

# ABSTRACT PROCEEDING



## 2nd International Conference on Advancements in Social, Business and Management Sciences Research ASBMSR-2019

Tokyo, Japan

February 26-27, 2019



2<sup>nd</sup> International Conference on “Advancements in Social, Business and Management Sciences Research”(ASBMSR- February, 26-27, 2019)  
ASBMSR© 2019 Tokyo, Japan  
GI Social Sciences Forum, Kuala Lumpur, Malaysia.



# **ASBMSR 2019**

## **Conference Proceeding**

### **Book of Abstracts**

**2<sup>nd</sup> International Conference on  
“Advancement in Social, Business and Management  
Sciences Research” (ASBMSR -2019)”**

**Venue: Hotel Mystays Ochanomizu Conference Center, Tokyo,  
Japan**

**Editor:**

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Country Director (Global Illuminators Iraq)

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## Conference Chair Message

**Farooq Ahmed Jam (Ph.D.)**



2<sup>nd</sup> International Conference on “Advancement in Social, Business and Management Sciences Research” (ASBMSR - 2019) serves as platform that aims to help the scholarly community across nations to explore the critical role of multidisciplinary

innovations for sustainability and growth of human societies. This conference provides opportunity to the academicians, practitioners, scientists, and scholars from across various disciplines to discuss avenues for interdisciplinary innovations and identify effective ways to address the regional and global challenges faced by our societies. The research ideas and studies that we received for this conference are very promising, unique, and impactful. I believe, these studies have the potential to address key challenges in various sub-domains of social sciences and applied sciences. The scholars attending this conference will certainly find it helpful in refining their own research ideas, finding solutions to basic/applied problems they face, and interacting with other renowned scholars for possible future collaborations.

I am really thankful to our honorable scientific and review committee for spending much of their time in reviewing the papers for this event, selecting the best paper awards, and helping the participants in publishing their research in affiliated journals. Also, special thanks to all the session chairs from industry, academia, and policy-making institutions who volunteered their time and support to make this event a success.

A very special thanks to the great scholars for being here with us as keynote speakers. Their valuable thoughts will surely open the horizon of new research and practice for the conference participants coming from across the globe. I am also thankful to all the participants for being here with us to create an environment of knowledge sharing and learning. We, the scholars of this world, belong to the elite educated class of this society and we owe a lot to return to this society. Let's break all the discriminating barriers and get free from all minor affiliations. Let's contribute even a little or single step to the betterment of society and welfare of humanity to bring prosperity, peace, and harmony in this world. Stay blessed.



## Type of ASBMSR Papers

For this year, ASBMSR has two types of papers: *Empirical Studies* and *Insight*. Research papers meet the needs of researchers and are reviewed on the basis of highest academic standards. The objective of the academic paper is to contribute to the scientific body of knowledge. On the contrary, Insight papers meet the needs of policy makers and professionals and are reviewed on the basis of high practical standards. The objective of the Insight is to identify the real-world problems and how they can be solved with the help of information systems.

## Reviewing Criteria

In ASBMSR, all papers are judged on the same criteria (relevance, significance, originality, validity and clarity). However some criteria differ between the Research papers and Insight papers.

**Relevance:** Relevance has a great impact on the theme of the conference. The material is relevant and according to the theme of the conference.

**Significance:** Knowledge in different researches in the conference is related to research papers and insight papers.

**Originality:** Ideas that are new for the researchers are used in the conference.

**Validity:** Research papers in the conference are based on theory while the insight papers in the research are based on experimental researches. References are according to content.

**Clarity:** Papers are according to the format, language is easy and understandable by the audience in the conference.

### Acceptance Rates

Full Research Papers				
Submitted Papers	Accepted Papers	Withdrawn	Unqualified papers	Acceptance Rate
60	44	7	9	66%

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## **Acknowledgment**

A huge number of people helped in conducting the conference. First of all, thanks to all the members of the Conference and Program Committee and representatives of the ASBMSR board and their helpers. We also want to thank all the Track Chairs and reviewers, as well as all the members of the Scientific Committee, for their help in the review process and organizing the tracks and special sessions. We thank everyone for their hard work and dedication to this conference and we look forward to the latest episode of the ASBMSR tradition.

Farooq Ahmed Jam (Ph.D.), Tariq Iqbal Khan (Ph.D.)

And Muhammad Abbas ( Ph.D.)

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## KEYNOTE SPEAKER

### Professor Kimberly Gomez



Kimberley Gomez', Professor of Education and Information Studies, centers her work in examining teachers' and students' development and use of literate practices in formal and informal contexts. She employs the design and study of literate practices to enhance learning in mathematics, science, and technology use with the aim of informing theoretical and practical understandings. She views context as the primary lens in understanding the development of experiences and outcomes associated with learning. A corollary of this commitment is that she designs educational interventions and professional development opportunities in a collaborative and participatory manner working side-by-side with frontline practitioners across disciplinary and organizational contexts including teachers, health professionals, psychologists, computational designers, and engineers. Gomez received the Ph.D. from the University of Chicago in 1994. She served as a post-doctoral fellow and a research associate in the Center for Learning Technologies in Urban Schools (LeTUS) NSF-funded study at Northwestern, in Northwestern University's Learning Sciences program. Gomez is currently a tenured Professor of Education at the University of California, Los Angeles (UCLA). She is jointly appointed in the Information Studies department at UCLA. Since 2011, Gomez has been the lead language and literacy fellow at the Carnegie Foundation for the Advancement of Teaching.

In 2018, she received the Bobbie and Mark Greenfield Faculty Award for Applied Research in Learning and Achievement from the UCLA Graduate School of Education and Information Studies, and in 2017, she received the Distinguished Teaching Award from UCLA’s Graduate School of Education.

She is an Osher Fellowship recipient (awarded by the Exploratorium, San Francisco, CA). She is a Sudikoff Family Institute for Education & New Media fellow (2013-14) and received the Harold A. and Lois Haytin Faculty Award, from Graduate School of Education & Information Studies, UCLA for her collaborative work with teacher practitioners. She is the author of over 50 refereed journal articles, book chapters, and conference proceeding articles.

## **ASBMSR 2019 Tracks’ Chairs**

### **Business, Management, and Economics Studies**

Hanadi Behairi & Youngmi Yoo

### **Social Sciences & Humanities**

Kimberley Gomez & Harri Jalonen

### **Engineering & Technology Studies**

Farooq Ahmed Jam & Shun-Chuan Chang  
Abdulrahman Hashem

## **ASBMSR 2019 Workshop**

### **“How To Improve The Quality Of A Research Article And Get It Published In Scopus/Isi Indexed Journals”**

**Trainer: Dr. Farooq Ahmed Jam (Ph.D.)**

In this workshop, we will discuss how to improve the quality of a research article and getting it published in good quality journals. Publication is considered as a KPI achievement for academic staff. It is considered to be the best way to enjoy benefits and promotion as a faculty member. In this workshop, trainer will shed light on how to identify a hot research topic, how to find a research gap, importance of a catchy Research Paper Title, what reviewers are looking for in a research article, what editors are expecting from authors, major reasons for article rejection by good journals, steps and tips to improve article quality and content, and finding a relevant outlet for your research. Hope this workshop will help the participants improve their understanding about the publication process.

## **Best Paper Nominee List**

### **Liquidity, Leverage, and Cash Holding: Evidence from Indonesia Listed Real Estate Firms**

*Zunairoh<sup>1\*</sup>, Fatkhurrohman<sup>2</sup>*

<sup>1</sup> Airlangga University, Indonesia

<sup>2</sup> Gadjah Mada University, Indonesia

### **Basic Elements of Project Management on the Example of Lean Manufacturing Student Research Group Activities Carried Out at the AGH University of Science and Technology in Cracow**

*Katarzyna Styk<sup>1\*</sup>, Klaudia Drobek<sup>2</sup>*

AGH University of Science and Technology, Poland

### **Immoral Behaviors in Online Games: Effects of Moral Positioning, Game Motivation, Aggression, and Self-Esteem on Flaming and Trolling in League of Legends**

*Sungje Lee<sup>1</sup>, Jeonyoung Kong<sup>2</sup>, Meiying Piao<sup>3</sup>, Euijun Jeong<sup>4\*</sup>*

<sup>1,2,3,4</sup> Konkuk University, Seoul, South Korea

### **Optical Recognition of Music Symbols of a NSBSN Structure**

*Ku Chin Lin<sup>1\*</sup>, María José Rodezno Ayestas<sup>2</sup>*

<sup>1,2</sup> Kun Shan University, Taiwan

## **ASBMSR 2019 Best Paper Award Winner**

### **Liquidity, Leverage, and Cash Holding: Evidence from Indonesia Listed Real Estate Firms**

*Zunairoh<sup>1\*</sup>, Fatkhurrohman<sup>2</sup>*

<sup>1</sup> Airlangga University, Indonesia

<sup>2</sup> Gadjah Mada University, Indonesia

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### **Editor**

**Dr. Ahmad Saddam (Ph.D.)**

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# CONFERENCE PROGRAM

**DAY 01 Thursday (February 1, 2018)**

**Welcome Reception & Registration**

**8:00 am – 8:30 am**

**Opening Ceremony (08:30 am –09:25 am)**

**Venue: Room 1**

08:30 am – 08: 40 am	Welcome Remarks – <b>Dr. J. Dalle(Ph.D.)</b>	Conference Cordinator Global illuminators
08:40 am – 08:55 am	Opening Speech – <b>Dr. Farooq Ahmad Jam (Ph.D.)</b>	Conference Chair- GIMAR-2018 Executive Director, Global Illuminators
08:55 am – 09: 05 am	Keynote Speech- <b>Prof. Dr. Abdelmajid Bouazza</b>	Professor at the Department of Information Studies, Sultan Qaboos University, Oman
09:05 am - 09: 25am	Group Photo & Award Ceremony	

**Grand Networking Session and Tea Break (09:25 am – 09:45 am)**

**DAY 01 Tuesday (February 26, 2019)**

**Session 1 (09:45 am – 01:00 pm)**

**Venue: Room 1**

**Session Chairs: Kimberley Gomez & Harri Jalonen**

**Track: Social Sciences and Humanities**

GIMAR-19-134	Arabic Multidisciplinary Academic Research, Efforts and Obstacles- DSR_UQU as a Model	Hanadi Behairi
ASMBSR-19-123	Corporate Financial Performance Effect on Stock Prices Empirical Evidence From a Small Market: A Study in Amman Stock Exchange Over the Period 2006 – 2017	Abdulrahman Hashem
ASMBSR-19-125	Moderating Effects of Social Support and Social Participation in the Relationship Between Depression and Quality of Life of Elderly Victims from Disaster	Saebom Kim Hyemin Kwon Youngji Song
ASMBSR-19-126	Exclusion's Measurement of Different Social Groups: Methodological Preliminary Work and Empirical Results	Puzanova Zh.V
ASMBSR-19-127	A Study on the Improvement of Disaster Safety Education for Children and Teenagers: A Comparative Study on Korea, the United States, and Japan	Boreum Kim Youngmi Yoo Eunhee Kim

**Lunch Break (1:00 pm – 2:00 pm)**



**DAY 01 Tuesday (February 26, 2019)**

**Session 1 (09:45 am – 01:00 pm)**

**Venue: Room 1**

**Session Chairs: Kimberley Gomez & Harri Jalonen**

**Track: Social Sciences and Humanities**

GIMAR-19-147	The Effect on the Improvement of Vocational High School Students’ Abilities on Popular Science Reading and Thinking by M-Learning	Liu, Yuan, Chen
ASBMSR-19-129	Continuous Improvement Education. Adaptation of Kaizen Philosophy on the Example of the Student Project AGH Lean Line	Magdalena Kołodziejczak
ASBMSR-19-133	The Effect of Satisfaction of Disaster Relief Service on Quality of Life	Lee Yong ho Kim Hyun-sung Ahn Jun-hyeog.
GIMAR-19-146	A Study of Augmented Reality on National Defense Education Curriculum for Senior Middle School Students	Huang, Tzu, Hua
ASBMSR-19-137	Studying Social Representations on Groups of Minorities (Evidence from LGBT)	Tatiana Larina
GIMAR-19-112	Liquidity, Leverage, and Cash Holding: Evidence From Indonesia Listed Real Estate Firms	Zunairoh

**Lunch Break (1:00 pm – 2:00 pm)**

**DAY 01 Tuesday (February 26, 2019)**

**Session 1 (09:45 am – 01:00 pm)**

**Venue: Room 2**

**Session Chairs: Hanadi Behairi & Youngmi Yoo**

**Track: Business, Management, Economic Studies Social Sciences and Humanities**

GIMAR-19-105	You Get What You Ask For? Encountering Complexity and Per formative Leadership on Social Media	Harri Jalonen
GIMAR-19-107	Consumer Evaluation and Consumption of Shanzhai Brands: Attributing Featured and Perceived Similarity	Shun-Chuan Chang
GIMAR-19-109	Meeting in the Middle: The Challenge and Promise of Supporting Stem Learning Through Language and Literacy Infusions	Kimberley Gomez
ASBMSR-19-134	Basic Elements of Project Management on the Example of Lean Manufacturing Student Research Group Activities Carried out at the AGH University of Science and Technology in Cracow	Katarzyna Styk

**Lunch Break (1:00 pm – 2:00 pm)**

**DAY 01 Tuesday (February 26, 2019)**

**Session 1 (09:45 am – 01:00 pm)**

**Venue: Room 2**

**Session Chairs: Hanadi Behairi & Youngmi Yoo**

**Business, Management, Economic Studies Social Sciences and Humanities**

ASMBSR-19-128	Null Object Phenomena in English	Hyemi Park Jihyeon Ha Hyangmi Lee
ASMBSR-19-136	Immoral Behaviors in Online Games: Effects of Moral Positioning, Game Motivation, Aggression, and Self-Esteem on Flaming and Trolling in <League of Legends>	Jeon Young Kong, Meiying Piao Sungje Lee

**Lunch Break (1:00 pm – 2:00 pm)**

**DAY 01 Tuesday (February 26, 2019)**

**Workshop Session (2:00pm – 3:30 pm)**

**Venue: Room 1**

**“How to Improve the Quality of Research Article and get published in Scopus/ISI Indexed Journals”**

<b>Trainer</b>	<b>Dr. Frooq Ahmad Jam (Ph.D.)</b>
<b>Participants</b>	All Participants

In this workshop, we will discuss how to improve the quality of research article and getting published in good quality journals. Publication is considered as a KPI achievement for academic staff. It is considered to be the best way to enjoy benefits and promotion as a faculty member. In this workshop trainer will shed light on how to identify a hot research topic, How to find a research gap, Importance of a catchy Research Paper Title, What Reviewers are looking in research article, What editors are expecting from authors, Major Reasons of article rejection in good journals, Steps and tips to improve article quality and content and Finding a relevant outlet for your research. Hope this workshop will help the participants improve their understanding about publication process.

**Tea Break (3:30 pm – 3:45 pm)**

**DAY 01 Tuesday (February 26, 2019)**

**Session 2 (3:45 pm – 04: 45pm)**

**Venue: Room 1**

**Session Chairs: Farooq Ahmed Jam & Shun-Chuan Chang**

**Track: Engineering and Technology Studies**

GIMAR-19-114	Effect of Fiber Volume Fraction to Tensile Strength in Composites Polyester Reinforced Sugar Palm Fiber (SPF)	Fatkhurrohman
GIMAR-19-119	An Animal Ladder Training Platform Based on Infrared Range Finder for Rehabilitation of Brain Stroke	Chi-Chun Chen
ASMBMSR-19-130	AGH Leanline Simulation Game as a Method for Lean Manufacturing Training	Krzysztof Grzesik Jakub Liszcz
EASIT-19-101	Optical Recognition of Music Symbols of a NSBSN Structure	Ku Chin Lin
EASIT-19-102	Effect of Relative Direction and Distance of A Brush-Anode to a Cathode on Performance and Electrochemistry of a Brush-Anode and a Microbial Fuel Cell (MFC)	Bonyoung Koo

**Closing Ceremony (4:45 pm – 5:15 pm)**



**DAY 01 Tuesday (February 26, 2019)**

**Session 2 (03:45 pm – 04: 45pm)**

**Venue: Room 2**

**Session Chairs: Abdulrahman Hashem & Sansoen Sattavorn**

**Track: Engineering and Technology Studies**

EASIT-19-103	Effects of Wire-Type and Mesh-Type Current Collectors in a Carbon-Felt Anode on Performance and Electrochemistry in a Microbial Fuel Cell	Hyungwon Chai
EASIT-19-104	Improved Current Collector Structure Enhances Power Generation of a Microbial Fuel Cell (MFC) by Decreasing Cathodic Charge Transfer Impedance	Junhyuk Kim
EASIT-19-105	Effects of Different Structures and Materials of an Anode on Performance, Polarization Behaviours And Impedance in a Microbial Fuel Cell (MFC)	Sunghoon Son
EASIT-19-106	Influence of the Flowrates of Reverse Electro-Dialysis (RED) Stack on Power Generation, Polarization Behavior and Internal Impedance Distribution of Microbial Reverse-Electro dialysis Cell (MRC)	Tran Viet Hoa huong

**Closing Ceremony (4:45 pm – 5:15 pm)**





## LIST OF CONFERENCE ATTENDEES

The following scholars/practitioners/educationists don’t have any paper presentations; however they will be attending the conference as delegates and observers.

ID	Name	Affiliation	Country
ASMBSR-19-119	Isaac Okyere Paintsil	Jiangsu University	China
GIMAR-19-149	Mr.Dikgwejane Itumeleng Glad	EFC University Tunisia	Tunisia
GIMAR-19-150	George Schaaff	Kwansei Gakuin University	Japan

## DAY 02 Friday, (February 02, 2018)

### “CITY TOUR”

Gathering of Participants at the Lobby of Hotel Mystays Ochanomizu  
Conference Center Tokyo, Japan at 12:00 pm Departure: 12:30 pm for City  
Tour

Hotel Mystays Ochanomizu Conference Center Tokyo, Japan at  
6:00 pm

**Important Note:** This tour is organized by Global Illuminators and entry to this tour is free for all participants. You may also bring your Siblings/Family/Friends but you have to register for them on registration desk on day 1 of conference.



## **TRACK A: BUSINESS MANAGEMENT & ECONOMIC STUDIES**

## You Get What You Ask For? Encountering Complexity and Performative Leadership on Social Media

**Harri Jalonen\***

Turku University of Applied Sciences, Turku, Finland

### Abstract

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Books on leadership are springing up like mushrooms after the rain. This is a natural development, as leadership is a phenomenon that is impossible to explain with a universal theory. Leadership is the art of the possible, in which success is dependent on acknowledging, understanding and utilising several situational factors. The present study relies on research literature with a focus on complexity theory and performative leadership. This approach is selected because social media has altered the operational environment of organizations in a way that forces us also partially to reinterpret leadership. Social media is not merely a communication channel, but a rationally and affectively charged forum of meaning provision and framework creation. Social media has changed the context of leadership, especially by increasing transparency within organizations, as well as between the organizations and their operational environment. Leadership is a form of performative interaction, in which meanings are focusing on the past, present and future are created, maintained and adapted. On social media, the private has become public in a way that challenges the leadership practices of organizations. On the other hand, social media has provided leaders who are talented communicators with new means of encountering people. Based on complexity thinking, the present study builds a new understanding of performative leadership on social media. The theoretical section sheds light on social media as a meaning-provision and framework-creation forum. Furthermore, an interpretation is constructed of the challenges and opportunities of leadership on social media that is based on complexity thinking and the performative trend in leadership research. The concluding section discusses the added value that complexity thinking and the performative leadership perspective bring to the implementation of leadership on social media.

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**Keywords:** Encountering, Performative Leadership, Social Media

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## Consumer Evaluation and Consumption of Shanzhai Brands: Attributing Featured and Perceived Similarity

**Shun-Chuan Chang\***

Holistic Education Center, Mackay Medical College, New Taipei City,  
Taiwan

### Abstract

This paper provides a new perspective for investigating consumer evaluation of similar products that are related to Kotler's Product Level Model and Tversky's Feature Matching. The models and empirical evidence acknowledge the likelihood of the simultaneous occurrence of different evaluation levels. The analyses indicate that consumer evaluation is related to both outlooks or featured similarity and perceived insight. Consumers can detect featured similarity more easily, which may or may not cause consumer preference to decline in different product categories; on the other hand, perceived similarity greatly influences consumer preference. The interaction between the two similarities and the number of product-related experiences accumulated by the consumers provide informative marketing implications, especially for online consumer evaluations of copycat brands under Chinese Shanzhai cultural contexts. This paper implemented a 2×2 experiment that used featured/perceived similarity as the within-subject factor and perceived similarity as the between-subject factor. In addition, a one-way multivariate analysis of variance (MANOVA) and its profile analysis were conducted. With each product category (i.e., tissue and ketchup), two dependent variables (i.e., online consumer preference and consideration) were analyzed. Data collection, through the web-based survey using Chinese characters, obtained valid data from 541 Chinese participants. Copycats take unfair advantage of national brand trademarks and brand images. The present paper demonstrated that the assessment of copycats, in addition to the degree of a brand's featured similarity, significantly depended on perceived similarity. For the tissue category, consumer preference and consideration set among the high perceived similarity group decreased as the featured similarity increased.

***Keywords:*** Copycat, Experience, Shanzhai, Similarity, Preference

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## Liquidity, Leverage, and Cash Holding: Evidence from Indonesia Listed Real Estate Firms

**Zunairoh<sup>1\*</sup>, Fatkhurrohman<sup>2</sup>**

<sup>1</sup> Airlangga University, Indonesia

<sup>2</sup> Gadjah Mada University, Indonesia

### Abstract

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The cash holding policy by each company depends on conditions that reflect the company and its underlying motives. This study aims to examine the effect of liquidity and leverage with variable control dividend payment and company size on cash holding in property & real estate companies in Indonesia during the period 2012-2016. The research method used is multiple linear regression analysis. Based on the results of the analysis it can be concluded that the variables liquidity, leverage, and dividend payment have a positive effect on cash holding, while the firm size has a negative effect on cash holding.

**Keywords:** Cash Holding, Liquidity, Leverage, Dividend Payment, Firm Size

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Email: [zunairoh9@gmail.com](mailto:zunairoh9@gmail.com)

## Basic Elements of Project Management on the Example of Lean Manufacturing Student Research Group Activities Carried out at the AGH University of Science and Technology in Cracow

**Katarzyna Styk<sup>1\*</sup>, Klaudia Drobek<sup>2</sup>**

<sup>1,2</sup> AGH University of Science and Technology, Poland

### Abstract

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The aim of this work is to trace and present simplified project management on the example of a student project. The paper contains a short definition of the project and the growing popularity of project management. Then, a student project of AGH Lean Line, consisting of the construction of a construction project in the field of management and production engineering and promotional activities through conference trips, was presented. Next, the project management method developed in the Student Research Group AGH University of Science and Technology was presented. In the end, individual stages of the project work on "AGH Lean Line"; were presented.

**Keywords:** Management, Project, Lean Manufacturing, Line, Production

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## A Study on Service Quality of Duty-Free Shop, Positive Effect, and Impulse Buying: Focused on Chinese Tourists

**Oh HyunJeong<sup>1</sup>, Jeong DaeYoung<sup>2\*</sup>, Cho Minho<sup>3</sup>**  
<sup>1,2,3</sup> Hanyang University, Seoul, Republic of Korea

### Abstract

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The purpose of this study is (1) to analyze the effect of service quality to positive effect, (2) the effect of service quality to impulse buying, (3) the effect of positive effect to impulse buying, (4) type of travel partner, time pressure and price sales will have an effect on controlling the relationship between positive affect and impulse buying. The researcher constituted the conceptual model and will use the regression analysis and structural equation modeling to test the hypotheses. In total, 300 Chinese tourists, Who are visiting South Korea, will survey the questionnaire in this study. The expected result of the study as follows. (1) Service quality will effect on positive affect, (1-1) tangibles of service quality will have a positive effect on positive affect, (1-2) reliability of service quality will have a positive effect on positive affect, (1-3) responsiveness of service quality will have a positive effect on positive affect, (1-4) assurance of service quality will have a positive effect on positive affect, and (1-5) empathy of service quality will have a positive effect on positive effect. (2) Service quality will effect on impulse buying, (2-1) tangibles of service quality will have a positive effect on impulse buying, (2-2) reliability of service quality will have a positive effect on impulse buying, (2-3) responsiveness of service quality will have a positive effect on impulse buying, (2-4) assurance of service quality will have a positive effect on impulse buying, and (2-5) empathy of service quality will have a positive effect on impulse buying. (3) The positive affect will have a positive effect on impulse buying. (4) Type of travel partner, time pressure and price sales will have an effect on controlling the relationship between positive affect and impulse buying.

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**Keywords:** Service Quality, Positive Effect, Impulse Buying

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## **TRACK B: SOCIAL SCIENCES & HUMANITIES**



## Meeting In The Middle: The Challenge and Promise of Supporting Stem Learning through Language and Literacy Infusion

**Kimberley Gomez\***

University of California, Los Angeles, United States of America

### Abstract

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Around the world, disparities exist in the STEM K-12 performance between dominant and minority populations. In this manuscript, I describe two recent research and intervention efforts, at the nexus of mathematics and literacy, and science and literacy, that aimed to provide instructors and students with strategic tools and routines to provide access to science and mathematics content. Both efforts aimed to build equitable access to high-quality learning experiences by helping teachers create learning experiences that connect STEM learning to real life formal and informal contextual experiences and real-life approaches to making sense of mathematics and science content. The first study, in a credit recovery summer program, sought to address biology teachers' traditional approach to teaching science content. We began by working collaboratively with 3 inner-city high school Biology teachers to reflect on and revise their classroom lectures and classroom teaching approach. We co-designed, with the teachers, language forward approaches to teaching, including what would be typically seen in a TedTalk or professional meeting discussion, i.e., attention to time for reflection, questions, and discussion. We developed routines and formative assessments drawing on students everyday and classroom knowledge. Summative outcome results showed that 90% of the students successfully passed the course. The second study, in 8 community college developmental mathematics classrooms, across 4 U.S. states, predominated by non-English background learners, aimed to build mathematics learning through teaching mathematics using real-life scenarios. Outcome measures showed gains in instructor use of language infused real-life scenarios to teach mathematics.

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**Keywords:** Science, Mathematics, Technology, Language, Literacy

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## Arabic Multidisciplinary Academic Research, Efforts and Obstacles: DSR\_UQU as a Model

**Hanadi Behairi\***

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### Abstract

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At the time of acquiring Arabic and Islamic knowledge, most scholars focus on multidisciplinary research areas. Some of them compose the books in order to prove the usefulness of this kind of research writing and others entitled to be multidisciplinary scientists such as Al-Jurjani, Al-Suyuty, and Al-Qairwani. Over the years, the scope of writing academic research has changed. The emergence of specialization and the value of single and deep discipline have affected the movement of multidiscipline effectiveness. Underlining the importance of single discipline in academic evaluation is understanding the concept of multidisciplinary research to determine the writer's ability and knowledge. The rules in most Arabic academic institutions did not encourage writing a research paper of this kind because it could not account in academic degree evaluation. Nowadays, however, deanships of scientific research in Saudi universities encourage researchers to obtain a grant that reflects multidiscipline. Moreover, centers research try to outline these cross of multidiscipline which match the national vision and requirements. This paper will present the efforts of deanship of scientific research at Umm Al-Qura University in Saudi Arabia to draw attention to the value of this kind of conception in accepting the grant proposal and the quality of research that is required. The paper will underline the obstacles that were faced by the researcher and offer some institutional solutions to be resolved.

**Keywords:** Research, Efforts, Obstacles, Knowledge

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## Corporate Financial Performance Effect on Stock Prices; Empirical Evidence from a Small Market: A Study in the Amman Stock Exchange over the Period 2006 – 2017

**Abdulrahman Hashem<sup>1\*</sup>, Saleh Zurqan<sup>2</sup>**  
<sup>1,2</sup> Isra University, Amman, Jordan

### Abstract

This paper aims to study the effect of corporate financial performance on investors' decisions and consequently the relevant stock prices. The Jordanian banks enlisted in the Amman Stock Exchange were studied over the period 2006 – 2017, as their average annual prices were linked in a multiple regression equation to the following independent variables (financial ratios), which are: Total Assets, Return on Equity, Return on Assets, Price-Earnings ratio, Price-to-Book ratio, Dividend per Share ratio and Debt ratio. Multiple regression analysis was used by SPSS to test the equation and showed that there are significant positive relationships between the average annual stock prices and both the Price-to-Book ratio and Dividend per Share ratio, while indicated a negative relationship with Debt ratio. The rest of the independent variables were insignificant to annual average stock prices. This study provides proof that local investors in Amman Stock Exchange are prone to ignore many general financial indicators in their investment decisions and stocks demand. The common questions in Amman Stock Exchange clearly revolve around the yearly distributed dividends and firms' debt sizes. This is possibly caused by cognitive behavioral biases or limited understanding of proper stock valuation followed by local investors, who seem to care less about any performance or profitability financial ratios that were studied in this research. The irrelevance of many financial indicators may be caused by the normality of investors rather than the expected rational investment decisions. Investors' interest in certain indicators proves the common selectivity trend in stocks demands in the Amman Stock Exchange.

**Keywords:** Financial Performance, Stock Prices, Investment Decision, Fundamental Analysis, Behavioral Finance

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## Moderating Effects of Social Support and Social Participation on the Relationship between Depression and Quality of Life of Elderly Victims from Disaster

**Saebom Kim<sup>1</sup>, Hyemin Kwon<sup>2\*</sup>, Youngji Song<sup>3</sup>, Songsik Choi<sup>4</sup>**  
<sup>1,2,3,4</sup> Pusan National University, Korea

### Abstract

The purpose of this study is to derive social welfare implications to secure the Quality Of Life (QOL) of elderly victims from disaster, and by analyzing the effects caused by depression to QOL of elderly victims and the moderating effects of social support and social participation. For this study, researchers conducted a hierarchical multiple regression analysis from 666 elderly people age from 65 years and over, by using Tracking Panel of Life Change in Disaster Victims from the third year's surveys (2017) established by the National Disaster Management Research Institute (NDMI) in the Republic of Korea and this study used SPSS 21.0 for the analysis. The results of the analysis are as followed. First, depression from elderly victims had significant effects on the QOL at old age. Second, social support has moderating effects on the QOL of elderly victims' depressions. In other words, it was confirmed that when the level of social support was high, the effects of depression for the QOL is mitigated compared to the elderly victims who were not supported. Third, social participation did not show significant moderating effects on depression and QOL. However, social participation has significant effects on the QOL at their old age. The results of this study shows the necessities of providing continuous psychological support services which influences the characteristics of the elderly victims from disaster and finding ways to form a social support system as a way to reduce the depression rate among elderly victims.

**Keywords:** Elderly Victims From Disaster, Depression, Quality Of Life, Social Support, Social Participation

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## Exclusion's Measurement of Different Social Groups: Methodological Preliminary Work and Empirical Results

**Narbut N.P.<sup>1\*</sup>, Puzanova Zh.V.<sup>2</sup>, Larina T.I.<sup>3</sup>, Tertyshnikova  
A.G.<sup>4</sup>**

<sup>1,2,3,4</sup> Peoples` Friendship University of Russia (RUDN University),  
Moscow, Russian Federation

### Abstract

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Today social exclusion is the process of displacement of a person to the periphery of public life and deprivation to participate in life as a result of poverty, lack of basic competences or discrimination. Traditionally representatives of the LGBT community, people with HIA, extremists, former prisoners, people with mental illnesses, migrants are considered to be a subject to exclusion. However, social exclusion is a difficult phenomenon to measure and interpret. This article attempts an empirical study and measurement of the exclusion's degree by using a questionnaire survey in relation to above-mentioned groups based on three components of exclusion - moral, economic and political. As a result, we describe a proprietary methodology of social exclusion measuring and present the results of the Russian students' social image about the exclusion of each of the studied groups from social life. According to the results, former prisoners are the most excluded group, and elderly people the less excluded group. At the same time, there are several features of the manifestations of exclusion for each group, which are also described in the article.

***Keywords:*** Social Exclusion, Moral Exclusion, Economic Exclusion, Political Exclusion, LGBT Community, Extremists, People With HIA

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## A Study on the Improvement of Disaster Safety Education for Children and Teenagers: A Comparative Study on Korea, the United States, and Japan

**Boreum Kim<sup>1\*</sup>, Youngmi Yoo<sup>2</sup>, Eunhee Kim<sup>3</sup>**  
<sup>1,2,3</sup> Pusan National University, South Korea

### Abstract

Advanced disaster prevention and response systems are required as the natural and social disasters are increasingly combined and diversified recently. And Disaster safety education, especially for children and teenagers through schools and government agencies, is urgently needed because they belong to the vulnerable classes, which can be relatively more easily exposed to disasters. Therefore, this paper examined the disaster safety education system of the U.S. and Japan, which have experienced various disasters first in order to draw measures to improve the disaster education system in Korea. To this end, this research analyzed the legal provisions and school education system related to disaster preparedness. Then it introduced the education programs provided by schools. The implications of the study are as follows: First, disaster education should be incorporated into regular education through legislation. Second, education should shift from the theoretical-oriented education system to experience-oriented education in order to enhance its effectiveness. It requires various educational facilities and infrastructure for the experiences. Third, it is necessary to train disaster experts who provide education services. And disaster analysis studies should also be conducted for the training.

**Keywords:** Disaster Disaster Safety Education System, School Safety Education, Disaster-Vulnerable Groups, Disaster Management Capability

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## Null Object Phenomena in English

**Hyemi Park<sup>1\*</sup>, Jihyeon Ha<sup>2</sup>, Hyangmi Lee<sup>3</sup>**

<sup>1,2,3</sup> Pusan National University, Korea

### Abstract

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The purpose of this paper is to investigate the linguistic factors for null object phenomena in English and the frequency of use of null object vs. realized object in COCA corpus depending on the definiteness of the objects. In this paper, we classify the objects to talk about the factors for null objects in the following way: an indefinite object, a definite object, an object with its complement and a reflexive pronoun object. It is claimed that the deletion of an indefinite object is usually not context-dependent since it is predictable and stereotypical, while that of a definite object is context-dependent since the readers are expected to recover the definite objects for themselves if they want to understand the sentences. It is also argued that the verbs in the category of definite or indefinite objects have different frequency of use for null objects in the COCA corpus. The verbs which show the most frequent null objects are 'sing'(71%) and 'fail'(76%) in indefinite and definite object classes, respectively.

***Keywords:*** Null Objective, linguistic factors, Frequency

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## Continuous Improvement of Education. Adaptation of Kaizen Philosophy on the Example of the Student Project Agh Leanline

**Magdalena Kołodziejczak<sup>1\*</sup>, Joanna Szarska<sup>2</sup>, Aleksandra  
Edelmulle<sup>3</sup>**

<sup>1,2,3</sup> AGH University of Science and Technology, Poland

### Abstract

. Kaizen is the Japanese word for good change, improvement, improvement. It has become a Japanese philosophy that has spread its ideas all over the world. Its aim is to eliminate losses in the value stream with the use of Lean Management methodology tools. It is a way to reduce costs, but also to achieve product quality and work safety. Kaizen is a daily activity involving all members of the organization, which takes into account the processes and their efficiency. In order to be able to improve, it is necessary to be able to see and identify the waste burdened with all kinds of actions. The best way to learn about these losses and to learn how to find and eliminate them is through practical workshops - a combination of the theory that can be put into practice right away. Students Research Group Management' runs a project which assumes optimization of production and logistic processes on the basis of identification of waste and implementation of Lean Manufacturing tools. The production line made of Lego blocks - AGH LeanLine is an original undertaking of students of the AGH University of Science and Technology, adapted to practice and experience Lean methods, tools, and principles in the university environment. Each production process simulation is a Kaizen Workshop, during which the losses occurring in the basic model are defined and then eliminated from the value stream with the help of known methods of process organization. Such training is an active passage through the PDCA cycle, taking up and testing all the activities included in each stage. Thanks to such projects, students experience the practical application of theory and are ready to take such actions on a living organism - a production company.

**Keywords:** Lean Management, Kaizen, Student project, Education, Optimization

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## The Effect of Satisfaction of Disaster Relief Service on Quality of Life

**Lee Yong-Ho<sup>1\*</sup>, Kim Hyun-Sung<sup>2</sup>, Ahn Jun-Hyeog<sup>3</sup>**  
<sup>1,2,3</sup> Pusan National University, Korea

### Abstract

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The issue of 'disaster' is one of the biggest issues in Korea recently. A disaster with a strong uncertain character not only has a strong impact on the lives of the victims, but it also damages the lives of a third party as an indirect victim of the disaster. Therefore, disaster relief services offered in the event of a disaster can greatly affect the quality of people's lives after the disaster. Therefore, this study aims to find out how the satisfaction level of disaster relief services provided by disaster relief workers affects the quality of life by using '2017 Panel Survey Data for Disaster Victims' provided by the Korea Institute for Disaster and Safety and finding out more specifically how the patterns vary depending on local and personal characteristics. Research results, which are subdivided according to regional and individual characteristics, are expected to be able to be tackled at a sophisticated level in preparing policies for each region.

**Keywords:** Satisfaction, Relief Service, Quality of life

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## Immoral Behaviors in Online Games: Effects of Moral Positioning, Game Motivation, Aggression, and Self-Esteem on Flaming and Trolling in League of Legends

**Sungje Lee<sup>1</sup>, Jeonyoung Kong<sup>2</sup>, Meiying Piao<sup>3</sup>, Euijun Jeong<sup>4\*</sup>**  
<sup>1,2,3,4</sup> Konkuk University, Seoul, South Korea

### Abstract

Immoral behaviors, such as “flaming” (i.e., verbal hostility) and “trolling” (i.e., anti-user behavior), are frequently demonstrated in multi-player online games. Regarding them as one of the serious problems in gaming, game companies have developed various systems to restrict such behaviors. However, scarce research has empirically explored the antecedents to immoral behaviors. With 343 participating game players of <League of Legends>, this study analyzed the effects of moral positioning, game motivations, and personal traits (i.e., self-esteem and aggression) on flaming and trolling. Results showed that moral game positioning (i.e., preference for evil characters) increased the degree of immoral behaviors. Furthermore, “advancement (of competitive game skill)” motivation and aggression exhibited positive effects on behaviors, while “fun/interest” motivation had a negative effect. Notably, moral positioning had interactive effects with aggression and with advancement motivation.

***Keywords:*** Flaming, Trolling, Game motivation, Aggression, Self-esteem

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Email: [rmflsdpfvm@naver.com](mailto:rmflsdpfvm@naver.com)

## Studying Social Representations on Groups of Minorities (Evidence from LGBT)

**Narbut N.P.<sup>1\*</sup>, Puzanova Zh.V.<sup>2</sup>, Larina T.I.<sup>3</sup>, Tertyshnikova A.G.<sup>4</sup>**

<sup>1,2,3,4</sup> Peoples` Friendship University of Russia (RUDN University),  
Moscow, Russian Federation

### Abstract

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In the modern world, sensitive theme is increasingly concerned with the attitude to certain social groups, usually minorities. In this case, classical surveys are no longer sufficient and require the addition of "soft" techniques. The article presents the results of a methodical experiment in using a combination of projective methods, the method of unfinished sentences and the collage method for studying attitudes towards a sensitive topic for Russian residents - representatives of the LGBT community. The procedure and technique for implementing the experiment were described in detail. Respondents with polar points of view on the LGBT phenomenon helped us to save the validity of the data. As a result, this technique can be adapted for the study of social representations about any other minority group.

**Keywords:** Projective Methods, Sensitive Topic, LGBT Community, Collage, Social Representations, Sociological Methods

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## A Study of Augmented Reality on National Defense Education Curriculum for Senior Middle School Students

**Huang, Tzu, Hua\***  
University of Taipei , Taiwan

### Abstract

The purpose of this study was to explore the impact of the application of the HP Reveal augmented reality simulation system on national defense education for immersive learning, cognitive load, perceived ease of use, perceived usefulness, and learning outcomes of high school first-grade students studying national defense. AR is an extension of VR with both physical and virtual characteristics, allowing real-time interactions in 3D space, in which users can see the real environment overlap with virtual objects. This study adopted an unequal pre-test and post-test experimental design. The control group is augmented with HP Reveal augmented reality simulation system design materials, and the other is rendered as a static graphic, and the two groups Teaching time is fifty minutes a week. Six-week experiment, data collection, and analysis to take quantitative statistical information. The two groups of students had prior knowledge of pre-testing national defense awareness prior to experiment teaching, distinguished them into high and low groupings, and completed the post-test of national defense awareness after six weeks of teaching, and then completed the immersion experience scale, cognitive load afterload Tables, perceived ease of use, and perceived usefulness scales. The effectiveness of learning was statistically compared with paired sample t-test analysis. The immersive experience, cognitive load, perceived ease of use, and perceived usefulness were statistically compared using independent sample t-tests. The study found that students with different learning achievements had significant effects on learning effectiveness, immersion experience, cognitive load, perceived ease of use, and perceived usefulness. The other two groups of students also had significant effects on learning effectiveness and perceived usefulness.

**Keywords:** Augmented Reality, Immersive Experience, Cognitive Load, Perceived Ease of Use, Perceived Usefulness

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## The Effect on the Improvement of Vocational High School Students' Abilities on Popular Science Reading and Thinking by M-Learning

**Liu, Yuan, Chen\***

National Taipei University of Education, Taiwan

### Abstract

This research hope to build OK4R reading steps in the mobile platform to enhance students' reading comprehension ability, establish their logical thinking ability, and find out if the gender, the basic ability and other factors of the students will affect them when they use the OK4R reading steps on the action platform. The participants are ninety freshman in a private Taipei vocational high school. They are divided into two groups; one is an experimental group and the other is a control group. The experimental group conducted the OK4R platform, while the control group used the traditional OK4R way to do the popular science reading. After all the pre-test, teaching experiments, and the post-test, there was an analysis done, and the results showed that 1. Vocational high school students who use OK4R action platform for popular science reading can enhance their reading comprehension ability in popular science reading effectively. 2. Vocational high school students who use OK4R action platform for popular science reading can improve their logical thinking ability significantly. 3. Using OK4R steps in popular science reading can enhance science reading comprehension and logical thinking ability. Besides, females' performances are better than males'. 1. The Mobile Platform OK4R can improve too many students who take low scores in PISA and scientific ethics. 2. The gender, basic ability, and other factors will make great differences for vocational high school students who used the action platform and follow the OK4R reading steps. Besides, those who have lower grades in the Natural Examination will be the biggest beneficiaries.

**Keywords:** OK4R, popular science reading, logical thinking, vocational high school students

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## **TRACK C: ENGINEERING & TECHNOLOGY SCIENCES**

## Effect of Fiber Volume Fraction on Tensile Strength in Composites Polyester Reinforced Sugar Palm Fiber (SPF)

**Fatkhurrohman<sup>1\*</sup>, Zunairoh<sup>2</sup>**

<sup>1</sup>Gadjah Mada University, Indonesia

<sup>2</sup>Airlangga University, Indonesia

### Abstract

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Manufacturing of eco-friendly composites has been increased due to recyclability and biodegradability factors. The effect of fiber volume fraction to tensile strength in composites polyester reinforced sugar palm fiber (SPF) has been studied experimentally. This study aim is to determine the effect of fiber volume fraction to the ultimate tensile strength of composites polyester reinforced sugar palm fiber (SPF) and Mechanism of Failure and Cross Section after tensile testing, then these results can be applied to manufacturing industries such as aerospace, shipping, train, and automotive industries. In this study the sugar palm fiber (SPF) soaked in an alkaline solution of 5% NaOH for 2 hours, then the sugar palm fiber is made of composites material with a variety of fiber volume fraction of 20%, 30%, 40%, 50%, and 60%. The method of making composites material is by hand lay-up and pressing methods, the direction of the fiber orientation is random, and for the tensile test specimens refer to the standard ASTM D-638. From the test data obtained the highest tensile strength in fiber volume fraction of 40% amounting to 24.65 MPa, while the lowest tensile strength in fiber volume fraction of 20% amounting to 17.55 MPa. For the cross-sectional shape of the composite material after tensile testing, there are two types, namely fiber pull out and delamination.

**Keywords:** Composites Polyester, SPF, Fiber volume fraction, tensile strength

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Email: fatkhurhero@gmail.com



## An Animal Ladder Training Platform Based on Infrared Range Finder for Rehabilitation of Brain Stroke

**Chi-Chun Chen<sup>1\*</sup>, Chun-Cheng Lin<sup>2</sup>, Hui-Chun Feng<sup>3</sup>, Ching-Ping Chang<sup>4</sup>**

<sup>1,2,3</sup> National Chin-Yi University of Technology, Taiwan

<sup>4</sup> ChiMei Medical Center, Tainan, Taiwan

### Abstract

A growing body of research indicates strokes have soared in recent years. The survival rate of patients has exceeded 50% through the advances of medical technologies. However, major disability after a stroke engenders inconvenience and imposes mental pressure on patients. Hence, an effective rehabilitation program for health recovery is essential. Physical exercise is one of the feasible approaches. Therefore, this study developed a new animal ladder training platform based on infrared range finder for stroke rehabilitation. The platform provided an automatic acceleration training model based on the climbing habit of rats to drive the stroke rat to exercise. Moreover, an infrared range finder was used to measure the climbing positions of rats to provide feedback and adjust the exercise speed to achieve an effective rehabilitation training approach. The modified neurological severity score (mNSS) and inclined plane test were used to validate the effectiveness of the proposed training method for stroke rehabilitation training. The main difference between the proposed training platform and conventional counterparts is the dynamic mechanism, which adjusted the speed according to the exercise distance of the rat. The proposed platform can not only provide an effective exercise research platform for basic clinical researchers but also serve as a reference for human brain stroke rehabilitation.

**Keywords:** Stroke, Rehabilitation, Animal Ladder Training Platform, Infrared Range Finder

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Email: [chichun@ncut.edu.tw](mailto:chichun@ncut.edu.tw)

## Agh Leanline Simulation Game As A Method For Lean Manufacturing Training

**Jakub Liszcz<sup>1\*</sup>, Krzysztof Grzesik<sup>2</sup>, Kamil Paluch<sup>3</sup>**  
<sup>1,2,3</sup> AGH University of Science and Technology, Cracow, Poland

### Abstract

The human factor is an inseparable element of any implementation of Lean Management methodology in enterprises. The methodology to help streamline operations is being used enthusiastically in industrial enterprises. It shows both methods and good practices that are used to increase the efficiency of the production process. This paper describes why employees' awareness is a necessary element for the success of optimization projects. Various types of training courses were presented, with particular emphasis on simulation workshops allowing to practice Lean Management methods and tools in practice. As examples of such classes, the example of student projects carried out by members of the Student Research Group "Management" operating at the AGH University of Science and Technology in Cracow, Poland was used. "Effect in a minute", "Oleanpiada" or AGH "LeanLine" are 3 projects which, by combining theoretical training with practical simulation games, teach primary and secondary school students as well as methods used to improve processes in production companies, can be applied in everyday activities and duties with equal success.

**Keywords:** Lean Manufacturing, Optimisation workshops, Students Project, AGH LeanLine, Practical training

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Email: [jakub.kuba.liszcz@gmail.com](mailto:jakub.kuba.liszcz@gmail.com)

## Optical Recognition of Music Symbols of an Nsbsn Structure

**Ku Chin Lin<sup>1\*</sup>, María José Rodezno Ayestas<sup>2</sup>**  
<sup>1,2</sup> Kun Shan University, Tainan, Taiwan

### Abstract

Music symbol recognition normally requires sequential integration of many techniques, each of which has been successfully tested for one or some categories of the symbols. However, development of such an integration technique is still a challenging task nowadays, especially when the image resolution acquired is low and spatial density is high. Music symbols such as notes, accidentals, stems, hooks, beams, ties, slurs, ornaments, and articulation are associated with flexibility in the spatial settings. Multiple notes could be attached to a stem which is in turn attached to a beam with other attached stems. This forms a complicated structure of notes-stem-beam-stems-notes (NSBSN) for recognition. Very few of the previous methods can be successfully applied to recognize the NSBSN-structure symbols. In this study, a novel method is proposed for this task. Multiple binary images are employed to detect the inner information (e.g., the hole of a half note) and the outer information (e.g., shape of a quarter note) of the symbols. Multiple template matchings are applied to enhance the robustness against disturbances due to image segmentation. The proposed direction for processing the NSBSN-structure symbols is opposite to that of music playing. This backward recognition processing is superior, and the F measure is higher than 0.998 for the studied set of 3 classical guitar songs.

**Keywords:** Optical Music Recognition, Multiple Binary Images, Multiple Template Matchings, Image Segmentation, F Measure

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 Email: [kclin@mail.ksu.edu.tw](mailto:kclin@mail.ksu.edu.tw)

## Effect of Relative Direction and Distance of a Brush-Anode to a Cathode on Performance and Electrochemistry of a Brush-Anode and a Microbial Fuel Cell (MFC)

**Bonyoung Koo<sup>1</sup>, Heunggu Kang<sup>2</sup>, Sunghoon Son<sup>3</sup>, Huong V. H. Tran<sup>4</sup>, Hyungwon Chai<sup>5</sup>, Junhyuk Kim<sup>6</sup>, Sokhee P. Jung<sup>7\*</sup>**

<sup>1,2,3,4,5,6,7</sup> Chonnam National University, Korea

<sup>2</sup> Green Energy Institute, Republic of Korea

### Abstract

Microbial Fuel cell (MFC) is an innovative electrochemical system, being developed for an energy positive wastewater treatment process for a sustainable society. In order to improve MFC performance, optimization of the system is essential. In particular, the electrochemical properties of the anode and cathode arrangement are optimized by simple and precise analysis. In this study, five different anode-cathode arrangement (horizontal, vertical) and distances were tested in a single chamber cubic MFC. A changing a brush anode configuration, power, and current densities were increased. The horizontally-positioned anode configuration (H1) with the closest anode-cathode distance produced the highest power and current than vertically-positioned. EIS showed that H1 anode impedance and full-cell impedance were decreased by 60% and 49%, compared to vertically position. CE and EE were not significantly affected by the anode-cathode distance, but the horizontal type cells showed relatively higher CE, EE, and COD removal rate and shorter batch time. The center of a titanium current collector and the center of carbon fibers of a brush-anode were found to be statistically-significant reference points for MFC electrochemistry.

**Keywords:** Microbial Fuel Cell, Carbon Brush Anode, Electrochemistry, Electrode Configuration

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Email: [sokheejung@gmail.com](mailto:sokheejung@gmail.com)

## Effects of Wire-type and Mesh-type Current Collectors in a Carbon-Felt Anode on Performance and Electrochemistry in a Microbial Fuel Cell

**Hyungwon Chai<sup>1</sup>, Bonyoung Koo<sup>2</sup>, Sunghoon Son<sup>3</sup>, Huong V. H.  
Tran<sup>4</sup>, Junhyuk Kim<sup>5</sup>, Eojin Kim<sup>6</sup>, Sokhee P. Jung<sup>7\*</sup>**  
<sup>1,2,3,4,5,6,7</sup> Chonnam National University, Korea

### Abstract

Microbial fuel cell (MFC) is an environmental energy system that converts the energy contained in organic wastewater into electrical energy by microbial catalysis. High-performance electrode materials make it possible to achieve high power generation of MFC systems by reducing internal resistance. The performance impact of the anode current collector area in the MFC was investigated in this research. Carbon-based materials are generally used for the MFC anode electrode, but their conductivity is much lower than metal materials. In this study, it was hypothesized increasing metal current collector areas improve anodic performance. Carbon-felt anodes with titanium wires or stainless steel mesh were tested. In conclusion, in the IV polarization test, maximum power density, maximum current density and optimum current density were 33%, 34% and 30% higher in CF-M (2,311 mW/m<sup>2</sup>, 16,815 mA/m<sup>2</sup> and 7,651 mA/m<sup>2</sup>) than CF-W (1,737 mW/m<sup>2</sup>, 12,566 mA/m<sup>2</sup> and 5,874 mA/m<sup>2</sup>), respectively. However, the stainless steel mesh used as the current collector of CF-M inhibits microbial growth, and adhesion on the carbon felt and reduces mass transfer because it decreases the surface area of carbon felt.

**Keywords:** Microbial Fuel Cell, Current Collector, IV Polarization, Anode

\*All correspondence related to this article should be directed to Sokhee Jung, Chonnam National University, Korea  
Email: sokheejung@gmail.com

## Improved Current Collector Structure Enhances Power Generation of a Microbial Fuel Cell (MFC) by Decreasing Cathodic Charge Transfer Impedance

**Junhyuk Kim<sup>1</sup>, Hyungwon Chai<sup>2</sup>, Sokhee P. Jung<sup>3\*</sup>**  
<sup>1,2,3</sup>, Chonnam National University, Korea

### Abstract

Microbial fuel cell (MFC) is an innovative environmental and energy system that converts energy in wastewater into electrical energy and purify wastewater. There are a number of challenges for the practical implementation of MFC as a wastewater treatment process. Among them, improving cathode performance is one of the important issues, and the introduction of a current collector is an easy and practical way to improve cathode performance. In this study, a single-chamber cubic MFC was tested with three current collectors made of stainless steel mesh (SSM) with different contact areas (P 1 cm<sup>2</sup>, PC 4.3 cm<sup>2</sup>, PM 6.5 cm<sup>2</sup>) were tested in a single-chamber cubic MFC. Increasing the contacting area enhanced the power, current generations, coulombic efficiency, and energy recovery by mainly decreasing cathodic charge transfer impedance. Application of the SSM to the cathode (PM) improved maximum power density, optimum current density and maximum current density by 8.8%, 3.6%, and 6.7%, respectively, compared with P of no SSM, by applying an SSM, cathodic polarization resistance decreased by up to 16%, and cathodic charge transfer impedance decreased by up to 39%.

**Keywords:** Microbial Fuel Cells; Cathode; Current Collector; Stainless Steel; Electrochemical Impedance Spectroscopy

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Email: [sokheejung@gmail.com](mailto:sokheejung@gmail.com)

## Effects of Different Structures and Materials of an Anode on Performance, Polarization Behaviors, and Impedance in a Microbial Fuel Cell (MFC)

**Sunghoon Son<sup>1</sup>, Bonyoung Koo<sup>2</sup>, Sokhee P. Jung<sup>3\*</sup>**  
<sup>1,2,3</sup> Chonnam National University, Korea

### Abstract

Various materials and anode structures have been applied to enhance MFC performance. However, their comparative evaluation of performance and electrochemistry has not yet been investigated in detail under the same condition. In this study, a carbon-cloth anode, an anode-cathode assembly, and a brush anode with two different orientations were tested under the same condition. Anode was tested in four types: Full Cloth (FC), Full Cloth Electrode Assemblies (FCEA), Full Brush-Horizontal (FB-H) and Full Brush-Vertical (FB-V). Electrochemical analysis has measured polarization curve, CV and EIS. Polarization curve measurements showed the highest maximum power density (1,034 mW/m<sup>2</sup>) in FB-H, which is 72 % higher than the lowest FC (601 mW/m<sup>2</sup>). CV measurement results showed the highest current production (4.5 mA) in FC. EIS measurement results showed the lowest internal resistance value (23  $\Omega$ ) in FB-H. In order to improve MFC performance by modifying anode structures, we suggest the followings: 1) an anode should have a large surface area, 2) anodic carbon material and a metal current collector must be tightly connected, 3) locating a brush anode closer to a cathode can be important.

**Keywords:** Microbial Fuel Cell, Electrochemical, Anode Structure, Carbon Brush, Carbon Cloth

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Email: sokheejung@gmail.com

## Influence of the Flowrates of Reverse Electro-dialysis (RED) Stack on Power Generation, Polarization Behavior, and Internal Impedance Distribution of Microbial Reverse-electrodialysis Cell (MRC)

**Huong V. H. Tran<sup>1</sup>, Sunghoon Son<sup>2</sup>, Sokhee P. Jung<sup>3\*</sup>**

<sup>1,2,3</sup> Chonnam National University, Korea

### Abstract

By combining a microbial fuel cell (MFC) with a reverse electrodialysis (RED) stack, a microbial reverse-electrodialysis cell (MRC) can simultaneously treat and generate electricity from salinity gradient and organic wastewater. Optimum RED flow rate plays an important role in operating an MRC because it is closely related to energy production rate and economic feasibility. However, the influence of RED flow rates on MRC electrochemistry and power production has not been investigated. Hence, this study carried out different tests of four flow rates at high and low concentration solutions to assess optimum RED flow rate. The highest maximum power density was 3.71 W/m<sup>2</sup> gained when the flow rate was 10 mL/min, and the highest optimum current density was 5.36 A/m<sup>2</sup> when the flow rate was 7.5 mL/min. To enter into details, by mere increasing the flow rate to MRC, maximum power and optimum current densities increased by 17.7% and 16.2%. EIS results illustrated impedances of the anode, cathode and full-cell decreased by 51%, 31%, and 19%, respectively. CV anode test displayed that peak current density increased by 25.7%. In addition, COD removal and CE were not affected by RED flow rate. In the power generation comparison, there was no significant difference between the RED flow rate of 7.5 mL/min and 10 mL/min. Therefore, considering energy production, energy efficiency, and energy recovery, the RED flow rate of 7.5 mL/min is a reasonable choice for MRC operation.

**Keywords:** Microbial Fuel Cell, MFC, Reverse Electro-Dialysis, RED, Microbial Reverse-Electrodialysis Cell, MRC, RED Flow Rate

\*All correspondence related to this article should be directed to Sokhee P. Jung, Chonnam National University, Korea  
 Email: sokheejung@chonnam.ac.kr



## **FUTURE EVENTS**

## 2<sup>nd</sup> INTERNATIONAL CONFERENCE ON

“Sustainable Development in Information Technology,  
Business and Social Sciences (SDITBSS-2019)



**This conference is jointly organized by Global Illuminators, Graduate School, University of the Immaculate Conception, Philippines Davao,**

**Philippines and University of Mindanao, Philippines**

**Date:** April 05-06, 2019

**Venue:** Grand View Hotel, Hong Kong

**Submission Email:** [sditbss@gissf.com](mailto:sditbss@gissf.com)

**Abstract Submission Date:** March 15, 2019

**Full Paper Submission Date:** March 20, 2019

**Selected conference papers will be published in special /regular issue of ISI/Scopus indexed journals associated with this conference.**



### Conference Main Tracks

- Social and Community Studies
- Arts
- Humanities
- Civic and Political Studies
- Cultural & Global Studies
- Environmental Studies
- Organizational Studies
- Educational and Communication Studies
- Economics, Finance & Accounting
- Business and Management Studies

For more details visit <http://gissf.com/>

## 2<sup>nd</sup> INTERNATIONAL CONFERENCE ON

“Management Techniques, Social Sciences, Humanities & Tourism Research (MSHTR-2019)”



This conference is jointly organized by Global Illuminators, and University of the Immaculate Conception, Davao, Philippines



**Date:** April 19-20, 2019

**Venue:** Hotel Grand Pacific Singapore

**Submission Email:** [mshttr@gissf.com](mailto:mshttr@gissf.com)

**Abstract Submission Date:** March 30, 2019

**Full Paper Submission Date:** April 05, 2019

**Selected conference papers will be published in special /regular issue of ISI/Scopus indexed journals associated with this conference.**

### **Conference Main Tracks**

- Social and Community Studies
- Arts
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## **2<sup>nd</sup> INTERNATIONAL CONFERENCE ON**

**“ Law, Business, Education and Social Sciences  
(LBESS-2019)”**



**Date:** June 15-16, 2019

**Venue:** Novotel London Waterloo Hotel, UK

**Submission Email:** [lbess@gissf.com](mailto:lbess@gissf.com)

**Abstract Submission Date:** May 15, 2019

**Full Paper Submission Date:** May 20, 2019

**Selected conference papers will be published in special  
/regular issue of ISI/Scopus indexed journals associated  
with this conference.**

### **Conference Main Tracks**

- Social and Community Studies
- Arts
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- Business and Management Studies

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## 2<sup>nd</sup> INTERNATIONAL CONFERENCE ON

“Dynamics of Management and Economic Research  
(DMER-2019)”



**Date:** June 22-23, 2019

**Venue:** Novotel Barcelona Sant Joan Despi, Spain

**Submission Email:** [dmer@gissf.com](mailto:dmer@gissf.com)

**Abstract Submission Date:** June 05, 2019

**Full Paper Submission Date:** June 10, 2019

**Selected conference papers will be published in special /regular issue of ISI/Scopus indexed journals associated with this conference.**

### **Conference Main Tracks**

- Social and Community Studies
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## **2<sup>nd</sup> INTERNATIONAL CONFERENCE ON**

**“Emerging Issues in Economics , Social Sciences and  
Business Management (EIESSBM-2019)”**



**Date:** July 13-14, 2019

**Venue:** The Federal Kuala Lumpur Malaysia

**Submission Email:** [eiessbm@gissf.com](mailto:eiessbm@gissf.com)

**Abstract Submission Date:** June 20, 2019

**Full Paper Submission Date:** June 30, 2019

**Selected conference papers will be published in special  
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- Business and Management Studies

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### **3<sup>rd</sup> INTERNATIONAL CONFERENCE ON**

**“Academic Research in Social Sciences and Humanities  
(ARSSH-2019)”**



**Date:** August 24-25, 2019

**Venue:** The Federal Kuala Lumpur Malaysia

**Submission Email:** [arssh@gissf.com](mailto:arssh@gissf.com)

**Abstract Submission Date:** August 10, 2019

**Full Paper Submission Date:** August 15, 2019

**Selected conference papers will be published in special /regular issue of ISI/Scopus indexed journals associated with this conference.**

#### **Conference Main Tracks**

- Social and Community Studies
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# 3<sup>rd</sup> INTERNATIONAL CONFERENCE ON

“Challenges in Social Science Reserach (CSSR-2019)”



**Date:** September 27-28, 2019

**Venue:** Holiday Inn Bangkok Silom, Bangkok Thailand

**Submission Email:** [cssr@gissf.com](mailto:cssr@gissf.com)

**Abstract Submission Date:** September 05, 2019

**Full Paper Submission Date:** September 10, 2019

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- Economics, Finance & Accounting
- Business and Management Studies

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## 2<sup>nd</sup> INTERNATIONAL CONFERENCE ON

“Innovation in Global Buisness, Social Sciences and  
Economics (IGBSSE-2019)”



**Date:** October 05-06, 2019

**Venue:** Nine Tree Premier Hotel Myeongdong 2 Seoul, South Korea

**Submission Email:** [igbsse@gissf.com](mailto:igbsse@gissf.com)

**Abstract Submission Date:** September 20, 2019

**Full Paper Submission Date:** September 25, 2019

**Selected conference papers will be published in special /regular issue of ISI/Scopus indexed journals associated with this conference.**

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- Social and Community Studies
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- Business and Management Studies
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# 3<sup>rd</sup> INTERNATIONAL CONFERENCE ON

“Dynamics of Social Sciences and Humanities Research  
(DSSHR-2019)”



**Date:** October 19-20, 2019

**Venue:** Istanbul GONEN Hotel, Istanbul, Turkey

**Submission Email:** [dsshr@gissf.com](mailto:dsshr@gissf.com)

**Abstract Submission Date:** September 25, 2019

**Full Paper Submission Date:** October 5, 2019

**Selected conference papers will be published in special /regular issue of ISI/Scopus indexed journals associated with this conference.**

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- Organizational Studies
- Educational and Communication Studies
- Economics, Finance & Accounting
- Business and Management Studie

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## **2<sup>nd</sup> INTERNATIONAL CONFERENCE ON**

**“Research Methodology for Business Economics, Social Sciences and Entrepreneurial Studies (RBESE-2019)”**



**Date:** November 27-28, 2019

**Venue:** The Trans Resort Bali, Indonesia

**Submission Email:** [rbese@gissf.com](mailto:rbese@gissf.com)

**Abstract Submission Date:** November 05, 2019

**Full Paper Submission Date:** November 15, 2019

**Selected conference papers will be published in special /regular issue of ISI/Scopus indexed journals associated with this conference.**

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- Organizational Studies
- Educational and Communication Studies
- Economics, Finance & Accounting
- Business and Management Studies

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### **3<sup>rd</sup> INTERNATIONAL CONFERENCE ON**

**“Social and Management Sciences; Theoretical and Practical Approaches (SMSTPA-2019)”**



**Date:** December 14-15, 2019

**Venue:** Hotel Grand Pacific Singapore

**Email:** smsstpa@gissf.com

**Abstract Submission Date:** November 20, 2019

**Full Paper Submission Date:** November 25, 2019

**Selected conference papers will be published in the special /regular issue of ISI/Scopus-indexed journals associated with this conference.**

#### **Conference Main Tracks**

- Social and Community Studies
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- Civic and Political Studies
- Cultural & Global Studies
- Environmental Studies
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# CSR



Environment

Charities

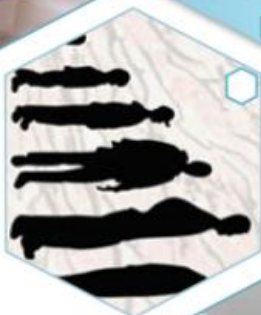
Public Health



Growth and  
Development



Sustainability



## **CSR Activity Conducted By GI Social Sciences Forum: Sport Activation for Children against Negative Impact of Internet & Technology**

In April 2016, GI Social Sciences Forum conducted Corporate Social Responsibility program together with Maestro and the Clover as Sport Facility Provider in Bandung, initiating an event with theme:



### **The Objectives of this event were:**

1. Media of education for parents and children to be aware of digital new era and its impact on children's life
2. Facilitate and promote futsal as one of the kinds of sports activation that can be alternative activity for children against the negative impact of internet
3. Social activity and charity engaging orphans to enjoy sports activities together with their friends
4. Corporate Social Responsibility of Company to contribute to the society especially to solve one of the social problems in Bandung.

**Highlights of CSR Activities are given below:**





## **GI Social Sciences Forum Malaysia Team conducted its Latest CSR activity at Rumah Charis, Kuala Lumpur, Malaysia Children Home**

GI Social Sciences Malaysia Team conducted its latest CSR activity at Rumah Charis, Kuala Lumpur, Malaysia Children home. The children home ministry provides care for orphans and single parent children, their homes and activities aim to create a suitable environment to enable children to grow. They help to provide spiritual direction, education, and counselling for the children. Emphasis was given to fellowshiping and spending time with the children over refreshments, as well as presenting them with small gifts and the organizing of special entertainment programmes for the children such as a special game segment. One of the other highlights of the evening was the goodie bags distribution programme carried out by GI Social Sciences Forum





## **GI Social Sciences Forum Indonesian Team conducted its Latest CSR activity in Ramadan for Local Community Welfare, Sharing Happiness and developing Orphan Children**

GI Social Sciences Forum Indonesian team conducted its latest CSR activity in Ramadan for orphans. The purpose of this activity was to give happiness and develop orphans with the support of more than 60 volunteers and distribute iftar to more than 400 beneficiaries (yateem, orphans, and dhuafa). GI Social Sciences Forum Indonesian team spent time with children and conducted different activities for their moral self-development.

Highlights of this activity are given below:







# ASBMSR

# 2019

## Vision

Researching and developing to  
promote innovation

## Core Values

Capacity building, learning of new  
insights and innovation.



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