5 INTERNATIONAL CONFERENCE ON
APPLIED SCIENCES, ENGINEERING, TECHNOLOGY AND MANAGEMENT

VIRTUAL CONFERENCE

21ST - 22ND APRIL 2022

DUBAI, UAE

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ICASETM

ICASETM-22

Organized By

Institute For Engineering Research and Publication (IFERP)

5ᵗʰ International Conference on

Applied Sciences, Engineering, Technology and Management

(ICASETM -2022)

Dubai, UAE
21ˢᵗ – 22ⁿᵈ April, 2022

Editorial:

We cordially invite you to attend the **5th International Conference on Applied Sciences, Engineering, Technology and Management (Virtual) (ICASETM -22)** on **21st–22nd April, 2022**.The main objective of **ICASETM -22** is to provide a platform for researchers, students, academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Applied Sciences, Engineering, Technology and Management. 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 February 2022, the Organizing Committees have received more than 90 manuscript papers, and the papers cover all the aspects in Applied Sciences, Engineering, Technology and Management. Finally, after review, about 28 papers were included to the proceedings of **ICASETM -22**.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **ICASETM -22** 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 **5ᵗʰ International Conference on Applied Sciences, Engineering, Technology and Management - 2022** this year in the month of April. The main objective of **Applied Sciences, Engineering, Technology and Management** 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 session will 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 be known as a thoughtful leader.

I express my gratitude to all my colleagues, staffs, professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful.

Rudra Bhanu Satpathy
Chief Executive Officer
Institute for Engineering Research and Publication (IFERP)

Welcome Message

Dr. Alfredo F. Fortu, Jr,
CET Dean,
Romblon State University,
Philippines

It is a privilege and honor for me to welcome you to the "5th International Conference on Applied Sciences, Engineering, Technology And Management (ICASETM-22)" which will be held on 21st April as a Virtual Conference. This conference will provide an opportunity to exchange ideas among all members of the global experimental and research society through their expertise in contemporary developments.

The main objective of this conference is to deliberate some various issues which needed to be identified in adapting and application of new innovations made in respective fields. Therefore, it is a great opportunity for all delegates from various fields of study to share and collaborate extensive knowledge for gaining the best applications.

I believe all delegates' presentations are hallmarks of a valuable concern for human welfare On that note, I am delighted to invite you all to take part in this conference.

I look forward to your participation and wish you a grand success.

Sincerely,
Dr. Alfredo F. Fortu, Jr

Welcome Message

Assoc. Prof. Dr. Ummi Naiemah Saraih,
Associate Professor,
Faculty of Applied & Human Sciences,
Universti Malaysia Perlis (UniMAP),
01000 Kangar, Perlis, MALAYSIA.

On behalf of the Planning Committee, we warmly welcome you to the "5th International Conference on Applied Science, Engineering Technology and Management (ICASETM-2022)" in the beautiful city of Dubai.

The conference theme, 'Revealing Lesser Known Advantages, Tools, Techniques, & Research Developments in The Fields of Computing, Cloud Communication, Data Analytics and Their Relation to The Fourth Industrial Revolution', has been carefully chosen to mark such a milestone of our society. I am privileged to be one of the session chairs of this important conference.

Institute for Engineering Research and Publication (IFERP) as the organizer is one of the world's largest Non-profitable professional Association meant for Research and Development in the field of Science, Engineering and Technology. IFERP members have made tremendous contributions in research, teaching and practice, resulting in impacts in many sectors of society. Let us appreciate what we have accomplished as a professional community at this conference. Furthermore, our long-term goal is to provide even more value to people all over the world. This conference will allow us to discuss our thoughts and ideas on how to chart our course ahead to new heights. This conference will provide members with the opportunity to reflect on and celebrate our past achievements, reconnect friendships and expand our networks, and together explore current and future research topics.

I hope you have a productive and enjoyable time at this special conference. Sincere congratulations on the Planning Committee's thorough work in support of various conference programmes. Thank you also to every one of the conference attendees for your contributions, which form the foundation of our conference.

Keynote Biography

Prof (Dr) Prabhat Ranjan
Vice Chancellor
D Y Patil International University
Akurdi , Pune

Prof Ranjan has been educated in Gurukul Style Netarhat School, IIT Kharagpur, Delhi University. He obtained his Ph.D. from the University of California, Berkeley based on his research carried out at Lawrence Berkeley Lab on Nuclear Fusion in 1986. He worked for nearly 20 years making important contributions to Nuclear Fusion research as a scientist in India and USA. Recently he is leading Project Sanlayan as a chief mentor, which is a private initiative funded by Silicon Valley investors to develop nuclear fusion technology for Energy, Health, and Space applications.

Prof Ranjan is a Nuclear Fusion Scientist, a Futurist, an Educator, an Innovator, an Entrepreneur and a Science Communicator. From 2013-18, he was heading India's Technology Think Tank, TIFAC (Technology Information, Forecasting and Assessment Council, an Autonomous body of DST, GoI) in Delhi as its Executive Director. TIFAC developed Technology Vision 2035 during his tenure, which was released by Hon'ble PM in Jan 2016. PMO directed all Dept/Ministries to follow this document and take the agenda forward under the leadership of NITI Aayog.

He also worked on Chandrayaan-II mission, wildlife, agriculture, and brain-computer interface(BCI). He has brought smiles to the faces of many persons with severe disabilities by innovative assistive technology for more than a decade. He has been nominated by BIS to represent India in the BCI standardization process at International Standards Organization.

At DYPIU, he has created a flexible and futuristic multitrack B Tech(Comp Sci and Engg) program that has impacted the Computer Science and Engineering curriculum across the country. He is also Chairing the National Steering Committee of AICTE IDEA Lab scheme to spread the digital fabrication movement across the country.

Keynote Biography

Prof. Dr. Beatriz Lucia Salvador Bizotto
Department of Social and Applied Sciences
UNIFACVEST University Center
Brazil

Post-Doctorate at the University of Aveiro Portugal. PhD in Business Administration from the University of Caxias do Sul UCS-Convênio PUC/RS (2017). Master in Business Administration from the University of Caxias do Sul -UCS (2011). Specialization in Controllership- University of Caxias do Sul UCS- Campus Vacaria. Graduated in Accounting Sciences (2001). Judicial Expert. Coordinator of two Research Groups registered in the Directory of Research Groups of CNPQ (DGP - Research Group on Governance and Development Research Group on Governance and Perpetuity) with the participation of researchers from Brazil, India and Pakistan. The topics of research interest are: Innovation, Corporate Governance, Competitive Advantage and Sustainability in Agribusiness production chains. Professor and Tutor at the UNIFACVEST University Center. Editor of the Tropeiro Journal of Social and Applied Sciences. President of Global Edu Leaders Forum - Brazil (from December 2021 to January 2022). Coordinator of the Global Edu Leaders Forum - Brazil (from February 2022) . Executive Board Member of FAI India

Keynote Biography

Prof.(Dr.) Mohammad Israr
Vice-Chancellor, Mewar International University
Masaka, Nasarawa State,
Federal Republic of Nigeria

Prof.(Dr.) Mohammad Israr Presently working as a Vice Chancellor with Mewar International University, Nigeria also worked as a Professor in the Department of Mechanical Engineering at Poornima College of Engineering, Jaipur, Rajasthan, India, as a Professor in the Department of Mechanical Engineering at Sur University College, Sur, Sultanate of Oman, as a Principal at Dungarpur College of Engineering and Technology, Dungarpur, Rajasthan, India and worked as a Principal at Balaji Engineering College, Junagadh, Gujarat, India. He was the first faculty in the history of Sur University College, Sur, Sultanate of Oman, who registered and published the Patent. Have 08 Granted Patent in Intellectual Property Australia, Australian Government, and also have registered & published 40 patents in Intellectual Property India, Indian Government. Acted as a Nodal officer to get 7 International and 2 National MoU's signed with reputed academic Institutions, research labs and renowned Industries. Have published 93 research papers in various reputed national, international journals and conferences like Taylor and Francis, Springer, Elsevier, ASME etc. Have published 15 books, and edited a book in CRC Press. Have one article published in Infraline Energy Magazine. A Fellow Member of International Institute of Organized Research (I2OR) and Independent Perception and Research Hub (IRPH). Obtained many prestigious awards like "Young Scientist Award-2018", Outstanding Researcher Award in Mechanical Engineering-2019", "Outstanding Engineering Services to Society Awards-2021", "Lifetime Achievement Award-2021" and Best Researcher Award-2022". Supervised 10 candidates for their doctoral (Ph.D.) degree and also supervised 3 candidates for Master candidates. So far, reviewed 15 Ph.D. thesis, 03 Master thesis and 250 research papers. Associated as an Editorial Board Member in more than 300 national and International Journals. Acted as a Session Chair, Speaker and International Technical Committee in many national or International Conferences. Member of various technical and professional bodies such as SCIEI-USA, IAENG-Hongkong, AAIR-USA, IFERP-India, IETA-India, ISTE-India. Appointed as a Assessor for Promotions in Management and Science University, Malaysia for QS World University Rankings 2021.

Keynote Biography

Dr R K Tailor
Manipal University Jaipur, Inida
Expert of Robotic Accounting & Process Automation
EC Member, Indian Commerce Association

Dr RK Tailor is a renowned author and academician in the field of commerce and management. He is having more than 15 years of teaching and research experience. Dr RK Tailor has authored more than 50 books on the various topics of commerce and management. He has robotic tremendous knowledge of process automation and research methodology. He is serving as a Secretary-General, Innovative and Academic Research Association, and also as a chief editor. He has chaired a number of national and international conferences and acted as an advisory board member. He has also served in an editorial panel of a number of research journals along with the Indian Journal of Accounting. He is also the expert trainer of research methodology references and plagiarism.

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21th- 22th April, 2022

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ABSTRACTS

Comparative Study between the Construction Management Process during the Pre-Pandemic and Pandemic Period in Quezon City, Philippines

[1]**J. M. S. Angeles,** [2]**J. L. R. R. David,** [3]**P. A. A. Magbitang,** [4]**J. S. Buluran**

[1][2][3][4] School of Civil, Environmental, & Geological Engineering, Mapúa University, Manila, Philippines

Abstract

Construction management is a fundamental process that needs to be performed on both small- and large-scale projects. Due to the COVID-19 Pandemic, different challenges have been brought especially to the different aspects that need to be considered in the said process. This study aims to compare the construction management process pre-pandemic and during the pandemic period. Specifically, it seeks to know whether the process in both times is statistically significant. To know what the common aspects are affected in the construction management process, several related studies were cited. Aspects like manpower, scheduling, budgeting, working hours, availability of projects, supply chain, and safety and security were taken into consideration in this study. An online survey questionnaire containing 5-Likert scale questions was sent to fifty (50) respondents in Quezon City, Philippines. The gathered data were analyzed using different descriptive statistics, one-way ANOVA test to analyze the means of different groups, and Relative Importance Index to determine the influential factors in the Construction Management Process. An F-value of 3.6823 was computed, thus rejecting the null hypothesis. The researchers were able to conclude that the construction management process was more effective during the pre-pandemic period in Quezon City, Philippines.

Index Terms

Construction Management, COVID-19, ANOVA, Relative Importance Index, Manpower, Scheduling

Emotional Well-Being Competencies and Dimensions of Youth Political Behaviour

[1] **Siti Sarawati Hj. Johar,** [2]**Fauziah Ani,** [3]**Harliana Halim,** [4]**Shahidah Hamzah,**
[5]**Nur Zainatul Nadra Zainol,** [6]**Intan Farhana Saparudin,**
[7]**Raja Zirwatul Aida Raja Ibrahim,** [8]**Siti Aisyah Panatik Abdul Rahman**

[1][2][3][4][5][6] Universiti Tun Hussein Onn Malaysiaa,b,c,d,e,f
[7] Universiti Malaysia Terengganug
[8] Universiti Teknologi Malaysia

Abstract

The necessity of youths' emotional well-being by the emotional intelligence (EI) is emphasized in this research. One of the key thrusts of national development in Malaysia, particularly from the political, economic, social, and educational perspectives, is human capital resources aimed at adolescents. The major goal of this study was to see if EI competence has a significant impact on the dimensions that determine youngsters' political behaviour. A total of 313 students from four Malaysian public universities were chosen as the sample. Data was collected using the Emotional Intelligence Self-Description Inventory (EISDI) and the Political Behaviour Questionnaire (PBQ), which was then analyzed using regression analysis. The data confirmed the hypothesis, indicating that EI competence has an impact on political behaviour among youth, with EI having a strong influence on the perceptions of political behaviour, notably conservatism and nationalism. As a result, EI might be seen as a determining factor in behaviour and ideology among Malaysian youth, indicating political maturity.

Index Terms

Dimensions, Youth, Political Behaviour, Emotional, Well-Being

Is Being Good Valuable? Analysing the Effects of Environmental, Social, and Governance (ESG) Practises in Asian Countries

[1] **Nor Edi Azhar Mohamad,** [2]**Noriza Mohd Saad,** [3]**Fatihah Norazami Abdullah**

[1] University Tenaga Nasional,
[2][3] Universiti Teknologi Mara

Abstract

While making an investment decision, consider not just internal performance indicators such as sales growth, reduced leverage, or stable share price, but also integration components in environmental, social, and governance issues. In light of this, the study's objective is to determine the impact of ESG factors on company performance as a benchmark for enterprise value in all Asian nations. Secondary data for dependent and independent variables was gathered from Bloomberg databases between 2014 and 2020. To achieve the goal, fixed and random effect models were tested, with the best-fit technique being used for the most appropriate model after testing for Hetero and Serial Correlation. The study reveals that the ESG disclosure of ES, GS, and SS, as well as the risk and size of the firm, are significant in predicting firm value. The firm's leverage and liquidity, on the other hand, indicate insignificant results. According to the stakeholder theory, disclosing ESG information to all stakeholders is critical to improving a company's long-term performance and gaining a strategic competitive advantage. The findings of this study can be utilised as a benchmarking tool to raise stakeholder value creation standards across Asian countries on the level of ESG practices, by comparing a firm's performance to levels of socially responsible practices.

Index Terms

Environment; Social; Governance; Firm Value; Asian

Creolized Texts as the Part of Visual Method in Teaching English

[1]**J.Zh. Tussupbekova,** [2] **P.Zh. Balkhimbekova,** [3] **S.K. Mukanova,** [4] **O.L. Zagorulia**

[1][2][3][4] L.N. Gumilyov Eurasian National University

Abstract

This article presents the theoretical analysis of visual information, visual method and creolized texts in English teaching. Creolized texts are the main elements of the visual method. The research is based on the book "Nuclear English" for students of non-linguistic specialties by S. Gorlin. Texts and exercises in this book are accompanied with the photos, cartoons, caricature, tables, pictures. These exercises give opportunity to create a hierarchy of multifarious types of assignments in teaching and learning English. The aim of this research to make theoretical analysis of the visual method and determine the efficiency of using creolized texts in teaching English. The paper provides a new vision of working with the creolized texts taking into consideration visual method's elements and characteristics.

Index Terms

an assignment, creolized text, elements, English, teaching, visual method

Employment, Job Satisfaction and Competencies of Agricultural Engineering Graduates in Romblon State University, Philippines

[1]J Ester L. Forlales, [2]Rey P. Lilang

[1][2] Director of Student Affairs and Services, Romblon State University, [2] Chairperson, Agricultural and Biosystems Engineering, College of Engineering and Technology, Romblon State University

Abstract

This paper focused on (1) Graduates' employment status considering application of knowledge from preparatory subjects, fundamental agriculture, basic engineering, and professional agricultural engineering; (2) Job satisfaction with work condition, salaries and benefits, career growth and job-course relevance; (3) Competencies in engineering management skills (4) Strengths and weaknesses of Bachelor of Science in Agricultural Engineering program and (5) Differences on feedbacks about graduates' management skills. Two sets of questionnaires were used in gathering the data. Using t-test, employers and graduates equally revealed that graduates' knowledge and skills in preparatory subjects were often applied whereas those in fundamental agriculture, basic and professional agricultural engineering were seldom applied. Major strengths of the program were about computer and info technology, project evaluation, and agricultural wastes management, however weaknesses were on fish nutrition, wood-metal works, machine elements, communication skills, professional agricultural engineering expertise and employment in non-agricultural sectors. Graduates were satisfied with work condition, career growth opportunities, salaries and benefits. They performed very satisfactorily engineering competencies in planning, organizing, leadership, and human relations but not in communication skills. Improvement in licensure examination, job placement services and curriculum revisit are recommended to make graduates more competitive.

Index Terms

employability, engineering competencies, job satisfaction, tracer study

Morphometric Characteristics of Snapping Shrimps *(Alpheus sp.)*: The Case of Calape, Bohol, Philippines

Maria Danesa S. Rabia

Fisheries Department, Bohol Island State University, Calape, Bohol

Abstract

Morphometric studies are the most common and cost-effective tools used today to identify and characterize stocks or even populations of some fishes and crustaceans. This study, it aims to assess the morphometric characteristics of snapping shrimps (Alpheus sp.) in Calape, Bohol, Philippines. The quantitative research design was used particularly the exploratory sequential design to assess the qualitative characteristics first then quantitative. A total of 30 randomly selected snapping shrimps were collected from the local gatherer. Results have shown that snapping shrimps greatly vary in their qualitative to quantitative description. Out of nineteen characteristics, 4 characters show high values of correlation coefficient indicating that these characters are directly proportional to each other and 11 characters show moderate correlation coefficient. Linear relationships have been observed between all the independent and dependent characters. The characterization of the snapping shrimps gives a good indicator for further studies and the creation of proper directives to minimize the collection of stocks is a good indicator of how to increase the population.

Index Terms

exploratory, morphometric, snapping shrimps

An Enhancement of Genetic Algorithm for Variable Minimization with a Novel Crossover Operator

[1]**J James Cloyd M. Bustillo,** [2]**Ariel M. Sison,** [3]**Markdy Y. Orong**

[1][2][3] Graduate Programs, Technological Institute of the Philippines, Quezon City, Philippines

Abstract

This study proposed a novel crossover operator called Flip Multi-sliced Average Crossover (FMSAX) to enhance the performance of GA through variable minimization. A new structure of producing an offspring by simply slicing the chromosomes into three equal parts to develop a head-body-tail by flipping each gene and getting the average to generate an offspring. The FMSAX operator is more efficient and optimized techniques for variable optimization to avoid premature convergence. There are two types of datasets with 30 and 40 variables used for simulation. The results showed that the enhanced crossover operator of the GA had outperformed the original GA having an average crossover operator with 25 or 62.50% and 10 or 25%, a total number of variables eliminated, respectively.

Dynamic Magnetic Properties of a Mixed Spin (2, 5/2) Ising System in the Presence of an External Oscillating Magnetic Field by Path Probability Method

[1] Mustafa GENÇASLAN, [2]Mustafa KESKİN

[1][2] Erciyes University, Faculty of Science, Physics Department, Kayseri-TÜRKİYE

Abstract

Utilizing the path probability method, we investigate dynamic magnetic features in a mixed spin (2, 5/2) Ising model Hamiltonian composed of bilinear and crystal-field interactions in the presence of the external oscillating magnetic field. We numerically solved the time dependence of average magnetizations to find the phases in the system. We examined the dynamic magnetizations to obtain dynamic phase transition (DPT) temperatures, the nature of the DPTs and also phases in the system. The dynamic phase diagrams (DPDs) were constructed in the reduced temperature and the amplitude of oscillating magnetic field plane for various interaction parameters. We observed that the system gives very rich and interesting topological behaviors of DPDs such as two dynamic tricritical points, six critical end points, two double critical end points, a zero-temperature critical point, one inverse critical end point and a quadruple point depending on interaction parameters. The system also exhibits the paramagnetic, six distinct ferrimagnetic and three different nonmagnetic phases as well as up to eleven different mixed or hybrid phases. The system also exhibits the reentrant behavior.

Index Terms

Mixed spin (2, 3/2) Ising system; Path probability method; Dynamic phase transitions; Dynamic phase diagrams; reentrant behavior, special critical points.

Emotion Classification Using EEG Signals

[1] **Megha Goyal,** [2]**Purshottam Kandhari,** [3]**Riddhima Jain,**
[4]**Madan Mohan Tripathi**
[1][2][3] B.Tech, Electrical, DTU
[4] Professor, DTU

Abstract

With the availability of huge EEG datasets, breakthroughs in Brain-Computer Interface systems, and advances in Machine Learning has recently led to the use of various deep learning architectures, particularly in the analysis of emotions using Electroencephalography signals. The user can generate these signals while executing various emotional, mental, and physical tasks, therefore representing brain functioning. The extraction of essential feature values from the unprocessed EEG signals is still a critical stage for the deployment process. These signals are used to help in the identification of emotions because they provide a better insight into the participant's reactions gathered. Following filtering of the data, required characteristics were retrieved and suitably shaped to fit the classifying model for the study of various emotions. Alongside, we have obtained the combined accuracy for the valence, arousal and dominance class according to the valence-arousal model. The DEAP dataset is used to set up a 3D emotional model using the Valence Arousal-Dominance space. It has 8 emotions namely, Joy, Angry, Satisfied, Unconcerned, Protected, Sad, Fear and Surprised.

Index Terms

Brain-Computer Interface System, EEG Signals, Emotion classification, Fast Fourier Transform

An Assessment on Continuous Quality Improvement (CQI) Practices among Teacher Education Institutions in Basilan, Philippines

Rachel L. Rodriguez
College of Education, Basilan State College, Philippines

Abstract

Like any other higher learning institutions, PHEIs in Basilan, an island province of the Philippines in the Bangsamoro Autonomous Region for Muslim Mindanao (BARMM), are also confronted with challenges when it comes to QA in tertiary education in terms of CQI. The study was conducted to Assess the Practices on Continuous Quality Improvement among Teacher Education Institutions in Basilan. The study employed a mixed methods design, all quantitative data were collected purposively from sixty (60) faculty members using an adapted questionnaire formulated by Thalner (2005) of Western Michigan University, the instrument consists of a framework that measures CQI in higher education, and descriptive statistics were used to analyze the weighted means, standard deviations, and ranges for the various variables. While the qualitative data were collected from ten (10) College deans, and program chairpersons and the Vice president for academic affairs from the four HEIs, utilizing FGD and KII. Results showed that awareness on the continuous quality improvement is present but the need to strengthen the training on the process and methods should not only among department heads to strengthen the commitment as a shared culture in the pursuit of quality assurance, Commitment towards continuous quality improvement regardless of departments and among stakeholders is evident to be a powerful tool given the training and other resources available, support mechanism for a continuous quality improvement must be guided by a framework best fit for academic institutions. Thus, this study came up with the following recommendations: Maintain and enhance standards as well as review policies. Quality assurance is a way for institutions to maintain standards and continuously improve the standards of education, facilities, support, among others, Commitment to provide excellent customer service which will be strengthen if there will be trainings and webinars and emphasize commitment towards continuous quality improvements in the core values of the academic institutions.

Index Terms

Academic program review, accreditation, benchmarking, SWOT analysis, continuous quality improvement, quality assurance

Efficient Design of Basic Quantum Gates using Quantum Dot Cellular Automata

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Abstract

QCA (Quantum Dot Cellular Automata) is a novel nanotechnology that appears to be a leading technology to replace CMOS. Because of its low power dissipation, fast switching speed, and compact circuit size, the QCA may be used to make nanoscale reversible circuits. Also Reversible computing is today one of the most difficult basic challenges, with applications in low-power CMOS, quantum computing, and nanotechnology, among others. This study proposes novel efficient QCA implementations of quantum gates like Toffoli, Feynman, and Fredkin based on direct interactions between QCA cells. QCA Designer software is used to develop and simulate the suggested layouts. In compared to earlier QCA designs, the suggested layouts use the least amount of space, have the fewest number of cells, and have the shortest latency without using any wire-crossing methods. In addition, as compared to CMOS technology, the suggested layouts are more compact and power efficient. As a result, the proposed design may be employed in ultralow-power computer communication to implement quantum processing.

Index Terms

Reversible logic, QCA, Nano scale, Feynman, Fredkin, Toffoli.

Extended Max-occurrence with Normalized Non-occurrence as MONO Term Weighting Modification to Improve Text Classification

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Abstract

The increased volume of data due to advancements in the internet and relevant technology makes text classification of text documents a popular demand. Providing better representations of the feature vector by setting appropriate term weight values using supervised term weighting schemes improves classification performance in classifying text documents. In literature, a state-of-the-art supervised weighting strategy MONO with its variant TF-MONO and SRTF-MONO improves text classification considering the values of non-occurrences. However, the MONO strategy suffers setbacks in weighting terms with non-uniformity values in its term's interclass distinguishing power. In this study, extended max-occurrence with normalized non-occurrence EMONO with variants TF-EMONO and SRTF-EMONO are proposed where EMO value is determined for MO interclass extensions as improvements to address the issue of MONO strategy in its problematic weighting behavior as it neglected the utilization of the occurrence of the classes with short-distance document frequency in non-uniformity values. The proposed schemes' classification performance is compared with the MONO variants on the Reuters-21578 dataset with the KNN classifier. Chi-square-max was used to conduct experiments in different feature sizes using micro-F1 and macro-F1. The results of the experiments explicitly showed that the proposed EMONO outperforms the variants of the MONO strategy in all feature sizes with an EMO value of 2. However, the SRTF-EMONO showed better performance with Micro-F1 scores 94.85% and 95.19% smallest to largest feature size, respectively. Moreover, this study also emphasized the significance of the occurrence of interclass document frequency values upon improving text classification aside from non-occurrence values in assigning term weights.

User Acceptance of Learning Management System as Education Platform during Pandemic: A Case of a Higher Education Institution in the Philippines

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Abstract

This paper examines the user's acceptance and continuous usage of online learning among the students in Father Saturnino Urios University (FSUU) in Butuan City, Philippines. The 2020 pandemic has challenged the education sector to find ways in continuing the teaching-learning processes despite of the situation. Thus, the educators turn to technology to create a virtual platform where they upload their lessons and students access these. For the first time, classes were fully online through a learning management system (LMS). For teachers and students alike, especially those who are not so adept at using technology, the challenge is to maximize the use of this virtual platform where they can create a more meaningful and more productive teaching-learning processes from the safety of their home. To this end, it is vital to study how the end-users of the FSUU Learn, the LMS used by the university, accept this platform, and maximize its use. Using various technology acceptance theories, this paper explored factors that influence the level of the user acceptance and actual usage of the students using the FSUU Learn. In addition, this study developed an expanded model that is adapted from UTAUT 1 & 2 and TAM. The results revealed that both level of users' acceptance and actual usage are verbally interpreted as "very high" indicating that most of the respondents agreed that FSUU Learn is the right solution to deliver education while studying at home. Furthermore, the actual usage is 60.1 percent while the behavioral intention to use the FSUU Learn is 58.8 percent. The variables used in the study were able to predict 75.2 percent of the variance that could explain the acceptance of the FSUU Learn based on the perception of the end-users.

Index Terms

user acceptance, learning management system, FSUU Learn, technology acceptance

Bioassay-Guided Fractionation of Antioxidants from *Crataegus -monogyna* (common hawthorn) and its Role in Treating Cardiovascular Disease using H9c2 Rat Myoblast Cardiac Cell Line

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Abstract

Crataegus monogyna plants are well known for its medicinal property. Extraction and identification of compounds rich in antioxidant present in *C. monogyna* is the main focus of this research paper. Firstly, solid-liquid extraction of different plant parts (leaves, flowers and fruits) of *C. monogyna* using different solvents (aqueous, ethanol and methanol) were conducted to identify the suitable plant part and solvent type that contributed to the maximum yield of total phenolic content (TPC) and antioxidant activity (2,2-diphenyl-1-picrylhydrazyl (DPPH) and 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid) (ABTS)). Upon extraction, liquid-liquid partition using solvent with different polarities (water, n-hexane and chloroform) was conducted prior to fractionation of antioxidant compounds. Bioassay-guided fractionation of antioxidant compounds from the most antioxidant-rich plant part of *C. monogyna* was conducted using chromatographic methods and the antioxidant compounds were identified via Fourier transform infrared spectroscopy (FTIR) and gas chromatography-tandem mass spectrometry (GC-MS-MS) analysis. Lastly, the cardiac activity of the most antioxidant-rich fraction was investigated using H9c2 rat myoblast cardiac cell line. As results, solid-liquid extraction of different plant parts of *C. monogyna* using different solvents revealed that the fruit of *C. monogyna* extracted with ethanol had the highest TPC (0.070 mg GAE/g), antioxidant activity (DPPH 90.35% and ABTS 71.37%) and crude extract yield (0.49±0.05g). Bioassay-guided fractionation of this extract afforded twelve fractions (F1 to F12) and F9 presented the highest antioxidant values (DPPH 46.14% and ABTS 45.06%) and TPC (28±0.002 mg GAE/g). GC-MS-MS profiling of F9 revealed eleven antioxidant compounds and five major compounds as benzenesulfonamide, N-[[5-(aminomethyl)-2-furanyl]methyl]-(8.21%), 1,3,2-Dioxathiolane-4-methanol, 2-oxide (7.49%), Pyrimidine, 4,5-dimethyl- (19.46%), 4-Nonylphenol (8.01%) and 1H-1,2,3,4-Tetrazol-5-amine,1-ethyl-N-[(1-methyl-1H-pyrrol-2-yl)methyl]-) (11.24%). The findings of current research concludes that the antioxidant compounds present in the most antioxidant-rich plant part of *C. monogyna* (fruit) are polar in nature and are majority phenols. Fraction F9 shows effective cell proliferative potency against H9c2 cells on dose dependent manner, suggesting that *C. monogyna* ethanol fruit extract possesses therapeutic potential against rat myoblast cells. In conclusion, *C. monogyna* fruit is an excellent alternative of natural antioxidant.

Index Terms

C. monogyna; antioxidant activity; profiling; separation; identification; H9c2 cell line; cardiovascular activity

A Review of Enhancement Traditional Wide Band Networks by Using Enhanced WIMAX Technology

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Abstract

The expansion of networks involved higher jump on the users utilizing the networks resources which may require extra higher bandwidth. Due to the development of technology especially those folded under the Internet of Things (IoT), the new demand of higher data rate has been witnesses among the users. In order to feed the demand of users with high data rate, broadband networks are required where high data rate can be ensured for each user. Broadband networks can be established using optical network that carries the data through wide broadband. Areas such as rural and forests sides which are witnessing plenty of natural obstacles such as mountains, trees, seas, etc. are forming big challenge for propagating a cable (wire) or optical network. Due to the limitations of the wire network, WiMAX technology has been introduced as substitutional for the broadband network. Such kind of alternative can be deployed through any geographical area without concerning on the wire paths. This review is presenting the most terminologies participating in the network backbone.

Index Terms

WiMAX, Fiber, Backbone, WAN, Throughput

Analysis of the Dynamic Pile Load Test for Long Large Diameter Pile in Alamein City

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Abstract

Long-large diameter piles are encountered as a foundation system of the high rise buildings of New Alamein city towers. The piles diameters used in this study are 80 and 120 cm with lengths of 36 and 54 m respectively. There are about 120 pile load tests were carried out on the piles (static, dynamic and lateral). The main soil layers in Alamein city are fractures limestone interlaid with gravelly sands and silty gravelly clay layers these layers may be classified as IGM soil. Reference to common design manuals, when the piles length diameter ratio is more than 20, the pile classified as long pile. In addition, when the pile diameter exceeded 60 cm, the pile behaves as large diameters piles. The piles underneath the Alamein towers classified as long-large diameter piles. The time is a main issue. So, it was an important to increase the confidence in the dynamic load test. in addition, available literature and design guidelines for long large diameter piles in IGM soil layers are limited. Therefore, a lot of sensors at different depths were fixed in the piles to measure the friction and bearing load transferred to soils. The objective of this paper is to analyze the behavior of the long large diameter piles in presence of the results of dynamic pile load tests. The results of the dynamic pile load tests indicate about 85% of pile load test transfer to soil layers by friction. long large diameter piles, it was observed that the piles behave as a friction piles and the allowable stresses as per design manuals of the IGM soil layers could be increases. One of the results was the development of new allowable stresses values of IGM soil layers for pile bearing capacity. This paper will be interesting for future generation researchers.

Index Terms

long-large diameter piles, Dynamic pile load test, friction piles, IGM soil.

A Study of Item Bias in Mathematics Subject for Primary School Level through International Test

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Abstract

The objective was to examine differential item functioning and differential distractor functioning in mathematics, primary school level through charactertistic classification analysis in gender and school size. Secondary data from the project studying on the trends in International Mathematics and Science study 2011 or TIMSS 2011 was used. The sample groups were students, mathematics teachers (who teach sample students) and school executives. The sample students were 4,448 students in grade 4 from 168 schools. Only mathematics subject results from mathematics evaluation (14 tests/primary level) were studied. Data analysis has two steps – 1) data management from studied factors and 2) analysis on differential item functioning and differential distractor functioning.

The research result showed that;

For gender aspect, there were 24 items on differential item functioning and differential distractor functioning from the total of 356 items. The highest topics were number, geometry and data, respectively. For school aspect, there were 54 items on differential item functioning and differential distractor functioning from the total of 356 items. The highest topics were number, geometry and data, respectively.

Approach to String-Like Pulse in Traditional East Asian Medicine by Ultrasound device

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Abstract

Objective: Pulse diagnosis is one of the most fundamental and important diagnostics in traditional Korean medicine. Pulse condition is difficult to master, because of writing only by text in the past. Although researches and machines for objectification of pulse have been developed in these days, it is hard to master pulse condition yet. Pulses are defined by several aspects; such as pulse location(superficial and deep pulse), pulse rate(slow and rapid pulse), pulse length(long and short pulse), pulse strength(forceful and forceless), pulse smoothness(stagnant and smooth pulse), pulse tension(tension and relaxation), pulse thickness(string and enlarged pulse) and so on. Some of them we could express pulse form visibly, especially with string pulse and enlarged pulse because those have pulse shape like thick or thin. So we study pulse actualization with especially string pulse out of two. Also we focused on what the place of inch-bar-cubit is just on the radial artery. That means that measuring the change of radial artery thickness by some given conditions would show the actualized pulse definition with visual evidence not only with practitioners' fingertip sensation.

Methods: The string pulse is straight and narrowed like a string with a bow which is referred to traditional medical classic such as Nanjing, Maijing and other text for diagnosis. It could be explained by thickness of radial artery. According to medical classics, what string pulse mainly represents fatigue on human body. That means if somebody had fatigue on his or her body the pulse would be changed into string pulse from normal. Therefore, we check thickness of radial artery by ultrasound after causing artificial fatigue. 1) Measure the thickness of radial artery after 30 min break for making sure the normal pulse. 2) Make subject to grab handgrip for 1 min to make him or her in fatigue stage. 3) Measure again the thickness of radial artery. 4) Compare the values of radial artery thickness between before and after grabbing.

Results: After causing artificial fatigue, thickness of radial artery is decreased after the experiment.

The thickness of RA of Subject A had been changed from 1.8mm to 1.6mm and Subject B from 2.0mm to 1.6mm.

Conclusion: This change from experiments above shows that RA was influenced by even short term stimulation like grabbing handgrip. Also that explains that just like artificial fatigue could make string pulse condition, real fatigue would cause making string pulse on his or her wrist. So with that way, we could define or diagnose patients' fatigue status with ultra sound results not only with oral explanation. In this study, we verify that string pulse condition could be actualized with ultrasound. As the first study for actualization only with string pulse, there is more need to experiment actualizing with other pulses.

Index Terms

pulse condition, string pulse, ultrasound, pulse actualization, fatigue

Watermarking Scheme for using YCbCr Based On 2-Level DWT

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Abstract

Multimedia data for both personal and commercial purposes is now accessible to everyone due to the rapid development of the Internet. Consequently, the issue of copyright protection has surfaced and has triggered the development of several techniques for multimedia copyright protection. Such techniques include digital watermarking in which the important information contained in the host media is concealed by embedment in carriers such as images, videos, or audios. In this paper, the adaptive color image watermarking technique is proposed for the satisfaction of both imperceptibility and robustness demands. There are two main stages involved in this technique – coding/embedding and decoding/extraction. Prior to the coding stage, imperceptibility and robustness are preserved by first converting the host image from RGB to YCbCr color space before selecting the Cb component to apply the DWT embedding technique. Once more, the selected quadrant of the hosted image is decomposed using DWT before extracting the watermarked image. The robustness and efficiency of this technique were proved by exposing the watermarked image to six types of attacks, namely Median filter, Gaussian noise, Sharpening filter, Salt & Pepper Noise, JPEG Compression, and Rotation. The results of the study were benchmarked against other methods that deploy DST on the same images. From the benchmarking process, the proposed algorithm was found to withstand the six types of attacks earlier mentioned and achieved a better performance compared to the DST approach. The quality of the watermarked image was also preserved in the proposed method.

Index Terms

Watermarking, Discrete wavelet transform, YCbCr image, discrete slant-let transform

Online Learning Processes: Adjustment of World Citi Colleges Quezon City Allied Health Professionals in Work-Life Balance

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Abstract

This study intends to find new concerns about adjusting academics to the new normal of learning in the wake of Covid-19's abrupt ascent, requiring professors to adapt and take advantage of what the digital world can offer and the work-life balance issues that arose as a result of the unexpected shift in face- to -face education to on line learning. A descriptive phenomenological research design using Colaizzi method and semi-structured online interview were used to shed more light on the present conditions of eight (8) participants. Based on the descriptive codes generated, the researchers identified seven themes on the adjustments of the institution's allied health professionals in work-life balance. These themes were rules of survival, migration to online learning, maximum consideration, provision of online logistics, fewer than the usual class size, health impact, and teacher's core of existence. The study showed that the professors work life has grown unbalanced as they spend more time working from home, yet they miss out on a lot of personal activities and relaxation time. The so-called house has been transformed into a workplace, and the sole area where professors can find privacy has been breached, allowing them to be available to students.

The effect of geothermal nanosilica addition on compressive strength and setting time in oil well cementing

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Abstract

Cement in oil world is important aspect. Cement failure has impacts on freshwater aquifer contamination, loss of hydrocarbon reserves, and it causes high repair, production and abandonment costs. In order to obtain a high strength bond between cement and formation, oil well cement must be modified to improve its function. Recently, nanoparticles have shown great potential to speed up hydration mechanisms and reduce cement setting time, thereby saving rig working-hours. In field studies, the hydration effect is closely related to problems that will arise, such as the cement suspension hardens before being pumped and the hardness level of cement itself. On the other hand, the need and price of additives, in this case nanosilica, is high. Therefore, finding a silica source that be easily extracted into nanosilica becomes very important. Geothermal solid waste is one of the most abundant sources of silica in Indonesia. Geothermal silica has silica content reaches 45%-78% and is dominated by amorphous silica. By utilizing geothermal silica, it provide a solution to the silica scaling problem. The optimum composition and temperature from this research is oil well cement class G with 2% geothermal nanosilica mixture and 70 degree centigrade that influence setting time and compressive strength test. Optimum initial setting time and final setting time are 101 and 141 minutes, while optimum compressive strength is 36,83 MPa with curing time 28 days.

Index Terms

Geothermal Nanosilica, Compressive Strength, Setting Time, Oil Well Cement

Sentiment Analysis for Customer Satisfaction in the Higher Education Institution Using Naïve Bayes Algorithm

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Abstract

Customer evaluations are widely recognized as valuable data sources for monitoring and improving customer satisfaction levels, mainly because they represent the real sentiments of customers who express vivid judgments. In higher education institutions, customers' evaluation of services can be derived by analyzing reviews and feedback using machine learning. In this study, a sentiment analysis application for customers' feedback analysis in a higher education institution (HEI) was conducted, aiming to determine whether the customers' sentiments towards the services being provided by the HEI are positive, neutral, or negative. The sentiment analysis was systematically conducted using WEKA (Waikato Environment for Knowledge Analysis) tool, and several phases were performed, including data collection using the developed web application, text preprocessing and feature extraction, and text classification using the Naive Bayes algorithm. The dataset was extracted from the HEI's web application containing 720 instances, 76 percent of the dataset was used for the training, and the remaining 24 percent was used as supplied data for testing. The researcher has employed N-Gram against Naive Bayes classifier, and it has been observed that the blended N-Gram outperforms the result of Unigram, Bigram, and Trigram, having an accuracy rate of 76.36 percent, 73.64 percent, 75 percent and 72.27 percent, respectively. The result is quite promising and shows relatively good performance in classifying HEI customers' feedback.

Index Terms

Machine Learning, Sentiment Analysis, Customer Satisfaction, Naïve Bayes Algorithm

A Novel Spectrum Allocation Mechanism using SDN and MEC in Cognitive Radio Networks

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Abstract

The explosive growth of wireless services generates a high demand in terms of radio spectrum, thereby creating a shortage of spectrum resources. The cognitive radio has emerged as a new paradigm for improving the use of the radio spectrum by allowing access opportunistically. However, the implementation of cognitive concept raises unique challenges because of their coexistence with the primary networks and the various quality-of-services requirements. The rapid development of emerging technologies such as software defined networking (SDN) and mobile edge computing (MEC) can efficiently improve the dynamic spectrum access. The main contribution of this article is to propose a novel approach based on SDN enabled MEC to solve the problem of spectrum allocation in the CR network. The key aspect of our design is the deployment of SDN local controller in the abstraction layer of MEC server to perform the main functions such as detection and spectrum allocation. The spectrum sharing decision and the CR devices mobility are carried out by the SDN global controller in order to have a better use of the spectrum. The proposed approach can absorb spectrum allocation demands without having higher latency and can also extend the lifetime of CR devices. Therefore, our solution is promising to achieve the good system performance and overall utility by introducing SDN and MEC technologies in CR network.

Index Terms

Cognitive Radio, Mobile Edge Computing, Software Defined Networking, Spectrum Allocation, Spectrum Detection, Spectrum Access Decision, Mobility.

Improving the error rate in a VLC -EPPM system using turbo product codes and bit interlacing

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Abstract

Visible light communication (VLC) systems use EPPM modulation in indoor environments, therefore, in this study, the alternative procedure of using turbo product codes together with bit interleaving will be analyzed, in order to improve communication with the presence of thermal noise and shot noise in the bit error rate, as well as the inter-symbolic interference of a VLC system. The reason why it was chosen to improve this type of modulation is because brightness control can be obtained, which is important in indoor environments, unlike an Orthogonal Frequency Division Multiplexing (OFDM) system, which It does not have this type of control. Likewise, the modeling of the shot noise, the thermal noise, and the inter-symbolic interference will be carried out, in order to be able to compare results with investigations carried out and thus, the degree of improvement in terms of bit error rate obtained will also be evaluated using the proposed method. This research will propose an alternative to the current problems that exist in wireless communications used in indoor environments; such as in hospitals, areas such as magnetic resonance imaging (MRI) rooms, maternity wards or operating rooms; or in aircraft cabins, where signals can interfere with or damage communications.

Index Terms

Indoor optical wireless communications, optical networks, visible light communications.

Implementation of Tri Hita Karana in Sustainable Management of Rural Drinking Water Supply System in Bali Province

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Abstract

Management of drinking water supply in Bali Province through a participatory approach. The provision of rural drinking water in Bali Province is mostly managed independently by the community. The existence of rural drinking water supply contributes to the coverage of drinking water services. The Tri Hita Karana concept is implemented in rural drinking water management for the sustainability of the socio-cultural subsystem which includes social, environmental and economic aspects. Meanwhile, the technology subsystem and the management of rural drinking water supply are adjusted to the needs of participatory drinking water management. Management of drinking water supply on the basis of harmony and togetherness based on the concept of Tri Hita Karana and on that basis the sustainability of social, ecological, economic, technological and management dimensions can be achieved. The sustainability of the management of rural drinking water supply will provide the fulfillment of community drinking water according to the aspects of quantity, quality and continuity.

Index Terms

Tri Hita Karana, Sustainability, Drinking Water.

The influence of Training and Development on Employees' Performance at Manufacturing Industries in Mandalay, Myanmar

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PhD in Management at Horizons University in Paris

Abstract

In the competitive business world, the employees are the main assets of every organization. Without a human workforce, the organizations could not achieve their objectives. Qualified and skillful workers are the fundamental sources of firms' performance and productivity. Organizations achieve positive business outcomes through employees' high levels of performance. To perform the assigned tasks, the employees need various skills and abilities. The training and development programs become issues to promote employees' skills and work-related knowledge. The current study focuses on the influence of training and development programs on employees' performance in manufacturing sectors. The results show that the training and development influence employees' performance.

Index Terms

Training, Development, Employees' Performance, Manufacturing Industries, Myanmar

The influence of Organizational Reward systems on employee retention in manufacturing industries in Myanmar

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Abstract

Employees must be rewarded for businesses to survive, grow, and flourish in today's competitive environment. Human capital is a critical component of today's corporate environment. The study applied the quantitative method to test the influence of organizational reward systems on employee retention in manufacturing industries in Myanmar. The results showed that the participants have a positive perception of both intrinsic rewards and extrinsic rewards of organizations. Moreover, the multiple linear regression test presented that the reward systems (intrinsic and extrinsic) have a positive correlation with employee retention. Employees will stay at current working organizations when they perceive attractive reward systems.

Index Terms

Reward System, Intrinsic Rewards, Extrinsic Rewards, Employees' Retention, Manufacturing Industries, Myanmar.

Impact of organizational citizenship behavior (OCB) measurements on employees job performance - A study of Bank Employees

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Abstract

Purpose
Job Performance is everything that a person can do to achieve success and to achieve his self-actualization needs. Performance in itself will be considered a forward-looking point. An organization always expects good job performance from the employees, especially when we talk about the service sector. As the banking sector of our country is an important tool for the economic development and creation of wealth added the success of which depends upon the performance of the employees working in the banking sector. The selection of the OCB measurements provided a linkage between OCB measurements and Job performance of the employees of the banking sector. This research paper's aim of implementing OCB measurements is to enhance the job performance of the employees. A conceptual reflective model is prepared with SmartPLS Software 3.3.3 by taking OCB measurements and job Performance as constructs of the study.

Design/methodology/approach
Data for this study were collected from 322 bank employees in the public and private sectors with the help of simple random sampling techniques. Partial least squares structural equation model (SmartPLS Software 3.3.3) has been used to obtain reliable and valid research results.

Findings
The results of the conceptual reflective model have been found to show that the relationship between OCB measurement and job performance has a positive correlation. The results also show that altruism, courtesy, conscientiousness, sportsmanship, and civic virtues play a very important role in employee job performance.

Research limitations/Implications
This study is based solely on bank employees, so the results of different service departments may vary based on their opinions. More research needs to be done to help the strong nature of employees succeed in the organization.

Practical implications
Enforcing employee job performance with the help of OCB indicators is a successful way to ensure that important employees continue to be utilized while adjusting and maintaining job performance and utility. Today, a sincere commitment must be made to help employees stay happy in the current environment, rather than seeking change.

Originality/Value
The results emphasize the unique role of each OCB indicator in job performance in the banking industry.

Index Terms

Job Performance, Altruism, courtesy, conscientiousness, sportsmanship, civic virtue, banking.

UPCOMING CONFERENCES

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