation in responsible waste management. The main premise of this study is that integrated and sustainable community-based education can serve as a catalyst for behavioural changes in waste management, ultimately contributing to the realization of a sustainable green city in Bekasi.

Keywords: Waste, Community development, Ecolution, Bekasi city, Green city

Topic: Other Social Sciences & Humanities

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