

(WCASET - 2020)

Jakarta, Indonesia

29th- 30th April' 2020

Institute For Engineering Research and Publication

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Editorial:

We cordially invite you to attend the **28**th World Conference on Applied Science, Engineering and Technology (WCASET - 2020) which will be held at Jakarta, Indonesia on April 29th & 30th, 2020. The main objective of WCASET-2020 is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Science, Engineering and Technology. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in there view process, and to the authors for contributing their research result to the conference.

Since January 2020, the Organizing Committees have received more than 210 manuscript papers, and the papers cover all the aspects in Electronics, Computer Science, Information Technology, Science Engineering and Technology. Finally, after review, about 52 papers were included to the proceedings of *WCASET - 2020*.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of *WCASET 2020*. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.

Acknowledgement

IFERP is hosting the **28**th *World Conference on Applied Science, Engineering and Technology* this year in month of April. The main objective of WCASET- 2020 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my hearty gratitude to all my Colleagues, staffs, Professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to travel such a long distance to attain this conference.

Er. R. B. Satpathy CEO (Chief Executive Officer) Institute for Engineering Research and Publication (IFERP)

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WCASET - 2020

28th World Conference on Applied Science, Engineering and Technology

Jakarta, Indonesia

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ABSTRACTS

WCASET - 2020

Organized by

Institute For Engineering Research and Publication (IFERP)

Indonesia, 29th-30th April 2020

New Method to Improve the Quality of Data Recording Odontogram through Occlusal Dental Photography for Forensic Odontology

Setiyo Budiyanto, Universitas Mercu Buana Lukman Medriavin Silalahi, Universitas Mercu Buana Freddy Artadima Silaban, Universitas Mercu Buana Budi Purnomo, Universitas Mercu Buana Fajar Rahayu I.M, Buana Universitas Pembangunan Nasional "Veteran" Jakarta

Abstract:--

The problem in this research is integration the conventional odontogram data recording method into a computer-based odontogram recording through occlusal dental photography in accordance with the National Standard of Dental Medical Records. The purpose of this study is to make the dental examination process more accurate, to evaluate the patient's dental biometrics with occlusal photo data of the patient, and to provide odontogram data as a quality and accurate antemortem data for identification purposes, so that data is evaluated and used as material for discussion the doctors as well as for the patient's family if needed. The method proposed in this study is a simulation using MATLAB by testing binary images then segmenting with Watershed transformation and morphological processes to obtain a single tooth image so that the process is obtained from the numbering process according to FDI (International Dental Federation) standards, then testing missing teeth detection, accuracy of teeth position and calculate classification accuracy using the K-NN (K-Nearest Neighbor) method. The results of this study were obtained odontogram form for maxilla fit accuracy at 73.6%, while mandible accuracy at 100%, the collaboration results of Color Moment and HOG feature extraction in this new method system obtained the best performance with using positive data, occurs at K = 1 of 98%, with an average computing time of 43.95 seconds. While classification using negative data, the best performance is 50%, occurring at K = 3 and K = 7, with an average computing time of 4.35 seconds.

Keywords:--

Dental Biometric, MATLAB, Computer-based, Odontology Forensic, Odontogram, Occlusal dental photography, Watershed, Color moment, Histogram of Oriented Gradient and KNN (K-Nearest Neighbour).

Indonesia, 29th-30th April 2020

Literature Review of Blockchain-Based Technology for Data Storage Systems in the Governmental Organization

Fikroh Amali Fahmi Addiani, Department of Civil Engineering, Faculty of Engineering,

Universitas Indonesia, Salemba, Indonesia

Abstract:--

Cloud computing-based as a data storage system is one of the most widely used systems in government organizations. However, the most problem in this system is the issue of data security. Based on the literature studies, blockchain technology can be used as a data storage system with a higher level of security compared to the cloud computing system. This paper reviews twenty-four studies around the world which had identified the weakness of cloud storage systems, also the characteristics and advantages of blockchain technology. The purposes of this paper are to identify and communicate the research gap in the previous literature. To achieve that purpose, the author has conducted a comprehensive literature review. The twenty-four articles were reviewed in five discussion topics: data storage system base on cloud computing, security in data storage systems, blockchain and the characteristics, blockchain as a base data storage system, and utilization of blockchain technology.

Keywords:--

data security, cloud storage, governmental organizational, blockchain technology

Indonesia, 29th-30th April 2020

Innovation Process in an Organization about Thematic Learning in Primary Schools; an Innovation Diffusion Research

Asep Ediana Latip, Department of Basic Education, Jakarta State University, Indonesia Atwi Suparman, Department of Basic Education, Jakarta State University, Indonesia Nadiroh, Department of Basic Education, Jakarta State University, Indonesia

Abstract:--

Thematic learning as an innovative learning is determined as learning that must be implemented in primary schools. The purpose of this study aims to describe innovation process in an organizations about thematic learning in Primary Schools. This study uses a diffusion research procedure developed by Rogers. The research question is whether Primary schools have an initiation of thematic learning innovation? has the Primary School implemented thematic learning innovations? Does the Primary School redefine or restructure the implementation of thematic learning innovations? Does the Primary School make a process of clarification of thematic learning innovation? Has the Primary School been continuously implementing thematic learning?. The technique of collecting data uses a questionnaire with a Likkert scale. Sources of research data were obtained from members of the organization namely Principals and Teachers primary school. The sampling technique used is purposive sampling. Analysis of the data used is descriptive analysis. The results showed that thematic learning innovations have been diffused in pimary school which states that schools have an initiation of thematic learning innovations by setting agendas and matching with the needs of schools as an organization. In addition, members of the organization both principals and teachers stated that thematic learning implementation has been implemented by restructuring the organization, and has become part of the activities of organizational members and has become a regular schedule of learning activities in Primary schools.

Keywords:--

Innovation Process, Thematic learning, Diffusion Research

Indonesia, 29th-30th April 2020

The Relationship between Internal Marketing, Employee Satisfaction, and Customer Satisfaction: A Vietnamese Bank Case

Nguyen Ngoc Quang, Faculty of Marketing, National Economics University, Vietnam Nguyen Viet Lam, Faculty of Marketing, National Economics University, Vietnam Nguyen Thai Ha, International School of Management and Economics, National Economics University, Vietnam Nguyen Thu Lan, Faculty of Marketing, National Economics University, Vietnam

Abstract:--

The research aims to analyse the relationship between internal marketing, employee satisfaction and customer satisfaction in the banking service. The purpose is to examine the impact of internal marketing on employee and customer satisfaction based on the survey of 10 Vietnamese commercial banks. The research data was collected through a questionnaire with two parts (one for the staff and the other for the client of this interviewed staff) so a pair sample of staffs-clients was constructed. Based on the data collection, the trinity relationship between internal marketing, employee satisfaction and customer satisfaction of Vietnamese banking community is explored. Findings reveal that: (1) internal marketing has a significant and positive impact on both employee satisfaction and customer satisfaction, (2) the employee satisfaction has a significant and positive impact on customer satisfaction and mediates the relationship between internal marketing and customer satisfaction. The results indicate the implication that Vietnamese banking managers should apply internal marketing practices to upgrade employee satisfaction, thus customer satisfaction will be improved in the fiercely competitive service industry.

Keywords:--

Internal marketing, Employee satisfaction, Customer satisfaction, Vietnamese bank

Indonesia, 29th-30th April 2020

Effect of telerehab system for postural correction

JaeHo Yu, Department of physical therapy, Sunmoon University

Abstract:--

As abnormal posture caused by prolonged smartphone use increases, its related disease also increases. It is time to prevent this problem. This study aim to figure out how much telerehab system has an effect on postural correction. Healthy 34 participants were instructed to keep neutral posture and then use smartphone. Each participant was instructed to maintain a neutral posture with their elbows positioned in line with the trunk and flexed $90-120^{\circ}$ and keep the trunk upright, chin tucked, scapula slightly protracted and depressed and sole of the foot on the floor 1) for 15 minutes in non feedback condition, after 3 minutes resting period, 2) for 15 minutes in visual feedback condition while maintaining their original posture. When participants consciously apply feedback for postural correction, participants can check the movement of scapula and forward head level as they apply posterior visual feedback. The result of this study had a significant difference in the meaning of cervicoscapular posture angle.(p<0.05) Also, there was significant difference in the meaning of cervicoscapular posture angle.(p<0.05) Both results indicated that the participants maintained the original posture well. In this study, it proved that visual feedback for postural correction has a positive effect. Further study needs to demonstrate this measurement to real clinical patients.

Keywords:--

Telerehab, Visual feedback, Forward head posture, Abnormal posture, Postural correction.

Indonesia, 29th-30th April 2020

Impacts to Teacher-Student Relationships on Students' Academic Performance at the Secondary School Level in Dhaka City

Mashraky Mustary, Doctoral Student, Sophia University, Japan. Lecturer, Department of Publicadmiinistration, Begum Rokeya University, Rangpur.

Abstract:--

This study seeks to create understanding on the significance between the relationship between teachers and students in an academic set up. The research has used a simple random sampling method to determine a population sample of 200 respondents. This sample size consisted of 100 students and 100 teachers. Data was collected by use of questionnaire forms and interviews. After collecting the primary data, the data was subjected into quantitative analysis using various statistical methods so as to get understanding of the topic which was being investigated.

Based on the research, it was realized that there is a positive correlation between teach-student relationship and academic performance. This means that positive relationship between teachers and students improve the performance of students. On the other hand, negative relationship between teachers and students deteriorate the performance of students. It was also realized that learners find it easy to share with teachers the predicaments they undergo when there is a positive relationship. However, in a situation where teachers do not show any concern to students, academic performance usually deteriorates because students are not in close intimacy with the teachers. Therefore, the study recommended that teachers should devise mechanism of developing a positive relationship with students so as to address their needs including those associated with academic performance.

Keywords:--

Academic Performance, Students, Bangladesh, Dhaka, Secondary School, Relationship, respondents, random sampling, analysis.

Indonesia, 29th-30th April 2020

Mobile Learning Support with TELD to Facilitate In Learning Environments

Juhaidatur Rahmi, Postgraduate Program, State University of Jakarta Basuki Wibawa, Educational Techonology, State University of Jakarta Khaerudin, Educational Techonology, State University of Jakarta

Abstract:--

Mobile learning application is learning trends that integrate mobile technology advances the benefits of education by utilizing internet access as a communication tool to disseminate information. Mobile learning applications in general are able to improve the results of the learning process by changing students learning habits and learning methods.. Through a pedagogical approach to methodology of Teaching by Example and Learning by Doing (TELD) has present to reinforce dynamic interactions and provide instruction how to time integrate and harnees teaching for students. This emerging 21st century conception the principle that learning can be done from anywhere, anytime and anyhow-learning in formal education can be held effectively and efficiently should it, is done in a systematic and holistic way. This article purpose a strategic design mobile learning for effective mobile learning implementation. A courseware approach is being selected as vehicle to conduct learning activities within m-learning environment.

Index Terms

Mobile Learning, TELD, Learning Environment

Indonesia, 29th-30th April 2020

Revitalization Wayang in present context through creative learning; brainstorming, and mind mapping

Kurnia Setiawan, Tarumanagara University Iwan Zahar, Indonesia EsaUnggul University Ninawati Lihardja, Tarumanagara University Meiske Yunithree, Tarumanagara University

Abstract:--

Shadow-puppets originated from India, and Indonesians developed various shadow-puppets that differed slightly from their origin. Although there are many noble values and various cultural traditions contained in the philosophy and physical form of Indonesian shadow puppets. However, the shadow puppets are increasingly forgotten by today's young generation. The purpose of this research is to revitalize shadow-puppet in the present context and the perspective and expression of young people. Research conducted is descriptive qualitative. The research subjects were students at the Visual Art and Design Faculty, at Tarumanagara University. The research methods conducted by depth-interview to RadenBagusAnantaHariNoorsasetya and UntungSaryanto (wayang expert), quessioner, pre and post-test about the students' insights, interests, and creative ideas on wayang, and focus group discussion with 33 Tarumanagara Students who take creative experiment course. Amongst the creativemethod used, which is considered the most striking and suitable is brainstorming and mind mapping. The results of a pleasant learning atmosphere, getting to know themselves, expressing themselves, thinking freely, cooperating with others and stimulating the courage to experiment to revitalize puppets. There was a change in their insights, interests and creativity before and after attending several meetings with creative experiment lectures.

Keyword: -

insight, mind mapping, brainstorming

Indonesia, 29th-30th April 2020

River Water Quality and Management of Water Pollution (Study in Grogol River, South Jakarta)

Nurhayati, Departement of Environmental Engineering, Satya Negara Indonesia University (USNI), Indonesia

Abstract:--

The river water is one of the environmental components that have an important function for human life, including to supports economic development. Currently, residents in DKI Jakarta Province still use river water as a source of clean and drinking water, this is due to the limited supply of clean water provided by PDAM Jaya so that river water is an alternative source of water. The river as a body of recipient of domestic waste water becomes one of the natural resources that are vulnerable to pollution. Grogol River is one of the rivers that is used as raw water for clean water and is now polluted due to community activities. This study aims to analyze water quality and determine efforts to control water pollution in the Grogol River. The research method used is a combination of quantitative and qualitative methods. The SWOT (Strength, Weakness, Opportunity, and Threat) method is used to determine water pollution control efforts. The results showed that efforts to control water pollution that can be applied in the Grogol River are: control the people who live and operate in river border areas, organize socialization and training to the community and MSME about the importance of waste management, improve supervision of MSME liquid waste disposal, government assistance in creating systems and implementing integrated WWTP for MSME activities and slums, and implementation of water pollution control programs.

Keyword: -

River, water quality, management, water pollution.

Indonesia, 29th-30th April 2020

Application of Deming Management Method to Improve Quality Management Performance Telecommunication Projects in Indonesia

Sigit Budi Jatmiko, University of Indonesia,[2] University of Indonesia Mohammed Ali Berawi, University of Indonesia,[2] University of Indonesia

Abstract:--

Quality management ideas and theories from W. Edward Deming have been implemented in the world, especially in the manufacturing and service industries. The focus of this research is to examine the Deming Management Method by including the intervening of the measuring indicators in the telecommunication project with case study in Indonesia.

In this research, we will analyze the effect of the measured indicators and the correlations of the hypothesized relationships that are all positively related. From the formulation of the problem will be analyzed what needs to be evaluated from the relationship between the Deming Management Method and improving quality management, and the Deming Management Method application strategy that can improve the quality management of telecommunications projects in Indonesia.

Keyword: -

Deming Management Method, telecommunication.

Indonesia, 29th-30th April 2020

Strategy of Doctrine Management in the VUCA World from the Perspective of Defence Science: An Analytic Hierarchy Process Approach

Merjames Pakpahan, Indonesia Defense University (IDU) Lilly S. Wasitova, Indonesia Defense University (IDU) Richardus Eko Indrajit, Indonesia Defense University (IDU) Taufik Dwicahyono, Indonesia Defense University (IDU) Raja H. Manalu, Indonesia Defense University (IDU) Sampe L. Purba, Indonesia Defense University (IDU)

Abstract:--

The VUCA (Volatile, Uncertain, Complex, and Ambiguous) we are in today has begun in the early 1990s after fallen down of eastern block, where suddenly the clear meaning of "enemy" disappeared and a new way of seeing and reacting. Along with it, also a rapid changes taking place in political, economic, social and technological aspects world-wide are making the organizational world increasingly more VUCA. From the perspective of Defense Science, this new world brings consequently a challenge in the Doctrine Management and requires the right strategy to anticipate changes in parameters, identify opportunities and threats, create strategic plans, manage risks, solve problems and make effective decisions. Thus, in large organizations it is necessary to establish a strategy for managing doctrines so that many doctrines that look like scattered pieces can become integrated and connected with each other. In the concept of doctrine management, there are fundamental doctrines that underlie all existing doctrines, and then environmental doctrines that form part of the basis of organizational doctrines. The Defense Science mention that military doctrine is the expression of how military forces contribute to campaigns, major operations, battles, and engagements. It is a guide to action, rather than hard and fast rules. The Analytic Hierarchy Process (AHP) is a new approach that can be used to analyze and assess the strategy of doctrine management. The AHP presents a flexible, easily understood way to assist the decision-maker in formulating a problem in a logical and rational manner. Thus, in this new VUCA World the doctrine has to response to the nature of the world in which they operate: the accelerating rate of change (volatility), the lack of predictability (uncertainty), the interconnectedness of cause-and-effect forces (complexity), and the strong potential for misreads (ambiguity).

Keyword: -

Analytic Hierarchy Process, AHP, Doctrine, Management, Strategy, VUCA

Indonesia, 29th-30th April 2020

Design and Investigation of Fuzzy Control for Independent Full Car Suspension Model in Random Road and Braking Excitation

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Abstract:--

Un-sprung mass direction control, sprung mass rolling, pitching and ride comfort control are the essential integrated chassis control for vehicle. The first control, it utilizes direct yaw moment by independent wheel braking and drive and active steering. The second control, it uses varied independent damper constant and excitation force on suspension. This paper propose a design of fuzzy control to control independent full car suspension by considering brake and drive excitation and finally investigate the response of rolling, pitching of the sprung – mass. First step was developed mathematical model of full car suspension with considering the brake and drive excitation of each wheel. Second step designing the fuzzy control and investigate the response of rolling and pitching. Result of experiment shown, that the fuzzy intelligent control of suspension with considering the brake and drive force excitation has better rolling, pitching and ride comfort control in the form sixth time shorter to perform convergence time (1,5 seconds) compared with PID (7 seconds) in isolate the road, brake and drive disturbance.

Keyword: -

fuzzy control, brake and drive force excitation, rolling-pitching and ride.

Indonesia, 29th-30th April 2020

Applying Lean Government to Improve Public Services Performance Effectively: A Case Study of Lean Implementation in Tangerang Customs Office

Asral Efendi, Indonesia Defense University Imam Tri Wahyudi, Indonesian Customs and Excise Fitri Rinaldi, Indonesia Defense University Eko G.Samudro, Indonesia Defense University HJR Saragih, Indonesia Defense University

Abstract:--

organization with a supervision from external consultants into the Tangerang Customs Office (TCO) to improve public services. The purpose of this paper is to examine which tools/techniques are implemented into the TCO together with their impact as viewed by the formal leaderwithin theorganization.

The research takes a case study approach based on visiting the TCO, by using the Library Research method on Activities Report VSM training, implementation of lean tools, and in-depth interview with formal leader.

This paper reflects on the implementation of a Lean approach into the TCO in order to understand which tools are relevant and have had an impact. This research showed that lean implementation have led to tangible and intangible benefits. Tangible benefit appeared in reduction of the average customs permit processing time, although average submitted documents increased. Intangible benefits include a better understanding of Lean concept and methods and its application know-how, a rise in employees motivation and morale by executing employees improvement proposal as a bottom-up approach.

To date the implementation of Lean as a business improvement methodologies are still under researched within public services in Indonesia. The majority of papers to date focus on presenting case studies of what happened outside of Indonesia. This paper attempts to go beyond that in order to present framework to help in understanding, implementing and challenging the concept of Lean in public services in Indonesia

Keywords:

Lean Government, Value Stream Mapping, Public sector organizations, Business process reengineering

Indonesia, 29th-30th April 2020

The Effect of Inquiry-based Learning (IBL) and Project-based (PjBL) on the Development of the Critical Thinking Disposition (CTD) of Prospective Teachers of Electronic Engineering Education at Universitas Negeri Jakarta, Indonesia

Wisnu Djatmiko, Fakultas Teknik – Universitas Negeri Jakarta Suyitno Muslim, Fakultas Teknik – Universitas Negeri Jakarta Suyono, Fakultas MIPA – Universitas Negeri Jakarta

Abstract:--

Learning strategies are considered to have a facilitative effect or hinder the development of students' CTD. The purpose of this study was to determine the effect of IBL and PjBL on students' CTD development. 84-students study five electronic materials which are grouped using simple random sampling for each learning strategy. The pretest-posttest experimental design and paired sample and independent sample t-test were used to validate the effectiveness of each learning strategy. CTD instruments derived from California Critical Thinking Disposition (CCTD) are used to measure students' CTD data obtained at the end of each lesson. The results showed that the CTD of prospective teachers of electronic engineering education increased in the IBL and PjBL groups. In the IBL group (N = 42) the average value of students' CTD also increased from 162.52 to 168.38 with t-Statistic = 15.52 > t-Critical one-tailed = 1.68 with N-gain = 0.16.

Keywords:

inquiry-based learning, project-based learning, development of critical thinking disposition, effect of learning strategies.

Indonesia, 29th-30th April 2020

The Influence of Dynamic Capability and Collaboration Strategy on the Company Positional Advantage (A Study of Airports in Indonesia)

Ferdian Agustiana, Binus University Diyah Budiastuti, Binus University

Abstract:--

The service performance of several airports under the auspices of Angkasa Pura is on par with other world class airports. It is important to create a company positional advantage for airports in Indonesia. But there are still facts about the problem with this. In this regard, the purpose of this study is to examine the effect of dynamic capability and collaboration strategy on company position advantages in the airport industry in Indonesia. The research design is quantitative research approaches. The type of research used in this study is verification. The survey method applied is an explanatory survey. The unit analysis in this study is airports in Indonesia. The observation unit is the airport management in Indonesia. The research data collected was in the time span of cross section one shoot. The population in this study is all airports in Indonesia. Samples is taken as many as 50 airports. Analysis of causality in this study using Partial Least Square. The results of study reveals that the company position positional advantage is more dominantly formed by collaboration strategy and supported by dynamic capability. The results of this study have implications for airport management that the development of company position advantages can be carried out by developing collaboration strategies, especially in terms of cooperation with institutions, followed by cooperation with logistics and transportation vectors, regional airports, private stakeholders, airlines, and tour operators. These efforts are supported by the development of dynamic capability, which prioritizes to the aspects of reconfiguration strategy, seizing capacity and sensing capability.

Index Terms—

dynamic capability, collaboration strategy, company positional advantage.

Indonesia, 29th-30th April 2020

A Review of the Implementation of Experiential Learning Courses

Rodolfo B. Burac, Jr, College of Education, Dr. Emilio B. Espinosa Sr., Memorial State College of Agriculture and Technology a

Abstract:

This quantitative study dealt with the implementation of the Experiential Learning Courses. It aimed to measure the intended learning outcomes and the level of engagement, the challenges and benefits derived in the implementation of Field Study Courses. A 5-point Likert scale was used to measure the intended outcomes and the level of engagement of the respondents. The results show that the level of the intended learning outcomes measured was interpreted as very much achieved, and the level of participation of all the respondents was interpreted as very much participated. The results show that when experiential learning is implemented according to its processes, the intended learning outcome will be achieved. Further, the results imply that even if there are challenges in the implementation of the field study courses, the overall implementation is still successful.

Keywords :

learning outcomes, implementation, field study courses

Indonesia, 29th-30th April 2020

Conceptual & Procedural Models in Competency Test Proficiency Assistance System based on Ubiquitous Learning

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Abstract:

The industrial era 4.0 has brought various challenges such as technology, strategy, business and people, where people or human resources become one of the main assets in a company and significantly determine competitive advantage in the market. Not only that, but also because the dynamics of change in the labour market are getting faster, which means outdated from existing competencies and increasing demand for new competencies. Sharing research and previous literacy is an inspiration to create and develop a system that has collaborative learning capabilities with various stakeholders, various teaching materials or content provided, as well as various services in learning innovation. The primary foundation of the system created in this study based on Ubiquitous Learning by combining three interrelated system development models between the Borg and Gall model as the backbone, Hanafin and Pack as the learning interaction process and the Waterfall model of the accompanying application system built. The establishment of the Conceptual Model and Procedural Model in a digital learning platform from national and international standard certification programs based on Profession and Competence provided by industry and associations, bridging the industrial and campus worlds to opportunities for new paradigms in the educational business process that will ultimately impact by increasing the competency ability of human resources in the field of informatics also students and lecturers in Indonesian informatics and computer education.

Keywords :

Assistance Systems, Educational Technology, Learning Innovation, Proficiency Testing, Ubiquitous Learning

Indonesia, 29th-30th April 2020

Analyzing Sustainable Supply Chain Management Key Factors while Pandemic in Manufacture Industry in Indonesia

Adi Kurniawan, University of Indonesia

Abstract:

A pandemic situation that takes place in an affected area will directly impact an industry that involves as many resources as it does in a factory, especially if the epidemic is easily spread and or transmitted to others through its distribution media. This allows the imbalance of the production process and also the supply chain flow from the company, especially in the manufacturing sector, because the impact of this epidemic is very broad and allows the potential lockdown from the affected location if it takes a lot of victims, namely humans infected with the epidemic. Especially based on the classification of impacts ranging from those infected to the number of fatalities. The implementation of this pandemic-related policy is crucial for the supply chain order because it can create an imbalance in the global business economy in carrying out the production of their respective goods because the supply chain network is beginning to be disrupted due to the existence of this pandemic. Therefore we need a strategy to handle the impact of the pandemic on the supply chain so that later every company in the manufacturing industry can reduce the potential losses due to production failure due to the lack of supply of raw materials to produce goods.

Index Terms

SSCM, Key Factors, Pandemic, Manufacture, AHP.

Indonesia, 29th-30th April 2020

System Dynamic Analysis Implementation in Risk Management of Labour Social Security Membership Policy

Dr. Poempida Hidayatulloh, UniversitasMercuBuana/BPJS Ketenagakerjaan

Abstract:

One of the challenges in overseeing an implementation of a policy is to foresee the risks that may arise with it. One may identify any risks without knowing the correlation among each element within them. This would commonly lead to a more tangled future policy making due to undesired archetypes occurrence. BPJS Ketenagakerjaan recently applied a policy to accelerate member acquisitions by adapting the Japanese Sharousi scheme. The Supervisory Board of BPJS Ketenagakerjaan ran a system dynamic model and further analyzed it, in order to capture the whole consequences of the policy implemented. Analyses of the model were elaborated in this paper. The analyses cover the correlating risk elements of the policy model. How each of them interact and influence one to another. Some simulation results were also presented. Furthermore, recommendations were made based upon the analyses.

Index Terms

Modelling Analysis, Policy, Risk Management, System Thinking.

Indonesia, 29th-30th April 2020

Analysis of Safety Cost Structure in Infrastructure Project of Main Dam Based on Work Breakdown Structure (WBS)

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Yusuf Latief, Department of Civil Engineering, Faculty of Engineering, Universitas Indonesia

Abstract:

Work activities on construction projects can have problems caused by various things, one of them is workplace accidents. Early identification and analysis of potential hazards in each work package, implementation method, work activities, resources and the existing environment can prevent work accidents from occurring. But the application of an occupational health and safety management system is still not optimal, this is due to the absence of a separate budget in this sector. Thus, financing in this management system is taken from the project budget, which causes a reduction in the profits of the construction company. This study aims is to develop the safety cost based on Work Breakdown Structure (WBS). The research methode are survey research and descriptive analysis. The study results are the dam standardizedWBS, potential hazard sources, the preventive action to each potential hazards in each activity, finding the safety cost components based on WBSand the calculation of safety cost percentage in order to improve the OHSMS quality and reducing work accidents in the dam projects.

Keywords:

Work Breakdown Structure, Dam Project, Safety Plan, Cost of Safety

Indonesia, 29th-30th April 2020

The Development of Planning and Controlling Procedure for Gas Well Drilling Projects to Improve Time Performance Based on PMBOK 2017. (Case Study of XYZ Gas Field Well Drilling Project in West Papua)

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Yusuf Latief, Department of Civil Engineering, Faculty of Engineering, Universitas Indonesia, Kampus Baru UI Depok, Jawa Barat 16424, Indonesia

Abstract:

Lack of attention to proper procedures in the planning and controlling system is one of the main causes of delay of many projects. In the exploration project of gas field in West Papua, delay is one of the main problems that occur. Project delays during the exploration drilling period caused many losses mainly related to delays in the monetization period of the gas field, while the duration of the production sharing contract for the gas field with the Indonesian government cannot be extended in the near future. This research was conducted to provide development of the project planning and control system procedures for to improve the time performance of gas wells drilling projects on the XYZ Gas Field by using project management scientific principles based on the PMBOK 2017. The method used in this research is a risk analysis using a case study of XYZ Gas Field exploration drilling operations and also a survey to determine the dominant risk that can affect time performance of the project. Furthermore, preventive and corrective actions will be designed and recommended to develop the exploration well drilling project procedures so that time performance can be improved. The results in this research indicate that there are three aspects needed for the development of planning and controlling procedures of well drilling projects in the XYZ gas field; the project risk management system that is applied to all phases of the project life cycle, the application of a project management software and inclusion of project communication risk analysis in the risk management system. It is expected that the results of this study can provide input to ABC Co., the contractor managing the XYZ Gas Field in determining and making improvements to the performance of the drilling operation and completion of the development well and also the production well that will be carried out in the future.

Keywords:

control procedure, oil and gas well drilling, planning procedure, PMBOK 2017, project risk, time performance.

Indonesia, 29th-30th April 2020

The Effect of environmental Personality and Locus of Control on Employees' Pro-Environmental Behavior

Yusriani Sapta Dewi, Universitas Satya Negara Indonesia

Abstract:

The research is aimed at finding out the effect of environmental personality and locus of control on employees' pro-environmental behavior. The research method used in this research was expost facto with 2 x 2 factorial design. The object of this research were 32 employees of Universitas Satya Negara Indonesia (USNI) Jakarta, picked using random sampling technique. There were three variables in this research; pro-environmental behavior, environmental personality, and locus of control. The data were analyzed using two-way ANOVA and Tuckey test. The research results showed that 1) there were significant differences on the pro-environmental behavior of employees with accurate environmental personality and those with less accurate environmental personality; 2) there were significant differences on the pro-environmental behavior of employees with internal locus of control and those with external locus of control; 3) for employees with internal locus of control, their pro-environmental behavior was more positive if they have accurate environmental personality; 4) for employees with external locus of control, their pro-environmental behavior was more positive if they have less accurate environmental personality; 5) there is an influence of the interaction between environmental personality and locus of control on pro-environmental behavior. Therefore, it can be stated that pro-environmental behavior of employees is not only influenced by their environmental personality, but also by their locus of control. In other words, to improve employees' pro-environmental behavior, both environmental personality and locus of control need to be considered.

Keywords:

Environmental Personality, Locus Of Control, Pro-Environmental Behavior

Indonesia, 29th-30th April 2020

Industry 4.0: Challenges and Opportunities in Competency Development for Defense Apparatus' Human Resources

Eko Bambang Wibowo, Indonesia Defense University Tri Legionosuko, Indonesia Defense University Jonni Mahroza, Indonesia Defense University Yudhy Chandra Jaya, Indonesia Defense University

Abstract:

Industry 4.0 is an industrial revolution era that combines cyber technology and automation technology. In the future, manufacturing activities will be integrated through the massive use of wireless connection and big data. To prepare for this, stakeholders in defense need to develop strategic efforts so as not to be left behind and be disadvantaged by technological advancement. Anticipatory steps to face digital developments, mastery of defense technology, and competency development of defense apparatus' human resources are some of the efforts that can be made to face Industry 4.0. With a qualitative approach and descriptive analysis method, this study aims to analyze the opportunities that can and must be taken by stakeholders of defense to develop the competencies of their human resources. The study found that the euphoria for the emergence of information technology and information systems has taken place, which then becomes a new challenge for defense apparatus' human resources. To develop the competency of human resources in defense, capacity building in the field of leadership is necessary. In addition, stakeholders also need to improve and manage the inputs (budget) to ensure optimal defense apparatus' human resource capacity and competency.

Keywords:

Apparatus' Human Resources, Competency, Defense, Industrial Revolution.

Indonesia, 29th-30th April 2020

Survey on Road Maintenance along PLUS Expressway for Mobile Application Development

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Abstract:

At every nook and corner of the globe, roads happen to be one of the biggest assets in every country at every corner of the globe whereby the network infrastructure presenting economic and social benefits for individuals, groups of person, companies and industries. Maintaining the road system has been known generally to give significant improvement to the growth of economic and social benefits; meanwhile, inadequate road system maintenance could give a bad impact to mobility, the increasing rate of accidents, aggravates isolation, poverty and could eventually cause the rise of vehicle operating cost. A survey was conducted to elicit and evoke information on all sorts and factors of road imperfection and the present road maintenance rehearsed along PLUS expressway. Regardless to that, in most countries in the world today the management of road maintenance has been a big challenge. Unidentified road environment covers many aspects. Thus, based on those matters, it is vital to improve the quality of inspection reports whereby the efficiencies by mobile application shall be utilized. The developed system mobile application was found to be efficient and it can be used at anywhere and anytime which makes it flexible and convenient. Thus, the aim of this study is to identify types of defect, problems or issues and shortcomings of current road maintenance practice and subsequently develop a computerized road maintenance management system for PLUS Expressway. All the information gathered were examined, abridged and portrayed by utilizing Statistical Package for Social Science (SPSS) programming. The data analysis result of the survey will be utilized as the input for the mobile applications development, focusing on road maintenance along the PLUS Expressway.

Keywords:

Mobile application, road maintenance, statistical package for social science (SPSS), expressway

Indonesia, 29th-30th April 2020

Knowledge-based Project Management Apps to Improve Quality of Non-Engineered Residential Buildings in Indonesia

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Mohammed Ali Berawi, Department of Civil Engineering, Faculty of Engineering, Universitas Indonesia, Depok, Indonesia

Abstract:

Indonesia is located in an area that has a high potential for earthquake. Most of the fatalities occurred due to the collapse of non-engineered residential buildings, which are still widely available in Indonesia. Non-engineered building are a simple buildings which in the process of construction are not use the correct technical rules and patterns. The Indonesian government has made regulationfor simple earthquake-resistant residential buildings. However, its implementation is not easy, because the construction process usually done by the community itself and has become a habit for a long time without regard to the provisions that have been made. Several initiatives have been carried out involving cross-parties and various fields to improve skills, knowledge and awareness of this issue. How to manage supervision, increase skills and maintain shared awareness can occur continuously and growing is still the problem. Project management ensure the quality of work as planned. The application of appropriate knowledge management can increase people's skills, knowledge and awareness. With IT technology, process will be continuously and accessed from all locations of Indonesia. The development of knowledge-based project management applications is expected to be a solution to improve the quality of non-engineered residential buildings in Indonesia.

Index Terms

Project Management, Knowledge Management, Web Application, Non-Engineered Building.

Indonesia, 29th-30th April 2020

Biomass (Palm Kernel Shell) In Renewable Energy for CFB Boiler in Indonesia

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Abstract:

Coal-fired power plants are one of the most economical power plants for the fuel side if it is efficiently operated compared to other fossil powered power plant. Coal-fired power plant boiler has several types. One of them is CFB Boiler that also can be used fuel from biomass. CFB boiler are relatively new among boiler for power plant due to the efficiencies. This can be an opportunity to reduce the emission by the used of the fuel using biomass. And the palm kernel shell is the one of the potential option that maybe not need modification to the boiler and the infrastructure for certain portion. This study aims to find an analysis of the feasibility of investment for operating CFB boiler with palm kernel shell to reduce the use of fossil fuel with minimum adjustment to the system, with technical considerations to determine whether it is possible to not modify and how much it can be reduced from the fuel cost and emission. It is expected that this research will shows the difference of cost and emission between single coal fuel and mixed several ratios with PKS.

Index Terms

Biomass, CFB Boiler, Coal-fired, Power Plant, Energy, Renewable Energy.

Indonesia, 29th-30th April 2020

Intention to Use Products and Services Based On the Internet of Things: A Case Study from Vietnam

Dang TD, Eastern International University Nguyen MT, Ho Chi Minh City University of Technology

Abstract:

It is predicted that the rapid growth of the Internet of Things (IoTs) will enormously impact all of the technology consumption. Based on a well-known model of UTAUT2, the paper proposes three more factors of consumer perception: including perceived value, perceived risk of privacy, and consumer innovativeness, to explain consumer intention to use IoTs-based products and services. An SEM analysis of the sample of 280 consumers who used to products and services based on IoTs in Ho Chi Minh city indicated that 12 out of 15 hypotheses to be supported. The findings revealed that while facilitating conditions played as a trigger to all antecedents of UTAUT2, consumer intention to use IoTs devices was predicted only by five factors - consumer innovativeness, perceived value, expected performance, social influence, and hedonic motivation. Another interesting point is that the perceived risk of privacy is not associated with consumer intention to use products and services based on IoTs.

Index Terms

Consumer innovativeness, perceived risk of privacy, intention to use, UTAUT2 model, Internet of Things.

Indonesia, 29th-30th April 2020

Redesign Rigid Plastic Packaging for Material Value Conservation

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Abstract:

— The plastic packaging design paradigm in the production process can cause degradation in the residual value of material. Degradation in residual value will reduce the quality of plastic packaging after recycling. Currently, plastic packaging design only focuses on material sources not on conservation of material and product. Design criteria for material value conservation already exist, but a real example of the packaging design still unavailable. From the observation on the residual value of material categories, there are many products' packaging that violate design criteria for material value conservation. The aim of this study is to redesign rigid plastic packaging for material value conservation. Redesigning processes are based on the design criteria for material value conservation. Redesign of rigid plastic packaging uses the identification of mismatches in design, then scoring is given before and after redesign for further comparison. Scoring of packaging design. The proposed designs packaging are evaluated by consumer acceptance survey. The results of this study are the score of design packaging increases after redesigning and the evaluation shows a high level of consumer acceptance for the proposed design. The proposed designs packaging are expected to be references of design for material value conservation and increase the material value after recycling.

Keywords:

Material Value Conservation, Plastic Packaging, Redesign, Rigid Plastic.

Indonesia, 29th-30th April 2020

Design Criteria for Material Value Conservation of Flexible Plastic Packaging

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Djoko Sihono Gabriel, Department of Industrial Engineering, Faculty of Engineering, Universitas Indonesia

Abstract:

Focus of this study is the importance of effort to attain material value conservation, particularly for design of flexible plastic packaging. Inappropriate design of plastic packaging with excessive use of colour and printing ink will be affected to the low acceptance level of plastic waste for recycling. Currently, design criteria of flexible plastic packaging are limited on design for recycling and still not yet fully covered by design for material value conservation. This research aims is to proposed design criteria for material value conservation of flexible plastic packaging using development of design criteria method, confirmatory factor analysis (CFA), and analysis of statistical data using non-parametric statistic multiple correlations, Cronbach's Alpha, to determine that design criteria are valid and reliable. The results found that validation and reliability test for design criteria has been suitable with the Cronbach's Alpha requirement. Recommendation of design criteria consist of; (1) No pigment colour in plastic material, (2) White colour in plastic material, (3) No printing ink in colouration, symbols, pictures, graph and letters on the surfaces of plastic materials, (4) Optimum use of paper label and thin plastic label as informational and promotional purposes of packaging, (5) No adhesive or water-soluble adhesive and non-toxic material, and (6) Recycle-able material with good value and minimum category of the layer used for packaging. Implementation of design criteria for material value conservation of flexible packaging can be as reference to develop the phase of design a flexible plastic packaging product for related stakeholders by constantly widespread that application in industry, region and country.

Keywords:

Material value conservation; design criteria; flexible plastic packaging.

Indonesia, 29th-30th April 2020

Material Value Conservation of Paper Waste from Sublimation Printing

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Abstract:

In textile printing with sublimation techniques, the paper has an important role; i.e as a medium for transferring inks to the fabric so that final graphics can be produced. This paper has a short life cycle because it cannot be used for reprinting. This study aims to propose four alternatives ways to increase the value of paper waste from textile printing with approaches in material value conservation, reverse engineering, material selection, and waste management. The four proposed alternatives are to sell paper waste rolls to the waste collector, to reuse paper waste as an underlay paper in fabric cutting, to reuse paper waste as shredded paper for packaging, and reuse paper waste as shredded paper for packaging after it has become underlay paper in fabric cutting. The first alternative contributes to a total net revenue of IDR 149,490,000 for three years. The second alternative contributes to a 74% reduction in the cost of purchasing underlay paper with a value of IDR 318,912,000 for three years. The third alternative contributes to a revenue of IDR 66,440,000 for three years, but it has not reached a break-even point due to investment in machinery which costs IDR 112,000,000. The fourth alternative contributes to a reduction in the cost of purchasing underlay paper with a value of IDR 210,234,000 for three years after deducting the cost of machine investment. From this study, it is found that the application of material value conservation in paper waste can bring economic value to the industry and the environment.

Keywords:

Material Value Conservation, Paper Material, Paper Waste, Reuse.

Indonesia, 29th-30th April 2020

Identifying Partner Country's in Global Innovation Output Index Indicators: A Multivariate Approach

Maria Danesa S. Rabia, Bohol Island State University, Calape, Bohol, Philippines

Abstract:

One of the significant indicators of the country's development is having the presence of quality, and innovative outputs come from different sectors. This study examined the recent global innovation output index of 129 countries by employing factor analysis and non-hierarchical cluster analysis to construct factors and identify partners. Resulted to Eight common factors using the factor loadings and scree plot of 35 indicators. The factors differ substantially from the indicators used in previous data and also lead to different rankings of countries. As rankings are not that informative without further information, the distance between each country and the sample mean were considered and analyzed. Differences between countries are much more pronounced for the factors identified in the global innovation index than for individual country indicators. In thenon-hierarchical method cluster analysis, the classification of the countries generated seven homogenous groups and was enhanced using multiple regression analysis to identify the predictors of the 2019 Index of Economic Freedom (IEF).

Keywords:

Global Innovation Index, Global Economic Freedom, Factor Analysis, Multiple Regression Analysis

Indonesia, 29th-30th April 2020

The Effect of Work Discipline, Career Development, and Indirect Compensation on the Performance of Employees

Edi Siregar, Satya Negara Indonesia University

Abstract:

This study aims to determine the effect of work discipline, career development, and indirect compensation variables partially or simultaneously on employee performance. The population or samples in this study were employees of Planet Sport Senayan City in the South Jakarta area. Data collection used in this study was taken using random sampling. Data collection methods used in this study is observation and questionnaire data, and the type of data used in this study is primary data. In addition there are several methods of data analysis in this study, namely the validity test, reliability test, descriptive analysis, multiple linear regression, classical assumption test and hypothesis testing. Based on predetermined criteria, sample data that has been used is 60 out of a total of 210 questionnaires. From the results of the test simultaneously and partially prove that the variables of work disclipine, career development, and allowance together - the same influence on the performance of employees of the Planet Sport Senayan City.

Keywords:

work discipline, career development, indirect compensation and employees performance

Indonesia, 29th-30th April 2020

Utilization of Cloud Computing using OLAP: Case Study of Company XYZ

NathaniaFerinda Roemawi, MercuBuana University AmatDeska Arya, MercuBuana University

Abstract:

Data warehouse is the core of decision support systems, which are currently used by all types of companies throughout the world. Although numerous researches have been conducted related to the necessity of decision support systems for small businesses, the majority adopted existing approaches and solutions, which is suitable for large-scale enterprises, but inadequate for small and medium-sized enterprises. Small companies need inexpensive also lightweight architecture as well as tools (hardware and software) that provide online data analysis. To ensure this feature, the study used web-based business intelligence approach. For real-time analysis, traditional OLAP architecture is complicated and storage tends to be very expensive, therefore, the authors also reviewed the in-memory processing. This study discussed the existing approaches and tools that are capable in the main memory and / or the web interface, which are relevant for small and medium enterprises in making the decision.

Keywords:

Data Warehouse, Cloud Computing, OLAP.

Indonesia, 29th-30th April 2020

The Development of Project Planning and Controlling Management in Banking Real Estate Project Based on PMBOK 2017 to Improve Time Performance. (Case Study in XYZ Bank RBB Relocation Project)

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Abstract:

Delay is a problem that often occurs in the construction project. Project delays also occur in the relocation project at XYZ Bank which caused a delay in branch operations at the new place. According to XYZ Bank's project data for 2018, there were 58% of the relocation projects that delays in completion. And in 2019, the delays ratio increase to 79%. Delays can be caused by ineffective planning or poor project control. This research was conducted to find the strategy and to develop planning and project control procedures to improve the time performance of the relocation project at XYZ Bank. The method used in this research is case study and survey of respondents. Statistical analysis and risk analysis are used to find the level of risk in the planning and control process that affects to time performance. Then the preventive and corrective responses to the most dominant risks are formulated. From this study it is known that the most influential risk to the time performance of the RBB relocation project at XYZ Bank is in project planning and control related to integration management, scope management, time management, cost management, and project control procedures were developed based on PMBOK 2017 (Project Management Body of Knowledge) to improve the time performance of the Relocation RBB Project at XYZ Bank as the result of this study.

Key-words:

Time Performance, Project Planning, Project Controlling, Banking Real Estate Project.

Indonesia, 29th-30th April 2020

Spatial Database Management in the Subsea Survey Service Industry: Database vs. Blockchain

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Abstract:

The subsea survey service industry is an industry which main jobs are acquiring survey data which mostly are the spatial data. These data are then compiled into a project database which contains all information about the projects from survey data, reports, deliverables, and other information regarding the projects. This information refers to various data that contains resources which can be to make decisions that will affect the current state of the project, as well as improving decision-making performance in the company. Spatial database in this form considered to be less effective in terms of data decentralization, immutability, security, and transparency. These aspects can be fulfilled by using blockchain technology. However, the suitability of blockchain technology towards spatial database is still questionable. This research will discuss various literature regarding blockchain, traditional or relational database, and GIS with the purpose comparing one technology to another and finding their strengths and weaknesses toward spatial database using aspects analyzed from previous literatures.

Key-words:

Blockchain, spatial database, traditional database, literature analysis.

Indonesia, 29th-30th April 2020

Development of Information Systems for Increasing Time Performance in the Construction of Green Buildings in Indonesia

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Abstract:

The problem raised in this research is the current use of energy continues to increase along with technological developments and distributed in the world. Therefore, the Government issued Minister of Public Works and Public Housing Regulation No. 02 / PRT / M / 2015 concerning Green Building which regulates permits to build office buildings in office buildings so that more offices can be developed in Indonesia. In addition, Indonesia also has a system for Green Buildings called Green Buildings which is a standard in Green Buildings issued by the Green Building Council of Indonesia. To overcome this, a pregreen building appraisal system in Indonesia has been created so that companies that do not understand the criteria and assessment criteria will know about it. The application system is made to be able to load building applications in Indonesia, reducing the design time and automation of the counting system is easier and more effective than using manuals, while also reducing the percentage increase in the time of the final assessment. This application makes it easy for users to determine the expected building requirements in Indonesia.

Keywords:

Green building, Approval and requirements system, Pre-assessment, Automation

Indonesia, 29th-30th April 2020

Model of a Collaborative Blended Learning Environment in Internet of Things Courses

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Abstract:

Mastering the Industry 4.0 competencies such as Internet of Things (IOT) effectively due to its nature require enhancement and update to the current instructional design (ID) model. Our research has been conducted in 3 cities involving almost 500 active participants to examine which IT-based learning methods were best for this particular competency. We provided face to face and online intervention through collaborative strategies with half of the group. Several instruments were observed such as assessment through rubrics, questioners, self-assessments, peer-reviews, social and collaborative aspects as well as the role of facilitators. This research was meant to develop instructional design model that suits the requirements and demands for IoT competencies.

Keywords:

Collaborative Blended Learning, Instructional design model, IOT-Assessment, IOT competencies

Indonesia, 29th-30th April 2020

The Effectiveness of Local Wisdom-Based Games in Improving Physical Fitness in Children Aged 9 Years

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Abstract:

Objective: The objectives of this research are to examine the effectiveness of local wisdom-based games in improving physical fitness in children aged 9 years, for 12 weeks and to investigate possibility of gender differences.

Method: This research used an experimental method involving 200 children aged 9 years. There were two groups in this research; the control group and the intervention group. The intervention group (n = 100; 50% boys and girls) received a 60-minute local wisdom-based games session every week which was provided by trained local instructor; the control group (n = 100; 50% boys and girls) did not receive additional training. Physical Fitness (PF) was assessed using a PF test before and after the intervention. In order to assess the effects of interventions and the possibility of gender differences, two group pretest-posttest design analysis was used in this research.

Result : The intervention group which was given the local wisdom-based games had better physical fitness than the control group. Most boys had higher improvement of physical fitness than girls. Moreover, boys did more activities than girls both moderate to strong activities.

Conclusion: This research has proved that there is a significant effect of gender on physical fitness. The results also show the importance of interventions that can provide various benefits for developing and maintaining the right level of physical fitness for the next life.

Keywords:

Effectiveness, Local Wisdom-Based Game, Physical Fitness (PF), Gender

Indonesia, 29th-30th April 2020

Teacher Candidates' View on Using Technology in Developing English Language Teaching Material

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Abstract:

Teacher candidate competence affects the quality of teaching and is one of the most important issues in education that determines the success of students' learning. This research was aimed at investigating the teacher candidate in developing English teaching materials during the practice teaching experience. However, English teaching materials and classroom practice often focus on linguistic knowledge and ignore the use of technology that would enable the learners to perform appropriately in the target language. To enable bothteacher candidates and lecturers to realize this objective, therefore, an appropriate teaching materials and technology should be integrated and designed comprehensively. The research conducted an exploratory approach in which data were collected through semi-structured interviews and a questionnaire was distributed to the English teacher candidates. The analysis and discussion based on the perspectives and contexts in which designing of English teaching materials problems and the coping strategies they encountered emerged. By this research hopefully the need for better integration of technology in the EFL classroom and a more grounded connect between the university and the placement schools.

Keywords:

EFL classroom, English teaching materials, teacher candidate, using technology

Indonesia, 29th-30th April 2020

Energy Profiling and Residential Load Shifting Mechanism with Cost Reduction using Genetic Algorithm

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Abstract:

A growing number of residential consumers despite high electricity costs in the provinces largely impart to the overall power market situation in the Philippines resulting in high emission generating units adding harm to the environment, coal dependency and supply shortage, especially during summer. Demand Side Management (DSM) aims to encourage consumers to use less energy during peak times. Demand Response (DR) is a type of DSM towards conserving the use of energy to reduce system peak demand and operational cost. This paper proposed a metaheuristic demand response mechanism for residential consumers to reduce consumers' peak demand and minimize electricity cost via Genetic Algorithm load shifting without affecting the consumers' conveniences. Further, the paper assumed that the energy market is existing and published hourly energy prices a day ahead and that the hourly demand of household consumers is known through a load forecast using Weighted Least Square. Furthermore, the flat iron and washing machine are the identified appliances the consumers' willing to use during non-peak hours. The process was simulated through MATLABr2018a in generating the best-fit combinations for load shifting.

Index Terms

Demand Response, Genetic Algorithm, Hierarchical Clustering, Load Shifting

Indonesia, 29th-30th April 2020

The Self-Assessment Model for Cyber Army Capabilities

Richardus Eko Indrajit, Indonesia Defence University Taufik Dwicahyono, Indonesia Defence University Lilly S. Wasitova, Indonesia Defence University Marsetio, Indonesia Defence University

Abstract:

Cyber warfare between countries has been recognised as a new mode of battle in the modern world. By utilizing information and communication technology as weapon, this type of war has different characteristics from the conventional one. The most striking difference is in the arena of battlefield, which taking shape as virtual environment compare to the physical ecosystem. Facing this new phenomenon, a number of countries in the world began to form and to prepare their cyber army. In every battlefield, this troops are working together with the existing army, navy, and air-forces. A series of educational program has been prepared to equip this cyber army with necessary competencies and skills. This paper proposes a self-assessment model to measure the level of competencies and capabilities of cyber army within the nation. Through this assessment, the commander-in-chief will know the spectrum of collective capabilities its cyber army has in the existing state. Several appropriate strategic initiative can be launch as a response to the results of the assessment.

Indonesia, 29th-30th April 2020

From Data to Proxy Cyber Mindset Attacks: An Evolution of Imminent Threat

Taufik Dwicahyono, Indonesia Defense University Richardus Eko Indrajit, Indonesia Defense University Lilly S. Wasitova, Indonesia Defense University

Abstract:

Cyber-attacks have evolved, ranging from data theft to attacks that do not only occur in cyberspace but can cause physical damage. These are called physical cyber-attacks, and some can even destroy mobile machines, which are known as kinetic cyber-attacks. The countless losses and consequences of these attacks are exemplified by the past experiences of several countries around the world. Now, there is a new form of attack that quietly begins to grow and produces a result that is devastating, because the object being attacked now is the people mindset. Propaganda combined with Proxy War through social media is the latest tool to be utilized by terrorist networks spreading radical ideas. The challenge for mitigation is very challenging, because it deals with individuals who have different perceptions, knowledge, and understandings - which is amplified by also having different cultures. Careful awareness education is needed to minimize or even eliminate the threat.

Keywords:

cyber-attack, evolution, mindset, terrorism, awareness

Indonesia, 29th-30th April 2020

Maritime Asymmetric Warfare in Archipelagic States

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Abstract:

Defending sovereignty within an island nation is relatively more complex than it is for a continental state. The number of islands scattered makes the strait and the sea easier to penetrate and become vulnerable points in facing the asymmetric threat at sea. Guarding and patrolling national borders requires more ships and radar technology, as well as other sensing equipment because the lengths of beaches are getting longer. Potential asymmetrical threats at sea include the former WWII mines, underwater fiber cables, floating ports, and nuclear submarines belonging to foreign countries such as USA, China, etc. Others are related to welfare, such as the theft of natural resources like coral reefs and fish, and drug smuggling activities – all which add to the burden and duties of various parties. Asymmetrical Narcoterrorism is very prominent in Colombia where drugs from Cannabis plants are sold to buy weapons. This is also happening in the Philippines and in Aceh, Indonesia.Coordination by related parties that help guard the sea is highly expected. Adequate border patrol management must be carried out so that together, different marine security institutions can maintain the sovereignty of the state, by utilization of unmanned technology, to aid in securing the archipelagic state.

Keywords:

Sovereignty, Maritime, asymmetric, unmanned, border patrol

Indonesia, 29th-30th April 2020

Developing Instructional Multimedia Based on Android Application on Nationality Learning Materialstoward Students of Senior High School

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Abstract:

This study aims to develop android-based learning multimedia on nationality material and determines the perception of class X high school students and teachers toward the results of the development of developed learning multimedia. This research usedResearch and Development(R&D) method and descriptive qualitative method for perception. The results of this study showed that students' perceptions toward the development of application-based learning multimedia on nationality material obtained an average score of 3.82 with a decent category. The results of the assessment of nationality teacher score 4.23 in the very feasible category. In conclusion, the use of android-based multimedia is feasible to be used in nationality material of learning activities.

Keywords:

Development, Instructional Multimedia, AndroidApplication, Perception.

Indonesia, 29th-30th April 2020

The Effect of Mobile Learning and Learning Style toward Students' Learning Achievement

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Abstract:

This research aims to determine the effect of mobile learning and learning styles on science learning result controlled by motivation achievement. This research used a quasi-experimental method with a 2x2 factorial design. The results showed that: (1) students' science learning result who used mobile learning was better than direct learning; (2) students' science learning result who has high visual learning style was not different than lower visual lerning style; (3) there was an interaction between learning approach and learning style; (4) students' science learning result who used mobile learning was higher than direct learning compared with the group of higher visual learning style students; (5) students' science learning result who used mobile learning to the group of higher visual learning style students; (6) students' science learning result who has high visual learning style was higher than low visual learning style compared with the mobile learning students group; and (7) students' science learning result who has high visual learning style compared with the direct learning style was not different than low visual learning style compared with the mobile learning students group; and (7) students' science learning result who has high visual learning style compared with the direct learning style was not different than low visual learning style compared with the mobile learning students group; and (7) students' science learning result who has high visual learning style compared with the direct learning style was not different than low visual learning style compared with the direct learning style was not different than low visual learning style compared with the direct learning style was not different than low visual learning style compared with the direct learning style was not different than low visual learning style compared with the direct learning style was not different than low visual learning style compared with the direct learning style was not different than low visual learning style compared with th

Keywords:

Mobile Learning, Direct Learning, Motivation Achievement, Science Learning Result, Visual Learning Style.

Indonesia, 29th-30th April 2020

Developing Problem-Based Learning Model of Integrated Science Subject in Madrasah Tsanawiyah

Furtasih, Educational Technology, Pascasarjana, UniversitasNegeri Surabaya **Siti Masitoh,** Educational Technology, Pascasarjana, UniversitasNegeri Surabaya **Andi Mariono,** Educational Technology, Pascasarjana, UniversitasNegeri Surabaya

Abstract:

This study aimstodevelop a problem-based learning model in natural sciences of MTs NW 1 and 2 LenekEast Lombok equipped with teaching materials, students' worksheets and problem-based learning process guides and teacher guides. This research used Research and Development approachby Borg's and Gall. The respondents of this researchwere students of class VIII MTs NW 1 and 2 Lenek East Lombok. Theinstruments were consisted of questionnaires, tests and interview guidelines. This research was conducted with assessment of the students of class VIII and three stages of tests; one-to-one, small group, and large class trials test. The category of instruments assessments and trial was "Very Good". The data analysis technique used was independent t-testhypothesis sampling with SPSS 1II.0. The result of this research showed thatthe developed learning model becomes feasible to be applied in teaching and learning activities with completeness score above II5 reaching 91.4%.

Keywords:

Development, Instructional Model, Problem-Based Learning, Integrated Natural Sciences.

Indonesia, 29th-30th April 2020

How Mall Helps Students Promote Their Learner Autonomy at Văn Lang University Through Out-Of Class Activities

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Abstract:

The rapid development of high technologies has brought EFL/ ESL teachers all over the worlda lot of opportunities to experience new devices and applications to help educators or trainersimprove their old existing teaching methodologies (Grammar-Translation Method, Direct Method, Audio-Lingual or Total Physical Response) and construct suitable ways through MALL because "The future is increasingly mobile, and it behoves us to reflect this in our teaching practice" as noted by Hockly (2013), known as a move approach to help both EFL/ ESL teachers and learners achievebenefits with positive reactions in their language practices that have been largely recorded for ages. This research paper, therefore, aims at presenting how MALL can help students to develop their learners autonomy at Van Lang University. The study was conducted within ten weeks with the participation of ninety-sevenEnglish majors in four academic classes the pre-intermediate level. The mixed method was used to collect the data with means of questionnaire, observation, interviews, and students'learning diaries. The findings indicated that the assistance of mobile devices associated with the platform "Google-classroom" known as a social networking learning management system engaged both social interaction and collaboration of students closely for outside class activities, and also depicted that their learner autonomy was significantly improved with amazing results including the awareness of students towards English practices outside the class increasingly, students' readiness towards givingtheir feedbackor reflection to the work of their classmates after class positively. Nevertheless, some issues need to be examined carefully for better future research such as the lack of students' technical expertise, limited internet connection, costs for internet use, and limitation of students' communicative or collaborative skills.

Indonesia, 29th-30th April 2020

Optimization of Expansion Generation Planning for the Achievement of Renewable Energy Target

Joanna Francisca Socaningrum, Faculty of Engineering, University of Indonesia

Abstract:

Electricity has become one of the important needs for the society. However, the increasing concern about global warming has made various policies to reduce CO2 emissions aimed at reducing the level of global warming, especially from the electricity sector. The Java-Bali electricity system is the largest electricity system in Indonesia. In 2018 the total electricity demand in the Java-Bali system is 172.442 GWh and the peak load is 27.070 MW. At present the energy mix in Java-Bali is still dominated by coal by 68.7%, and natural gas by 22.3%, while the utilization of renewable energy is only 8.3% and the rest are still using fossil fuel by 0.7%. To increase the utilization of renewable energy sources and reduce the use of fossil fuels in meeting electricity demand, the government set a target of the energy mix in Indonesia for renewable energy by 23% in 2025 and 31% in 2050. Java-Bali itself has quite large potential in renewable energy sources, it is necessary to develop an optimal electricity system development planning strategy to obtain the most efficient investment plan.

Keywords

Electricity, renewable energy, planning

Indonesia, 29th-30th April 2020

Environmental Education in Schools: Grounded Theory Research in Adiwiyata Elementary School

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Abstract:

Environmental Education is education that teaches students to get to know the Environment and support to increase Environmental awareness. Environmental education can be applied since elementary school can be used by students from an early age to care about the environment. So that the process of forming a character that cares about the environment is well patterned, it is necessary to have an environmentally sound school management. In Indonesia, schools that have environmental management are Adiwiyata Schools. Adivivata School is a school that received an award from the Ministry of the Environment as a school that cares and is cultured in the environment. This method uses qualitative theory. This type was chosen because the researcher wanted to find the concept of the character education process related to the students' environment which was rooted in the field data, and after it was developed, a strategy could be found. The results of the study explained that: (1) the content collected in each stage of the arrangement of school programs ranging from strategic analysis, determining the direction of development, determining the vision and mission, to determining the program and strategy for its achievement, has succeeded in determining the compatibility between one another, and by trace must accommodate Environmental education programs for students; (2) the process of environmental education in schools is ongoing Intrakurikuler, kokurikuler and extracurricular which is carried out through exemplary, slogan, habituation and school culture; (3) the implications of environmental education have appeared to form attitudes and behavior patterns that enhance environmental care attitudes in students; (4) Planning of the environmental education process for students using personality factors and environmental education models implemented by educators. The Development and Modeling Model is a new model found in this study. The Model of Guidance and Development is an environmental education model through intensive guidance and modeling from the guidance of educators. The results showed that the Guiding and Modeling Model was effective in environmental education in schools.

Keywords

Environmental education, Grounded Theory, Adiwiyata Elementary School

Indonesia, 29th-30th April 2020

Design of Learning Delivery Strategy Based on Dimensions of Competency in Vocational Education and Training

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Abstract:

This study identified the use of dimensions of competency model to facilitate learning and improving performance by managing processes and resources. This study uses a Case Study research approach. The result of this study identified that by managing delivery order process follow the order of five dimension of competency can facilitate learning and improving performance of learning. The order of learning delivery are: Task skills (performing individual tasks); task management skills (managing a range of different tasks); Contingency management skills (responding to contingencies or breakdowns), job/roles management skills (dealing with the responsibilities of the workplace), and transfer skills (work with new specifications and others). The limitation of this study lies on its scope of Technical Vocational Education and Training (TVET). The result may not be applicable in non-vocational education. With the Five dimension of competency model of learning delivery This model can be used to enhance and improve the delivery model based on percentage of delivery portion times policy practical and theory.

Keywords

learning delivery strategy, dimension of competency, vocational education, competence.

Indonesia, 29th-30th April 2020

The Experiment of Integrating Service-learning and Classroom Instruction in an Architectural Design Studio through Participation: Thailand

Tirawat Pimwern, Faculty of Architecture and Planning, Thammasat University, Thailand

Abstract:

Integrated instruction is a critical approach to Thailand's education. Several universities try to promote and implement this approach in curricula. This approach could help students become more engaged in class; additionally, students can use multiple skills to solve social problems. Notably, integrated instruction has a significant impact on academic services for local communities. This learning approach is not widely implemented in Thailand's curricula currently. This research aims to examine the potential implementation of integrated instruction in an architectural design studio using a research-based approach. There are 100 participants including community-members, architectural design students, and instructors in this research. The results show that utilizing research integration in education is a new approach for Thai architectural curriculum and the pedagogical approach is not well integrated in the research methodology. To achieve integrated instruction using the cohesive research process, it is suggested that 1] the researcher should clearly understand both the class curriculum and the research objectives, 2] the class schedule and the research timeline should be well integrated, and 3] the class schedule, learning methodologies, and tools should be flexible and adjusted for unexpected occurrences. Finally, this paper could offer a useful guideline for implementing improved teaching performance by integrating service–learning and classroom instruction in an architectural design project.

Keywords

Integrated instruction, Service-learning, Classroom Instruction, Architectural Design Studio

Indonesia, 29th-30th April 2020

Evaluation of effectiveness and efficiency of green infrastructure siting on existing water infrastructure in urban area of Jakarta

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Abstract:

It is important to analyze flood risks before assigning flood mitigation. Flood mitigations are classified into structural and non-structural approaches. Green infrastructure technologies are among of nonstructural flood mitigations. The objective of this research is to evaluate the effectiveness and efficiency of green infrastructure (GI) siting on existing water infrastructure system in Jakarta's urban spatial detail planning scale of 1:5000. Since this is an ongoing research, this paper proposes the methodology consisting: (1) selection of research site based on typical urban areas, which are, the buildings density, and social and economic factors, (2) flood risk analysis based on hazard and vulnerability mapping, (3) simulation of GI siting using a tool based on Geographic Information System modeling, (4) rainfall runoff analysis, and (5), cost efficiency analysis. The evaluation is carried out in scenarios. The results for this preliminary research are (1) Pasar Rebo sub district is the selected research site, (2) risk mapping that shows the built up lands have the highest risk while vacant lands are the lowest, and (3) rainfall runoff simulation gives the magnitude of peak runoff (Qp) of 334,36 cms and runoff volume (Vr) of 132,03 mm (2.943.255 cubic-meters). The result also shows some vacant lands which are potential for detention ponds located next to the Cijantung River with the total area of 6,3 hectares and 2,75 m depth, that can store 154.350cubic-meters of runoff volume. A preliminary conclusion indicates that the methodology is feasible to proceed in order to achieve the objectives as stated.

Keywords

flood modeling, green infrastructure, Jakarta, spatial detail planning.