

PROCEEDING OF INTERNATIONAL CONFERENCE 2024

HYBRID EVENT

20th – 21st November 2024

Organized By



Co-organized by



Publisher: International Institute of Education, Research and Development (IIERD)

Copyright © 2024 International Institute of Education, Research and Development (IIERD)

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the publisher.

This edition is produced in India and is intended for worldwide distribution. However, no part of this publication may be exported without the prior permission of the publisher, International Institute of Education, Research and Development (IIERD).

Editorial

We are delighted to extend a warm welcome to all participants attending the International Conference 2024 on 20th – 21st November 2024. This conference provides a vital platform for researchers, students, academicians, and industry professionals from all over the world to share their latest research results and development activities in multidisciplinary fields. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for International Conference 2024 contain the most up-to-date, comprehensive, and globally relevant knowledge across various disciplines. All submitted papers underwent rigorous peer-reviewing by 2-4 expert referees, and the papers included in these proceedings were selected for their quality and relevance to the conference. We are confident that these proceedings will not only provide readers with a broad overview of the latest research results but also serve as a valuable summary and reference for further studies.

We are grateful for the support of many universities and research institutes, whose contributions were vital to the success of this conference. We extend our sincerest gratitude and highest respect to the professors who played an important role in the review process, providing valuable feedback and suggestions to authors to improve their work. We also appreciate the efforts of the technical program committee, reviewers, and authors for their dedication.

Since September 2024, the Organizing Committee has received more than 55 manuscript papers, covering various aspects of multidisciplinary research. After review, approximately 27 papers were selected for inclusion in the proceedings of International Conference 2024.

We thank all participants for their significant contribution to the success of the conference. Our gratitude extends to the keynote speakers, individual speakers, technical program committee, reviewers, and the organizing committee for their efforts in making this conference a reality.

Acknowledgement

The International Conference 2024, was successfully held in 20th – 21st November 2024. We extend our heartfelt gratitude to our colleagues, staff, professors, reviewers, and members of the organizing committee for their unwavering support in making this conference a success.

We would also like to thank all the participants who traveled far and wide to attend this conference and those who attended the event virtually, making it a truly global event. This conference provided a platform for students, professionals, researchers, and scientists to share their latest research and developments in various disciplines.

The aim of the conference was to promote research and development activities and to encourage scientific information exchange between researchers, developers, professionals, students, and practitioners from all around the world. Once again, we thank everyone who contributed to making this conference a resounding success.



Dr. Simpson Rodricks

President

International Institute of Education, Research and Development (IIERD)

Contents:

"Comparison of AI-Enhanced Tools for Automating Scientific Literature Reviews"	1
❖ Maciej Gryś	
Cultural Intelligence of Preservice Teachers: Insights from Turkiye	2
❖ Gokcen seyra cakir	
The Importance of Going Green: Evaluating the Impact of Green Bond Issuance on Stock Prices of European Listed Companies.....	3
❖ Sylwia Frydrych	
A Survey of the Available Vocabulary Assessment Tools for ESL/EFL Instructors	4
❖ Raju Dhuli	
❖ Dr. Rajakumar Guduru	
Psychological Manifestation and Associated Risk Factors Among Physical Therapy Undergraduate	5
❖ Alenezi, L.	
❖ Alhaddad M.	
❖ Almutairi Sh.	
❖ Almohri, F	
The Role of Gastrointestinal Dysbiosis and Fecal Transplantation in Various Neurocognitive Disorders	6
❖ Dr. Alia Ibrahim	
UC Merced: Fostering Research and Education at the Center for Cellular and Biomolecular Machines Undergraduate Research Fellowship Program.....	7
❖ Petia Gueorguieva	
❖ Carrie Kouadio	
❖ Ayesha Boyce	
❖ Roberto Andresen Eguiluz	
❖ Metzli Montero	
“What Did Saigo Takamori Want to Do, and Why?: His Policy on Korea in the Early Meiji Period and the Domestic and International Situation”	8
❖ Mizuno Norihito	
Cultural Reflections in Linguistic Consciousness: Georgian Immigrants’ Perceptions of Homeland	9
❖ Maia Chkheidze	
❖ Tina Gudushauri	
❖ Revaz Tabatadze	

Evolving Accrual Accounting in Government Sector: A Systematic Literature Review and Future Prospects	10
❖ Zulkarnaini	
❖ Mirna Indriani	
❖ Heru Fahlevi	
❖ Nuraini A.	
❖ Darwanis	
AI-Proofing Your Discussion Prompts	11
❖ Kim Carter-Cram	
Efficacy and Acceptability of Madajet® Needleless Injection Device Versus the Conventional Technique for Primary Maxillary Molar Local Anesthesia: A Randomized Clinical Trial	12
❖ Ghazaleh Baniebrahimi*	
❖ Bahman Seraj	
❖ Maryam Mousavi Bagheri	
Demographics, Clinical Presentation and Outcome of Metapneumovirus Infection in Adults: A Case Series Analysis at Scarborough General Hospital, UK.....	13
❖ Dr. Vishesh Khanna	
❖ Dr. Amala Khan	
❖ Dr. Kausik Majumdar	
Dynamic Neuromuscular Stabilization Improves Gross Motor Function in A Child with Developmental Delay: A Case Report	14
❖ Chia-Li Shih	
Elucidating the Function and Regulation of Microtubules	15
❖ Mohan Gupta, PhD	
Application of Artificial Neural Networks for Urban Daylight Assessments: A State of the Art Survey.....	16
❖ Zeynep Keskin	
Synthesis and Characterization of Nanocomposites Through In-Situ Polymerization of Aniline in the Presence of Calcined Ink Waste.....	17
❖ Salim Hammani	
❖ Soumia. Guerziz	
❖ Ahmed Barhoum	
Upgrading Smes Employee Performance with Knowledge Sharing and Innovatives Behaviour	18
❖ Indah Rizky Ariani	
❖ Isnurhadi Isnurhadi	
❖ Muhammad Ichsan Hajri	
A Threat to Public Mental Health: The Scary World Syndrome.....	19
❖ Melike Bayrak	
❖ Safiye Ozguc	

Convergence of African Communication Systems with Information and Communication Technology and National Security	20
❖ Austen Sado	
Anatomizing Thermophysical Properties of Atmospheric Gases (N₂, O₂, Ar, CO₂) for Energy Generation, Environmental Protection, and Chemical Conversion: A Review	21
❖ Andrew Koko Wejlah	
The Importance of Effective Feedback as Part of Formative Assessment.	22
❖ Tan Chai Hok	
Suitably Substituted Phenylalkylamides with Melatonergic Action: Modified Release Studies from Matrix Tablets	23
❖ Marilena Vlachou	
❖ Chrystalla Protopapa	
❖ Angeliki Siamidi	
❖ Aikaterini Sakellaropoulou	
❖ Ioannis Papanastasiou	
Sources for Professional Development and the Identification of Prosocial Behaviour for Future Social Workers.....	24
❖ Lecturer Ph.D. Anghel Mirela	
❖ Professor Ph. D. Nistor Gheorghita	
❖ Lecturer Ph.D. Popa Mihaela	
On Kazakhstan's Practice of Restoring the Fundamental Rights of Women and Children Returned from Syria and Iraq.....	25
❖ Yernar Maussumbekov	
Reusable Ionic Liquid Supported Reagent (Ionic Liquid Supported Organo Tellurium Reagents)	27
❖ Shinichi Koguchi	
Design and Implementation of an Intelligent System for Measuring Eye Movement Based on AI Technology	28
❖ Auns Q. H. Al-Neam	
❖ Hind Mohammed	
❖ Lina Nasseer Bachache	
❖ Ahmed Faeq Hussain	

| Abstract

"Comparison of AI-Enhanced Tools for Automating Scientific Literature Reviews"

Maciej Gryś

PhD, Arcana Institute, Certara, Cracow, Poland

Abstract:

Background: Artificial Intelligence (AI) is transforming scientific literature review (LR) by accelerating and automating the review process. This study compared four commercially available AI-enhanced LR tools

Methods: Four tools were evaluated for AI-assisted screening and data extraction capabilities.

Results: Three tools utilize publicly available large language models (LLMs) with internal adjustments, while one employed a proprietary LLM. Two tools offered AI-assisted abstract screening, with AI acting as a second reviewer after training. One tool automatically extracted all PICOS elements from abstracts and provided live AI performance statistics, expediting the identification of relevant papers. Another tool categorized abstracts by answering yes/no questions, significantly reducing screening time. All tools supported AI-driven data extraction from PDFs, with non-generative AI outperforming generative AI in accuracy. AI-assisted table extraction and critical appraisal were under development in all tools.

Conclusions: AI-enhanced LR tools effectively streamline targeted reviews, identifying key publications rapidly. However, caution is advised in systematic literature reviews (SLR) to ensure compliance with regulations. While AI holds great potential to automate the review process, it should complement, not replace, human reviewers.

Cultural Intelligence of Preservice Teachers: Insights from Türkiye

Gokcen seyra cakir

Marmara University, Türkiye

Abstract:

Cultural intelligence, which primarily focuses on adaptability to diverse cultural contexts, present a significant area of research for teacher education in Türkiye, which currently hosts 1.7 million Syrian refugees from conflict zones. Starting in 2017, the Turkish government has made a commitment to fully integrate all Syrian refugees of school age into the Turkish public education system (UNICEF,2021). As a result, the arrival of students from conflict zones into the Turkish public education system has necessitated enhanced preparation for future teachers to address the instructional challenges in multicultural classrooms, while maintaining a culturally responsive approach in their future roles. Cultural intelligence emerges as a construct which refers to the metacognitive, motivational, cognitive and behavioral components, all of which contribute to an individual's ability to adapt to various cultural environments (Van Dyne et al.,2015). Thus, this study aims to investigate whether the cultural intelligence of preservice teachers varies across different fields of initial teacher education. A questionnaire survey is administered to a sample of 130 undergraduate students from a major public university in Istanbul, Türkiye, utilizing the Cultural Intelligence Scale (CQS) developed by Van Dyne et al (2015). The findings are discussed in lights of the implications for multicultural teacher education.

Keywords:

cultural intelligence, pre-service teachers, teacher education.

The Importance of Going Green: Evaluating the Impact of Green Bond Issuance on Stock Prices of European Listed Companies

Sylwia Frydrych

SGH Warsaw School of Economics, Poland

Abstract:

Green bonds have become increasingly important financial instruments for funding sustainable development goals, with Europe leading the way in green bond issuances. This study, which investigates the impact of green bond issuance on the stock prices of European listed companies, provides crucial insights. Employing the event study methodology, this research analyses market reactions across different geographical regions (Central and Eastern Europe, Northern Europe, Southern Europe, and Western Europe), company sizes, bond issuance sizes relative to company capitalisation, and green bond certifications. The findings indicate that, generally, the issuance of green bonds does not result in a significant change in the stock prices of the issuing companies. This overall lack of impact remains consistent across different geographical regions, company sizes, and issuance sizes. However, a notable exception is observed with the certification status of green bonds. Specifically, certified green bonds generally show a more favourable market perception with no significant change in stock prices. In contrast, non-certified green bonds are associated with a decline in the stock prices of the issuing companies. These results underscore the importance of certification in green bond issuance and suggest that financial markets react differently based on the certification status of the bonds. With its significant findings, this research contributes to the sustainable finance literature by providing empirical evidence on how green bond issuance impacts company market value, informing investment decisions and policy-making to support the development of green finance.

Keywords:

Green bonds, Event study, Sustainable finance, Financial geography, Stock price reaction, Green bond certification.

A Survey of the Available Vocabulary Assessment Tools for ESL/EFL Instructors

Raju Dhuli

Ph.D. Research Scholar School of Humanities, Social Sciences and Management Indian Institute of Technology, Bhubaneswar

Dr. Rajakumar Guduru

Assistant Professor of English School of Humanities, Social Sciences and Management Indian Institute of Technology, Bhubaneswar

Abstract:

English language proficiency is now essential for ESL and EFL students due to advances in ICT and globalization in the present millennium. Teachers frequently focus on vocabulary as the foundation of success in English communication in order to guarantee that students master communication skills. The breadth and depth of one's vocabulary knowledge also has an impact on the quality of one's linguistic abilities. Even a limited vocabulary might impair students' linguistic abilities. Because of this, the English language instructors understand how important it is to use tried-and-true tools to gauge the ESL/EFL students' progress in acquiring vocabulary in addition to teaching them vocabulary. Consequently, it is pivotal for the researchers and instructors to acquaint themselves with the proven vocabulary assessment tools. To this end, this study aims to shed an informative light on a circumstantial survey of the vocabulary assessment tools, which can be leveraged by teachers for tracing ESL/EFL students improved level of vocabulary knowledge. Moreover, this article also presents insights on which tools are a potential fit to test which aspects of vocabulary. In order to complete this assignment, the researcher has compiled vocabulary assessment tools (such as Vocabulary Levels Test (VLT), Computer Adaptive Test of Size and Strength, Lexical frequency profile and the like) from a variety of sources, including published articles and the websites of well-known authors, such as Norbert Schmitt, Paul Nation, Paul Meara, and others. Furthermore, the researcher also presented insights on profound advantages of the afore-mentioned tools and how to use them for vocabulary assessment. This article also offers practical perspectives on the limitations of vocabulary testing for students. Overall, this article provides researchers and ESL instructors with a profile of all available resources for vocabulary assessment tools.

Keywords:

ESL/EFL instructors, vocabulary assessment tools, English language communication, Vocabulary Levels Test (VLT)

Psychological Manifestation and Associated Risk Factors Among Physical Therapy Undergraduate

Alenezi, L.

Assistant Professor, Physical Therapy Department, Collage of Allied Health Sciences, Kuwait University, Kuwait

Alhaddad M.

Physical Therapy Department, Collage of Allied Health Sciences, Kuwait University, Kuwait

Almutairi Sh.

Physical Therapy Department, Collage of Allied Health Sciences, Kuwait University, Kuwait

Almohri, F

Physical Therapy Department, Collage of Allied Health Sciences, Kuwait University, Kuwait

Abstract:

Background: Physiotherapy students frequently encounter intense academic demands, resulting in heightened levels of stress and distress. It is crucial to comprehend the origins of this stress in order to improve student well-being and academic achievements. **Aim:** This study aims to explore the prevalence of depression, anxiety and stress symptoms (i.e., psychological disorders) among Kuwait University, physical therapy students. Secondly, it sought to identify and assess the correlated risk factors associated with these psychological disorders. **Methods:** A cross-sectional study was conducted at Kuwait University, where students from the Physical Therapy Department in the College of Allied Health Sciences were chosen through a combination of purposive and convenient sampling, including those in their second, third, and fourth years of study. In order to fulfill the research objectives, a single cross-cultural and validated tool was utilized, which included the Depression, Anxiety and Stress Scale 21 (DASS-21), in addition to the demographic data of the study participants. Descriptive statistics along with ANOVA test were employed to analyze the study results. **Results:** This study included 282 male and female students from the second, third, and fourth year of the physical therapy program in the college of Allied Health at Kuwait University. 179 (68.8%) of the participants were found to have depression, while 235 (87.3%) exhibited symptoms of anxiety, and 178 (64.9%) showed signs of stress. Third-year students displayed significantly elevated levels of anxiety in comparison to students in different years of study ($p < 0.05$). Students identified overthinking as the most common stress factor in their lives, followed closely by course load, difficulty sleeping, and future career expectations. Our findings showed that family assistance plays a vital role in influencing mental well-being, with friends also having an impact and faculty members being the least influential. **Conclusion:** Our findings indicated that a majority of physical therapy students face high levels of psychological disorders such as anxiety, depression, and stress, leading to challenges in their academic pursuits. The results underscore the significance of enacting strategies that address the distinctive pressures faced by physiotherapy students. Identifying these sources of stress will allow the College of Allied Health Sciences at Kuwait University to create support systems that improve students' mental well-being and ultimately contribute to a more conducive learning environment.

Keywords:

Psychological disorders, mental health, Stress Sources, Physical Therapy Students, Kuwait University.

The Role of Gastrointestinal Dysbiosis and Fecal Transplantation in Various Neurocognitive Disorders

Dr. Alia Ibrahim

Sulaiman AlHabib Hospital, Dubai

Abstract:

This presentation explores the critical role of the human microbiome in neurological and neurodegenerative disorders, focusing on gut-brain axis dysfunction caused by dysbiosis, an imbalance in gut bacteria. Dysbiosis has been linked to diseases such as Alzheimer's disease, Parkinson's disease (PD), multiple sclerosis (MS), stroke and neuropsychiatric disorders. The gut microbiome influences the central nervous system (CNS) through signaling molecules, including short-chain fatty acids, neurotransmitters, and metabolites, impacting brain health and disease progression. Emerging therapies, such as fecal microbiota transplantation (FMT), have shown promise in restoring microbial balance and alleviating neurological symptoms, especially in Alzheimer's and PD. Additionally, nutritional interventions such as probiotics, prebiotics, and specialized diets are being investigated for their ability to modify gut microbiota and improve patient outcomes. This review highlights the therapeutic potential of gut microbiota modulation but emphasizes the need for further clinical trials to establish the safety and efficacy of these interventions in neurological and mental health disorders.

UC Merced: Fostering Research and Education at the Center for Cellular and Biomolecular Machines Undergraduate Research Fellowship Program

Petia Gueorguieva

Direct, University of California Merced, USA

Carrie Kouadio

Executive Director, University of California Merced, USA

Ayesha Boyce

Associate director, Arizona State University, USA

Roberto Andresen Eguiluz

Assistant Professor, University of California Merced, USA

Metzli Montero

Graduate student, University of California Merced, USA

Abstract:

The United States National Science Foundation-funded CREST Center for Cellular and Biomolecular Machines (CCBM) Undergraduate Research Fellowship Program was established in 2016 at the University of California, Merced (UC Merced), a designated Hispanic and Minority Serving Institution. CCBM provides research opportunities and professional skill development workshops to undergraduate students. This program supports UC Merced's mission of teaching and research and aims to cultivate an inclusive scholarly community. The program consists of i) Academic Year and ii) Summer Research activities, with the main goals of exposing scholars to research and refining professional skills, such as oral, written, and graphical technical communication. In these programs, a combination of direct and indirect assessment methods is utilized to identify program strengths and weaknesses, to continually improve program activities. In eight years, the program has supported 176 fellows, of which 74% are students from groups traditionally underrepresented in STEM. Motivated by the success and student diversity of our program, we present an overview of our work and share best practices in leading undergraduate research and education. We discuss program components and outline positive impacts of activities on student participants. Discussion of our evaluation strategies and specific results is also discussed in the presentation.

“What Did Saigo Takamori Want to Do, and Why?: His Policy on Korea in the Early Meiji Period and the Domestic and International Situation”

Mizuno Norihito

Akita International University, Akita, Japan

Abstract:

One of the most widely studied aspects of Saigo Takamori, one of the most significant figures of the Meiji Restoration, is his advocacy of the "Seikanron" which he first proposed in the summer of 1873. The fact that there is no uniform English translation of the term "Seikanron" reflects the ongoing debate over what policies and actions Saigo intended toward Korea, as well as the objectives and motives underlying his stance. Various scholarly works have explored these questions. Thus, with a certain bold ambition to bring closure to this longstanding controversy, this presentation will advance the following arguments: (1) Saigo's Seikanron clearly included a military option; (2) In the context of stalled diplomatic negotiations with Korea since 1868, the military option was far from abrupt. In fact, the Ministry of Foreign Affairs had already incorporated military measures as a contingency plan in case diplomatic efforts to open Korea failed; and (3) While it has often been asserted that Saigo's consideration of military action toward Korea was driven by domestic concerns, particularly the discontent among ex-warriors (samurai), this perspective should be understood as part of Saigo's broader vision for national survival and development in the face of the international dynamics of the time.

Cultural Reflections in Linguistic Consciousness: Georgian Immigrants' Perceptions of Homeland

Maia Chkheidze

Professor, The University of Georgia, United States

Tina Gudushauri

Professor, The University of Georgia, United States

Revaz Tabatadze

Associate Professor, The University of Georgia

Abstract:

This study investigates how Georgian immigrants in Italy perceive the concept of "homeland" within the framework of linguistic consciousness, identity, and cultural belonging. Migration for these individuals is more than just a geographical transition; it profoundly alters their understanding of what constitutes their homeland. Through a comprehensive analysis, this research explores the linguistic adaptations, identity shifts, and cultural redefinitions that shape the evolving relationship between these immigrants and their homeland. The study's key insights provide a deeper understanding of the dynamic nature of linguistic consciousness and its effects on immigrant experiences, identity formation, and cultural assimilation.

The research contributes to migration studies, sociolinguistics, and identity formation by highlighting the shifting perceptions of homeland among Georgian immigrants. By focusing on their linguistic and cultural experiences, it offers significant insights into the fluid nature of identity negotiation and the reimagining of the homeland in the context of migration. Furthermore, the study underscores the importance of language in shaping cultural identity and belonging, revealing how immigrants navigate their connection to their homeland while adapting to new linguistic and cultural environments.

This investigation also challenges fixed notions of identity by exploring the evolving perceptions of homeland across different generations and the role of gender, time, and nostalgia. Ultimately, the study enhances our understanding of the immigrant experience and fosters intercultural dialogue, providing a foundation for future research on migration and linguistic consciousness.

Keywords:

Linguistic consciousness, Homeland perception, Georgian immigrants, Identity formation, Cultural assimilation.

Evolving Accrual Accounting in Government Sector: A Systematic Literature Review and Future Prospects

Zulkarnaini

Doctoral Program of Syiah Kuala University, Lhokseumawe State Polytechnic, Indonesia

Mirna Indriani

Syiah Kuala University, Indonesia

Heru Fahlevi

Syiah Kuala University, Indonesia

Nuraini A.

Syiah Kuala University, Indonesia

Darwanis

Syiah Kuala University, Indonesia

Abstract:

The purpose of this study is to outline various prior literature related to the long-term phases of implementing an accrual-based accounting system and to identify recommendations for future research. This study uses a Systematic Literature Review approach with 93 research articles from the Scopus database, selected through a highly detailed protocol. All articles will be analyzed and categorized based on the results of the researcher's review. The study reveals that the period from 1997 to 2024 has created an extended phase for the implementation of accrual-based accounting, covering adoption, implementation, perceived benefits, and challenges faced by various countries worldwide. Across these phases, the implementation stage has notably contributed to the sustainability of governmental accounting systems. On the other hand, the potential benefits of technology have not been a direct focus in research linking it to accrual systems. However, the impact of technological advancements has encouraged governments to improve and develop accrual systems, aiming for better governmental financial performance and enhanced transparency and accountability in public finances. This research provides a comprehensive overview of the government's ongoing actions to establish various policies within the government's capacity to implement accrual accounting policies.

Keywords:

Accrual based-accounting, systematic literature review, adoption, implementation, perceived benefits and technology.

AI-Proofing Your Discussion Prompts

Kim Carter-Cram

Boise State University, USA

Abstract:

In the rapidly-evolving landscape of higher education, ensuring meaningful online engagement among our students is crucial. However, the rise of AI-driven tools like ChatGPT and Microsoft Copilot poses a challenge: how do we craft discussion prompts that resist automation and foster genuine intellectual exchange? This session is dedicated to exploring ways to "AI-proof" discussion prompts in college classes. By examining innovative approaches and leveraging expertise as an experienced educator, this session aims to equip participants with practical tools to enhance the quality and authenticity of online discussions in an era increasingly shaped by Artificial Intelligence.

In this session, I will share strategies for crafting discussion prompts that encourage students to use and develop their own knowledge, experiences, and hypotheses. Drawing on research and examples from my own teaching, I will explore techniques to design prompts that stimulate critical thinking, promote diverse perspectives, and encourage collaborative learning. I will examine the role of personalized questions, multimedia tools, and local real-world applications in fostering robust online discussions. I will also talk about ways that students can use AI in meaningful ways to participate in online discussions without outsourcing their own learning.

Efficacy and Acceptability of MadaJet® Needleless Injection Device Versus the Conventional Technique for Primary Maxillary Molar Local Anesthesia: A Randomized Clinical Trial

Ghazaleh Baniebrahimi*

Pediatric department of Dentistry school, Tehran university of medical science, Tehran, Iran

Bahman Seraj

Pediatric department of Dentistry school, Tehran university of medical science, Tehran, Iran

Maryam Mousavi Bagheri

Pediatric department of Dentistry school, Tehran university of medical science, Tehran, Iran

Abstract:

Background and Objectives: Anesthetic injection prior to dental procedures can create anxiety in patients. This study aimed to compare the efficacy and acceptability of MadaJet® needleless injection device and the conventional technique for primary maxillary molar local anesthesia.

Materials and Methods: This randomized clinical trial evaluated 30 children between 6-12 years who required restoration of two primary maxillary molars. The teeth requiring restoration in each patient were randomized into two groups to receive local anesthesia by the MadaJet® needleless injection device or the conventional technique using block randomization. The parents signed informed consent forms prior to the procedure, and a pediatric dentist performed all the injections. The Face, Legs, Activity, Cry, and Consolability (FLACC) scale (pain and discomfort) was filled out by a blinded assistant to score the movement of children during anesthetic injection. The efficacy of anesthesia administered by the two techniques (absence of pain and discomfort until the end of the restorative procedure) was also evaluated by a blinded undergraduate student. Data were analyzed using the Wilcoxon signed rank test.

Results: The scores of the face ($P=0.03$), legs ($P=0.001$), activity ($P=0.001$), and consolability ($P=0.001$) domains were significantly higher in the conventional technique. No significant difference was noted in the cry domain between the two techniques ($P=0.1$). Optimal efficacy of the needleless technique was confirmed in 19 (63.3%) patients.

Conclusion: Considering the lower rate of discomfort and negative responses in use of MadaJet® needleless technique, this device may be used to achieve local anesthesia for restorative treatments of maxillary primary molars. However, in case of failure, the conventional technique should be necessarily used.

Demographics, Clinical Presentation and Outcome of Metapneumovirus Infection in Adults: A Case Series Analysis at Scarborough General Hospital, UK

Dr. Vishesh Khanna

Scarborough Hospital, United Kingdom

Dr. Amala Khan

Scarborough Hospital, United Kingdom

Dr. Kausik Majumdar

Scarborough Hospital, United Kingdom

Abstract:

Human metapneumovirus (hMPV), a leading cause of Acute Respiratory infection in humans was first identified in 2001 by scientists in Netherlands [1-3]. hMPV can cause upper and lower respiratory disease in people of all ages [4,5]. Approximately 90-100% of children are affected by hMPV between the ages of 5 to 10 as per seroprevalence studies [6-9]. Infection can reoccur within the elderly population and immunocompromised individuals [10,11]. Broader use of molecular diagnostic testing techniques like Polymerase Chain Reaction (PCR) has increased identification and awareness about this virus [1].

hMPV is a negative sense single stranded Ribonucleic Acid (RNA) Virus, part of Pneumoviridae family of viruses, similar to Respiratory syncytial virus (RSV) [1,3]. It can cause mild upper respiratory tract infection in healthy individuals with symptoms like cough, sore throat and fever [1,10]. hMPV is mostly spread from an infected person to healthy individuals through secretions from coughing and sneezing, close personal contact and fomites [1,12]. Thus, hMPV infection is more common in closed or shared accommodation, as was seen in the respiratory infection outbreak in two skilled nursing facilities in West Virginia and Idaho, during 2011–2012 [13]. Another retrospective survey for three northern hemisphere influenza seasons from 2010 to 2013, which included 590 care homes and 75 outbreaks, showed that 10 outbreaks out of 75 were caused by Parainfluenza, Human metapneumovirus or Respiratory syncytial virus [14].

Keywords:

Human Metapneumovirus, acute respiratory infection, Viral pneumonia, hMPV, Adults, Demographics, Treatment.

Dynamic Neuromuscular Stabilization Improves Gross Motor Function in A Child with Developmental Delay: A Case Report

Chia-Li Shih

Physical therapist, Department of Rehabilitation, An Nan Hospital, China Medical University, Tainan, Taiwan.

Abstract:

Core muscle stability is crucial for effective gross motor function. Dynamic neuromuscular stabilization (DNS) stabilizes core muscle and improves balance, gait, and motor performance in individuals with stroke. However, few studies provide evidence of DNS techniques improving gross motor function in infants and children with developmental delay. Therefore, the purpose of this study is to investigate the effects of using DNS techniques on gross motor performance in a child with developmental delay. This case was a full-term, 2-year-and-11-month-old boy with global developmental delay. The DNS exercise intervention consisted of 30 minutes per day, once a week, for 5 months, focusing on 3-month supine and bear position. Before and after the intervention, the gross motor performance was evaluated by using the Peabody Developmental Motor Scale-2(PDMS-2). After 5 months, the score on the PDMS-2 increased from 38 to 40 in the stationary subtest, from 87 to 99 in the locomotion subtest, and from 19 to 26 in the object manipulation subtest. The gross motor quotient improved from 83(13%) to 85(16%). DNS techniques can enhance gross motor function in a child with developmental delay by improving core stability. Clinically, DNS exercises are useful training methods for physical therapists to improve motor performance in children.

Elucidating the Function and Regulation of Microtubules

Mohan Gupta, PhD

Iowa State University, United States

Abstract:

Microtubules are essential cytoskeletal filaments. They are polymerized from the protein tubulin and their assembly and disassembly is spontaneous and inherently stochastic. To achieve complex microtubule-dependent processes, the actions of many microtubules must be coordinated in time and space within cells. The stochastic dynamic behavior of microtubule is influenced by a range of regulatory proteins, and multiple microtubules can be crosslinked or moved relative to one another by additional microtubule-associated proteins and motors. How these regulatory mechanisms are integrated within the cell to perform higher order, complex processes is largely unknown. We are exploiting the relative simplicity of the budding yeast model system to understand how collective microtubule behaviors arise spontaneously or may be influenced by other microtubules within the network and how specific defects in microtubule function underlie health disorders.

Application of Artificial Neural Networks for Urban Daylight Assessments: A State of the Art Survey

Zeynep Keskin

Assistant Professor, Dogus University, Türkiye

Abstract:

Artificial neural networks (ANNs), a subset of machine learning, have emerged as transformative tools for building performance simulation, enabling efficient processing of large and complex databases. One such area is evaluating daylight performance in urban environments, where ANNs can predict solar radiation and daylight availability while accommodating the complexities of urban morphology and dynamic sky conditions. The integration of ANNs into urban daylight simulation holds the potential for improving efficiency and accuracy, while reducing computation time based on learned patterns between input and output parameters. Once trained on simulation data, ANNs enable instantaneous predictions of daylight measures based on inputs, including annual climate dataset and the design parameters of the buildings under evaluation. This paper surveys the current state of the art in Artificial neural networks (ANNs) and their applications in urban daylight simulation. The survey aims to (a) explore the potential of ANNs in the light of current approaches to daylight simulation; (b) provide an overview of research on the primary tasks involved in ANN-based daylight prediction models and the architectures adopted to organize these tasks; (c) present a taxonomy of ANN paradigms. The impact of this work on future studies of ANNs and what factors researchers should consider when combining machine learning techniques with daylight performance simulation are also discussed, along with future research directions.

Keywords:

Daylighting, Urban Daylight Simulation, Machine Learning, Artificial Neural Networks.

Synthesis and Characterization of Nanocomposites Through In-Situ Polymerization of Aniline in the Presence of Calcined Ink Waste

Salim Hammani

LCPMM Saad Dahleb University Blida1- Algeria

Soumia. Guerziz

LCPMM Saad Dahleb University Blida1- Algeria

Ahmed Barhoum

LCPMM Saad Dahleb University Blida1- Algeria

Abstract:

The work has a double impact, environmental (recovery of industrial waste) and the second part concerns the valorization of the waste by using it as a dispersed phase in the preparation of PANI/CWIP nanocomposites. The first part is dedicated to the calcination of ink waste following by a complete characterization by different techniques. The characterization of CWIP shows the phase transition of the principal constituent from Fe_3O_4 to Fe_2O_3 . The valorization of the CWIP is done by the dispersion of the calcined ink waste powder in a polymeric matrix, in order to prepare nanocomposites. The characterization of PANI/CWIP nanocomposites shows an improvement in the optical and electrical conductivity properties. The results of the optical characterization show that the PANI/CWIP nanocomposites have a good UV-blocking of 4-order compared to PANI matrix. The optical transmittance decreases with increasing the CWIP rate in the PANI matrix by about 30%. The addition of CWIP nanoparticles to the PANI matrix improves the electrical conductivity of PANI/CWIP nanocomposites. Electrical conductivity increases by 3 times when the concentration of CWIP nanoparticles increases from 3% to 10wt% in PANI matrix.

Upgrading Smes Employee Performance with Knowledge Sharing and Innovatives Behaviour

Indah Rizky Ariani

Management Department, Economic Faculty, Sriwijaya University, Indonesia

Isnurhadi Isnurhadi

Management Department, Economic Faculty, Sriwijaya University, Indonesia

Muhammad Ichsan Hajri

Management Department, Economic Faculty, Sriwijaya University, Indonesia

Abstract:

Indonesia's micro, small, and medium enterprises (MSMEs) continue to encounter a range of obstacles, particularly in enhancing their productivity and competitiveness. The 2020 survey conducted by the Ministry of Education and Cultural Affairs indicates that Indonesia still has substantial challenges in terms of education quality, especially in rural and underdeveloped urban areas. This study investigates the link between knowledge sharing practices, innovation, and employee performance within Indonesian MSMEs. Through exploratory analysis, it offers fresh insights into how innovation and knowledge sharing behaviour can affect employee performance in Indonesian MSMEs. The main objective is to analyse and explore the impact of innovation and information sharing behaviours on employee performance in small and medium-sized enterprises (SMEs) in Indonesia. Based on this research and its findings, several strategies have been identified. These strategies aim to explore the complex relationship between an employee's performance, their willingness to share knowledge, and their ability to demonstrate innovative behaviours in MSMEs. Future study could focus on improving the quality of human resources, specifically in areas such as knowledge, expertise, competence, and entrepreneurial attitude. Investing in the development of human resources yields benefits for both MSME business owners and the overall well-being of workers.

A Threat to Public Mental Health: The Scary World Syndrome

Melike Bayrak

Ars. Gor. Dr., Gaziantep University, Türkiye

Safiye Ozguc

Doc. Dr., Gaziantep University, Türkiye

Abstract:

The scary world syndrome is the tendency of heavy television viewers to believe that the world is a more hostile place than it really is, to be more afraid of being a victim of violent crime, and to be more distrustful of others. According to Gerbner, those who watch significant amounts of violent content on television change their view of the world. These people start to see the world as a dangerous place. This situation indicates that those who watch violent broadcasts much more are more likely to exaggerate crime and violence in the real world.

According to Tarhan (2012), there are three types of reactions in those who think that the world is getting worse;

1. Taking violence as an example and increasing violent behavior,
2. Desensitization to violence
3. Becoming fearful, perceiving themselves as victims of violence and developing avoidance behavior. Stating that it is difficult to say that all these three types of reactions are healthy, Tarhan (2012) stated that “the scary world syndrome” is one of the most important consequences of lack of empathy and the scary world syndrome at it emerges when social emotions are damaged.

In the context of community mental health, it is thought that scary world syndrome can increase the anxiety and anxiety levels of individuals, make them more vulnerable to mental problems, damage people's sense of trust in each other and society, and cause conflicts between communities. In this context, public health nurses can help individuals develop critical evaluation skills by informing the society about media literacy. They can also provide counseling and support services to individuals experiencing anxiety and fear and encourage positive social interactions.

In conclusion, public health nurses have a critical role to reduce the negative effects of this syndrome and protect community mental health. Strategies such as media literacy, mental health support and promoting community solidarity can contribute to building a healthier and safer society.

Keywords:

public health, scary world syndrome, community mental health.

Convergence of African Communication Systems with Information and Communication Technology and National Security

Austen Sado

University of Port Harcourt, Nigeria

Abstract:

The pervasive nature of insecurity in Nigeria with its enormous challenges to national development has made the investigation of the relationship between African Communication Systems and ICT in security management a necessity in present day Nigeria. African cultures are replete with practices that compel community members to be responsible for the the safety and security of others and the community. The worship of deities which command obeisance among members of the community is compelling and attractive. With a large population of rural people who are deeply rooted in African Traditional Systems of worship, it is a contradiction that insecurity is the greatest challenge facing the peoples of Nigeria. A study of the relationship between traditional Communication Systems and ICT for the purpose of stemming the tide of insecurity is a valuable exercise. To what extent has the extra-mundane patterns of Communication leveraged on ICT in the fight against insecurity manifesting as banditry, kidnapping for ransom, terrorism and other violent crimes in Nigeria. This study will be guided by the Technological Determinism theory, and will adopt the survey method, with focus group discussions among professionals in the Communication sector. Preliminary findings suggest a significant contribution of ICT to the objective of stemming the tide of insecurity in Nigeria.

African cultures are replete with practices that compel community members to be responsible for the the safety and security of others and the community. The use of deities which command obeisance among members of the community is an effective and almost compelling power to achieve any development objective including security. To deploy ICT and rural communities in communicating the evil of insurgency and over all security objectives will be a very strong impetus in the fight against all form of criminality ravaging our communities and country.

Anatomizing Thermophysical Properties of Atmospheric Gases (N₂, O₂, Ar, CO₂) for Energy Generation, Environmental Protection, and Chemical Conversion: A Review

Andrew Koko Wejlah

State Key Laboratory of Coal and Gas Control, China University of Mining and Technology, Xuzhou 221116, China

School of Safety Engineering, China University of Mining and Technology, Xuzhou 221116, China

Abstract:

The thermophysical properties of atmospheric gases (N₂, O₂, Ar, CO₂) are crucial for understanding their behavior in various applications, including energy generation, environmental protection, and chemical conversion. This paper demonstrates how N₂, O₂, Ar, and CO₂ can be utilized for energy generation, mitigated for environmental protection, and transformed into valuable chemicals. The top three atmospheric gases, N₂ 78.084%, O₂ 20.946%, and Ar 0.934% were selected along with the most prevalent greenhouse gas, CO₂ 0.041%. In addition, CO₂ is an essential gas used by plants and other organisms. The diffusion coefficient reflected the behavior (mixture properties) of the gases. Thermal energy conversion, combustion process, carbon capture and storage for greenhouse gas mitigation, absorption catalysis, synthesis, etcetera are media for application (Energy, Environmental Protection, and Chemical Conversion) analyzed from properties such as density, viscosity, specific heat, and thermal conductivity. This theoretical review provides a basis through which a sustainable and efficient research path can be calved by current and future researchers.

The Importance of Effective Feedback as Part of Formative Assessment.

Tan Chai Hok

Presently the Lead Teacher at Christ Church Secondary School, Tamil Nadu

Abstract:

This paper discusses the importance of effective feedback which sits within a formative assessment framework. The literature review on feedback will be presented, Hattie defines feedback as “Information provided by an agent (e.g. teacher, peer, self) about aspects of one’s performance or understanding, with the goal of reducing the gap between what is understood and what is aimed to be understood. The paper will also discuss the stages of learning and how effective feedback can be attained (Hattie’s four levels of feedback (task, process, self-regulation and self). Authentic examples of how the presenter provides feedback to the learners at the different level will be shared during the presentation. The presentation culminates in the presentation of a research conducted on getting the students to self-regulate in the spoken interaction module.

Suitably Substituted Phenylalkylamides with Melatonergic Action: Modified Release Studies from Matrix Tablets

Marilena Vlachou

Associate Professor, BPharm, PhD, MRSM, at the National and Kapodistrian University of Athens (NKUA), Greece

Chrystalla Protopapa

National and Kapodistrian University of Athens, Department of Pharmacy, Section of Pharmaceutical Technology, Greece

Angeliki Siamidi

National and Kapodistrian University of Athens, Department of Pharmacy, Section of Pharmaceutical Technology, Greece

Aikaterini Sakellaropoulou

National and Kapodistrian University of Athens, Department of Pharmacy, Section of Pharmaceutical Technology, Greece

Ioannis Papanastasiou

National and Kapodistrian University of Athens, Department of Pharmacy, Section of Pharmaceutical Technology, Greece

Abstract:

Melatonin (N-acetyl-5-methoxytryptamine), a hormone synthesized and excreted by the pineal gland, has a regulatory role in the onset and maintenance of sleep in vertebrates and mammals, including humans. In the context of this work, matrix tablets containing potent synthetic MLT receptor derivatives, were designed and developed. These analogues, besides not affecting the binding affinity, compared to the pineal hormone MLT, also slow down their metabolism, which is a major drawback of MLT (<http://dx.doi.org/10.1039/C8MD00604K> PMID: 31191854). Results indicated that the release profiles of these molecules and MLT, from the same formulations were similar. While some of these systems could address issues related to sleep onset, others might be useful in dealing with both sleep onset and sleep maintenance dysfunctions. The primary factor influencing the bimodal release profile of the novel analogues is the distinct spatial arrangement of their side chains, which is independent of the type and relative content of the excipients used.

Keywords:

melatonin, synthetic melatonergics, tablets, dissolution, modified drug release.

Sources for Professional Development and the Identification of Prosocial Behaviour for Future Social Workers

Lecturer Ph.D. Anghel Mirela

University of Bucharest, Faculty of Sociology and Social Work, Romania

Professor Ph. D. Nistor Gheorghita

University of Bucharest, Faculty of Sociology and Social Work, Romania

Lecturer Ph.D. Popa Mihaela

University of Bucharest, Faculty of Sociology and Social Work, Romania

Abstract:

Our goal in this study is to present a method for choosing social work applicants that exhibit multifaceted prosocial activities and prosocial orientations. Thus, based on suitable methods for the selection and professional orientation of applicants as future social work specialists, universities can establish a sustainable educational system. Successful and long-lasting professional integration can result from the application of proven techniques for vocational counselling and selection in conjunction with a set of prosocial principles. Identifying the prosocial tendencies of young people pursuing academic study in the social domain was one of the study's goals. Another was to examine and evaluate multidimensional PSB types, which could be used as a career orientation strategy for sustainable education and sustainable professional integration in the social system, based on prosocial tendencies. In the paradigm of prosocial behaviour, several types of behaviour are associated with strong good conduct. Concerns exist over the circumstances and factors that contribute to constructive behaviour, and there is some misunderstanding regarding whether people would want to act in a positive, prosocial way. The study's goal was to demonstrate how the orientations and PSB, which are primarily formed by the family during the development process, are based on the academic field of social study and are in line with the pro-social tendencies and social values needed for both a sustainable professional integration and a sustainable education. In their initial work, G. Carlo and B. A. Randall (2002) introduced a tool that encompasses four distinct categories of PSB: altruistic PSB, compliant PSB, emotional PSB, and public PSBs. Based on the research, the authors developed a scale consisting of six categories to measure individual variations in PSB among late teens. We also used this tool in our own study to examine the particular patterns of prosocial tendencies in multidimensional prosocial behaviours in Romania.

Keywords:

prosocial behaviour, social sciences, welfare, empathy.

On Kazakhstan's Practice of Restoring the Fundamental Rights of Women and Children Returned from Syria and Iraq

Yernar Maussumbekov

AQNIET Foundation, Republic of Kazakhstan

Abstract:

In Kazakhstan, the active phase of reintegration and repatriation is still ongoing.

Of the 191 women, only 18 were prosecuted for the facts of radical propaganda and recruitment from their environment.

With 18 women, the AQNIET Foundation continued rehabilitation work in 4 women's prisons.

The resulting positive effect contributed to the revision by the Ministry of Internal Affairs of Kazakhstan of sentences with the substitution of punishment for non-custodial sentences.

All the women were released ahead of schedule and returned to their places of residence.

This is an unprecedented humanitarian step to ease the punishment for those who have committed terrorist crimes.

Of particular note is the process of documenting children.

Through the painstaking work of government agencies and the civil sector, it was possible to find a compromise on the issues of documenting children in order to exclude "Syria" and "Iraq" in the place of birth column.

In the documents of all children, the place of birth is indicated as "The Republic of Kazakhstan" in order to eliminate the causes and conditions of their stigmatization in the future.

This is an exceptional and unique case where the rights of children have been protected despite the fact that these children have never been to Kazakhstan and there are many legal grounds for refusing this.

This is one of the fundamental issues that has been resolved and has greatly contributed to their successful reintegration into Kazakh society. The women appreciated these efforts and the degree of trust reached a qualitatively new level.

Genomic examinations were carried out for round orphans, when samples were taken from relatives instead of deceased parents. On this basis, guardianship was issued.

International organizations positively note this approach.

It should be noted separately that these measures came at the peak of the pandemic and were complicated by quarantine restrictions.

At the same time, all countries that returned their citizens faced the problem of documenting the death of liquidated ISIS fighters.

Some repatriates still cannot recognize relatives who died in Syria and Iraq, are missing or deceased.

Repatriates and guardians of children who have been left without parents are denied such applications on the basis of active criminal cases.

The solution to this problem should be approached with the utmost caution, since there are cases when ISIS militants deliberately staged their deaths in order to evade responsibility.

Children cannot receive the status of a person who has lost a breadwinner, some are not recognized as orphans.

Close relatives, mothers, wives and children cannot issue an inheritance because they do not have access to funds in the pension or savings accounts of deceased relatives.

They do not yet have the opportunity to issue movable and immovable property, they cannot dissolve the marriage.

There are women who cannot recognize as dead their minor children who died in their arms because there is no documentary evidence of their death.

The AQNIET Foundation, together with the Ministry of Culture and Information of Kazakhstan, is implementing the project "Legal and social assistance to citizens returned from terrorist activity zones and relatives of dead and missing Kazakhstan"

As a result of our work, we have identified the following problematic issues:

- the impossibility of proving the fact of the death of a spouse is 50%.
- inability to re-register real estate - 20%;
- inability to gain access to the pension/savings accounts of the deceased – 23.4%;
- parents who cannot prove the death of their children - 9%

A number of women have married under Sharia law without official registration. There are cases when they married several times.

Therefore, it is not possible to establish paternity of children born in Syria.

Taking this into account, together with a group of lawyers, psychologists, and sociologists, we have prepared draft amendments to the legislation of Kazakhstan in order to resolve a set of legal issues regarding family members of wanted militants and against the background of the objective impossibility of proving the fact of their deaths in terrorist activity zones.

Given that there are many interethnic conflicts in the world, our experience will be relevant for other countries and we are ready to share it.

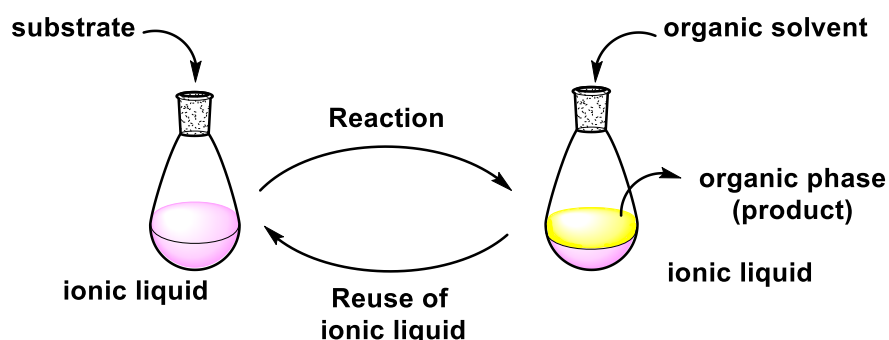
Reusable Ionic Liquid Supported Reagent (Ionic Liquid Supported Organo Tellurium Reagents)

Shinichi Koguchi

Department of Chemistry, Tokai University, Hiratuka, Kanagawa, Japan.

Abstract:

Oxidation is one of the most important reactions in organic reactions. Organotellurium compounds are known to be useful oxidation reagents. We have previously reported photo-oxidation reactions using organotellurium compounds. We have achieved organotelluride catalyzed oxidations, e.g., of silanes to silanols, thiols to disulfides, and alcohols to ketones or aldehydes. Moreover, we have reported the aerobic photo oxidation of phosphite to phosphate esters by using an organotelluride. The advantage of this reaction is that various substrates can participate efficiently using light and atmospheric oxygen. However, the product obtained using this reaction must be purified, such as by column chromatography, and organotelluride catalyst is not recyclable. To overcome these problems, we investigated the preparation of ionic liquid supported organotelluride and its application for the oxidation of thiol and phosphite esters using ionic liquid supported organotelluride. The ionic liquid supported organic synthesis has the advantages of easy product isolation and catalyst recycling via simple phase separation. We have previously reported various types of ionic liquid supported organic synthesis systems. First of all, the ionic liquid supported organotelluride was synthesized through several steps of reactions. Therefore, we have successfully obtained an ionic liquid supported organotelluride. The structure of this ionic liquid supported organotelluride was confirmed by the ¹H and ¹³C NMR spectroscopy and mass spectrometry. Next, we investigated the oxidation reaction using the newly developed ionic liquid supported organotelluride. As a result, this ionic liquid supported organotelluride was effective in various oxidation reactions and able to be recovered. Finally, we investigated the reusability of the ionic liquid supported organotelluride. After completing the oxidation, the resulting oxide was isolated via extraction with diethyl ether, and the remaining ionic liquid solution containing ionic liquid supported organotelluride could be reused at least several times in the subsequent reactions. This system is advantageous because of its environmental friendliness and good yields.



Design and Implementation of an Intelligent System for Measuring Eye Movement Based on AI Technology

Auns Q. H. Al-Neam

Biomedical Engineering Department, College of Engineering, Al-Nahrain University, Baghdad, Iraq

Hind Mohammed

Biomedical Engineering Department, College of Engineering, Al-Nahrain University, Baghdad, Iraq

Lina Nasseer Bachache

Medical Instrumentation Engineering Technique, College of Technical Engineering, Al-Mashreq University, Baghdad, Iraq

Ahmed Faeq Hussain

Biomedical Engineering Department, College of Engineering, Al-Nahrain University, Baghdad, Iraq

Abstract:

Vision is one of the five essential senses in a human being, and any problem with eye movement could produce several complications in the patient's lifestyle, due to the vital importance of vision the necessary arises to design and implantation of a smart system that could predict and measure eye movement using artificial intelligent technology, the eye is a seat of a steady electric potential field that is quite unrelated to light stimulation. This field may be detected with the eye in total darkness and/or with the eyes closed. It can be described as a fixed dipole with a positive pole at the cornea and a negative pole at the retina. The magnitude of this corneoretinal potential is in the range of 0.4-1.0 mV. It is not generated by excitable tissue but, rather, is attributed to the higher metabolic rate in the retina. The polarity of this potential difference in the eyes of invertebrates is opposite to that of vertebrates. This potential difference and the rotation of the eye are the basis for a signal measured at a pair of periorbital surface electrodes. The signal is known as the electrooculogram, (EOG). It is useful in the study of eye movement.

