BOOK OF ABSTRACTS

SEPTEMBER 26, 2026

PAIB IC-HEES 2026

HEALTH · EDUCATION · ECONOMY

The 1st International Conference on Sustainable Health, Education and Economic Synergy (IC-HEES 2026)

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BOOK OF ABSTRACTS

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The 1st International Conference on Sustainable Health, Education and Economic Synergy (IC-HEES 2026)

WELCOMING

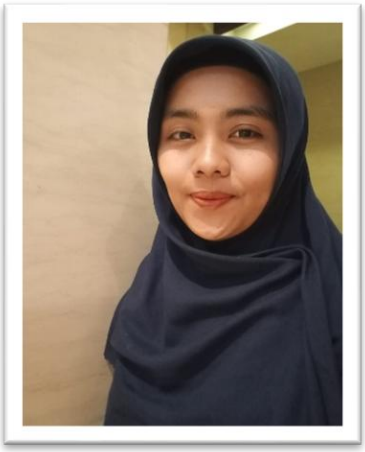
Keynote Speakers



Prof. Yayoi Kodama
The University of Kitakyushu, Japan
Vocational Education Transformation



Asst. Prof. Andi Saptono, Ph.D
University of Pittsburgh, United States
Digital Health Innovation & Health Informatics



Leni Herfiyanti, S.S.T., M.I.K., M.M
Politeknik Al Islam Bandung
Medical Records and Health Information

Invited Speakers



Asst. Prof. Napapong Pongnapang, Ph.D
Mahidol University, Thailand
Radiography Education & Global Health Systems



Ren Wenas, B.Soc.Sc (Psych), PGDip (ECE)
Melbourne, Australia
Early Childhood Education



Angelito P. Bautista Jr.
Quezon City University (QCU), Philippines
Sustainable Economic Models

INTRODUCTION

The 1st International Conference on Sustainable Health, Education and Economic Synergy

Book of Abstracts

Politeknik Al Islam Bandung (PAIB) · September 26, 2026

In the aftermath of a global pandemic that exposed the fragility of health systems, the acceleration of digital disruption, and mounting pressure on education and economic institutions to adapt swiftly, the imperative for cross-sectoral collaboration has never been more pronounced. Societies today are confronted with challenges that no single discipline can resolve in isolation: health systems must become more resilient and equitable, educational institutions must reinvent pedagogy for a digitally mediated world, and economies must find inclusive and sustainable pathways to growth. It is within this complex and interconnected landscape that the tripartite synergy of Health, Education, and Economy (HEES) emerges not merely as an academic construct but as a practical necessity for building resilient, adaptive, and sustainable societies capable of withstanding future shocks.

It is against this backdrop that The 1st International Conference on Sustainable Health, Education and Economic Synergy (IC-HEES 2026) was convened on 26 September 2026, organized by Politeknik Al Islam Bandung (PAIB) in partnership with a distinguished consortium of national and international institutions, including the University of Kitakyushu, Japan; the University of Pittsburgh, United States; Mahidol University, Thailand; Quezon City University, Philippines; Politeknik Pajajaran ICB; Universitas Bakti Kencana; Universitas Pendidikan Indonesia; Universitas Paramadina; and among others. IC-HEES 2026 was conceived as a scholarly meeting ground where academics, practitioners, researchers, and policymakers could converge to exchange knowledge and forge collaborative solutions. Its central mission is to bridge the gap between theoretical inquiry and practical implementation, translating rigorous research into policies and interventions that resonate at both global and local levels, and that advance the Sustainable Development Goals, most notably SDG 3 (Good Health and Well-Being), SDG 4 (Quality Education), and SDG 8 (Decent Work and Economic Growth).

The intellectual richness of this conference was anchored by the contributions of distinguished keynote and invited speakers whose perspectives spanned continents and disciplines. Prof. Yayoi Kodama of The University of Kitakyushu, Japan, illuminated the trajectory of vocational education transformation, while Asst. Prof. Andi Saptono, Ph.D., of the University of Pittsburgh, United States, addressed the frontier of digital health innovation and health informatics. Asst. Prof. Napapong Pongnapang, Ph.D., of Mahidol University, Thailand, offered insight into radiography education and global health systems, and Angelito P. Bautista Jr. of Quezon City University, Philippines, examined sustainable economic models for inclusive growth. Complementing these perspectives, Ren Wenas, B.Soc.Sc (Psych), PGDip (ECE), from Melbourne, Australia, brought a vital focus on early childhood education. Together, these multidisciplinary voices wove a coherent narrative that enriched the conference discourse, demonstrating how vocational transformation, digital health, radiographic excellence, sustainable economics, and early childhood development are inseparable threads in the same fabric of sustainable development.

The abstracts compiled within this Book of Abstracts reflect a broad and vibrant spectrum of scholarly inquiry, organized around three principal pillars. The Health Track presents research on the optimization of diagnostic technologies, the enhancement of radiological and radiographic practice, the advancement of speech therapy, hospital management, radiation safety, and multidisciplinary approaches to public health service delivery. The Education Track encompasses studies on higher education governance, digital leadership, academic supervision, vocational pedagogy, inclusive education, and the emerging application of artificial intelligence in educational evaluation. The Economy Track features investigations into urban economic resilience, inclusive cultural entrepreneurship for persons with disabilities, the mobilization of social capital, and the preservation of local wisdom as a foundation for sustainable economic empowerment. Taken together, these tracks form a rich and interconnected knowledge landscape that mirrors the conference's foundational commitment to cross-sectoral synergy.

The ideas assembled in this Book of Abstracts are intended to serve as more than a record of scholarly achievement; they are conceived as a catalyst for collaborative action. It is the aspiration of the organizing committee that the research presented herein will spark new research networks, inspire cross-institutional partnerships, and inform evidence-based policy formulation across the health, education, and economic sectors. By fostering dialogue among researchers from diverse geographic and disciplinary backgrounds, IC-HEES 2026 aims to lay a durable foundation for continued cooperation, ensuring that the momentum generated during this inaugural conference translates into sustained, tangible impact for communities in Indonesia and beyond.

The successful realization of IC-HEES 2026 and this accompanying Book of Abstracts would not have been possible without the dedication and generosity of many individuals and institutions. The organizing committee extends its deepest gratitude to the steering committee, the organizing committee, co-hosting institutions, peer reviewers, keynote and invited speakers, and, most importantly, the researchers and authors whose work forms the intellectual core of this volume. Their collective commitment to scholarly excellence and cross-sectoral collaboration embodies the very spirit that IC-HEES 2026 seeks to cultivate. It is with great pride and anticipation that we invite readers to explore the pages that follow, and we extend a warm invitation to continue innovating, collaborating, and contributing toward a healthier, more educated, and more economically resilient and sustainable future.

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Track/Topic Area: Health

The Effect of Developer Temperature on Radiographic Film Density in the Radiology Laboratory of Politeknik Al Islam Bandung

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Track/Topic Area: Health

Abstract

Conventional radiographic examinations still require film processing using chemical solutions, one of which is developer. Developer temperature is an important factor that affects the density of radiographic films because temperature changes can influence the development process and consequently the resulting image quality. Inappropriate developer temperature may produce radiographs that are excessively light or dark, potentially reducing image quality and affecting diagnostic interpretation. This study aimed to determine the effect of developer temperature on the density of radiographic films in the Radiology Laboratory of Politeknik Al Islam Bandung. The study employed a quantitative experimental method by applying five developer temperature variations, namely 14°C, 17°C, 20°C, 23°C, and 26°C, while maintaining the same exposure factors. Radiographic film density was measured using a densitometer, and the obtained data were analyzed descriptively and statistically to determine the effect of developer temperature on radiographic density. The results showed that increasing developer temperature affected radiographic density. Lower developer temperatures produced lower density values, whereas higher temperatures resulted in darker radiographic images. The optimal developer temperature was obtained at 20°C and 23°C, which produced radiographic density within the desired range. The study concludes that developer temperature affects radiographic film density; therefore, proper temperature control is essential to maintain radiographic image quality and support quality control in the radiology laboratory.

Keywords— *conventional radiography; developer temperature; film processing; radiographic density*

Compassion Toward Others Among Nurses in Indonesia: A Multidimensional Descriptive Study

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Track/Topic Area: Health

Abstract

Compassion is a fundamental component of nursing care that involves recognizing and responding to the suffering of others. Although compassion-related constructs have increasingly been examined in healthcare, evidence describing compassion toward others as a multidimensional construct among practicing nurses in Indonesia remains limited. This study aimed to describe compassion toward others and its multidimensional profile among nurses in Indonesia. A quantitative descriptive design was employed involving 105 nurses working across healthcare settings. Data were collected in December 2020 using the 20-item Sussex-Oxford Compassion for Others Scale (SOCS-O) and analyzed using descriptive statistics. Of the participants, 57 (54%) were categorized as having high compassion and 48 (46%) as having moderate compassion, with none categorized as low. Across the five dimensions, understanding the universality of suffering showed the highest mean score (M = 15.65), followed by emotional resonance (M = 15.53), acting to alleviate suffering (M = 15.43), tolerating uncomfortable feelings (M = 14.42), and recognizing suffering (M = 13.21). These findings demonstrate that overall compassion classification may obscure variation across its constituent dimensions. The comparatively lower relative score for recognizing suffering identifies a component warranting further investigation in nursing populations and supports the value of multidimensional assessment of compassion toward others.

Keywords— *compassion toward others; compassionate care; nurses; nursing; SOCS-O*

Self-Assessment of the Collimation of a Mobile Radiographic X-Ray Unit at the Radiology Department of Dustira Hospital, Level II 03.03.01, Cimahi

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Track/Topic Area: Health

Abstract

This study was motivated by the intensive use of a mobile X-ray radiography unit in the Radiology Department of Dustira Hospital TK.II 03.05.01 Cimahi due to the damage of one stationary X-ray unit. High utilization of the mobile X-ray unit may affect the collimation system's performance and the quality of radiographic examinations. This study aimed to determine the conformity of the collimation system of the mobile X-ray radiography unit. A descriptive quantitative method with an observational approach was used. The study was conducted through direct testing of three collimation parameters, consisting of collimator illumination, conformity between the collimation field and the X-ray beam field, and X-ray beam perpendicularity. Data were collected using a lux meter, collimator test tool, beam alignment test tool, radiographic detector, measuring tape, and observation sheet. The data were processed through recording, tabulation, and calculation, and were analyzed descriptively by comparing the measurement results with the applicable tolerance limits. The results showed that collimator illumination was 123 lux and met the minimum requirement of 100 lux. The X-ray beam perpendicularity was 1.5° and met the tolerance limit of 3°. However, the conformity test between the collimation field and the X-ray beam field showed an X-axis deviation of 2.6% SID and a Y-axis deviation of 3% SID, resulting in a total deviation of 5.6% SID, which exceeded the tolerance limit. Therefore, the mobile X-ray radiography unit is not optimally reliable and requires collimator realignment, calibration, and periodic quality control to maintain radiation safety and radiographic image quality.

Keywords— *collimation; mobile X-ray radiography; quality control; radiation safety; radiographic image quality*

Kamishibai Storytelling as a Health Promotion Tool for Improving Hygiene Behaviors in Early Childhood

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Track/Topic Area: Health

Abstract

Establishing healthy behaviors during early childhood is essential for long-term health and well-being. However, conventional health education approaches may not adequately sustain young children's attention and engagement. This study introduces Kamishibai, a traditional Japanese visual storytelling method, as an innovative health-promotion medium for fostering Clean and Healthy Living Behaviors (PHBS) among children aged 5–6 years. Health messages were delivered through illustrated story cards and narratives designed to provide an engaging learning experience appropriate to young children's developmental characteristics. A quasi-experimental pretest–posttest design was employed involving 53 parents of kindergarten B students, who served as observers of their children's health behaviors. Data were analyzed descriptively based on the percentage change in behavioral scores before and after the intervention. Improvements were observed in several PHBS indicators, including independently selecting clean clothes (15%), proper handwashing with running water and soap (10%), requesting a complete breakfast (6%), handwashing before meals, after toileting, and after playing (3%), and brushing teeth twice daily (2%). These findings suggest that Kamishibai is a promising and adaptable visual storytelling approach for promoting healthy behavior formation in early childhood.

Keywords: *clean and healthy living behaviors; early childhood; health promotion; kamishibai; visual storytelling*

Optimization of Pelvic MRI Examination in Cervical Cancer Cases

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Track/Topic Area: Health

Abstract

Cervical cancer remains a major health problem in women and requires accurate imaging for diagnosis and staging. Magnetic Resonance Imaging (MRI) is the preferred modality for evaluating cervical cancer due to its excellent soft tissue contrast and ability to assess tumor extent, stromal invasion, parametrial involvement, and spread to adjacent pelvic organs. However, MRI of the pelvis still faces several challenges, including bowel peristaltic artifacts, patient motion, and limited visualization of anatomical boundaries. This study used a literature review approach to evaluate the role of ultrasound gel, anti-peristaltic agents, and additional MRI sequences, particularly short-axis (SAX) and long-axis (LAX), in optimizing pelvic MRI examinations for cervical cancer. Relevant articles were searched through scientific databases and then analyzed to identify their impact on image quality and lesion visualization. The review showed that intravaginal and intrarectal ultrasound gel improved anatomical delineation and lesion conspicuity by providing better distension and contrast of the vaginal and rectal lumen. Anti-peristaltic agents such as butylscopolamine and glucagon were effective in reducing bowel motion artifacts, thereby enhancing image clarity. In addition, SAX and LAX sequences provided more detailed visualization of pelvic anatomy and lesion extent, while T1 SPIR sequences were useful for identifying hemorrhagic lesions and evaluating contrast enhancement. These combined approaches contributed to improved image quality and better diagnostic confidence in cervical cancer assessment. The use of ultrasound gel, anti-peristaltic agents, and optimized MRI sequences such as SAX, LAX, and T1 SPIR can improve the quality of pelvic MRI in cervical cancer cases. These strategies enhance anatomical visualization and lesion detection, although issues related to patient comfort and resource availability should still be considered in clinical implementation.

Keywords *Cervical cancer; Pelvic MRI; Image optimization*

Design and Construction of a Portable Handrail Aid to Improve the Stability of Elderly Patients During Radiological Genu Examination

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Track/Topic Area: Health

Abstract

Weight-bearing knee radiography in elderly patients with knee osteoarthritis (OA) is often challenging due to stability and balance issues while standing, which can increase the risk of falls and affect the accuracy of radiographic positioning. This study aimed to design and determine the benefits of using a portable handrail aid during knee radiography in elderly patients. The study employed a Research & Development (R&D) methodology with a qualitative descriptive approach and was conducted at the Radiology Department of Universitas Padjadjaran Hospital in Jatinangor. The study participants consisted of 10 elderly patients, 5 radiographers, and 1 radiologist. Data collection was conducted through observation, a Likert-scale questionnaire, and interviews with the radiologist regarding stability, safety, comfort, and the quality of radiographic images during the use of the assistive device. The results showed that the assistive device was able to improve patient stability during the examination, as evidenced by all patients being able to maintain a standing position well. Patients also reported feeling safer and more comfortable during the examination. Radiographers assessed the device as easy to use, helpful for the positioning process, and not disruptive to the examination workflow. Interview results with the radiologist indicated that the use of the device produced good-quality radiographic images, allowed for more anatomically correct positioning, and did not interfere with radiographic interpretation. It can be concluded that the portable handrail assistive device is beneficial in improving the stability, safety, and comfort of elderly patients during weight-bearing knee radiography examinations.

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Keywords— *genu radiography; handrail; knee osteoarthritis; patient stability; weight-bearing*

Analysis of Image Quality in Ankle MRI Examinations Using Head Coils and Flex Coils for T1-Weighted and T2-Weighted Sagittal Sequences at the Radiology Department of Hermina Arcamanik Hospital

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Track/Topic Area: Health

Abstract

This study aimed to analyze image quality in ankle MRI examinations using a head coil and flex coil on sagittal T1-weighted and T2-weighted sequences at Hermina Arcamanik Hospital. MRI image quality is highly influenced by the type of coil used because it is related to signal reception capability, radiofrequency field homogeneity, as well as Signal-to-Noise Ratio (SNR) and Contrast-to-Noise Ratio (CNR) values. This study used a quantitative method with an experimental approach involving 5 volunteers who underwent ankle MRI examinations using two different coils with identical examination parameters. Data were obtained through measurements of SNR and CNR values using Regions of Interest (ROI) on the calcaneus, distal tibia, Achilles tendon, and abductor digiti minimi anatomy. The results showed that the use of a flex coil produced higher SNR and CNR values compared to a head coil, resulting in more optimal image quality, especially for evaluating soft tissue and anatomical details of the ankle. The T1-weighted sequence provided good anatomical visualization, while the T2-weighted sequence was more sensitive in demonstrating soft tissue abnormalities and edema. Based on these findings, the flex coil was considered more effective for sagittal ankle MRI examinations.

Keywords— *ankle Joint MRI; flex coil; head coil; signal-to-noise ratio; contrast to noise ratio*

Evaluation of Critical Turnaround Time for Non-Contrast Head CT Scan Examination in Patients with Suspected Hemorrhagic Stroke at RSUD Sayang Cianjur

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Track/Topic Area: Health

Abstract

This study aims to evaluate the critical time of non-contrast head CT scan results with clinical hemorrhagic stroke in the Radiology Department of Sayang Regional Hospital, Cianjur Regency. Hemorrhagic stroke is a neurological emergency that requires rapid and appropriate treatment because delayed diagnosis can increase the risk of disability and death. Non-contrast head CT scan examination is the main initial examination in establishing the diagnosis of Hemorrhagic stroke. This study used a descriptive quantitative method with an observational descriptive evaluative design. Data collection was carried out through observation, medical record documentation, and distribution of Guttman scale questionnaires to respondents involved in emergency CT scan services. Data were analyzed using descriptive statistics with the help of IBM SPSS Statistics version 31 to obtain the average, minimum, and maximum values of the critical time of the examination. The results showed an average critical time of the CT scan results of 108.71 minutes with a minimum value of 42 minutes and a maximum of 338 minutes. These results indicate that the average service time still exceeds the AHA/ASA standard of ≤45 minutes and the hospital standard of ≤60 minutes. The most critical factor influencing service time is patient condition, while limited radiology equipment and human resources are not the main obstacles. This study is expected to provide evaluation material for improving the quality of radiology services in Hemorrhagic stroke cases.

Keywords— *critical time; hemorrhagic stroke; non-contrast head CT-scan; radiology services; service evaluation*

Beyond Patient Autonomy: Family-Centered Communication and the Construction of Surgical Decisions

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Track/Topic Area: Health

Abstract

Informed consent is commonly viewed as a process through which physicians provide information and patients exercise their autonomy in making treatment decisions. Such a perspective emphasizes individual understanding and often overlooks the social and communicative processes through which medical decisions are constructed. This study examines how informed consent communication contributes to the development of collective understanding among physicians, patients, and family members in surgical decision-making. Using a qualitative approach informed by the Coordinated Management of Meaning (CMM) perspective, data were collected through in-depth interviews with hospital managers, specialist physicians, and surgical patients across five Type-C hospitals in West Java, Indonesia. The findings indicate that informed consent extends beyond information disclosure. Family members function as co-interpreters of medical information, co-decision makers, and continuity keepers who support shared comprehension throughout the treatment process. The study also found differences in meaning construction between urban and regency-based patients. Urban patients tended to engage in critical questioning and active negotiation of meaning, whereas regency-based patients relied more on trust in medical authority and family involvement when interpreting medical information and making treatment decisions. These findings suggest that the outcome of informed consent communication is not merely individual patient understanding but the construction of collective understanding—a shared interpretation of treatment options, risks, benefits, and implications among physicians, patients, and families. The study contributes to health communication scholarship by positioning communication as a process of meaning construction that underpins healthcare decision-making and highlights the importance of family-centered communication in Indonesian healthcare settings.

Keywords: *collective understanding; family-centered communication; health communication; informed consent; surgical decision-making*

Evaluation of Dental Examination Using Same Lingual Opposite Buccal (SLOB) Technique During Root Canal Treatment of Mandibular Second Molars

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Track/Topic Area: Health

Abstract

Dental radiographic examination is a crucial diagnostic aid for establishing diagnoses and evaluating the success of root canal treatments. One technique employed to address the overlap of anatomical structures is the Same Lingual Opposite Buccal (SLOB) method; this radiographic technique involves altering the horizontal angulation of the X-ray tube to more clearly distinguish the positions of objects located on the lingual and buccal sides. This study aimed to describe the SLOB radiographic examination procedure and evaluate the resulting radiographs during root canal treatment of mandibular second molars at the Radiology Unit of Al Islam Hospital, Bandung. A qualitative method with a descriptive approach was utilized. The study participants included one dentist, two radiologists, three radiographers, and eight patients undergoing dental examinations. Data were collected through observation, in-depth interviews, and documentation, and subsequently analyzed using qualitative descriptive analysis techniques. The results indicate that the SLOB examination procedure encompasses patient preparation, the preparation of equipment and materials, and the execution of the examination by shifting the X-ray tube's horizontal angulation distally by 15° and 20° from the standard position. These angulation adjustments yield clearer radiographic images regarding root canal positioning, reduce the superimposition of anatomical structures, and assist healthcare professionals in more optimally evaluating the success of root canal treatments for mandibular second molars.

Keywords— *dental radiography, lower second molar, root canal treatment, Same Lingual Opposite Buccal (SLOB) Technique*

Analysis of Field Width Measurements for Collimation in Diagnostic X-ray Machines Using a Collimator Test Tool and the Metal Coin Method at the Al Islam Polytechnic Laboratory, Bandung

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Track/Topic Area: Health

Abstract

The collimator functions to restrict the X-ray beam emitted from the tube so that it conforms to the predetermined irradiation field during examination. The accuracy of collimation is crucial to minimize unnecessary radiation exposure. Therefore, collimation conformity testing is required as part of a quality assurance program in the field of Radiology. One alternative method for testing is the use of metal coins as a simple tool. This study aims to compare the procedures and analyze the measurement results of X-ray irradiation field size using the Collimator Test Tool and the metal coin method. The research employed a quantitative experimental approach through observation and direct testing conducted at the Laboratory of Radiology, Politeknik Al Islam Bandung, from March to April 2026. The results indicate that the metal coin method can be used as an alternative for collimator conformity testing, as the average deviation values remain within tolerance limits according to BAPETEN Regulation No. 2 of 2022. Using the Collimator Test Tool, the values obtained were $|\Delta X|$ = 0,9% SID and $|\Delta Y|$ = 0.7% SID, while the metal coin method yielded $|\Delta X|$ = 0.6% SID and $|\Delta Y|$ = 0.7% SID. Thus, metal coins are suitable for simple testing under budget limitations, whereas the Collimator Test Tool is more appropriate for testing that requires higher accuracy and clearer interpretation.

Keywords— *collimators, coin metal, fit tests*

Leak Testing of Lead Aprons Using a Survey Meter at Al Islam Hospital Bandung

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Track/Topic Area: Health

Abstract

A lead apron is one of the pieces of personal protective equipment used to reduce exposure to X-ray radiation. Continuous use of lead aprons can cause a decrease in the quality of the protective material, potentially resulting in radiation leakage. This study aimed to determine the process and results of lead apron leakage testing using a survey meter at Al Islam Hospital Bandung. This study used a quantitative research method with an experimental measurement approach. The samples consisted of 9 lead aprons with a thickness of 0.5 mm Pb. Testing was performed using a C-Arm machine with exposure factors of 65 kV, 10 mAs, 200 mA, and 2 seconds fluorotime, as well as a 10 cm slab phantom as a radiation scatter medium. Measurements were carried out without a lead apron and after radiation passed through the lead apron. The measurement data were analyzed to determine the radiation absorption value and attenuation coefficient. The results showed that all tested lead aprons still had good radiation protection capability, with radiation absorption values ranging from 94.57% to 98.73%. The highest absorption value was obtained from the Rayshield lead apron at 98.73%, while the lowest absorption value was obtained from the Xenolite lead apron at 94.57%. The results indicate that all lead aprons were still effective and suitable for use as radiation protective equipment in the Cathlab room.

Keywords— *cathlab, lead apron, radiation protection, survey meter*

The Effect of Variations in Source-Image Distance on the Cardio-Thoracic Ratio Using a Thoracic Phantom

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Track/Topic Area: Health

Abstract

Chest radiography is an essential diagnostic imaging examination for evaluating thoracic structures, particularly the heart and lungs. The accuracy of radiographic interpretation is influenced by several technical factors, including the Source Image Distance (SID), which directly affects the degree of image magnification. A shorter SID results in greater magnification, whereas an increased SID reduces magnification and provides a more accurate representation of anatomical structures. This consideration is particularly important in Posteroanterior (PA) chest radiography, in which cardiac size is commonly assessed using the Cardio Thoracic Ratio (CTR). Excessive magnification of the cardiac silhouette may result in an overestimation of cardiac size, potentially leading to inaccurate assessment of cardiomegaly and subsequent diagnostic errors. This study aimed to determine the effect of SID variation on CTR measurements in PA chest radiography using a thorax phantom at the Radiology Laboratory of Politeknik Al Islam Bandung. A quantitative laboratory experimental design was employed using SID variations of 100, 150, and 180 cm, while exposure factors were maintained at 70 kV, 200 mA, and 8 mAs. Radiographic images were acquired using a Computed Radiography system and analyzed using RadiAnt DICOM Viewer. The CTR values obtained were 39.43%, 38.25%, and 37.89% at SID values of 100, 150, and 180 cm, respectively. The findings demonstrated a progressive decrease in CTR with increasing SID, indicating reduced image magnification. Therefore, an SID of 180 cm was considered the most optimal among the evaluated distances for minimizing magnification and improving the accuracy of cardiac size assessment.

Keywords— *cardio thoracic ratio; source image distance; thorax phantom; thorax radiography*

Application of the Modelling Method to Improve Sentence-Level Expressive Language Skills in a 6-Year-Old Child with Autism Spectrum Disorder: A Case Study

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Track/Topic Area: Health

Abstract

Children with Autism Spectrum Disorder (ASD) may experience difficulties in expressive and receptive language. Because visual support can facilitate learning in children with ASD, the modelling method may be a useful therapeutic approach. This study aimed to examine the application and effectiveness of the modelling method in improving sentence-level expressive language skills in a 6-year-old child with ASD at the Cahaya Tunas Cemerlang (CTC) Clinic in Cimahi. This study employed a case study design. Data collection was conducted through interviews, observations, tests, and document reviews. The intervention was conducted in 10 sessions over one month, three sessions per week, with each session lasting 55 minutes. The therapy focused on training the child to construct five sentences describing daily activities, including eating, washing hands, brushing teeth, taking out the trash, and drinking. During the sessions, the therapist modeled sentence construction using visual aids, such as flashcards, and the child was then asked to imitate and independently construct the sentences. Data analysis was conducted by comparing the results of the pre-test and post-test. The results showed an improvement in the child's sentence-level expressive language skills, with scores increasing 5 to 13 points. Based on the predetermined success criteria, the intervention achieved a 53,33% success rate, categorized as moderately successful. This study concluded that the modelling method was effective in improving sentence-level expressive language skills in a child with ASD.

Keywords— *autism spectrum disorder (ASD); language disorder; modelling; speech therapy*

Comparison of Hemorrhagic Stroke Volume Measurements on CT Scans Using the Manual Method and Simpson's Rule

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Track/Topic Area: Health

Abstract

Hemorrhagic stroke is a life-threatening condition caused by bleeding within the brain tissue, and accurate assessment of hemorrhage volume is essential for determining appropriate patient management, including the decision between surgical and conservative treatment. This study aimed to determine the difference in hemorrhage volume measurement results on non-contrast head CT scans in patients with clinical hemorrhagic stroke using the manual method and the Simpson's Rule method. This study used a quantitative research design with a comparative approach. The sample consisted of nine patients with clinical hemorrhagic stroke who met the research criteria, selected using a total sampling technique. The manual method was performed by measuring the length, width, and thickness of the hemorrhage on axial images and multiplying the result by a constant of 0.52, while the Simpson's Rule method was performed by determining the hemorrhage area on each slice using a region of interest based on a Hounsfield Unit range of 45 to 75. Data were analyzed using the Shapiro-Wilk normality test followed by the Paired Sample T-Test. The results showed that the average hemorrhage volume using the manual method was 22.36 cm3, while the Simpson's Rule method produced an average of 15.99 cm3, with a statistically significant difference ($p < 0.05$). The Simpson's Rule method provides a more objective and detailed measurement because it accounts for the actual hemorrhage area on every slice. These findings suggest that the Simpson's Rule method is more suitable for clinical use in determining hemorrhage volume in hemorrhagic stroke patients.

Keywords— *head CT scan; hemorrhage volume; hemorrhagic stroke; manual method; simpson's rule method*

Evaluation of CT Number Consistency in CT Scans Using the Water Phantom Rule

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Track/Topic Area: Health

Abstract

Computed tomography (CT) produces cross-sectional images containing quantitative information expressed as Hounsfield Units (HU). Evaluation of CT Number and image uniformity is important for monitoring image quality and ensuring consistent CT scanner performance. This study aimed to evaluate the consistency of CT Number and Uniformity using a water phantom at the Radiology Installation of a regional general hospital in West Java. A descriptive quantitative study with retrospective and observational approaches was conducted using data from water phantom testing performed from January to April 2026. Measurements were obtained using one central region of interest (ROI) and four peripheral ROIs. CT Number values were compared with the water reference value of 0 HU, while Uniformity was evaluated based on the difference between the central and peripheral CT Number values. The results showed that the CT Number values remained within the tolerance range of −4 HU to +4 HU throughout the observation period. Most Uniformity results were within the specified tolerance limit, although several measurements exceeded 2 HU. These findings indicate that the CT Number remained relatively consistent during the evaluation period, whereas Uniformity did not consistently meet the tolerance criteria. Therefore, continued monitoring and periodic evaluation of CT Number and Uniformity are recommended to maintain image quality and support optimal CT scanner performance.

Keywords— *CT number; CT scan; quality control; uniformity; water phantom*

The Application of Integral Stimulation to Improve Articulation Skills in a Child with Severe Hearing Loss

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Track/Topic Area: Health

Abstract

Hearing loss can hinder language development and communication skills, particularly in children. Limited auditory feedback in children with severe hearing loss may contribute to speech sound production errors, including articulation difficulties. This study aimed to determine the effectiveness of the Integral Stimulation method in improving articulation skills in a child with severe hearing loss. A descriptive case study was conducted involving a 7-year-8-month-old boy diagnosed with bilateral profound sensorineural hearing loss accompanied by auditory neuropathy, with a hearing threshold of 105 dB in both ears. Data were collected through interviews, observations, assessments, and document review and were analyzed descriptively by comparing articulation performance before and after intervention. The Integral Stimulation intervention was implemented over 10 therapy sessions, with each session lasting 50 minutes, and targeted production of the /c-/ phoneme at the phrase level. The results showed an improvement in articulation ability, demonstrated by an increase of 14 points between the initial and final assessments and a therapy success rate of 93%. The findings indicate that Integral Stimulation facilitates the development of more accurate articulation patterns through gradual and repetitive auditory, visual, and kinesthetic stimulation. Therefore, Integral Stimulation is a promising therapeutic approach for improving phrase-level articulation in children with severe hearing loss.

Keywords— *articulation; hearing loss; integral stimulation; speech therapy*

Evaluation of the Deviation Index (DI) in Digital Radiography (DR) Systems for Radiation Dose Optimization in Thorax Patients

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Track/Topic Area: Health

Abstract

The development of Digital Radiography (DR) systems enhances examination efficiency and produces high-quality radiographic images, but their wide dynamic range can obscure overexposure, thereby increasing the risk of dose creep. The Deviation Index (DI) is a quantitative indicator used to assess the appropriateness of radiation exposure received by the detector against the target exposure value. This study aims to determine the DI values in chest radiographic examinations, evaluate their compliance with the optimal range, and assess their role in optimizing patient radiation dose in the Radiology Department of a hospital in West Java. This study utilized a descriptive quantitative design with a sample of 100 chest radiography examination datasets collected in April 2026. The Exposure Index (EI) values generated by the DR system were processed to obtain the DI values, which were then categorized into optimal exposure, underexposure, and overexposure. Data were analyzed descriptively using calculations of frequency, mean, and percentage for each category. The results showed that 44% of the examinations fell into the optimal exposure category, 40% were underexposed, and 16% were overexposed, with the lowest DI value recorded at -12.06 and the highest at +4.01. These findings indicate that radiation exposure factors are not yet fully consistent. Routine monitoring of DI is an essential part of quality control as it assists radiographers in optimizing exposure factors, maintaining diagnostic image quality, and minimizing patient radiation doses in accordance with the ALARA principle.

Keywords— *ALARA; chest radiography; deviation index; digital radiography; dose creep; exposure index*

Application of the Integral Stimulation Method to Improve Articulation Skills in a Patient with Hearing Loss

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Track/Topic Area: Health

Abstract

The Integral Stimulation Method is an articulation therapy approach that utilizes visual, auditory, and kinesthetic stimuli to facilitate speech sound production. This study aimed to describe the implementation of the Integral Stimulation Method and determine its success in improving the articulation of the bilabial consonant /m-/ at the phrase level in a patient with hearing loss. This study was conducted at SLBN Cicendo Bandung from February to May 2026 using a case study method. Data were collected through interviews with the patient's parent, direct observation, communication and speech assessments, including the Early Detection of Communication Disorders Test, articulation assessment, Auditory Language Comprehension Test, Speech Mechanism Examination, fluency assessment, voice assessment, eating and swallowing history, and document review. The therapy was implemented in 10 sessions, with each session lasting 50 minutes, using the stages of modelling, imitation, simultaneous production, delayed imitation, reduction of cues, and independent production. The results showed an improvement of 14 points in the patient's articulation ability at the phrase level, from an initial score of 3 to a final score of 17, with an overall success rate of 70%. Based on these results, the Integral Stimulation Method was moderately successful in improving the articulation of the bilabial consonant /m-/ at the phrase level in the patient with hearing loss.

Keywords— *articulation; bilabial consonant /m-/; hearing loss; integral stimulation method; phrase level*

Application of the Cul-de-Sac Method to Improve Articulation in Differential Diagnosis Cases (Cleft Lip and Palate and Severe Bilateral Hearing Loss)

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Track/Topic Area: Health

Abstract

Dysglossia is a speech-language disorder caused by structural abnormalities of the articulatory organs following cleft lip and palate surgery. One method for treating speech disorders in cases of dysglossia is the cul-de-sac method. This study aims to determine the application and success rate of the cul-de-sac method in improving the phrase-level articulation of the bilabial consonant /p/ in a client with dysglossia due to bilateral severe hearing loss. This study was conducted on a 5-year-and-1-month-old female client with a history of cleft lip and palate surgery, grade 3 microtia, and low vision. The research method used was a case study. Data were collected through interviews, observations, tests, and documentation review. After the data were collected, an analysis was performed to determine the diagnosis, prognosis, and therapeutic treatment benchmarks. The cul-de-sac method was applied over 10 sessions using the nose-pinching technique combined with two-word phrases beginning with the phoneme /p/. The study results showed that after therapy, the client's ability to articulate the bilabial consonant /p/ at the phrase level improved. The initial test score was 1 point, and the final test score was 11 points, with a success rate of 83.33%. Based on the results of this comparison, it can be concluded that the cul-de-sac method can improve the ability to articulate the bilabial consonant /p/ at the phrase level in clients with dysglossia and severe bilateral hearing loss.

Keywords— *articulation, cul-de-sac, dysglossia, hearing loss, phrase.*

Building Culturally Responsive Pragmatic Assessment: Conceptual Foundations for a Screening Instrument for Neurodivergent Adolescents in Indonesia

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Track/Topic Area: Health

Abstract

Pragmatic assessment tools for neurodivergent individuals have largely been developed within Western frameworks that prioritize explicit and direct verbal communication. When applied in high-context cultures such as Indonesia, where meaning may also be conveyed through indirect expressions, nonverbal cues, and social relationships, these tools may risk interpreting culturally appropriate communication as pragmatic difficulty. This study develops a conceptual foundation for a culturally responsive pragmatic screening instrument for Indonesian neurodivergent adolescents. A conceptual, theory-synthesis approach was used to integrate perspectives from clinical pragmatics, cross-cultural communication, and research on autistic information processing, grounded by illustrative examples drawn from a widely used, Western-normed pragmatic assessment. The synthesis points to two related challenges. First, high-context communication often requires individuals to interpret information from multiple and sometimes indirect sources. Second, combining and interpreting such information may create additional processing demands for autistic individuals, particularly when understanding nonliteral or inferential meaning. These challenges suggest that cultural appropriateness and cognitive accessibility should be considered together when designing pragmatic assessment tools, rather than as separate concerns. Based on these insights, four interacting design parameters are proposed: information availability, information source, integration demand, and inferential demand. This framework positions cultural appropriateness as a core element of instrument design from the outset, rather than as an adaptation added later, and is intended to inform the development of a pragmatic screening instrument for Indonesian autistic adolescents currently underway, with potential relevance to other high-context cultural settings.

Keywords— *clinical pragmatics; cultural appropriateness; autism spectrum disorder; high-context communication; instrument development; neurodiversity.*

The Implementation of Response Elaboration Training to Improve Verbal Response Elaboration in Patients with Anomic Aphasia

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Track/Topic Area: Health

Abstract

Anomic aphasia is a language disorder characterized by difficulty retrieving words, which can affect the ability to develop verbal responses during communication. Therefore, an intervention that can help patients gradually develop verbal responses is needed. This study aimed to determine the implementation and effectiveness of Response Elaboration Training (RET) in improving the ability to develop verbal responses in a patient with anomic aphasia. This study used a case study method involving a patient with anomic aphasia and was conducted in Cirebon on July 7, 2026. Data were collected through interviews, observation, anamnesis, and assessments using TADIR, TEDYVA, a swallowing disorder test, the Token Test, PAW, a speech fluency and rhythm test, and a voice test. The data were analyzed to determine the patient's condition, prognosis, and treatment benchmarks, while the therapy outcomes were analyzed by comparing the patient's ability before and after the intervention. The intervention was conducted over 10 sessions, with each session lasting 35 minutes. The results showed an improvement in the patient's ability to develop verbal responses, with the initial score increasing from 0 to a final score of 5, with a success rate of 83.3%. Based on these results, it can be concluded that the implementation of Response Elaboration Training (RET) was effective in improving the ability to develop verbal responses in a patient with anomic aphasia.

Keywords— *anomic aphasia; expressive language; response elaboration training; verbal responses*

Application of the Respiration Training Method to Improve Respiratory Ability in Patients with Spastic Dysarthria

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Track/Topic Area: Health

Abstract

Stroke is a neurological disorder that can cause various communication impairments, one of which is spastic dysarthria resulting from impaired motor control of the speech system. In this condition, impaired motor control may also affect respiratory function, reducing phonation ability and speech intelligibility. Respiration Training is one method that can be used to improve respiratory ability. This study aimed to determine the effectiveness of the Respiration Training method in improving respiratory ability in a post-stroke patient with spastic dysarthria. This study used a descriptive case study design with pretest and posttest evaluations. The subject was a 54-year-old woman diagnosed with post-stroke spastic dysarthria. The Respiration Training intervention was administered in 10 sessions, twice a week, 30 minutes per session, comprising graded breath-control exercises, controlled exhalation while counting, and sustained vowel /a/ phonation. The results showed an improvement in respiratory ability, indicated by an increase in score from 1 in the pretest to 6 in the posttest (maximum score = 6), with the largest gain occurring in the sustained-phonation item, which improved only after the sixth session. The percentage of improvement reached 83.3%, which was categorized as successful. It is concluded that the Respiration Training method can improve respiratory ability in a post-stroke patient with spastic dysarthria and may support further improvement in phonation and speech intelligibility.

Keywords— *post-stroke; respiration; respiration training; spastic dysarthria; speech therapy.*

Application of Chin Tuck for Swallowing Safety in Post-Stroke Dysphagia via International Dysphagia Diet Standardisation Initiative Diet Modification

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Track/Topic Area: Health

Abstract

Post-stroke dysphagia is a swallowing coordination disorder that can lead to serious complications such as aspiration and malnutrition, making effective compensatory interventions essential in speech therapy practice. This study aimed to determine the effect and success rate of combining the chin tuck postural technique with diet modification based on the International Dysphagia Diet Standardisation Initiative (IDDSI) on swallowing safety in patients with post-stroke pharyngeal-phase dysphagia. A single case study design was applied to an eighty-one-year-old male patient with post-ischemic stroke pharyngeal-phase dysphagia. Data were collected through interviews, observations, clinical tests, and document review. The intervention was carried out over ten sessions, applying the chin tuck technique together with Level 1 liquid diet modification administered in five-, seven-, and ten-millilitre volumes. Evaluation results showed a significant improvement in swallowing ability: at the initial assessment, the patient choked on the first swallow, whereas after the intervention he was able to swallow all liquid volumes safely for three consecutive trials without coughing or choking, achieving a one-hundred-percent success rate. These findings indicate that combining the chin tuck technique with IDDSI diet modification effectively eliminates aspiration risk and improves swallowing safety, and the approach is therefore recommended as a primary compensatory strategy in speech therapy services for post-stroke dysphagia patients.

Keywords— *chin tuck; diet modification; dysphagia; IDDSI; speech therapy*

Evaluation of Solid Medical Waste Management at Al Islam Hospital Bandung in 2026 Based on the Standards of Minister of Health Regulation No. 7/2019

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Track/Topic Area: Health

Abstract

Hospitals generate solid medical waste through various healthcare service activities. This waste requires proper management, as improper handling can pose risks of disease transmission, workplace accidents, and environmental pollution. This study aimed to evaluate the management of solid medical waste at Al Islam Hospital Bandung in accordance with the Minister of Health Regulation Number 7 of 2019. A qualitative method with a descriptive approach was employed. Data were collected through observation, semi-structured interviews, and document review. The management processes evaluated included the segregation, storage, transportation, and disposal of solid medical waste. Analysis involved comparing field findings with the provisions of the aforementioned regulation. The results indicate that, overall, solid medical waste management was carried out in accordance with hospital procedures. The storage, transportation, and disposal stages complied with the regulatory standards. However, instances of mixing medical waste with non-medical waste were still observed during the segregation stage under certain conditions—particularly when service workloads increased—indicating that segregation practices were not yet fully consistent. Consequently, enhanced supervision, awareness-raising, and periodic staff training are required to ensure consistent waste segregation starting at the point of origin.

Keywords— *evaluation; medical waste management; regulation; solid medical waste*

Analysis Of Hospital Occupational Safety and Health Implementation Based on Indonesian MoH Regulation 66/2016 at Al-Islam Hospital Bandung

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Track/Topic Area: Health

Abstract

Occupational Health and Safety in Hospitals is an important component in the implementation of health services aimed at protecting healthcare workers, patients, visitors, and the hospital environment from various potential hazards in the workplace. The implementation of Occupational Health and Safety in hospitals must be carried out systematically and continuously in accordance with the standards established in the Regulation of the Minister of Health of the Republic of Indonesia Number 66 of 2016 concerning Occupational Health and Safety in Hospitals. This study aims to describe the implementation of Occupational Health and Safety in Hospitals at Al-Islam Hospital Bandung. This study used a descriptive method with a qualitative approach. Data collection techniques were carried out through direct observation using a checklist based on Occupational Health and Safety indicators referring to the Regulation of the Minister of Health Number 66 of 2016 and documentation studies of Occupational Health and Safety policies and programs implemented in the hospital. The data obtained were then analyzed descriptively by comparing the conditions found in the field with applicable standards.

Keywords— *hospital occupational health and safety; hospital safety; health workers*

Repeated Exposure, Shifting Choices: How Monthly Food Packages Support Maternal Complementary Feeding Decisions in Peri-Urban Community

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Track/Topic Area: Health

Abstract

In Indonesia, only 48.3% of children aged 6-23 months meet the Minimum Dietary Diversity, and 32.8% achieve the Minimum Acceptable Diet, with limited food access compounding these gaps in peri-urban communities. How repeated exposure to community-based monthly fresh food package initiatives shapes maternal feeding decisions, particularly among resource-constrained households, remains poorly understood. This study examined how monthly fresh food package receipt through the Pangan Sehat Posyandu program in Parung Panjang, Bogor District, supported maternal decision-making in complementary feeding practices. A phenomenological qualitative study was conducted from January to February 2026 with 18 beneficiary mothers as main informants and 26 key informants across household, community, and institutional levels. Data were collected through in-depth interviews, participatory activities, observation, and document review, and were analyzed thematically using NVivo 12 Plus and interpreted through Kolb's Experiential Learning Theory. Findings revealed that repeated package receipt progressively shifted maternal food beliefs and feeding decisions without formal nutrition education. Among mothers with longer program exposure, a discernible shift away from instant food toward fresh ingredients was described as both economically rational and nutritionally motivated, representing an insight that emerged from direct experience rather than instruction. Mothers also demonstrated adaptive food preparation practices and exercised informed feeding decisions shaped by child cues, family dynamics, and program inputs. Persisting limitations in ingredient utilization, particularly for certain animal-source foods, were also identified. These findings suggest that community-based food package programs can build maternal agency in feeding decision-making through regular, tangible contact with fresh food, even without structured educational components.

Keywords— *complementary feeding; community nutrition initiative; experiential learning; maternal decision-making; posyandu*

The Impact of Clinic Accreditation Process on the Work Rhythm of Vocational Pharmacy Personnel at Cahaya Qalbu Main Clinic

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Track/Topic Area: Health

Abstract

Clinic accreditation aims to improve service standards and patient safety through service maturity, procedure standardization, and human resource capacity. However, its implementation affects the rhythm of Pharmacy Vocational Staff (PVS), particularly in terms of increased administrative burden and changes in the allocation of time for clinical services. This study used a qualitative approach with a case study design. Data were collected using concurrent and retrospective methods involving 8 PVS participants. The data collection technique included in-depth interviews. The results showed that all instruments were valid (100%). There was an increase in scores after accreditation in work time allocation (42.3→45.0) and work behavior (31.6→35.2). PVS perceptions of accreditation were classified as high (46.8/50). The t-test showed significant improvements in work time allocation (t=5.21; p=0.001) and work behavior (t=4.87; p=0.002). In clinic accreditation, PVS must understand seven domains: Clinical Governance and Management, Patient-Centered Clinical Services, Quality Improvement and Patient Safety, Infection Prevention and Control, Human Resource Management, Facility and Safety Management, and Information Management and Medical Records. The success of accreditation lies not only in fulfilling documentation requirements but especially in changing the work culture of PVS.

Keywords— *clinic accreditation; documentation and work time; pharmacy vocational staff; service quality; work behavior*

Comparison of Daily PM2.5 Concentrations and Seasonal Patterns in Jakarta and Bangkok: Comparison with WHO Guidelines and National Air Quality Standards

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Track/Topic Area: Health

Abstract

This study compared daily PM2.5 concentrations in Jakarta and Bangkok, examined seasonal patterns, and assessed exceedances of the 2021 WHO guideline and national air quality standards. Secondary data from the World Air Quality Index Project covered Jakarta during 2018–2026 (n = 2,423 days) and Bangkok during 2021–2026 (n = 2,058 days). AQI-based PM2.5 values were converted to estimated mass concentrations (μg/m^3) using the US EPA breakpoint method. Descriptive analyses included annual means, monthly seasonal patterns, and daily exceedance frequencies. Mean concentrations were higher in Jakarta (33.1 μg/m^3) than in Bangkok (24.6 μg/m^3). Approximately 80% of observation days in both cities exceeded the WHO 24-hour guideline, while exceedances of national daily standards were 5.5% in Jakarta and 9.1% in Bangkok. Jakarta peaked from June to October, whereas Bangkok peaked from December to February. These contrasting seasonal patterns are consistent with previously reported differences in regional monsoonal conditions and local-regional emission characteristics.

Keywords— *air quality; air quality standards; Bangkok; Jakarta; PM2.5; seasonal patterns; WHO guidelines*

Public Stigma and Family Stigma Toward People with Mental Illness in The Service Area Community Health Center, Bandung, Indonesia

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Track/Topic Area: Health

Abstract

Stigma toward people with mental illness may occur as public stigma in the community and as family stigma experienced by relatives of people with mental illness. Stigma may restrict social participation, delay help-seeking, reduce access to care, and interfere with recovery. This study aimed to describe public stigma among community members and family stigma among families of people with mental illness in the service area of Community Health Center, Bandung, Indonesia. A descriptive quantitative observational study was conducted among 144 respondents, consisting of 72 community members and 72 family members of people with mental illness. Total sampling was used. Public stigma was measured using the Community Attitudes toward Mental Illness (CAMI) questionnaire, while family stigma was assessed using a family stigma questionnaire. Data were analyzed using univariate frequency and percentage distributions. Among community respondents, 62 of 72 participants (86.1%) had high public stigma and 10 (13.9%) had low public stigma. Among family respondents, 55 of 72 (76.4%) had mild family stigma, 16 (22.2%) had moderate stigma, and 1 (1.4%) had severe stigma. At the item/dimension level, authoritarianism was prominent in public stigma, while experienced stigma and restrictive family practices were important findings in the family group. Public stigma remained high, whereas family stigma was generally categorized as mild. However, aggregate family-stigma scores may conceal specific restrictive practices that require attention. Community mental health nursing programs should combine mental health literacy, structured positive social contact, family psychoeducation, caregiver support, and rights-based approaches.

Keywords— *community mental health nursing; family stigma; mental illness; mental health stigma; public stigma*

Dissolution and Solid-State Characteristics of Clopidogrel-Isonicotinamide Multicomponent Systems Prepared by Solvent Drop Grinding

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Track/Topic Area: Health

Abstract

Clopidogrel is a Biopharmaceutics Classification System class II drug whose low aqueous solubility can limit its dissolution. This study aimed to compare the dissolution profiles of clopidogrel–isonicotinamide multicomponent systems and characterize the solid-state properties of the system with the best dissolution performance. The systems were prepared at clopidogrel-to-isonicotinamide molar ratios of 1:1, 1:2, and 2:1 using solvent drop grinding with methanol for 30 minutes. Dissolution testing was conducted using a paddle apparatus in 1,000 mL of hydrochloric acid–potassium chloride buffer at pH 2.0, maintained at 37 ± 0.5°C and 50 rpm. Samples were collected for up to 30 minutes and analyzed using ultraviolet-visible spectrophotometry. The selected system was further characterized using Fourier transform infrared spectroscopy and powder X-ray diffraction. At 30 minutes, pure clopidogrel showed 50.6% dissolution, whereas the 1:1, 1:2, and 2:1 systems reached 84.4%, 97.7%, and 85.9%, respectively. The dissolution of the 1:2 system was 1.93 times that of pure clopidogrel. Shifts in the N–H and C=O absorption bands suggested changes in the molecular environment, while distinct diffraction reflections and changes in peak intensity indicated crystalline rearrangement. The clopidogrel–isonicotinamide 1:2 system provides the most promising dissolution performance, although additional thermal analysis and physical-mixture comparisons are required to confirm the nature of the resulting solid phase.

Keywords— *clopidogrel; dissolution; isonicotinamide; multicomponent system; solvent drop grinding*

Track/Topic Area: Education

A Systematic Literature Review on the Governance and Support of Higher Education Scholarships: From Financial Aid to Equity, Persistence, and Academic Outcomes

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Track/Topic Area: Education

Abstract

Scholarships are widely used to expand access to higher education, yet evidence on their effectiveness in promoting equity, persistence, and academic success remains fragmented and context-dependent. This systematic literature review synthesizes recent evidence to examine how scholarship systems function beyond financial provision, focusing on the interaction among governance arrangements, program design, complementary supports, and student outcomes. The objective is to develop an integrated and mechanism-based understanding of how scholarships contribute to equitable and sustained student success. Following PRISMA-guided procedures, Scopus was used as the primary database to identify studies published from 2020 onwards. A structured Boolean search yielded 1,661 records, which were screened using predefined inclusion and exclusion criteria. The final sample was analyzed using thematic synthesis across four domains: governance, support mechanisms, equity and inclusion, and academic outcomes. The findings show that scholarships are most effective when embedded within coordinated systems rather than implemented as standalone financial instruments. Governance structures, including targeting rules and accountability mechanisms, shape access and distributional equity. Design features such as need-based targeting, award timing, and administrative simplicity influence uptake and short-term financial relief. Complementary supports, including mentoring, advising, and student assistance services, play a decisive role in converting financial access into sustained engagement and persistence. Outcomes such as retention and academic performance are mediated by psychosocial and institutional mechanisms, including belonging, motivation, and institutional capacity. However, the evidence base remains limited by short-term evaluations, small samples, and inconsistent conceptualization. This review advances a unified and mechanism-oriented framework linking governance, design, support, and outcomes, and argues that scholarships should be understood as system-level interventions. This perspective offers both theoretical refinement and actionable guidance for designing more equitable and effective scholarship systems.

Keywords— *equity in higher education; financial aid design; scholarship governance; student persistence; systematic literature review*

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Strategic Planning to Enhance the Performance of Men's Futsal Clubs Through Competition in West Java

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Track/Topic Area: Education

Abstract

The performance of sport organizations is shaped not only by athletes' physical and technical capabilities but also by the quality of strategic planning, organizational learning, knowledge management, and an organization's capacity to respond to a competitive environment. This study systematically reviewed the literature on the relationships among strategic planning, competition, organizational learning, knowledge management, innovation, competitive advantage, and organizational performance, with particular attention to their relevance for the development of men's futsal clubs. A Systematic Literature Review (SLR) was conducted following the PRISMA 2020 protocol. Articles published between 2019 and 2026 were searched, screened, and assessed against pre-defined inclusion and exclusion criteria, yielding 86 studies that were analyzed using narrative and thematic synthesis to identify major research themes, relationships among concepts, and research gaps. The synthesis indicated that strategic planning directs organizational resources and activities toward performance improvement; organizational learning and knowledge management convert competitive experience into usable organizational knowledge; and competition functions as a source of evaluation, learning, and strategic adaptation. Taken together, the reviewed literature pointed to a conceptual chain linking strategic planning, competition, organizational learning, knowledge management, innovation and adaptation, competitive advantage, and performance. However, this body of literature remains concentrated in business and non-sport organizational settings, leaving the role of competition as a strategic learning mechanism largely untested in sport organizations. This study proposes a conceptual framework that positions competition within the strategic-planning–performance cycle, providing a foundation for developing a competition-based strategic planning model for men's futsal clubs in West Java.

Keywords— *competition; futsal; knowledge management; organizational learning; strategic planning*

Data Integration for Digital University Governance: Overcoming Data Silos and the Implementation–Reality Gap

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Track/Topic Area: Education

Abstract

Digital transformation has expanded the volume and strategic value of institutional data, yet many universities continue to operate through fragmented applications and disconnected reporting processes. This study examines how data silos and the implementation–reality gap constrain the transition from digitalization to data-driven university governance and develops an integrative framework for overcoming these constraints. The study employed an integrative literature review and document-oriented conceptual analysis, synthesizing recent peer-reviewed studies published mainly between 2022 and 2026 together with selected foundational works on digital transformation, data governance, analytics, enterprise architecture, and technology implementation. The analysis showed that data fragmentation is not merely an interoperability problem but results from the interaction of legacy architectures, inconsistent data definitions, weak stewardship, uneven analytical capability, organizational ownership of information, and misalignment between policy expectations and operational realities. The study proposes the Data Integration and Governance Pathway for Universities, which connects strategic alignment, data governance and stewardship, interoperable architecture, data quality and a single source of truth, analytics and decision intelligence, and data-driven leadership. The framework positions data integration as a staged socio-technical transformation that enables universities to convert fragmented digital resources into timely, trustworthy, and actionable institutional intelligence for governance and performance improvement.

Keywords— *data-driven university; data governance; data integration; digital transformation; higher education*

Governance of Lecturer Competency Development Programs for Enhancing Higher Education Performance

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Track/Topic Area: Education

Abstract

Lecturer competency development has become a strategic concern for higher education institutions facing rapid technological change, evolving learning demands, and increasing expectations for organizational performance and accountability. However, competency development initiatives are often implemented as fragmented training activities with limited alignment to institutional priorities, resource allocation, and performance evaluation. This study aimed to develop a governance framework for lecturer competency development programs that supports higher education performance. The study used an integrative literature review design by synthesizing recent studies on academic professional development, competency management, higher education governance, organizational support, and performance management. The reviewed literature was analyzed through thematic coding and conceptual synthesis. The findings identified five interconnected governance functions: strategic alignment, needs and competency-gap diagnosis, portfolio and resource governance, implementation and stakeholder coordination, and performance-based evaluation and feedback. The analysis indicates that effective competency development is not determined solely by the availability of training programs but by the integration of governance mechanisms that connect individual competency needs with institutional strategies, resource decisions, implementation processes, and measurable performance outcomes. The study proposes a Lecturer Competency Development Governance Framework as an integrative mechanism for managing competency development as a strategic organizational investment. This framework contributes to higher education management by providing a systematic basis for designing, governing, and evaluating lecturer competency development programs that are responsive to institutional priorities and capable of supporting sustainable organizational performance.

Keywords— *competency development; governance; higher education performance; lecturer competency; professional development*

Reimagining Academic Supervision: Integrating Humanistic Coaching and EdTech Ecosystems for Primary Teacher Professional Development

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Track/Topic Area: Education

Abstract

Traditional academic supervision in primary education often remains administrative and top-down, hindering continuous teacher professional development. This study examined the implementation and effectiveness of integrating the TIRTA coaching model with the Ruang Guru dan Tenaga Kependidikan (Ruang GTK) platform within the national EdTech ecosystem for public elementary school teachers in Antapani District, Bandung. A qualitative descriptive case study design was employed. Data were gathered through in-depth interviews, classroom observations, and document analysis involving purposively selected public elementary school principals and teachers. Qualitative data were analyzed using thematic analysis comprising data condensation, data display, and conclusion verification. Findings revealed that aligning the TIRTA coaching stages with Ruang GTK digital features—including performance management, competency reflection, and independent training—enhanced reflective dialogues and established personalized, data-driven professional growth. This hybrid integration successfully transformed teachers' perceptions of supervision from a threatening administrative audit into a collaborative partnership that improved pedagogical competencies. However, varying digital literacy levels among educators and unstable internet infrastructure presented persistent operational challenges. This study concludes that hybrid, coaching-based digital supervision effectively bridges formal bureaucratic compliance with humanistic professional development. Strengthening principals' digital leadership and sustaining a collaborative coaching culture are vital to long-term educational quality enhancement.

Keywords— *academic supervision; digital leadership; primary education; ruang GTK; teacher professional development*

From Digital Transformation to Lecturer Performance in Higher Education: A Systematic Literature Review of Drivers, Mechanisms, and Outcomes

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Track/Topic Area: Education

Abstract

Digital transformation is increasingly reshaping higher education institutions and changing the nature of academic work. However, existing research remains fragmented in explaining how digital transformation contributes to lecturer performance and through which mechanisms these effects occur. This study aims to systematically synthesize the drivers, mechanisms, and outcomes linking digital transformation to lecturer performance in higher education. A Systematic Literature Review (SLR) was conducted following the PRISMA 2020 framework. Relevant studies were identified from the Scopus database and subsequently screened based on predefined inclusion and exclusion criteria. The selected studies were analyzed using thematic synthesis and organized into three analytical dimensions: drivers, mechanisms, and outcomes. The findings indicate that digital leadership, institutional support, technological infrastructure, and professional development are important drivers of digital transformation. Their influence on lecturer performance operates through mechanisms such as digital competency, digital self-efficacy, task-technology fit, and adaptation to changing academic work. The reported outcomes include improvements in teaching effectiveness, research productivity, administrative efficiency, technological proficiency, and overall lecturer performance, while challenges related to workload, technological barriers, and unequal digital capabilities remain. This review proposes an integrated pathway of digital transformation drivers → individual and work-related mechanisms → transformation of academic work → lecturer performance outcomes. The study contributes by integrating fragmented evidence into a coherent framework and emphasizes the importance of a human-centered and capability-oriented approach to digital transformation in higher education.

Keywords— *academic work; digital transformation; higher education; lecturer performance; systematic literature review*

Infrastructure Adaptation Strategies Post-Arts Building Disaster in Maintaining Learning Quality at the Faculty of Administrasi Pendidikan, ISBI Bandung

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Track/Topic Area: Education

Abstract

The disaster that damaged one of the arts buildings at the Indonesian Institute of the Arts and Culture (ISBI) Bandung caused serious disruptions to the continuity of practical learning processes at the Faculty of Administrasi Pendidikan, given that dance, karawitan (traditional gamelan music), theater, and music practice activities rely heavily on spaces with specific acoustic and physical size requirements. This study aims to describe and analyze the strategies adopted by the Faculty of Administrasi Pendidikan ISBI Bandung in maintaining learning quality and educational continuity by utilizing the remaining infrastructure after the disaster. The research employed a qualitative approach with a case study design involving lecturers, students, and facility management personnel as research subjects. Data were collected through field observations, in-depth interviews, and documentation studies, and subsequently analyzed using the Miles and Huberman interactive model. The results indicate that the faculty implemented four main strategies: reallocation and rotational scheduling of practice rooms, optimization of multifunctional spaces and open campus areas, facility-sharing collaborations with other faculties and administrative units, as well as adaptation of instructional methods and learning outcomes. These strategies successfully maintained lecture continuity and educational quality despite challenges related to physical comfort, dense scheduling, and alternative room acoustic limitations. This study concludes that adaptive and collaborative infrastructure management is key to mitigating disaster impacts on performing arts learning quality while contributing to contingency planning frameworks for higher arts education institutions.

Keywords— *adaptation strategies; arts building; disaster mitigation; infrastructure management; learning quality; performing arts education*

Nurturing Christian Character in the Digital Age: A Systematic Review of Pedagogical Strategies

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Track/Topic Area: Education

Abstract

In the digital era, the cultivation of Christian character encounters unprecedented challenges as social media, artificial intelligence, and other emerging technologies reshape the pedagogical landscape of faith formation. While fragmented studies have examined these dynamics, a comprehensive synthesis of pedagogical strategies remains scarce. This study systematically reviews and synthesizes pedagogical approaches to nurturing Christian character in digital contexts, highlighting prevailing trends, challenges, and innovative practices. Guided by PRISMA 2020 protocols, a systematic search and full-text screening of publications from 2017 to 2026 yielded 24 peer-reviewed articles, which were analyzed through thematic synthesis. Findings reveal four interrelated clusters of strategies: (1) technology integrated instructional tools, including podcasts, blended learning, and teacher digital competencies; (2) church and ministry-based digital engagement, such as social media outreach and cyberspace ministry for dispersed congregations; (3) emerging applications of artificial intelligence in catechesis and theological education, raising ethical and pastoral considerations; and (4) life-stage-specific approaches to faith formation across children, adolescents, and emerging adults. Structural challenges, particularly relational distance in online discipleship and tensions between materiality and spirituality, were accentuated during the COVID-19 pandemic. This review contributes to the literature by identifying critical research gaps and offering actionable insights for Christian educators and faith-based institutions. It underscores the necessity of pedagogically intentional, technologically adaptive, and theologically grounded strategies to sustain character formation in increasingly digitalized contexts, thereby providing a foundation for future empirical research and policy development.

Keywords— *christian character education; digital age; pedagogical strategies; religious education; systematic literature review*

The Effect of Inclusive Education Management on Teacher Competence (A Study of Private Islamic Elementary Schools in Cibiru District)

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Track/Topic Area: Education

Abstract

Effective management can provide the direction, support, and resources needed to ensure that children with special needs receive an equitable and quality education. Inclusive education management is key in creating an environment that supports, understands, and empowers children with special needs. The purpose of discussing research results is to provide a more detailed and in-depth explanation and description of the research results. This research uses a quantitative research study approach with an Ex Post Facto method. The research data were collected by distributing questionnaires to 31 respondents. Data analysis was carried out in the form of research instrument tests (validity test and reliability test), descriptive statistical analysis, partial analysis per indicator, prerequisite tests (normality test and linearity test), as well as correlation tests (simple linear regression test, t-test, coefficient of determination test). Based on the statistical test results, it shows that the calculated F value = 30,271 with a significance level of 0.000 < 0.05. So, the regression model can be used to predict the Inclusive Education Management variable, or in other words, the influence of the Inclusive Education Management variable (X) on Teacher Competency (Y). The results of data processing explain the magnitude of the correlation/relationship value R, which is 0.715. From the output, a coefficient of determination (R Square) of 0.511 is obtained, which contains the meaning that the influence of the independent variable (Inclusive Education Management) on the dependent variable (Teacher Competence) is 51.1%, and 48.9% is influenced by other factors outside the research.

Keywords— *inclusive education management; teacher competence; teaching staff*

Internal Quality Assurance and Quality Culture in Higher Education Institutions: A Systematic Literature Review of Governance, Leadership, and Institutional Performance

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Track/Topic Area: Education

Abstract

Internal quality assurance (IQA) and quality culture have become central levers through which higher education institutions (HEIs) seek to translate external accountability demands into sustained institutional improvement, yet the governance, cultural, leadership, and implementation strands of this literature are rarely synthesized together. This systematic literature review integrates these strands using PRISMA 2020 procedures. A Scopus search returned 123 records; title-and-abstract screening excluded 45 records addressing a different population or construct (clinical quality-improvement training, school-level quality management, or unrelated topics), leaving 78 reports for eligibility assessment; a further 34 were excluded as conceptually thin, narrowly technical, or substantially redundant with a stronger included study, yielding a final corpus of 44 studies published between 2021 and 2026. Thematic synthesis identified four interrelated strands: governance and the policy shift from external to internal accreditation mechanisms; the conceptualization, measurement, and critique of quality culture as a construct; leadership and engagement as drivers linking quality assurance to institutional performance; and institutional implementation of integrated quality-assurance systems, standards, and total-quality-management frameworks. Across the corpus, IQA effectiveness is consistently reported as conditional on whether compliance-oriented governance is accompanied by a genuine, psychologically embedded quality culture and by leadership that translates policy into everyday academic practice. The review proposes an integrative framework linking governance architecture, quality culture, leadership, and institutional performance, and identifies quality culture measurement and cross-national comparative evidence as priority areas for future research.

Keywords— *higher education institutions; internal quality assurance; leadership; quality assurance; quality culture*

Integrating Prosocial Character and Moral Development into Speech Therapy Vocational Pedagogy Through a Sustainable Health Education Framework

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Track/Topic Area: Education

Abstract

The persistent emphasis on technical proficiency in vocational health curricula raised concern that prosocial character and moral judgment received insufficient explicit attention in speech therapy education. This conceptual study aimed to develop an integrative framework that linked prosocial character education and moral development theory to speech therapy vocational pedagogy within a sustainable health-education paradigm aligned with global health and education priorities. An integrative literature review design was employed: peer-reviewed sources published between 2015 and 2026 across health professions education, vocational pedagogy, and moral psychology databases were retrieved, screened against explicit eligibility criteria, and synthesized through thematic conceptual mapping rather than statistical analysis. The synthesis showed that Rest's four-component model of moral functioning—sensitivity, judgment, motivation, and character—mapped coherently onto four vocational competency domains of speech therapy practice, while Kohlberg's stage theory offered a developmental logic for sequencing character-based learning experiences across the curriculum. The resulting framework positioned prosocial character cultivation as a curricular through-line embedded within experiential, reflective, and interprofessional learning activities rather than as an isolated ethics module. This framework offers speech therapy vocational educators a theory-grounded, adaptable model for embedding moral and prosocial formation alongside clinical skill development, and it contributes a discipline-specific reference point for broader efforts toward sustainable, values-based health workforce development consistent with Sustainable Development Goals 3 and 4.

Keywords— *character education; moral development; prosocial behavior; speech therapy; vocational pedagogy*

Towards Multimodal AI-Based Microteaching Evaluation: The Role of Digital Competence and Teaching Practice in Pre-Service Teachers' Pedagogical Competence

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Track/Topic Area: Education

Abstract

Developing pre-service teachers' pedagogical competence requires meaningful teaching practice, digital competence, and effective evaluation mechanisms. Conventional microteaching assessment may provide limited opportunities for systematic documentation and continuous feedback, highlighting the need for integrated digital evaluation approaches. This study examined how microteaching activities, digital competence, and digital microteaching evaluation contribute to pre-service teachers' pedagogical competence, providing an empirical basis for developing a multimodal, deep learning-based microteaching evaluation system. We used a quantitative approach based on survey data from 118 pre-service teachers after data screening. We analyzed the data using descriptive statistics, classical assumption tests, multiple linear regression, F-tests, t-tests, and analyses of effect and relative contribution. The findings showed that microteaching activities and digital competence had positive and significant partial effects on pedagogical competence, while digital microteaching evaluation had a positive but non-significant partial effect. Digital competence demonstrated the strongest contribution, with an effective contribution of 39.85%, followed by microteaching activities at 19.64% and digital microteaching evaluation at 10.86%. Simultaneously, the three variables significantly influenced pedagogical competence and explained 69.6% of its variance. These findings indicate that digital evaluation should be integrated with teaching practice and digital competence to support more systematic, data-driven, and continuous microteaching assessment.

Keywords— *digital competence; digital microteaching evaluation; microteaching; pedagogical competence; pre-service teachers*

Academic Synergy and Collaborative Governance in Advancing Sustainable School Excellence

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Track/Topic Area: Education

Abstract

Sustainable school excellence cannot be reduced to short-term academic performance. It depends on a school's capacity to learn, adapt, institutionalize improvement, mobilize external expertise, and maintain legitimate relationships with stakeholders over time. This study develops an integrative conceptual explanation of how academic synergy and collaborative governance can jointly strengthen that capacity. Using a conceptual synthesis of peer-reviewed journal articles published, complemented by seminal collaborative governance scholarship, the study integrates evidence from school-university partnerships, research-practice partnerships, professional learning networks, distributed leadership, knowledge brokerage, learning-organization research, stakeholder participation, and sustainable school improvement. The synthesis identifies academic synergy as a knowledge and learning mechanism through which complementary expertise is combined via co-design, reciprocal inquiry, professional learning, evidence use, and innovation. Collaborative governance functions as an institutional coordination mechanism through inclusive participation, facilitative leadership, role clarity, shared decision-making, resource alignment, accountability, and trust. Their interaction is proposed to build four integrated institutional capacities: knowledge capacity, relational capacity, governance capacity, and adaptive capacity. These capacities mediate the movement from partnership activity to sustainable school excellence, expressed through continuous quality improvement, adaptive innovation, inclusion, institutional durability, stakeholder legitimacy, and sustained educational outcomes. The paper proposes an expanded Academic Synergy and Collaborative Governance for Sustainable School Excellence (ASCG-SSE) framework and seven propositions for future empirical testing. The study contributes by linking partnership and governance literatures that are often treated separately and by shifting the focus of school collaboration from the quantity of partnerships to the institutional capacities that collaboration leaves behind.

Keywords— *academic synergy; collaborative governance; school excellence; school-university partnership; sustainability*

Transforming Vocational Learning through Real-World Event Projects: Preparing Office Administration Students for the Workplace

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Track/Topic Area: Education

Abstract

The transformation of vocational education requires learning processes that connect students' learning experiences with the demands of the workplace. Learning activities that provide authentic experiences are essential to ensure that students not only acquire knowledge but are also able to apply relevant skills in real work situations. This study aims to analyze the implementation of project-based learning through real-world event projects as an approach to preparing Office Administration students for the workplace. The study employed a descriptive qualitative approach involving students enrolled in a MICE Management course. Students were directly involved in all stages of event organization, including planning, organizing, implementation, participant services, coordination, and evaluation. Data were collected through observations of the learning process, activity documentation, and students' reflections on their event implementation experiences. The findings indicate that real-world event projects provide contextual learning experiences and encourage students to develop various workplace skills, including communication, teamwork, problem-solving, time management, responsibility, creativity, and professionalism. Experiencing real situations and challenges during event implementation also provided students with opportunities to make decisions and adapt to workplace-like situations. These findings suggest that project-based learning through real-world event experiences can serve as an approach to transforming vocational learning by strengthening the connection between higher education learning and workplace demands.

Keywords— *office administration; project-based learning; real-world events; vocational education; work readiness.*

Mapping Student Competencies Based on Revised Bloom's Taxonomy, Krathwohl's Taxonomy and Harrow's Taxonomy through Role-Play Activities for Handling Guest Complaints

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Track/Topic Area: Education

Abstract

Handling guest complaints is an important part of Front Office Hotel Staff tasks because it requires employees to combine knowledge, communication skills, professional attitudes, and practical skills. Hospitality students therefore need opportunities to practice responding to realistic guest situations before entering the workplace. This study aims to examine the competencies demonstrated by hospitality students during role-play activities for handling hotel guest complaints across cognitive, affective, and psychomotor domains. A descriptive qualitative approach was used, with content analysis applied to student role-play performance in Front Office complaint scenarios. Student dialogue was analyzed using the revised Bloom's Taxonomy for the cognitive domain and Krathwohl's Taxonomy for the affective domain, while Harrow's Taxonomy was used to examine psychomotor aspects. The findings show that students demonstrated cognitive processes from remembering and understanding to applying, evaluating, and creating solutions to guest problems. Their effective responses reflected willingness to listen, respond to guest concerns, value guest needs, and maintain professional service behavior. Psychomotor aspects were demonstrated through operational activities such as handling documents, completing registration procedures, coordinating service tasks, and providing directions to guests. However, some psychomotor aspects, such as gestures, posture, and other non-verbal behaviors, cannot be fully identified from dialogue transcripts only and are better examined through direct observation or video analysis. Overall, the findings suggest that role-play can provide a realistic context for identifying the different competencies that hospitality students demonstrate when handling guest complaints.

Keywords— *affective domain; bloom's taxonomy; guest complaints; hospitality education; psychomotor domain; role-play; student competencies*

Lecturer-Student Synergy in Co-Authorship: Analyzing the Effectiveness of Research-Based Learning

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Track/Topic Area: Education

Abstract

The integration of teaching and research in higher education requires close collaborative interaction between lecturers and students. Co-publishing scientific papers between lecturers and students serves as a strategic instrument for enhancing academic quality and research output. This study aims to analyze the forms of synergy, mentoring dynamics, and the effectiveness of Research-Based Learning (RBL) in fostering collaborative academic writing. Employing a qualitative approach, data were collected through in-depth interviews with lecturers and students who had successfully published articles collaboratively, participant observation of research mentoring sessions, and analysis of manuscript documents. The study reveals three core findings: (1) the transformation of the lecturer's role from a conventional teacher to a mentoring-scaffolder guiding knowledge construction; (2) the habituation of student research culture through enhanced methodological literacy and emotional engagement; and (3) transparency in authorship ethics as a catalyst for commitment and trust. The study concludes that the effectiveness of RBL depends on participatory mentoring patterns, clear authorship role allocation, and the intensity of critical dialogue throughout the research process. It recommends the implementation of a transparent collaborative framework to optimize students' academic potential and lecturers' productivity.

Keywords— *academic synergy; authorship ethics; co-authorship; higher education; lecturer-student collaboration; research-based learning*

Development of a Simple Contrast-Enhanced Fistulography Phantom for Radiology Students' Education to Support Their Readiness for Clinical Practice

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Track/Topic Area: Education

Abstract

This study aimed to develop a simple phantom as a learning medium for contrast radiography, particularly fistulography examination, in a radiology laboratory. The development was motivated by the limited availability of contrast examination simulations in campus radiology laboratories, which may affect students' readiness for clinical practice. The phantom was designed using silicone rubber, a material with viscoelastic properties that can be used to simulate soft tissue characteristics. A small artificial fistula pathway was created within the phantom to facilitate the simulation of contrast administration and radiographic exposure for visualizing the fistula pathway. The development was evaluated using a descriptive quantitative method involving five radiology students who had not previously been exposed to fistulography material. Students' understanding was assessed before and after using the fistulography contrast simulation phantom. The results showed an increase in students' understanding after the use of the phantom, indicating that the simulation media contributed positively to the learning process. The phantom provides a simple and practical alternative for simulating the procedural stages of fistulography, from contrast administration to radiographic exposure. Therefore, the developed phantom can support radiology students in understanding fistulography procedures and improving their preparedness for clinical practice.

Keywords— *fistulography; learning media; phantom; radiography; simulation*

Fostering Sustainable Community Integration through Waste Sorting: Foreign Residents' Understanding and Adaptation in a Local Government in Kyushu, Japan

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Track/Topic Area: Education

Abstract

This study discusses waste management in Japan, which is known to be very orderly and systematic, but still faces problems in foreigners' compliance with waste sorting rules. The Indonesian community is one of the groups that has difficulty adapting to this system, especially because of cultural differences and waste management habits in Indonesia, which tend to be simple and irregular. From the initial survey, out of 318 respondents, 40% wrote that sometimes all waste is mixed, 60% mix waste unintentionally. Meanwhile, for answers, they never mix and always try to sort 0%. The research focuses on the city of Kitakyushu and its surroundings, where the local government has conducted multilingual socialization to increase awareness of the importance of waste sorting. However, difficulties still arise due to factors such as culture shock, lack of guidance on waste disposal procedures, and language barriers. The research method used was quantitative descriptive, with the distribution of questionnaires to 318 Indonesians, consisting of 63.3% women and 36.4% men. 24.4% of those who had not lived in Japan for less than one year, while 49.1% had lived in Japan for more than 2 years. 47.4% were aged 20-24 years. The data were statistically analyzed and strengthened by respondents' comments to understand their experiences, understanding, and habits in sorting waste. Of the 316 respondents, 67 people stated. When in Indonesia, they did not understand organic and inorganic waste sorting at all, 155 people stated that they understood little. 223 people stated that they did not get any explanation at all from the destination city government, this caused them not to understand waste sorting, as answered by 120 respondents. 168 people stated that they did not try to sort waste, and 197 stated that it was quite difficult to sort waste because they did not fully understand. And 204 stated that they only understood a little about waste sorting. From the results of the analysis to answer the hypothesis, it turns out that there is only one person who is from an area who always sort waste, has knowledge about waste sorting, and gets an explanation about waste when in Japan, DNA always sorts waste without difficulty.

Keywords— *compliance; culture shock; Indonesian community; waste management; waste sorting*

Track/Topic Area: Economy

From Local Wisdom to Sustainable Economic Resilience: The Mediating Role of Social Capital in Urban Communities

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Track/Topic Area: Economy

Abstract

Urban disaster risk increasingly challenges the continuity of social and economic activities in heterogeneous cities, where technical measures alone may not provide sufficient adaptive capacity. This study examined whether local wisdom strengthens sustainable community resilience through differentiated forms of social capital in Bandung, Indonesia, with particular attention to the implications for sustainable economic resilience. A mixed-methods design combined a probability-based survey of 785 respondents with qualitative inquiry involving 133 informants, five focus group discussions, field observation, and documentary analysis across 15 priority districts representing diverse disaster-risk profiles. Quantitative relationships were estimated using partial least squares structural equation modeling with bootstrapping, while qualitative evidence was analyzed thematically and triangulated. Local wisdom strongly predicted bonding ($\beta=0.854$), bridging ($\beta=0.837$), and linking social capital ($\beta=0.825$), and also had a positive direct association with community-based disaster resilience ($\beta=0.182$, $p=0.007$). Bonding social capital was not significant in predicting resilience ($\beta=0.049$, $p=0.325$), whereas bridging ($\beta=0.242$, $p<0.001$) and linking ($\beta=0.472$, $p<0.001$) were significant. Indirect effects through bridging ($\beta=0.203$, $p<0.001$) and linking ($\beta=0.390$, $p<0.001$) were significant, while bonding was not ($\beta=0.042$, $p=0.328$). The model explained 79.5% of the variance in community disaster resilience. The findings indicate that sustainable economic resilience should be understood not only as an economic-resource problem but also as a networked social-capacity problem: local wisdom provides the cultural foundation, while bridging and especially linking social capital convert that foundation into broader access to information, coordination, institutional resources, and recovery capacity.

Keywords— *community resilience; disaster resilience; local wisdom; social capital; sustainable economic resilience*

Cultural Entrepreneurship for Individuals with Special Needs: Integrating Inclusive Education and Sustainable Economic Empowerment

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Track/Topic Area: Economy

Abstract

Inclusive education should extend beyond academic learning by providing individuals with special needs with meaningful opportunities to develop creativity, practical skills, social participation, and economic independence. Cultural entrepreneurship offers a potential pathway to integrate educational inclusion with sustainable economic empowerment by turning cultural and creative activities into opportunities for skill development, participation, and productive engagement. This study explores the role of cultural entrepreneurship in supporting inclusive education and sustainable economic empowerment for individuals with special needs, using Yayasan Budaya Individu Special (YBUIS) in Bandung, Indonesia, as a case study. The study adopts a qualitative case study approach to examine educational, cultural, and entrepreneurial activities involving individuals with special needs. Data are collected through observation, interviews with organizational stakeholders, and documentation of programs related to cultural participation, creative activities, vocational development, and community engagement. The analysis focuses on how cultural activities can function simultaneously as learning experiences, platforms for self-expression, opportunities for skill development, and potential sources of economic participation. The study highlights the importance of integrating inclusive education with cultural entrepreneurship to create a more sustainable empowerment ecosystem for individuals with special needs. Such an approach has the potential to strengthen creativity, self-confidence, social interaction, vocational competencies, and opportunities for economic participation. Collaboration among educational institutions, community organizations, families, cultural actors, and other stakeholders is also essential in developing an inclusive and sustainable support system. This study contributes to discussions on sustainable education and inclusive economic development by positioning cultural entrepreneurship as a bridge between education, social inclusion, and economic empowerment. The proposed model may provide practical insights for community organizations and educational institutions seeking to develop sustainable empowerment programs for individuals with special needs.

Keywords— *cultural entrepreneurship; economic empowerment; individuals with special needs; inclusive education; sustainability; vocational education*

Assessing Floating Plastic Recovery Potential Using UAV-Derived Data: Supporting Circular Economy in Urban Canal Waste Management

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Track/Topic Area: Economy

Abstract

Urban canals are major pathways for plastic leakage into aquatic environments, yet their potential as sites for material recovery remains underexplored. This study assesses the recovery potential of floating plastics in the 1,635 m Jongaya Canal, Makassar, Indonesia, using previously published UAV-based detection data from a representative 100 m segment observed in the dry and rainy seasons. Detected items were classified into rigid plastics (G1), flexible packaging (G2), and foam-based disposables (G3), converted to mass using category-specific item weights, extrapolated to the full canal length, and annualised using season-specific turnover assumptions. The estimated annual floating plastic mass is approximately 1,640 kg/year, of which rigid plastics contribute about 50%, led by gallon water bottles. Under interception scenarios with 30%, 50%, and 80% capture efficiency, the recoverable mass ranges from about 490 to 1,310 kg/year. Applying group-specific functional substitution rates, the recovered plastics could replace roughly 110–690 kg/year of virgin resin, with rigid plastics providing about two-thirds of the substitution potential despite being outnumbered by flexible items. These results indicate that mass-based and material-specific evaluation is more informative than item counts for designing recovery strategies, and that prioritising rigid plastics maximises circular economy value. The estimates are screening-level, limited to surface-visible plastics, and depend on assumed turnover rates and item weights. The approach offers a low-cost way to link UAV monitoring with recovery planning in data-limited cities.

Keywords— *circular economy; floating plastic; Makassar; plastic recovery; UAV monitoring; urban canal*

From Dead Stock to Sustainable Urban Management: An Integrated Demolition Feasibility Framework for Akiya in Kitakyushu, Japan

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Track/Topic Area: Economy

Abstract

Amid rapid urban shrinkage and demographic decline in Japan, managing abandoned houses (Akiya) has become a critical challenge for achieving sustainable urban development. In hillside areas with complex topography, such as Yahatahigashi Ward, Kitakyushu City, severely deteriorated and inaccessible properties may become "dead stock," generating safety risks, environmental burdens, and increasing pressure on municipal resources. However, conventional approaches to abandoned-house management often emphasize physical deterioration while overlooking the spatial and logistical constraints that determine demolition feasibility. This study develops an Integrated Demolition Feasibility Evaluation Framework that combines two dimensions: the Architectural Urgency Index (AUI), which measures building deterioration and potential hazards, and the Contextual Barrier Index (CBI), which evaluates accessibility constraints affecting demolition processes. Using non-invasive rapid visual assessments based on Google Street View (GSV), selected abandoned properties were assessed through indicators including roof failure, façade deformation, vegetation encroachment, narrow pathways, stair access, and steep terrain conditions. The integration of AUI and CBI into a Demolition Feasibility Matrix (DFM) identifies different intervention priorities based on both structural urgency and demolition difficulty. The results reveal a critical group of properties where severe deterioration coincides with significant accessibility barriers, limiting private demolition feasibility and reducing opportunities for material recovery within circular economy approaches. This framework provides a scalable method for supporting sustainable Akiya management in shrinking cities. By integrating physical risk and spatial constraints, the proposed approach assists municipal authorities in allocating resources more strategically through targeted interventions, including prioritized public support for critical properties and adaptive management strategies for transitional cases.

Keywords— *abandoned houses; circular economy; demolition feasibility; shrinking cities; sustainable urban development*

From Space to Sustainability: A Core-Periphery Comparison of Nighttime Light and CO_2 Emission Patterns in Mamminasata Metropolitan Area, Indonesia

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Track/Topic Area: Economy

Abstract

Rapid urbanization in Indonesian metropolitan areas has produced sharply uneven patterns of economic activity and energy-related CO_2 emissions between dominant urban cores and their surrounding peri-urban peripheries. Understanding this core-periphery emissions gradient is essential for equitable and sustainable regional development, yet fine-grained, spatially explicit emissions data remain scarce for many rapidly growing Global South metropolitan regions. This study compares energy-related CO_2 emission patterns between Makassar City—the primary urban core of the Mamminasata Metropolitan Area—and its surrounding peripheral regencies (Maros, Gowa, Takalar), using two complementary satellite-derived and inventory-based data sources: nighttime light (NTL) radiance from the VIIRS Day/Night Band, and gridded CO_2 emission estimates from the Emissions Database for Global Atmospheric Research (EDGAR, 0.1°×0.1° resolution). By overlaying NTL and EDGAR grid cells across the core-periphery gradient, we examine whether the statistical relationship between nighttime light intensity and CO_2 emissions differs systematically between the urban core and its periphery, testing the hypothesis that peripheral areas—despite lower luminosity—may exhibit disproportionately high emission intensity due to concentrated industrial or extractive activity. This freely available, satellite-and-inventory-based approach offers a replicable, low-cost alternative to costly bottom-up emission inventories, particularly valuable for data-scarce metropolitan regions across the Global South. Findings are expected to inform spatially differentiated sustainability strategies—guiding industrial zoning, emission-reduction targeting, and infrastructure investment—that reflect the distinct developmental trajectories of urban cores versus their peripheries, contributing to integrated economic-environmental planning central to sustainable metropolitan governance in Indonesia.

Keywords— *CO_2; Core-periphery Emissions; EDGAR; Indonesia; Makassar; Nighttime Light Remote Sensing; Sustainable Urban Planning*