

**TICC**  
International Conference



International College  
for Sustainability Studies  
SRINAKHARINWIROT UNIVERSITY



International College of  
DIGITAL INNOVATION  
CHIANG MAI UNIVERSITY

# 7<sup>th</sup> TICC

INTERNATIONAL CONFERENCE

# BOOK OF ABSTRACTS

**TOWARDS SUSTAINABLE  
DEVELOPMENT GOALS:  
DIGITAL TRANSFORMATION  
AND BEYOND**

4-5 February 2023  
Centara Riverside Hotel  
Chiang Mai, Thailand

Supported by:



Book of Abstracts  
The 7<sup>th</sup> TICC International Conference 2023  
titled Toward Sustainable Development Goals:  
Digital Transformation and Beyond

Thailand International College Consortium (TICC)

Khon Kaen University International College  
Burapha University International College  
Faculty of International Studies, Prince of Songkla University (Phuket Campus)  
Prince of Songkla University International College (Hat Yai Campus)  
Naresuan University International College  
Silpakorn University International College  
International College for Sustainability Studies, Srinakharinwirot University  
International College of Digital Innovation, Chiang Mai University



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### **DIGITAL INNOVATION**

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## **WELCOME MESSAGE FROM THE THAILAND INTERNATIONAL COLLEGE CONSORTIUM (TICC)**

Welcome to the 7<sup>th</sup> TICC International Conference titled “Toward Sustainable Development Goals: Digital Transformation and Beyond”. The Thailand International College Consortium (TICC) International Conference is co-hosted by 8 international colleges, including Khon Kaen University International College, Burapha University International College, Faculty of International Studies, Prince of Songkla University (Phuket Campus), Prince of Songkla University International College (Hat Yai Campus), Naresuan University International College, Silpakorn University International College, International College for Sustainability Studies, Srinakharinwirot University, and International College of Digital Innovation, Chiang Mai University - which has the opportunity to join the network as the 8<sup>th</sup> university. Following the success of the previous TICC conferences, International College of Digital Innovation (ICDI), Chiang Mai University is pleased to announce the call paper for the 7<sup>th</sup> Thailand International College Consortium International Conference (7th# TICCIC) on the topic of “Towards Sustainable Development Goals, Digital Transformation, and Beyond.” The objectives of this event are: 1) To motivate students to share their research findings with the public and those who may be able to use them 2) To provide a forum for knowledge sharing between faculty researchers and students participating in the event 3) To boost students’ confidence when presenting findings, including the development of a cooperative network for future academic and research of the International College Network of Thailand. The consortium committee has identified 11 areas of academic research across a range of subject areas, including: 1) Business and Management 2) Science, Technology and BCG Economy 3) Art Media, Communications, Intercultural Communication 4) Tourism, Hospitality and MICE 5) International Studies 6) Education, Learning technology, STEM 7) Holistic Health and Wellness Management 8) Digital Innovation 9) International Relation 10) Languages 11) Logistics and Supply Chain

This event was held for 2 days, between February 4<sup>th</sup> and 5<sup>th</sup>, 2023 with a total of 56 articles selected to present covering various sciences that are important to the development of knowledge and the socio-economic development of a country. The International College sincerely hopes to play a part in producing knowledgeable and capable professionals as well as producing academic works for the public that everyone can access and that can be a forum for discussion and exchange for further academic advancement.





*7<sup>th</sup> TICC International Conference 2023  
Toward Sustainable Development Goals: Digital Transformation and Beyond  
February 4-5<sup>th</sup>, 2023, Chiang Mai, Thailand*

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## TICC MEMBERS & OUR GOALS

The Thailand International College Consortium (TICC) International Conference is co-hosted by 8 International colleges consisting of Khon Kaen University International College, Burapha University International College, Faculty of International Studies, Prince of Songkla University International College (Phuket Campus), Prince of Songkla University International College (Hat Yai Campus), Naresuan University International College, Silpakorn University International College, International College for Sustainability Studies, Srinakharinwirot University, and International College of Digital Innovation, Chiang Mai University. These international colleges established the Thailand International College Consortium (TICC) to enhance academic collaborations among the partner universities. TICC has the following goals.

1. To exchange Thai and international students at both undergraduate and graduate levels among partner universities.
2. To exchange lecturers among partner universities.
3. To conduct collaborative research projects.
4. TICC would like to welcome all international colleges in Thailand to become a member and enjoy several benefits that TICC could offer.



## ACKNOWLEDGEMENTS

We would like to acknowledge the contribution made to the 7<sup>th</sup> TICC International Conference by several parties, including all conference participants, the reviewing committee members who contributed their time, energy, and knowledge, the international conference funding from Chiang Mai University, and, importantly, the friendship among the TICC member organizations. This international conference could not have been successfully held without all the valuable support.





## CONFERENCE SCHEDULE

| February 4 <sup>th</sup> , 2023   | February 5 <sup>th</sup> , 2023   |
|---|---|
| 08.00 – 09.00<br>Registration   | 08.30 – 10.30<br>Contributed Talk (SESSION 3)   |
| 09.00 – 09.30<br>Opening Ceremony   | 10.30 – 11.00<br>Break and Networking   |
| 09.30 – 10.30<br>Keynote Lecture Prof. Dr. Vincente Ramos Mir<br><i>"Economic Applications of Emerging Geospatial Data for Managing Smart Tourism Destinations"</i>                         | 11.00 – 11.15<br>Best Paper and Best Presentation award                                 |
| 10.30 – 11.00<br>Break and Networking   | 11.15 – 11.45<br>The Handover Ceremony to Srinakharinwirot University for TICC 8th Host |
| 11.00 – 12.00<br>Keynote Lecture Prof. Dr. Günter Faltn<br><i>"Entrepreneurship in the 21<sup>st</sup> Century: Creating a New Balance between Economic Efficiency and Sustainability."</i> | 11.45 – 12.00<br>Closing Ceremony   |
| 12.00 – 13.00<br>Lunch  | 12.00 – 13.00<br>Lunch  |
| 13.00 – 15.00<br>Contributed Talk (SESSION 1) /<br>Dean's Meeting of Partner Universities   |   |
| 15.00 – 15.20<br>Break and Networking   |   |
| 15.20 – 17.20<br>Contributed Talk (SESSION 2)   |   |
| 18.00 – 22.00<br>Welcome Dinner   |   |

| DATE                            | TIME        | ROOM 1   |  |           |           |
|---------------------------------|-------------|--|--|-----------|-----------|
|                                 |             | RESEARCH AREA: DIGITAL INNOVATION  |  |           |           |
| FEBRUARY 4 <sup>th</sup> , 2023 | 13.00-13.20 | LEGAL FRAMEWORK AGAINST MONEY LAUNDERING THROUGH CRYPTOCURRENCY AND BLOCKCHAIN GAME IN THE U.S.                                    |  | SESSION 1 |           |
|                                 | 13.20-13.40 | DO DIFFERENT SOURCES OF INFORMATION MATTER IN THE INVESTMENT DECISION?: SOME EVIDENCE FROM EXPERIMENT                              |  |           |           |
|                                 | 13.40-14.00 | A REVIEW OF CROWDFUNDING ECOSYSTEM IN THE AGRICULTURAL SECTOR OF THAILAND  |  |           |           |
|                                 | 14.00-14.20 | SAFETY AND TECHNOLOGY ACCEPTANCE AFFECTING THE DECISION MAKING OF THAI TOURISTS IN AIRLINE TICKET BOOKING VIA ONLINE TRAVEL AGENCY |  |           |           |
|                                 | 14.20-14.40 | FACILITATION FACTORS AFFECTING PURCHASING DECISIONS OF SMART HOMES OF YOUNG OLD SENIORS IN THE SUBURBS CHIANG MAI PROVINCE         |  |           |           |
|                                 | 14.40-15.00 | URBAN CLASSIFICATION BASED ON SENTINEL-2 SATELLITE DATA FOR SLUM IDENTIFICATION  |  |           |           |
|                                 | 15.20-15.40 | TRANSPARENCY IN CROWDFUNDING UTILIZING A BLOCKCHAIN PLATFORM: A CASE STUDY OF SIRIYOSAWADEE EGG BANK IN CHIANG MAI, THAILAND       |  | SESSION 2 |           |
|                                 | 15.40-16.00 | AUTOFOCUS WEB APPLICATION FOR PORTABLE DARKFIELD MICROSCOPE  |  |           |           |
|                                 | 16.00-16.20 | CONSUMER PERCEPTION AND BEHAVIOR TOWARDS DIGITAL PAYMENT ADOPTION AMONG GENZ AND MILLENNIALS IN CAMBODIA                           |  |           |           |
|                                 | 16.20-16.40 | ELECTRONIC INVOICE MANAGEMENT STRATEGY BASED ON BLOCKCHAIN TECHNOLOGY  |  |           |           |
|                                 | 16.40-17.00 | ESG PERFORMANCE AND STOCK EXCESS RETURNS: EVIDENCE FROM CHINA  |  |           |           |
|                                 |             | <b>TIME</b>  | <b>ROOM 2</b>  |           |           |
|                                 |             |  | <b>RESEARCH AREA: EXPLORING THE BUSINESS MANAGEMENT AND BCG ECONOMY: OPPORTUNITIES AND CHALLENGES</b>  |           |           |
|                                 |             | 13.00-13.20  | MODIFIED NICKEL FOAM ELECTRODES FOR HYDROGEN AND OXYGEN EVOLUTION FOR ALKALINE WATER HYDROLYSIS  |           | SESSION 1 |
|                                 |             | 13.20-13.40  | PREPARATION, DISSOLUTION, AND SENSORY TESTING OF MIXED IRON PHOSPHATES AS NOVEL FOOD FORTIFICANTS  |           |           |
|                                 |             | 13.40-14.00  | THE ULTRASONIC ASSISTED EXTRACTION TO MAXIMIZE ANTIOXIDANT AND TYROSINASE INHIBITION ACTIVITIES FROM ZINGIBER OFFICINALE ROSCOE                                |           |           |
|                                 |             | 14.00-14.20  | THE USE OF MIXED ELECTROLYTE SOLUTIONS WITH IMPROVED ELECTROCHEMICAL AND DISCHARGE BEHAVIOR OF A LOW-COST COMMERCIAL ALUMINUM ALLOY FOR ALUMINUM-AIR BATTERIES |           |           |
|                                 |             | 14.20-14.40  | DEVELOPMENT OF IRON ALGINATE BEADS BY IONOTROPIC GELATION FOR NUTRITIONAL APPLICATIONS   |           |           |
|                                 |             | 14.40-15.00  | THE BIODIVERSITY OF FRESHWATER COPEPODS IN FIVE PROVINCES OF NORTHERN THAILAND   |           |           |
|                                 |             | 15.20-15.40  | EFFICIENCY OF RICE PRODUCTION AND THAI FARMERS POVERTY   |           |           |
|                                 | 15.40-16.00 | A STUDY OF FINANCIAL CRIMES IN THAILAND AND THE ROLE OF TECHNOLOGY   |  |           |           |
|                                 | 16.00-16.20 | CROSS-FUNCTIONAL ORGANIZATION: A BIBLIOMETRIC ANALYSIS   |  | SESSION 2 |           |
|                                 | 16.20-16.40 | PAIR TRADING STRATEGY WITH ANN TECHNIQUE IN CRYPTOCURRENCY MARKET  |  |           |           |
|                                 | 16.40-17.00 | FACTORS AFFECTING CUSTOMERS' PERCEPTION OF CHINESE SAUSAGE PRODUCTS TOWARDS SUSTAINABLE DEVELOPMENT                                |  |           |           |



7<sup>th</sup> TICC International Conference 2023  
 Toward Sustainable Development Goals: Digital Transformation and Beyond  
 February 4-5<sup>th</sup>, 2023, Chiang Mai, Thailand

# PRESENTATION SCHEDULE

| DATE                            | TIME        | ROOM 3  |           |
|---------------------------------|-------------|---|-----------|
|                                 |             | RESEARCH AREA: EDUCATION, COMMUNICATIONS, AND SUPPLY CHAIN: SUSTAINABLE DEVELOPMENT IN THE DIGITAL AGE  |           |
| FEBRUARY 4 <sup>th</sup> , 2023 | 13.00-13.20 | THE INVESTIGATING OF BRAND ARCHETYPES FOR THE NEW ENTRY PRODUCT OF CHOCOLATE MALT MILK INDUSTRY; THE CASE OF DMALT  | SESSION 1 |
|                                 | 13.20-13.40 | CREATIVE GUIDELINES AS INITIAL STEPS FOR PUBLIC TRANSPORT INFORMATION IMPROVEMENTS - CASE STUDY: HAT YAI, THAILAND  |           |
|                                 | 13.40-14.00 | INSTRUCTORS' VIEWPOINTS OF ENGLISH GRAMMAR INSTRUCTION: WHAT IS THE APPROPRIATE PEDAGOGIC GRAMMAR METHOD?   |           |
|                                 | 14.00-14.20 | EXPLORING ACADEMIC STRESSORS OF BURAPHA UNIVERSITY INTERNATIONAL COLLEGE STUDENTS AFTER THE COVID-19 PANDEMIC   |           |
|                                 | 14.20-14.40 | WHAT COLLEGE STUDENTS LOOK FOR WHEN APPLYING FOR THEIR FIRST JOB  |           |
|                                 | 14.40-15.00 | A STUDY OF THAI STUDENTS' SELECTION OF NEW ZEALAND AS STUDY DESTINATION   |           |
|                                 | 15.20-15.40 | MASTER'S STUDY PROGRAM MULTIFUNCTIONAL AGRICULTURE IN ENGLISH - SWOT ANALYSIS AND PRACTICAL EXPERIENCE  | SESSION 2 |
|                                 | 15.40-16.00 | ONLINE FEEDBACK: EXPLORING STUDENTS' ACCEPTANCE AS A MEAN OF DEVELOPING ENGLISH SPEAKING SKILLS   |           |
|                                 | 16.00-16.20 | METHODOLOGY OF CURRICULUM TRAIL IMPROVEMENT FOR CHINESE INTENSIVE COURSE: A CASE OF THAI STUDENTS OF HIGH VOCATIONAL CERTIFICATE IN RAILWAY TRANSPORTATION                                |           |
|                                 | 16.20-16.40 | EFFECTS OF USING BLENDED LEARNING WITH E-PORTFOLIO ASSESSMENT ON THAI EFL STUDENT'S BUSINESS ENGLISH WRITING PERFORMANCE  |           |
|                                 | 16.40-17.00 | EXPLORATORY AND CONFIRMATORY ANALYSIS TO IDENTIFY LOGISTICS SERVICE QUALITY DIMENSIONS AS FACTORS INFLUENCING THE INTENTIONS TO USE LAST-MILE DELIVERY SERVICE AFTER COVID-19 IN THAILAND |           |
|                                 | 17.00-17.20 | MERCHANDISE ROUTE OPTIMIZATION FOR LOGISTICS NETWORK OPTIMIZATION: A CASE STUDY   |           |

| DATE                            | TIME        | ROOM 1  |           |
|---------------------------------|-------------|---|-----------|
|                                 |             | RESEARCH AREA: DIGITAL INNOVATION   |           |
| FEBRUARY 5 <sup>th</sup> , 2023 | 08.30-08.50 | A REVIEW OF MACHINE LEARNING IN MICROSEISMIC SIGNALS RECOGNITION AND CLASSIFICATION   | SESSION 3 |
|                                 | 08.50-09.10 | MAINTENANCE ROOM TEMPERATURE MONITORING SYSTEM AND NOTIFICATION VIA LINE APPLICATION FOR COMMUNICATIONS AND ELECTRONICS SECTION, TECHNICAL DIVISION, CAST STUDY: AN AGENCY IN LOP BURI PROVINCE |           |
|                                 | 09.10-09.30 | DOES THE CORRELATION AND RISK SPILLOVER BETWEEN BITCOIN AND TRADITIONAL FINANCIAL ASSETS HELP ITS INVESTMENT DECISIONS? A DCC-GARCH WITH NEUTRAL NETWORK APPROACH                               |           |
|                                 | 09.30-09.50 | RESEARCH ON TRIPLE ENCRYPTION ALGORITHM   |           |
|                                 | 09.50-10.10 | CHARACTERISTICS AND INFLUENCING FACTORS OF DIGITAL SERVICE EXPORT IN RCEP COUNTRIES   |           |





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# PRESENTATION SCHEDULE

| DATE                               | TIME        | ROOM 2   |           |
|------------------------------------|-------------|--|-----------|
|                                    |             | RESEARCH AREA: EXPLORING THE BUSINESS MANAGEMENT AND BCG ECONOMY: OPPORTUNITIES AND CHALLENGES   |           |
| FEBRUARY<br>5 <sup>th</sup> , 2023 | 08.30-08.50 | HOW COMMUNICATION COMPANIES NAVIGATE DIGITAL TRANSFORMATION  | SESSION 3 |
|                                    | 08.50-09.10 | AN APPLICATION OF THE THEORY OF OPTIMUM CURRENCY AREAS TO THE EURO AREA  |           |
|                                    | 09.10-09.30 | A GENERAL QUANTITATIVE INVESTMENT THEORY AND FUNDAMENTAL VALUE TECHNICAL SYSTEM BASED ON MULTI-FACTOR MODELS IN CHINESE STOCK SELECTION                        |           |
|                                    | 09.30-09.50 | PREDICTION OF CHINA'S REGIONAL INNOVATION CAPABILITY UNDER THE BACKGROUND OF DIGITAL ECONOMY - BASED ON BIDIRECTIONAL LONG-AND SHORT-TERM MEMORY NETWORK MODEL |           |
|                                    | 09.50-10.10 | POSSIBILITY OF FREE-MATING MALARIA VECTOR IN THE LABORATORY  |           |

| DATE                               | TIME        | ROOM 3  |           |
|------------------------------------|-------------|---|-----------|
|                                    |             | RESEARCH AREA: EDUCATION, COMMUNICATIONS, AND SUPPLY CHAIN: SUSTAINABLE DEVELOPMENT IN THE DIGITAL AGE  |           |
| FEBRUARY<br>5 <sup>th</sup> , 2023 | 08.30-08.50 | THE REPRESENTATION OF GENDER DEFINITION THROUGH ANCIENT CHINESE FOLKTALES: SYMBOLS OF FEMININITY IDEOLOGY, NEGOTIATION AND SIMILARITY OF FEMALE STATUS AS CURRENTLY ERA | SESSION 3 |
|                                    | 08.50-09.10 | RESEARCH ON THE USER EXPERIENCE MODEL OF COLLEGE TEACHERS' ONLINE TEACHING IN THE INTELLIGENT ENVIRONMENT   |           |
|                                    | 09.10-09.30 | OPTIMIZING TEACHERS' TEACHING METHODS AND STUDENTS' LEARNING STYLE WITH COMPUTER VISION ANALYSIS  |           |
|                                    | 09.30-09.50 | THE IMPLICATIONS, CHALLENGES, AND PATHWAYS OF DIGITAL TRANSFORMATION OF UNIVERSITY EDUCATION IN CHINA   |           |
|                                    | 09.50-10.10 | THE IMPACT OF CULTURE ON ENGLISH MAJORS IN POST-EPIDEMIC CHINA IN AMERICAN FILMS AND TV DRAMAS  |           |
|                                    | 10.10-10.30 | THE EFFECTS OF BELT AND ROAD INITIATIVES ON SICHUAN'S EXPORTS   |           |

| DATE                               | SUBMISSION ID | ROOM 4  |           |
|------------------------------------|---------------|---|-----------|
|                                    |               | RESEARCH AREA: TOURISM AND HEALTH: BUILDING A SUSTAINABLE AND INCLUSIVE INDUSTRY  |           |
| FEBRUARY<br>5 <sup>th</sup> , 2023 | 08.30-08.50   | CASE ARCHITECTURAL DESIGN PARAMETERS AFFECTING PATIENT'S PSYCHOLOGICAL REQUIREMENTS IN MENTAL HEALTHCARE FACILITIES   | SESSION 3 |
|                                    | 08.50-09.10   | SENTIMENT ANALYSIS ON SOCIAL NETWORKING: A CASE STUDY OF CHIANG MAI TOURISM   |           |
|                                    | 09.10-09.30   | THE PERSPECTIVE OF SUSTAINABILITY FROM AN INDEPENDENT HOTEL RESORT ON KOH SAMUI ISLAND IN THAILAND  |           |
|                                    | 09.30-09.50   | THE ANTECEDENTS OF CITY MARKETING, EVENT TOURISM, AND SOCIAL MEDIA MARKETING FOR PROMOTING DESTINATION IMAGE OF PHITSANULOK AS A MICE CITY: A CONCEPT PAPER |           |
|                                    | 09.50-10.10   | A REVIEW OF ADAPTATION OF THAI TRADITIONAL TELEMEDICINE   |           |
|                                    | 10.10-10.30   | A BIBLIOMETRICS ANALYSIS OF NATIONAL PARK TOURISM RESEARCH TRENDS FROM 2004 TO 2022   |           |



## DIGITAL INNOVATION

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### LEGAL FRAMEWORK AGAINST MONEY LAUNDERING THROUGH CRYPTOCURRENCY AND BLOCKCHAIN GAME IN THE U.S.

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**ABSTRACT:** The development of technology with bringing convenience is beneficial for the way of human life, on the other hand, almost crimes have occurred from that technology as a criminal tool. Users may utilise the same technology for different purposes. In particular, the illicit intention is highly possible to lead to social problems. Cryptocurrency and game under the blockchain system is one of the latest financial technology that is used for the process of money laundering to change “illegal” status of money to be “legal” and include trading in black markets across international borders. To prevent and cope with troubles in Thailand, the enactment and amendment of law shall be covered criminal activities, however, the currently revised anti-money laundering act of 1999 is not included the main aspects of legal gaps in cryptocurrency transactions and games under the blockchain system. Therefore, if money laundering via crypto transaction is occurred within the territory of Thailand, it will be difficult to adjust laws with each legal case. The primary goal of this research paper is to study the U.S. laws and policies at the federal level against money laundering and compare them with Thailand in order to present appropriate legal framework for Thailand. The study of research will be analysed through criminology and economic perspectives on the identity of financial crimes. Criminological theory is used to examine the appropriateness of the nature of criminal frames and penalties, as well as, economic theory is used to describe the costs of crime and decisions based on choices.

**KEYWORDS:** Blockchain, Cryptocurrency, Money Laundering, Criminology



## CHARACTERISTICS AND INFLUENCING FACTORS OF DIGITAL SERVICE EXPORT IN RCEP COUNTRIES

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**ABSTRACT:** This study investigates the features and trends of digital services export using data over the period across 15 countries China, Japan, South Korea, Vietnam, Philippines, Cambodia, Laos, Myanmar, Thailand, Malaysia, Brunei, Singapore, Indonesia, Australia and New Zealand over 2005 until 2020. Additionally, the paper employs the two-step system GMM approach to investigate the factors that determine digital services export at the national level. The study found that the global digital services export is highly unbalanced, especially the trade in goods and traditional services, with a small number of developed countries dominating the global digital services trade market. The global digital service export is extremely imbalanced, notably in terms of traditional service commerce and the exchange of goods. A limited number of developed countries dominate the global digital service trade market. The level of national economic development is highly correlated with the growth of digital service export. The growth of service industry, transnational capital flow and the advancement and implementation of information technology would significantly promote the growth of digital service export.

**KEYWORDS:** Digital Services Export; Digital Trade; Factors Affecting; Characteristics.



## CONSUMER PERCEPTION AND BEHAVIOR TOWARDS DIGITAL PAYMENT ADOPTION AMONG GENZ AND MILLENNIALS IN CAMBODIA

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**ABSTRACT:** This study aims to understand the motivations and barriers of GenZ and Millennials in Cambodia towards the adoption of digital payments. The study uses the Unified Theory of Acceptance and Use of Technology (UTAUT) model to identify key factors that influence consumer acceptance of digital payments such as perceived ease of use, perceived usefulness, and attitude towards using digital payments. Additionally, K-Mean Clustering method will be used to classify consumers into different segments based on their perceptions and behaviors towards digital payment adoption in scenarios such as banking, household activities, loan repayment, traveling and other expenses. Data will be collected through an online survey that will be distributed both online and by approaching the sample on spot in Phnom Penh. The survey will be conducted with a sample of young consumers and analyzed to show how they start or keep using digital payments in their daily lives and how to convince new consumers to adopt the digital payments. The results will provide implications and recommendations for key players in the industry such as central bank, digital payment service providers, and future researchers to enhance platforms or services to meet consumer needs and behaviors. It will also suggest areas of future research to fill the gaps in understanding of digital payment adoption in Cambodia.

**KEYWORDS:** Digital Payments; Consumer Perception; Consumer Behaviour; Classification; Cambodia; UTAUT; K-Mean Clustering.



## DO DIFFERENT SOURCES OF INFORMATION MATTER IN THE INVESTMENT DECISION?: SOME EVIDENCE FROM EXPERIMENT

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**ABSTARCT:** This study aims to test and compare the effect of information references on trust and investment decisions. This research recruited 129 samples from ages 18 to 30. The research conducted a financial experiment by dividing samples into one control group and three treatment groups. Participants in treatment groups were exposed to different information references, namely the official agenda, social media, and face-to-face advisor. The experiment verified their investment value and tested their trust in the information. Findings suggest that social media information did not lead to trust and investment. Participants' behaviors, especially trust, are still prolonged to traditional information (an official data and investment consultant). Official information induced them to trust and invest, while face-to-face advising induced their trust but not investment. This study is a behavioral economics model that reflects people's decisions. The study found that financial institutions continue to perform well and guide investments for people, especially at a specific age. The researchers recommend that the policymaker should be taken into account to prevent and screen information thoroughly for the benefit of people in the future.

**KEYWORDS:** Investment decision; Social media; Information; Trust.



## **ELECTRONIC INVOICE MANAGEMENT STRATEGY BASED ON BLOCKCHAIN TECHNOLOGY**

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**ABSTRACT:** Invoice management plays a very important role in the whole taxation system, and the staff of taxation authorities can measure the production and operation status of taxpayers through the usage of invoices, and verify whether there is tax evasion and leakage by taxpayers, so as to grasp the tax details of taxpayers. With the support of national policies and the continuous improvement of the network technology environment, the informatization construction of the taxation system is also gradually promoted, and electronic invoices are fully promoted in China. Compared with paper invoices, the use of electronic invoices helps reduce the operating costs of taxpayers and improves the tax collection and management level of government departments. However, electronic invoices also have problems in actual use such as repeated reimbursement, difficulty in bookkeeping, and reliable preservation. Although the above problems can be solved by auxiliary management means, it cannot fundamentally eliminate the occurrence of such problems. Blockchain technology can solve the problems of security and repeated reimbursement of electronic invoices. Blockchain-based electronic invoice cloud platform refers to the combination of blockchain framework and cloud computing to build a distributed electronic invoice cloud platform. By building an electronic invoice cloud platform, it can realize the issuance, flow, storage, and submission of expense accounts of electronic invoices, realize the data exchange of electronic invoices between self-built platforms and third-party platforms through each service platform of electronic invoices, and build an electronic invoice chain, so as to realize that the government, enterprises, and individuals can share the dividends of electronic invoices and continuously promote the healthy development of electronic invoices.

**KEYWORDS:** blockchain technology; invoice management; smart contracts; tax.





## ESG PERFORMANCE AND STOCK EXCESS RETURNS: EVIDENCE FROM CHINA

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**ABSTRACT:** With the continuous improvement of Environmental, Social, and Governance (ESG) disclosure in China, the quality of ESG disclosure will have an important impact on equity returns. However, there is less literature examining how ESG performance affects the excess returns of Chinese equities. We employed multiple linear regression to study the effect of Chinese companies' ESG performance on excess returns and the mediating effect of corporate reputation on this relationship, applying a unique database spanning Chinese CSI 300 listed companies for the years 2016 to 2020. The findings showed that ESG performance and its dimensions had a significant positive impact, whereas corporate reputation had a significant mediation effect on this relationship. Furthermore, the findings showed that ESG performance and its dimensions had a better impact on excess returns during the post-COVID-19 period than they did before. The robustness test demonstrated that the results were reliable. Our results are consistent with our understanding of the recognition of ESG investment concepts in the Chinese capital market and provide a theoretical and methodological basis for the sustainable development of Chinese companies.

**KEYWORDS:** ESG performance; Excess Returns; Corporate Reputation; COVID-19.

## A REVIEW OF MACHINE LEARNING IN MICROSEISMIC SIGNALS RECOGNITION AND CLASSIFICATION

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**ABSTRACT:** Effective identification and classification of microseismic events is the basis for data analysis by the microseismic monitoring system. By accurately identifying and targeting microseismic events, it provides effective data support for real-time source location and rockburst prediction and warning, thus providing a foundation for mine safety production. However, due to the complexity of the mining environment, the microseismic signal data collected by sensors is mixed with various noise events, which usually need to be identified and classified before the real microseismic events can be targeted. The accuracy of traditional recognition and classification methods needs to be improved, especially when different events exhibit similar characteristics, and the results are often disappointing. Machine learning methods have the advantage of high-precision separation by learning pattern features of microseismic events from historical data, then identifying these features in newly generated data and providing near real-time predictive analysis. It can effectively solve the problems of low efficiency of manual recognition and large error of individual experience. Therefore, machine learning has been widely used in the field of microseismic monitoring. This paper reviews the application of machine learning methods in the identification and classification of microseismic signals in recent years. First, the limitations of traditional recognition methods are introduced, and an overview of the development of machine learning methods and a brief discussion of the differences between the two. Then, based on the nature of machine learning methods, the classification of microseismic signal recognition and classification models are summarized. Finally, the opportunities and challenges of machine learning in this field are discussed.

**KEYWORDS:** Microseismic signals; Microseismic waveform; Classification and recognition; Machine learning; Deep learning.



## **SAFETY AND TECHNOLOGY ACCEPTANCE AFFECTING THE DECISION MAKING OF THAI TOURISTS IN AIRLINE TICKET BOOKING VIA ONLINE TRAVEL AGENCY**

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**ABSTRACT:** This study aims to examine the safety and technology acceptance factors for increasing decision making of Thai tourists in airline ticket booking which will help build on the strengths of the competitiveness to online travel agency. This paper is quantitative research. The sample was 400 Thai tourists using the airline ticket booking via online travel agency, using purposive sampling. Data was gathered by questionnaires and statistical hypothesis testing was run through multiple regression analysis. The results showed that the most respondents were female, aged 31-40 years old, and most of them worked as government officials, state enterprise employees, with bachelor's degree, and earn average monthly income of more than 25,001 baht. The safety and technology acceptance influencing on the decision-making of Thai tourist, which are customers' perceptions of online safety and technology acceptance were safety, the ease of use, and the usefulness. Therefore, the online travel agent should pay intention and give an importance to the safety and technology system for increasing confidence of Thai tourists in using online travel from booking.

**KEYWORDS:** Safety and Technology; Decision Making; Airline Ticket Booking; Online Travel Agency.

## **FACILITATION FACTORS AFFECTING PURCHASING DECISIONS OF SMART HOME OF YOUNG OLD SENIOR IN THE SUBURB CHIANG MAI PROVINCE**

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**ABSTRACT:** Elderly housing is important, as the elderly are prone to physical changes in many areas, proper housing adjustment is essential so that the elderly can do various daily activities easily and safely. Most of the problems with smart home in Thailand that are causing its use are not widespread due to consumer misunderstanding. In the past, there have been a number of studies that have addressed smart home, such as one of the (Kim, Park, & Choi, 2017) studies based on the value-based adoption model (VAM) and the technical acceptance model (TAM) is the main research study on the acceptance of smart home service by using Internet of Things devices, which does not cover study in development and design smart home for the elderly. The objective of this study is to study facilitation factors affecting purchasing decisions of smart home of Young Old (YOLD) seniors in the suburb Chiang Mai Province. The sample group consisted of 200 YOLD seniors in the suburb Chiang Mai Province. This study is a quantitative study and use the questionnaire to collect data. The statistics used in the data analysis were Frequency Distribution, Percentage Value, mean, Standard Deviation and Multiple Regression Analysis. The results showed facilitation factors of smart homes of YOLD seniors in the suburb Chiang Mai Province found that the overall opinion level was at the highest level were as follows: Safety System followed by Control, convenience and health and the elderly heart rate sensor system, respectively. The intention of using smart home systems and services was found that Convenience (X1) Control (X2) Safety System (X3) and health care the elderly heart rate sensor system (X4) could account for 82.00 per cent of the variation in purchasing decisions of smart homes of YOLD seniors in the suburb Chiang Mai Province, with p-value = 0.004. The results from the study can be used to develop the design of smart homes of YOLD seniors suitable for homes for people of all ages or housing projects Home for retirees in real estate circles.

**KEYWORDS:** Facilitation factors; decisions; smart homes; YOLD seniors.



## A REVIEW OF CROWDFUNDING ECOSYSTEM IN THE AGRICULTURAL SECTOR OF THAILAND

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**ABSTRACT:** Crowdfunding is a crucial financial solution for the agricultural sector in Thailand, as it addresses the shortage of funds in this area. While it has been successful in countries like Indonesia, Malaysia, and China, the utilization of crowdfunding in the agricultural sector in Thailand has yet to gain widespread success and adoption, unlike in other countries. So this study aims to comprehend the crowdfunding ecosystem in Thailand by examining the attitudes and perspectives of various stakeholders, as well as identifying potential methods to effectively implement crowdfunding. The study will consider elements such as the regulatory framework for fundraising, financial literacy and access to financial services by farmers and other agricultural stakeholders, and the level of trust and confidence in crowdfunding. Additionally, the study will draw on successful examples from other countries to provide lessons and insights.

**KEYWORDS:** Crowdfunding; Ecosystem; Fintech and Agriculture.



## **MAINTENANCE ROOM TEMPERATURE MONITORING SYSTEM AND NOTIFICATION VIA LINE APPLICATION FOR COMMUNICATIONS AND ELECTRONICS SECTION, TECHNICAL DIVISION, CAST STUDY: AN AGENCY IN LOP BURI PROVINCE**

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**ABSTRACT:** This research presents the maintenance room temperature monitoring system and notification technology for Communications and Electronics Section, Technical Division, Cast Study: an agency in Lop Buri province via Line application. The objective is to study the operation of temperature and humidity monitoring device which is an important device to measure temperature and humidity in the communication network system's maintenance room. So, the officers can work and solve problems more quickly when the equipment in communication network system is damaged from the heat exposure. This research introduces the temperature and humidity monitoring sensor, working together with Arduino board and the operating control programming. The system operation has three cases: 1) The system will send a notification of the maintenance room's temperature every hour via Line application. 2) If the temperature in the maintenance room is higher than the standard temperature, the system will send a notification to an officer via Line application every minute. 3) The officer can always check the temperature of the maintenance room real time automatically. Regarding the test results on system operation test, the system can measure the temperature and humidity inside the maintenance room. It also send a notification of every case to the monitoring officer via Line application. The accuracy of the system is 94%.

**KEYWORDS:** Temperature Monitoring; Maintenance Room; Notification; Line Application.

## **URBAN CLASSIFICATION BASED ON SENTINEL-2 SATELLITE DATA FOR SLUM IDENTIFICATION**

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**ABSTRACT:** Slum settlement detection and mapping is useful for planning, implementing and monitoring urban poverty alleviation programs. However, current methods using traditional surveys cannot meet the demand for the rapid development of urban poverty management. There is an urgent need to develop new methods to overcome the shortcomings of conventional methods. To address this issue, this research applies machine learning (ML), the Support Vector Machine (SVM) and Random Forest (RF), for classifying and identifying slum areas using Sentinel-2 satellite data in Bang Sue district, Bangkok Thailand. The urban classification results show overall accuracy of 70% and 72% for SVM and RF algorithm respectively. The producer's accuracy assessment of slum areas using SVM and RF show 53% and 73% respectively. While in the user aspect, the numbers show 50% and 44% accuracy as a result of applying SVM and RF model respectively. This can offer data-driven decision-makings for urban poverty management. Finally, the application of slum mapping method can improve the credibility of the results and provide a reference for further research and implementation of slum upgrading programs and urban management.

**KEYWORDS:** Slum identification; Urban classification; Support vector machine; Random forest; Sentinel-2.





## **TRANSPARENCY IN CROWDFUNDING UTILIZING A BLOCKCHAIN PLATFORM: A CASE STUDY OF SIRIYOSAWADEE EGG BANK IN CHIANG MAI, THAILAND**

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**ABSTRACT:** Transparency issue have been a problem in many crowdfunding and organizations around the world. This dissertation implements a crowdfunding and platform utilizing blockchain and its underlying technology to securely store the transaction record better than traditional crowdfunding. Blockchain technology also helps to ensure the transparency of crowdfunding. We applied blockchain technology in a case study of Siriyosawadee egg bank to record donation transaction to buy eggs to donate to various places in Chiang Mai, Thailand by issued token that record in smart contract which specify the location of the donation and notify the donor when the transaction is completed. From the case study, it has demonstrated that the blockchain platform is possible to govern the crowdfunding and produce a successfully results for future work.

**KEYWORDS:** Transparency; Crowdfunding; Donation; Blockchain; Token.



## DOES THE CORRELATION AND RISK SPILLOVER BETWEEN BITCOIN AND TRADITIONAL FINANCIAL ASSETS HELP ITS INVESTMENT DECISIONS? A DCC-GARCH WITH NEUTRAL NETWORK APPROACH

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**ABSTRACT:** Bitcoin and traditional financial assets, such as the US dollar, Gold and crude oil, have become increasingly popular with investors. This article aims to propose a DCC-GARCH with neutral network approach and applies it into making better investment decisions for bitcoin giving the historical information of correlation and risk spillover with the traditional financial assets. We divide our data into two periods: before the COVID-19 and during the COVID-19, and each period can be separated into training set and prediction set, respectively. The training set is used to find the best DCC-GARCH with neutral network model and the best neutral network model in terms of mean square error and mean absolute percent error, while the prediction set is to check the performance of portfolio decision that is made by the DCC-GARCH with neutral network model and neutral network model, respectively. Finally, we verify that the DCC-GARCH with neutral network model can effectively improve the profitability of investment transactions. Therefore, we can conclude that the historical information of correlation and risk spillover effect between bitcoin and the traditional financial assets is really conducive to improving investment trading of bitcoin.

**KEYWORDS:** Portfolio; Neutral network; GARCH; US dollar; Bitcoin.

## AUTOFOCUS WEB APPLICATION FOR PORTABLE DARKFIELD MICROSCOPE

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**ABSTRACT:** A darkfield microscope is required equipment for studying the structural and embryo development, which requires an expert in focus adjusting. The microscope weight cause inconvenience in carrying on the field and includes the high cost of the microscope. In this project, we develop an autofocus web application for a microscope using the contrast detection autofocus (CDAF) method in capturing images and calculating contrast value by finding the maximum sum of differences between each before and next pixel of the whole image which indicate the focus point. In building the web application using HTML, CSS, and JavaScript. Then connect to the Realtime-database feature of Firebase for communicating and controlling the NodeMCU board (ESP2866 V3 Wi-Fi) via Wi-Fi. NodeMCU board can adjust the stage by controlling the motor to autofocus the image. The web application design for smartphones uses a polymer lens (Epoxy resin) in each magnifying 10x, 40x, and 100x as an objective lens by replacing on webcam surface. Redesigning the microscope model to be portable using a light scattering technique to originate dark field property requires the sample to be in the middle of the slide, the skating model using the FreeCad program, and then printing out the 3D model. The image under defocus parameter ( $D = -10$ ), the contrast value ( $C = 253027.24$ ) after increasing defocus parameter the graph has an upward trend until ( $D = 0$ ), the contrast value ( $C = 635163.00$ ) then the graph shown downward trend comparing between ( $D = 0$ ) and ( $D = 10$ ). The maximum contrast value at ( $D = 0$ ) proves the focus point. In applying IoT to solve the difficulty in focus adjusting, this project is able to process in light microscopes in other formations. The quality of the image depends on the mechanical resolution, program setting, lens, and smartphone position.

**KEYWORDS:** Autofocus; web application; Darkfield microscope; Contrast detection.



## RESEARCH ON TRIPLE ENCRYPTION ALGORITHM

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**ABSTRACT:** This paper proposes an optimization model of information security. The algorithm is optimized based on the most common elliptic encryption algorithm. First, the data is encrypted by the elliptic curve digital signature algorithm. Then, the Tang poetry dictionary is divided into a hash table by the Tang poetry encryption algorithm, and the hash table is converted into bit characters according to the rhythm of the Tang poetry to generate the encrypted text. If the first and second layers are cracked and destroyed by malicious users, the system will enable the convolutional neural network and use the deep learning algorithm to form the convolutional countermeasures algorithm. On the premise of ensuring data security, a server cluster is built with multiple servers so that the load balancing service can process the input data, schedule the visited servers according to the load size, and allocate specific access servers to improve the processing performance. After many tests, the information security model proposed in this paper can keep the protection rate of malicious attacks above 90% without affecting the performance of the server.

**KEYWORDS:** Encryption algorithm; elliptic encryption; performance optimization; load balancing.

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## **SCIENCE, TECHNOLOGY, AND BCG ECONOMY**

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### **A STUDY OF FINANCIAL CRIMES IN THAILAND AND THE ROLE OF TECHNOLOGY**

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**ABSTRACT:** Purpose – Thailand has come a long way from the reign of H.E King Rama IV whom history declares as the father of the science of Thailand. One of the fastest growths in internet markets in the world is now ASEAN and Thailand ranks No 2 in it. Only recently (2019) Thailand was ranked 1st place for mobile bank users, 2nd for crypto ownership, and 3rd in mobile commerce. This review paper provides a snapshot of the technological advancement for the common people, has a new wave of criminals targeting Thailand as their chosen destination for committing sophisticated crimes such as card and mobile payment frauds, telecommunication frauds, and classy quick profit schemes which are nothing but disguised Ponzi schemes. Design/methodology/approach –To conduct an exploratory review of economic/financial crime published news, reports, to gather and analyse empirical evidence on the occurrence of financial crimes and the role of technology in these crimes in Thailand -2014-2022. Type: Mixed method. Findings – Improvement in the expertise and degree of refinement employed by both organized crime and criminal businessmen. Research limitations/implications – Focused on Thailand’s business and crime reports. Some information originates from confidential sources and consequently could not be further developed. Originality/value – Similar research was not yet found during my limited literature survey. Recommendations would be proposed to Thai regulatory authorities for refocusing and aligning their strategies to counter this rising threat.

**KEYWORDS:** Criminal networks; economic crimes; enforcement agency; legislation; tech-savvy.

## PREPARATION, DISSOLUTION, AND SENSORY TESTING OF MIXED IRON PHOSPHATES AS NOVEL FOOD FORTIFICANTS

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**ABSTRACT:** Insufficient intakes of minerals (like iron, zinc and calcium) cause major global health problems that affect approximately 2 billion people globally. Correction strategies include food fortification (the addition of nutrients to staple foods), but currently available mineral compounds for food fortification have several limitations. For example, water-soluble iron compounds are highly bioavailable but cause unacceptable sensory changes in foods, while non-reactive iron compounds are poorly absorbed. To overcome these challenges, iron phosphates are particularly attractive because of their high bioavailability, light color, and low toxicity. Here, we prepared mixed iron/zinc and iron/calcium phosphates by simple co-precipitation method. The influence of calcium or zinc content and iron oxidation state (ferrous (Fe<sup>2+</sup>) or ferric (Fe<sup>3+</sup>)) on the chemical and phase composition, iron release in dilute acid (an in vitro indicator for in vivo iron bioavailability) and the reactivity in difficult-to-fortified foods was studied. The addition of increasing amounts of calcium or zinc enhanced the iron release, making these novel compounds attractive for the alleviation of multiple (micro)nutrient deficiencies. Also the iron oxidation state greatly affected the iron dissolution, with ferrous phosphates dissolving more rapidly than ferric phosphates. However, the faster dissolving compounds also tended to be more reactive in foods. These results demonstrated that the in vitro iron release (and thus potentially the in vivo iron bioavailability) and reactivity in foods can be carefully optimized by varying the iron oxidation state and calcium or zinc content.

**KEYWORDS:** Iron deficiency; calcium; zinc; dissolution; nutrition; reactivity; bioavailability.

## **PREDICTION OF CHINA'S REGIONAL INNOVATION CAPABILITY UNDER THE BACKGROUND OF DIGITAL ECONOMY - BASED ON BIDIRECTIONAL LONG-AND SHORT-TERM MEMORY NETWORK MODEL**

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**ABSTRACT:** The vigorous rise of digital economy brings new opportunities to enhance regional innovation capacity. However, although empirical studies based on historical data have quantitatively verified the enabling effect of digital economy on regional innovation capability, few studies have realized the prediction of China's regional innovation capability. In this context, based on the sample data of nine national central cities from 2011 to 2021, this paper uses the bidirectional long-and short-term memory (Bi-LSTM) network model to predict China's regional innovation capability. According to the forecast results, the growth rate of regional innovation capability in the eastern region is significantly higher than that in the central and western regions. On the one hand, the innovation capability of the eastern region has a stronger driving effect on GDP growth. On the other hand, financial support in the eastern region has a significant promoting effect on regional innovation ability, while the limiting effect on talent and infrastructure is relatively weak. In addition, the development of cities in the central and western regions also needs financial support and infrastructure. Combined with the above analysis results and forecast results, this paper puts forward four policy recommendations: first, strengthen the policy preference for the less developed regions and cities. The second is to enhance industrial technical ability through industrial clusters. Third, pay attention to the promotion of human capital to regional innovation ability; Fourth, we will strengthen infrastructure development. This paper verifies the above policy suggestions by forecasting and analysing China's regional innovation capability.

**KEYWORDS:** AIT (artificial Intelligence technology); Enterprise digital innovation; Spatial spillover effect; Regional heterogeneity; Regional linkage effect.



## **MODIFIED NICKEL FOAM ELECTRODES FOR HYDROGEN AND OXYGEN EVOLUTION FOR ALKALINE WATER HYDROLYSIS**

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**ABSTRACT:** The rise of renewable energy demand globally is due to the shift from fossil based to zero to low emission energy sources such as wind or solar energy. In addition, the unlimited supply and availability of renewable energy sources also offer energy security for everyone. However, the major concerns of these renewable energies are their intermittent and unstable nature. Therefore, adequate, scalable and cost-effective energy storage systems are inevitable. Hydrogen does not only serve as fuel but it is also being considered as a potential energy storage medium for renewable energy. Alkaline water electrolysis uses electricity to split water into hydrogen and oxygen. The key challenge is efficient hydrogen production. Electrocatalysts play a major role to lower the energy input for clean hydrogen production. The overall reactions of water electrolysis consisted of two reactions; hydrogen evolution reaction (HER) and oxygen evolution reaction (OER). The work focusses on the design and synthesis of modified nickel based catalyst with improved OER and HER activity in alkaline media. Some recent insight into the linear sweep voltammetry of the modified nickel foam and nickel foam electrocatalyst will be highlighted and the design of future electrocatalysts prepared from electrodeposition will be further discussed.

**KEYWORDS:** Alkaline water electrolysis; electrodes; oxygen evolution reaction; hydrogen evolution reaction; nickel foam; deposition.

## **THE USE OF MIXED ELECTROLYTE SOLUTIONS WITH IMPROVED ELECTROCHEMICAL AND DISCHARGE BEHAVIOR OF A LOW-COST COMMERCIAL ALUMINUM ALLOY FOR ALUMINUM-AIR BATTERIES**

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**ABSTRACT:** The electrochemical and discharge behavior of low-cost commercial aluminum alloy 8011 as an anode was investigated in mixed electrolyte solutions between sodium chloride (NaCl) and sodium hydroxide (NaOH) for use in aluminum-air batteries. The results indicated that mixed electrolyte solutions improve passive film formation and reduce the self-corrosion of the aluminum alloy. In addition, the oxygen reduction reaction (ORR) of chain-like carbon nano-onions (CLCNOs) as a positive air electrode is also improved. The maximum capacity density in the mixed electrolyte solutions was returned as high as 1,232 mAhg<sup>-1</sup>, which was higher than the sodium chloride and sodium hydroxide solution only for 1.1 and 20.9 times, respectively.

**KEYWORDS:** Commercial aluminum alloy, Chain-like carbon nano-onions, Aqueous electrolyte, Oxygen reduction reaction, Metal-air battery.

## DEVELOPMENT OF IRON ALGINATE BEADS BY IONOTROPIC GELATION FOR NUTRITIONAL APPLICATIONS

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**ABSTRACT:** Iron deficiency is the most common micronutrient deficit worldwide that affects people in both developed and developing countries. Food fortification products have been one of the most popular ways to alleviate iron deficiency anemia but challenges remain due to the delicate balance between iron bioavailability and stability in foods. Ferrous iron ( $\text{Fe}^{2+}$ ) compounds are generally well absorbed in humans but cause unacceptable changes when added to foods. Ferric iron ( $\text{Fe}^{3+}$ ) compounds, on the other hand, are less reactive in food but also tend to be less bioavailable. Binding of iron to biopolymers such as alginate may reduce the reactivity in foods while enhancing iron uptake in the body. Alginate is a biopolymer found in brown algae and is widely used in the food industry as thickening agent. When added to a solution containing divalent ( $\text{M}^{2+}$ ) or trivalent ( $\text{M}^{3+}$ ) metal ions, alginate spontaneously forms beads through ionotropic gelation. Here, we used ionotropic gelation to prepare iron alginate beads, and the effect of iron type ( $\text{Fe}^{2+}$  or  $\text{Fe}^{3+}$ ) on bead structure, iron release, and stability in foods was studied. The iron alginate beads were characterized for their size (ImageJ software), iron content (atomic absorption spectrophotometry), and structural interactions (FTIR spectroscopy). The iron release was measured in simulated gastrointestinal conditions and reactivity of the iron beads was assessed in difficult-to-fortify foods. We demonstrate that the iron oxidation state greatly influenced the bead structure, with  $\text{Fe}^{3+}$  producing smaller beads. The  $\text{Fe}^{3+}$  alginate beads were less reactive in foods than  $\text{Fe}^{2+}$ -containing beads but had a slower iron release in simulated gastrointestinal conditions. The alginate beads contained a high iron content of 10-15 wt%. In conclusion, the properties of iron alginate beads can be tuned by the  $\text{Fe}^{2+}/\text{Fe}^{3+}$  content, making the iron alginate beads a promising approach to overcome the challenges with conventional food fortificants.

**KEYWORDS:** Iron deficiency; alginate; food fortification; reactivity.



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## **EFFICIENCY OF RICE PRODUCTION AND THAI FARMERS POVERTY**

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**ABSTRACT:** The study aimed to investigate the relationship between rice production efficiency and poverty among Thai farmers using panel data from 77 provinces over the period of 2012-2020. By using a stochastic frontier model, the study found that various factors such as agricultural area, seed utilization rate, fertilizer application rate, labor force, and rainfall have an impact on rice yield. The findings also revealed that more than half of Thai farmers are inefficient in their rice production and this inefficiency trend is on the rise. To understand the relationship between rice production efficiency and poverty, a Panel Quantile Regression Model was employed to analyze poverty levels among farmers, ranging from low to high. The results indicated that increasing rice production efficiency leads to a reduction in poverty among rice farmers, particularly among those in lower income groups.

**KEYWORDS:** Farmers Poverty; Efficiency; Rice Production; Stochastic Frontier Model; Thailand.



## THE ULTRASONIC ASSISTED EXTRACTION TO MAXIMIZE ANTIOXIDANT AND TYROSINASE INHIBITION ACTIVITIES FROM ZINGIBER OFFICINALE ROSCOE

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**ABSTRACT:** Ultrasonic assisted extraction, a green extraction technology has been applied in process. The study of Zingiber officinale rhizome extract using the mixture solvent of EtOH and H<sub>2</sub>O obtained various polarity of crude extract. The extraction of Z. officinale with 50% EtOH provided the highest yield around 37%. Crude extract of Z. officinale was examined antioxidant activity against DPPH scavenging. The 70% EtOH extract of Z. officinale showed the highest activity of free radical scavenging with IC<sub>50</sub> value of 0.63 µg/mL. Furthermore, the crude 70% EtOH extract exhibited the highest tyrosinase inhibition activity with percent inhibition between 34.89-93.58%.

**KEYWORDS:** Zingiber officinale; ginger; antioxidant activity; tyrosinase activity

## POSSIBILITY OF FREE-MATING MALARIA VECTOR IN THE LABORATORY

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**ABSTRACT:** Anopheles dirus mosquitoes are significant malaria vectors that have recently been successfully maintained in the laboratory. However, this mosquito is complicated to breed, requiring additional artificial mating processes, taking time and needing a large amount of manpower. Then, we focused on free-mating experiments to establish a free-mating An. dirus colony without a mating stimulant, as well as a highly productive laboratory colony to minimize work time. Males and females of An. dirus (F219) were maintained in 45x45x45 cm mosquito cages at insectary condition with 26±1 °C and 70±10% relative humidity under 12:12 h light-dark cycle. The male-female ratio is approximately 1:1, and no stimuli are used to induce free-mating. The result of the free-mating of An. dirus is demonstrated by the spermatheca of female generations insemination from three generations, F0 to F2, is supported by the free mating process. The insemination of free-mating F0 to F2 was dissected and exhibited in each generation, F0 (16.10%), F1 (31.60%), and F2 (35.29%), respectively. Most females produce the healthy eggs that can develop into adult stage. The adult stages have a high survival rate of approximately 98.19%, 98.17%, and 99.05%, respectively. While the artificial mating colony has an unstable survival rate. The ability to conduct independent mosquito breeding experiments in each generation of Anopheles mosquitoes, along with sperm insemination from F0 to F2 generations, increased the number of naturally fertilized mosquitoes. Therefore, there is an opportunity for enhanced breeding until free mosquito colonies are established.

**KEYWORDS:** Artificial mating; Free-mating; Oviposition; Hatching; Survival; Feeding; Sustainable colony.



## THE BIODIVERSITY OF FRESHWATER COPEPODS IN FIVE PROVINCES OF NORTHERN THAILAND

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**ABSTRACT:** The biodiversity and richness of copepod species in five provinces of northern Thailand, including Tak, Kamphaeng Phet, Sukhothai, Phetchabun, and Phitsanulok was studied. Eighty-nine samples were collected from 11 caves and 78 freshwater bodies from July 2021 to May 2022. A total of 22 species of calanoids, 12 cyclopoids, and 4 harpacticoids were found in the samples. Among the 89 sampling localities, 29 localities, comprising 4 caves and 25 freshwater habitats, were studied in both the pre-monsoon and post-monsoon seasons. A paired sample t-test showed that there was no significant difference in the environmental characteristics between the pre-monsoon and post-monsoon seasons. The comparison of the species richness between the pre-monsoon and post-monsoon seasons was carried out, and the diversity of copepods from the cave localities in northern Thailand was also shown in this study.

**KEYWORDS:** Freshwater copepod; Harpacticoida; Calanoida; Cyclopoida; northern Thailand.



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## **TOURISM, HOSPITALITY AND MICE**

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### **SENTIMENT ANALYSIS ON SOCIAL NETWORKING: A CASE STUDY OF CHIANG MAI TOURISM**

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**ABSTRACT:** With the rise of the social networking epoch, there has been a surge of user-generated content. Microblogging sites have millions of people sharing their thoughts daily because of their characteristic short and straightforward manner of expression. We propose an investigate a paradigm to the sentiment from a popular real-time microblogging service, Twitter, where users post real-time reactions and opinions on Chiang Mai tourism through retweets or hashtags Chiang Mai review. In this paper, we expound on a hybrid approach using the accuracy of three machine learning algorithms (Support Vector Machines, Naïve Bayes, and K-Nearest Neighbor) in predicting the sentiments of the retweets or hashtags in Chiang Mai review were investigated. The results found that the support vector machine provided the best results, with a maximum accuracy of 97.50 % on both positive and negative comments. Subsequently, the comments were gathered to provide customer insights and suggestions to help increase tourism in Chiangmai. The results of this study suggest that it can help entrepreneurs to develop service quality and marketing strategies for customers in their tourist destinations, tourist attractions, restaurants, and nightlife.

**KEYWORDS:** Sentiment analysis; Social networking; Twitter; Chiang Mai tourism.

## **A BIBLIOMETRICS ANALYSIS OF NATIONAL PARK TOURISM RESEARCH TRENDS FROM 2004 TO 2022**

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**ABSTRACT:** As an important form of natural environment protection system, national parks deal well with the relationship between ecological protection and rational utilization of natural resources. National parks should not only protect the natural ecosystem, but also play the recreation function within a reasonable range. On the academic side, the literature related to national park tourism has grown rapidly in recent years, with an average annual growth rate of 16.12%, especially after 2018. In this context, it is very important to make a comprehensive review of the research on national park tourism, summarize the research progress of national park tourism and clarify the future research direction. This study uses the methods of bibliometrics and scientific mapping to analyze the citation data from 2004 to 2022 retrieved from web of science on the theme of national park tourism. The results show that the related research is increasing year by year, and the main journals include "SUSTAINABILITY", "JOURNAL OF ENVIRONMENTAL MANAGEMENT", "ENVIRONMENTAL MANAGEMENT", "BIOLOGICAL CONSERVATION" and "PLOS ONE". From the perspective of research trend, a large number of literatures focus on national park tourism, eco-tourism, natural tourism, protected areas, biodiversity, sustainable development, management and other topics. The research results of this study provide reference value for further research on the development of national park tourism, so as to actively cultivate this research field.

**KEYWORDS:** bibliometix; National Park; tourism; Web of Science; network analysis; visualization

## **THE ANTECEDENTS OF CITY MARKETING, EVENT TOURISM, AND SOCIAL MEDIA MARKETING FOR PROMOTING DESTINATION IMAGE OF PHITSANULOK AS A MICE CITY: A CONCEPT PAPER**

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**ABSTRACT:** Destination image and event city are important factors in the planning and promotion of events. Destination image is overall perception that people have of a particular location, and can affect their decision to visit or attend an event. While, event city refers to the city in which an event is being held. The event city can also impact the success of an event, as it can attract or deter potential attendees based on its destination image and the amenities and infrastructure it offers. By choosing a city with a strong destination image and a range of amenities, event planners can attract more attendees and increase the likelihood of the event being a success. This paper proposes a conceptual framework for promoting destination image of Phitsanulok as a MICE city from the antecedents of city marketing, event tourism, and social media marketing. This study aims to examine the effects of city marketing, event tourism, and social media marketing on destination image of Phitsanulok as a MICE city. The researchers collect data with 340 MICE travelers travelling to Phitsanulok, and analyse by using the IBM-SPSS AMOS 22.0 software. Latent construct measurement model has been validated through the Confirmatory Factor Analysis which is carried out by Structural Equation Modeling statistical techniques. The academic contribution of this paper could assist academics with effective acceptance model, while the operational contribution could help event stakeholders to strengthen destination image to be more attractive to tourists. Suggestions are also provided for future research.

**KEYWORDS:** City marketing; Event tourism; Social media marketing; Destination image; MICE city.

## THE PERSPECTIVE OF SUSTAINABILITY FROM AN INDEPENDENT RESORT HOTELS ON KOH SAMUI IN THAILAND

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**ABSTRACT:** The aim of this paper is to outline the general perception of sustainability and explore key areas of sustainable practice which independent resort hotels in Koh Samui valued. There are two main objectives in this research include: 1) Identify the perception of independent resort hotel manager or owner toward sustainability. 2) Outline key areas of sustainable practice which independent resort hotels value. The scope of this research focuses on independent resort hotels on Koh Samui. This research used qualitative research methodology by interviewing 12 independent resort hotels managers and owners. Data saturation and thematic analysis were applied in this research. The finding of this research shows that independent resort hotel managers and owner recognise the importance of sustainability, but they are uncertain of the direction of sustainable development within the Island. They tend to perceive sustainability as a way to tackle environmental issues but lack a general understanding of the concept. Most of them heavily rely on internet search to acquire information related to sustainability concepts and practices, while a few hotels take extra initiative to search for more comprehensive information from government institutions and other hotels that successfully integrate sustainability. In terms of key sustainable practices which they value, it appears that independent resort hotel managers and owners tend to focus on the environmental dimension of sustainability. Practices such as waste management, energy management, and waste water management tend to be the most valued sustainable practices among independent resort hotels on Koh Samui. For future development, many independent resort hotels want to focus on improving water and energy management due to their cost benefits and operational efficiency. Nonetheless, several of them seem uncertain about the type of sustainable practice they want to achieve in the future.

**KEYWORDS:** Independent resort hotel managers and owners; Sustainability; Sustainable practices; Koh Samui.

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## LOGISTICS AND SUPPLY CHAIN

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### EXPLORATORY AND CONFIRMATORY ANALYSIS TO IDENTIFY LOGISTICS SERVICE QUALITY DIMENSIONS AS FACTORS INFLUENCING THE INTENTIONS TO USE LAST-MILE DELIVERY SERVICE AFTER COVID-19 IN THAILAND

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**ABSTRACT:** The purpose of this research is to identify the preferences of the customer of logistics services quality in Thailand using exploratory and confirmatory analysis. A total of 243 respondents from several cities in Thailand selected based on simple random sampling participated in this study. Exploratory factor analysis (EFA) was utilized for exploring and providing information related to the numbers of factors needed for representing the data. Confirmatory factor analysis (CFA) was then applied to confirm and validate the factors that affect consumer intention in selecting a 3PL service provider after COVID-19 using SPSS 23 and AMOS 18. Each variable was presented in the 5-point Likert scale. EFA combined a series of variables into four new factors model influencing the intentions to use last-mile delivery service after COVID-19 in Thailand. CFA validates service quality reliability, tangibility, empathic responsiveness, and competitiveness as significant factors affecting behavioural intention in this study. This research highlights the significance of logistics service quality success factors and extends the current knowledge about competitiveness factors and their potential impact on the last-mile delivery services industry.

**KEYWORDS:** EFA, CFA, Last-mile, Logistics provider.



## THE EFFECTS OF BELT AND ROAD INITIATIVES ON SICHUAN'S EXPORTS

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**ABSTRACT:** With the continuous landing of China's "Belt and Road Initiatives" (BRI), the arrival of the newly built infrastructure like the China-Europe Railway Express and other supporting policies have provided favorable circumstances for the smooth development of Chinese foreign trade. Thus, this initiative provides fertile soil to investigate how it facilitates a new level of internationalization of trade and whether the impacts are positive or negative. However, the impacts on exports have not yet received much attention, especially in less developed regions. This paper takes the lead in investigating the impacts on the exports of Sichuan Province, a remote inland area with relatively undeveloped economy, which helps reveal deeper impacts of this initiative. This paper investigates the effects of "Belt and Road Initiatives" on Sichuan's exports using difference-in-differences model. Overall, the results show that the "Belt and Road Initiatives" has push effects on Sichuan's exports, especially with countries participating in this initiative. In addition, this paper provides empirical evidence that the economic development level, population, foreign merchant participation, scientific and technological development level and exchange rate of the countries along the route also affect the export volume. The findings lead us to suggest that enterprises in Sichuan should focus on the equipment manufacturing industry and make good use of the Chengdu Europe Express Railway. They should not only increase cooperation with BRI countries in Southeast Asia and South Asia, but also continue to expand trading areas like Central Asia, West Asia and even Central and Eastern Europe.

**KEYWORDS:** Belt and Road Initiatives; Foreign trade; Exports; Difference-in-differences model.

## **MERCHANDISE ROUTE OPTIMIZATION FOR LOGISTICS NETWORK OPTIMIZATION: A CASE STUDY**

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**ABSTRACT:** The vehicle routing problem (VRP) is a classic problem in operations research and logistics involving determining the optimal routes for a fleet of vehicles to deliver goods to a set of customer locations while minimizing the total distance traveled and satisfying various constraints. The objective is to apply a VRP to a real-world problem from an existing business in order to minimize the number of vehicles used and total travel distance to reduce cost. This study seeks to identify optimal routes for multiple vehicles visiting a set of locations and represented by a graph, which describes the relationship between its lines and points. The method has two stages. The first is store clustering, the process of splitting stores into segments. The second, for each group of stores, uses the Minimum Spanning Tree (MST) to optimize the routing. By utilizing actual datasets from Buffalo Market, California, demonstrates that by grouping locations into new groups and then optimizing using MST, travel distance can be reduced by 22.7%.

**KEYWORDS:** The vehicle routing problem (VRP); graph-based clustering algorithm; MST.



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## **EDUCATION, LEARNING TECHNOLOGY, STEM**

### **RESEARCH ON THE USER EXPERIENCE MODEL OF COLLEGE TEACHERS' ONLINE TEACHING IN THE INTELLIGENT ENVIRONMENT**

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**ABSTRACT:** The growth of the Internet has brought new vigor and vitality to the reform of higher education teaching. College teachers are the key subjects of online teaching activities in colleges and universities, and their experience of online teaching will greatly affect the development of intelligent teaching in the future. As an important carrier of teachers' career development, the quality of online teaching platforms directly affects the effect of teachers' online teaching. This study aims to explore the user experience model of college teachers' online teaching in an intelligent environment. Specifically, from the perspective of user experience, based on the Expectation Confirmation Model (ECM), it identifies the factors that affect the user experience of college teachers' online teaching, proposes a theoretical hypothesis model of college teachers' online teaching user experience model, and constructs a structural equation model. The research design for this study will involve a qualitative approach. Semi-structured interviews and focus groups will be conducted with college teachers who have experience in teaching in an intelligent environment. The data collection process will include exploring their experiences, acquiring their opinions, and understanding the challenges and opportunities in their online teaching. Questions will be asked about usability in terms of user experience, user satisfaction, and the effectiveness of intelligent environments in teaching. The research tools for this study will include semi-structured interviews, focus groups, and surveys. Interviews will be conducted to explore the dimensions of user experience in-depth and better understand the challenges and opportunities faced by university teachers in online teaching in an intelligent environment. Focus groups will be conducted to gain an overview of the user experience and collect a broader range of opinions. Surveys will be used to gather quantitative data and better understand the user experience. This study helps to answer the question of the best online teaching experience. It is helpful to deepen researchers' understanding of the connotation of the user experience of the online teaching platform for college teachers in the intelligent era, and is an important content in the empirical study of users' continuous use behavior.

**KEYWORDS:** Intelligent Environment; College Teachers; User Experience model; Online Teaching.



## THE IMPACT OF CULTURE ON ENGLISH MAJORS IN POST-EPIDEMIC CHINA IN AMERICAN FILMS AND TV DRAMAS

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**ABSTRACT:** Culture in American films and TV dramas impacts English majors who are educated and trained to become English teachers in Guangxi China, especially in post-epidemic China. Here culture is divided into material culture and spiritual culture. It is quite necessary to figure out how English majors are influenced by culture in American films. The main goal was to identify “factors” in American movies that may affect student perceptions. Empirical research was conducted on the influence of culture in American films and TV dramas on the national image of the USA, students’ behaviour, and potential teaching practice. The second goal was to test the validity and reliability of the “self-developed” questionnaire. The questionnaire was given to English majors at a Chinese university which used quantitative analysis: ANOVA, correlation analysis, Kaiser-Meyer- Sampling adequacy, and regression analysis. It resulted that both material culture and spiritual culture positively affected the perception of the national image of USA, and students’ behaviour, and potential teaching practice. The “Lifestyle” factor was the most important of all since it was in all three equations. The research also compared the results according to sex, province, time to spend on watching and ways of watching, etc. It was found out that “time to spend on watching” affected the national image of USA, students’ behaviour, and potential teaching practice. This study took the second-grade English majors as the target, with N=148. Future studies are needed to broaden the sample to other grades and establish different teaching models in the future.

**KEYWORDS:** factors in American movies and TV dramas; validity test; reliability test; English majors.

## **ONLINE FEEDBACK: EXPLORING STUDENTS' ACCEPTANCE AS A MEAN OF DEVELOPING ENGLISH SPEAKING SKILLS**

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**ABSTRACT:** This study aimed to explore what the students perceived towards the pedagogy of giving online feedback applied by the teachers through the virtual or online application of Zoom and the ClassStart platform in developing students' English-speaking skills. The perceptions of use of the platforms were, then, investigated through the distribution of the questionnaires online with the open-ended questions asking 268 students who were purposely selected from 322 students as participants, studying at a public university in Thailand, majoring in different fields after taking an elective English course which was compulsory for them. They have been through the course for being investigated their perception on giving feedback for enhancing their English-speaking skills for 30 hours, conducted 3 hours per week for a semester. The collected quantitative data from the first part of the Likert scale questionnaire were, then, analysed quantitatively through SPSS and ANOVA while the opened-ended questions were thematically described through the content analysis. The findings showed that applying the pedagogy of giving virtual or online feedback by the teacher through the application of Zoom and the ClassStart platform was advised not only for specifically applying in teaching and learning language, yet other courses as a mean of an assisted tool the educators can implement in their classes properly as the students' acceptance levels were significantly ranked at the very high level (ClassStart, 4.1325, Zoom, 4.2429) with the assertion of this pedagogy can assist them develop their English-speaking skills.

**KEYWORDS:** ClassStart; English skills; giving feedback; virtual platforms; Zoom application.



# EFFECTS OF USING BLENDED LEARNING WITH E-PORTFOLIO ASSESSMENT ON THAI EFL STUDENT'S BUSINESS ENGLISH WRITING PERFORMANCE

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**ABSTRACT:** E-portfolios can be desirable digital assessment tools in enhancing university students' learning outcomes especially in the skill of writing when taught in an e-learning environment. This quasi-experiment study examines the use of blended learning (BL) and electronic portfolio (e-portfolio) assessment on Business English Writing performance of Silpakorn University students. The purposes of this study are: 1) to compare Thai EFL students Business English Writing performance before and after receiving the blended learning with e-portfolio assessment and traditional face-to-face teaching methods for the English Writing for Business Purposes students, and 2) to find out the students' perception after receiving the blended learning with e-portfolio assessment method. The participants are 49, third and fourth-year students majoring and minoring in English which are divided by convenient sampling method into two groups-experimental group and control group. The experimental group are being taught with the blended learning with e-portfolio assessment method while the control group are being taught with the traditional face-to-face teaching method. The research instruments include 1) lesson plans, blended learning program, student's perception questionnaires, interview questions, and Business English Writing Comprehension test (pretest and posttest). Quantitative and qualitative data will be analyzed. Results, discussion, and recommendation will be made afterwards.

**KEYWORDS:** blended learning; e-portfolio; Thai EFL students; Business English Writing; student's perception



## **WHAT COLLEGE STUDENTS LOOK FOR WHEN APPLYING FOR THEIR FIRST JOB**

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**ABSTRACT:** A good career decision making leads to fulfil students' working achievement. Having options is good; however, knowing what is important to students in selecting their first jobs is necessary as well. Therefore, the purposes of this study were to investigate the influencing factors affecting students' career decision making. An online-based survey was distributed to 101 respondents. The questionnaires consisted of different factors affecting their job selection decision making. A study was conducted by applying Exploratory Factor Analysis (EFA). The findings presented into 3 constructs: (1) Achievement, Engagement, and Opportunity, (2) Working Environment, and (3) Social factor. This can be the suggestion for the organizations to know what students are looking for and to adjust themselves to the current students' viewpoints.

**KEYWORDS:** career decision making; college students; first-job selection; social factor; working environment.



## A STUDY OF THAI STUDENTS' SELECTION OF NEW ZEALAND AS STUDY DESTINATION

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**ABSTRACT:** The number of international students who choose to study in New Zealand continues to rise from 2019 onwards. Each year, more Thai students are considering pursuing their studies in English-speaking countries, especially New Zealand. This study is a comprehensive summary of previous research on educational topics and aims to explore why Thai students choose New Zealand, to investigate the criteria of push and pull factors that students consider before making a final decision about the study destination, and to explore why New Zealand is an attractive study destination for Thai students. The study reveals multiple reasons why students study in New Zealand, including family preferences, personal goals and preferences, and benefits perceived from graduating overseas. The essential push factor for selecting New Zealand as a study destination is the disadvantages of studying in my home country. The main two pull factors are New Zealand's attractiveness, such as the green and clean environment, multi-culture, safe surroundings, and peaceful atmosphere. The New Zealand government's roles and support include convenient visa application, job opportunities, and stay in the country or immigration options after graduation. The main reasons why New Zealand is an attractive study destination for Thai students include university characteristics, the high quality of education, the public service such as accommodation, transportation, the low cost of living, and the easy-going style of New Zealand. The study results could benefit the government and private sectors regarding planning and marketing.

**KEYWORDS:** Thai students; study destination; push and pull factors; Thailand, New Zealand.



## MASTER'S STUDY PROGRAM MULTIFUNCTIONAL AGRICULTURE IN ENGLISH - SWOT ANALYSIS AND PRACTICAL EXPERIENCE

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**ABSTRACT:** The internationalization of study programs is one of the critical prerequisites for the future advancement of university education and can also be understood as specific support for the sustainable development of less developed countries. For the reasons stated above, the Faculty of Agriculture and Technology (FAT), the University of South Bohemia in České Budějovice, Czech Republic (CZ), has accredited the master's study program Multifunctional Agriculture. The program is primarily intended for students from abroad and combines both aspects of modern agricultural management and questions of organic farming and sustainable landscape management. The goal of the contribution is to present the results of a SWOT analysis after eight years of implementing the study program. The presented results are based on the STAG information system, brainstorming between academic and administrative staff, and students interview. The main strengths include the content of the study program (modern agriculture combined with elements of sustainable management), the general interest of students, and relatively low costs. The main weaknesses include a lack of interest in studying in English for Czech students, and most students come from one geographical area. Opportunities include the program in a network with one of the universities from abroad (double degree, eq.), obtaining motivated students from other parts of the world (e.g., Southeast Asia), and obtaining financial support for improving the quality of the study program. Among the main threats is the visa policy of the CZ. The experience with implementing the study program is positive and brought to FAT several motivated students with the potential to later study in doctoral study programs. The main goal for the future is to find a strategic partner among universities from abroad and to expand the study program, for example, into a double degree.

**KEYWORDS:** sustainable agriculture; master's study program; study in English; SWOT.



## **OPTIMIZING TEACHERS' TEACHING METHODS AND STUDENTS' LEARNING STYLES WITH COMPUTER VISION ANALYSIS**

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**ABSTRACT:** With the development of big data, blockchain, and AI technology, artificial intelligence has developed rapidly, and its practical application in the field of education has gradually emerged. However, the current mainstream education mode is still offline, and the evaluation of teachers' classroom teaching quality has always remained in the original stage of evaluation by experts in the classroom. Therefore, the evaluation of teachers' classroom behavior and students' classroom behavior is purely based on empirical observation and induction, lacking logic and comprehensiveness, which is not conducive to the optimization of teachers' teaching methods and students' learning methods. Given these problems, this paper proposes a computer vision analysis technology based on deep learning to analyze classroom teachers' teaching behavior and students' behavior, to solve the above problems and take an important step for large-scale, high-precision and high-performance AI intelligent teaching evaluation and supervision.

**KEYWORDS:** teacher behavior; Student behavior; Classroom teaching behavior; Computer vision; Teaching video.



## THE IMPLICATIONS, CHALLENGES, AND PATHWAYS OF DIGITAL TRANSFORMATION OF UNIVERSITY EDUCATION IN CHINA

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**ABSTRACT:** The global outbreak of the Newcastle pneumonia epidemic has resulted in the greatest public crisis that all of humanity is facing since World War II. During the outbreak, it affected about 190 countries worldwide, disrupting the schooling of nearly 1.6 billion students [1]. By the end of 2020, nearly half of the world's schools will still be in full or partial shutdown status, and close to about 1/3 of students will not be able to participate in distance learning. In the flood of schools challenged by education disruption, low- and middle-income developing countries face an even more severe test. In 2020, about 826 million students worldwide will not be able to participate in online learning because they do not have computers at home, and 706 million students will not be able to continue their education because they do not have an Internet connection [2]. With the advent of the post-epidemic era, university education is entering the network society more deeply, and educational resources, teaching activities, and educational governance will be further expanded. Facing the new educational evolution, especially online educational teaching, and educational management, the importance and necessity of digital transformation is more obviously exposed. This paper integrates the survey and analysis method, literature research method, descriptive research method, etc., through data collection and access to relevant literature and policy documents, to gain a comprehensive and correct understanding of them, to understand the existing phenomena, laws, and theories through their own understanding, and also based on the practical experience of UNESCO University Education Innovation Center (Shenzhen, China) and universities in coastal areas, through research and analysis, through analysis, comparison, generalization and conclusion, we can conclude why the digital transformation of university education is necessary? What are the challenges of the transformation? How do we go about the transformation, that is, to find out the transformation path? Through this study, we will find out the diversified, comprehensive, and implementable paths for the digital transformation of university education in China in the post-epidemic era, and put forward reasonable and constructive suggestions to help China and other countries, especially developing countries, to choose the appropriate development paths and ensure the high-quality completion of the digital transformation of university education in the light of their own national conditions and actual situations.

**KEYWORDS:** University Education; Digital Transformation; Challenges; Pathways.



## METHODOLOGY OF CURRICULUM TRAIL IMPROVEMENT FOR CHINESE INTENSIVE COURSE: A CASE OF THAI STUDENTS OF HIGH VOCATIONAL CERTIFICATE IN RAILWAY TRANSPORTATION.

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**ABSTRACT:** The purpose of this research was to evaluate the Chinese language learning achievement and attitude towards Chinese language before and after the curriculum trial. The sample group was High Vocational Diploma students from Khon Kaen Vocational College. The research was carried out as a qualitative action research process using the curriculum and quantitative quasi-experimental research on evaluating Chinese language learning achievement and attitude toward Chinese language before and after using the curriculum. The research tools were the 108-hour Intensive Program for preparing Chinese Language Proficiency for Diploma Students, Chinese learning achievement test and the attitude towards Chinese language. Descriptive statistics, mean, standard deviation, and the t-test were used to analyse the data. The results showed that the achievement of learning Chinese language and the attitude toward learning Chinese language of Diploma students majoring in Railway transport system were both positive. The mean achievement score after using the curriculum trial was significantly higher than the mean achievement score before using the curriculum trial at 0.05. The students' attitude toward learning Chinese was very positive ( $\bar{x}=4.68$ , S.D.=0.09).

**KEYWORDS:** Chinese Language; Intensive course; High Vocational certificate.



## EXPLORING ACADEMIC STRESSORS OF COLLEGIATE STUDENTS AFTER THE COVID-19 PANDEMIC

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**ABSTRACT:** Various stress factors may affect college student's mental health, but academic stress may be the most significant. The coronavirus disease 19 (COVID-19) pandemic may make the stress response more difficult for specific student groups than others, leading to differential stress levels. We surveyed 294 college students via Google Forms to see if academic stress levels impacted their mental health and, if so, whether there were any particularly susceptible groups based on gender and educational level. Using the Perception of Academic Stress Scale (PAS), we found that 69 (23.47%) students (14 males (20.3%) and 55 females (79.7%)) experienced academic stress. Furthermore, using Exploratory Factor Analysis (EFA), four factors such as academic confidence, examination expectation, work assignments, and academic pressure, were found to associate with student academic stress. There is a significant difference between gender in experiencing examination expectations, and males experienced more academic stress than females. We also found a high difference between educational levels in experiencing exam expectation (the second year with the third and fourth year), work assignments (the first year with the second year), and academic pressure (the second year and the third year). According to these findings, psychological well-being among the students who participated in this survey significantly connected with academic stress throughout college. Additionally, unique resources and assistance should provide to some groups of college students who are more vulnerable to stress than others. BUUIC should implement an appropriate psychological skills training program to help students cope with stressful academic and real-life situations.

**KEYWORDS:** academic stress; Perception of Academic Stress; collegiate students; Exploratory Factor Analysis.

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## BUSINESS AND MANAGEMENT

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### HOW COMMUNICATION COMPANIES NAVIGATE DIGITAL TRANSFORMATION

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**ABSTRACT:** In the mobile Internet era, contactless shopping scenarios are widely used, and user consumption is becoming more and more personalized. How to use digital technology to improve sales success rate and operational efficiency is a question that every communication company is studying. This article focuses on the importance of communication companies using digital technology and how to achieve digital transformation. This article takes a Chinese communication company as an example, analyzes how to apply digital technology to company management, and compares the company's sales performance before and after using digital technology. The author innovatively divides the digital transformation of communication enterprises into three stages from low to high, and analyzes the difficulties and milestone achievements of each stage. Previous studies mainly explained the importance of enterprise data technology application theoretically, but lacked specific operational guidance and development path research. This article not only expounds the importance of the application of data technology, but also shows the steps of the digital transformation of communication companies and predicts the development direction. It is hoped that the research results can play a guiding role in the digital transformation of similar enterprises.

**KEYWORDS:** Communication Companies; Digital transformation; Precision marketing; Digital management; Management model.



## CROSS-FUNCTIONAL ORGANIZATION: A BIBLIOMETRIC ANALYSIS

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**ABSTRACT:** Even though a cross-functional organization team partially mediates the relationship between the structural organization and the team's effectiveness in developing new products, no previous review has presented a comprehensive assessment of current developments. In contrast, previous research on cross-functional organization teams is typically restricted to conceptual studies that do not explicitly strive to discover characteristics that might implement cross-functional teams to improve and enhance both small and large business sizes. In addition, a small review sample and traditional review methods, such as descriptive methodology, resulted in a restricted understanding of the subject matter across the board. To address this shortcoming, a combination of bibliometric and thematic analysis was performed on 870 cross-functional organization team papers published between 1979 and 2022 in 160 Scopus-indexed publications. This analysis demonstrates how the performance of articles, authors, countries, and journals has varied over time, as well as how the themes of cross-functional organization teams have shifted.

**KEYWORDS:** Cross-functional communication; large-small business scale; cross-functional organization; improving business with a cross-functional team; enhancing business factors.



## **AN APPLICATION OF THE THEORY OF OPTIMUM CURRENCY AREAS TO THE EURO AREA**

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**ABSTRACT:** This paper examines the theory of optimum currency areas (OCA) and applies it to the Euro area. The theory of OCA consists of seven main criteria, which are labor and factor mobility, price and wage flexibility, similar inflation rates, fiscal integration, a high degree of production diversification, political integration and economic openness. The main objective is to analyze the degree of fulfillment of the criteria of the OCA theory by the Euro zone. Based on the data of the Euro area, I find that there is price and wage flexibility, a high degree of production diversification and economic openness. Further, the results show a low labor and factor mobility, varying inflation rates, a low level of fiscal integration and limited political integration. Therefore, the Euro area fulfills only some of the OCA criteria, while others remain unrealized. Hence, the Euro area is not an optimum currency area based on the main criteria of the OCA theory. This research paper enlarges the understanding of the theory of OCA and its application to the Euro zone. Furthermore, it points out implications on how economists and politicians may further integrate and develop the Euro area in order to become an optimum currency area in the future, which can absorb economic shocks.

**KEYWORDS:** Optimum currency areas; Euro, Monetary policy; European Central Bank; Monetary integration.



## A GENERAL QUANTITATIVE INVESTMENT THEORY AND FUNDAMENTAL VALUE TECHNICAL SYSTEM BASED ON MULTI- FACTOR MODELS IN CHINESE STOCK SELECTION

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**ABSTRACT:** Along with the continuous development of capital markets and intelligent finance technologies, quantitative investment is entering into the most critical and challenging area – fundamental quantitative investment. So far, quantitative investment has been focused on automation of technical analysis and trading, while fundamental investment has been large discretionary. This paper provides an overview of quantitative investment and fundamental investment towards a fundamental quantitative investment theory and technical system based on multi-factor models. We start with reviewing relevant literature on modern financial quantitative investment and fundamental investment. Then we cover the theoretical basis and development of multi-factor models and their applications for stock selection, involving linear and non-linear relationships, machine learning, deep learning with neural networks, random forests, and Support Vector Machines (SVMs). We explore the frontiers of fundamental quantitative investment and shed light on the future research prospects.

**KEYWORDS:** fundamental quantitative investment; value technical system; multi-factor models; stock selection.



## PAIR TRADING STRATEGY WITH ANN TECHNIQUE IN CRYPTOCURRENCY MARKET

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**ABSTRACT:** This study examines the profit and risk obtained from pair trading strategy, by takes advantaging of the mean-reversion property of two assets with long-term relationship, in the cryptocurrency market. First of all, we use the cointegration and the Hurst exponent tests for selecting the ten pairs of asset and the Artificial Neural Network (ANN) is used to forecast the spread and trading signal of ten pairs. The results show that the pair trading strategy could yield a positive profit for all cryptocurrency pairs and has a lower investment risk compared to single asset trading. Specifically, the ANN with sigmoid activation function could provide higher cumulative profit with lower value of risk on the average when compared to the traditional ARIMA model.

**KEYWORDS:** Artificial Neural Network; Cumulative profit; Cryptocurrency; Forecasting; Pair Trading Strategy.



## **FACTORS AFFECTING CUSTOMERS' PERCEPTION OF CHINESE SAUSAGE PRODUCTS IN THAILAND**

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**ABSTRACT:** The present study aims to examine the customer's preferences for Thai sweet sausage. Terminologically, Thai sweet sausage or Chinese sweet sausage, locally called "Khunchieng", is made from leftover fresh pork with fat, sugar, and some ingredients. The study focuses on mixed methods which are the data collected through an interview and questionnaire survey on how consumers' perception of Chinese sausage products, which will be divided into four main sections as follows: (i) demographic information, (ii) basic information on the consumption behavior of Chinese sausage products, (iii) sensory evaluation, and (iv) suggestions. Down to this approach, it is analyzed how these aforementioned factors affect the possible success of environmental impacts to achieve sustainability, combined with crucial information, and reliable content analysis. As well as, grounding the understanding of different policies is relatively assessed in the analysis at a different level. Therefore, this study finds that the significant key points of demographic characteristics, consumer behavior, the level of consumer satisfaction, and consumer satisfaction at a wide range of levels of analysis, including products, prices, color, taste, texture, and packaging customers build strategies that enable businesses to be even more competitive and organizations to adopt green strategies which reflect the distribution of resource efficiency and provide an important impact on sustainable development. As a result, it brings the living standard in countries, reducing poverty alleviation, as well as increasing job opportunities in local recruitment.

**KEYWORDS:** Customer Satisfaction; Customer Behaviour; Sensory; Production Efficiency; Sustainable Development

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## LANGUAGES

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### **INSTRUCTORS' VIEWPOINTS OF ENGLISH GRAMMAR INSTRUCTION: WHAT IS THE APPROPRIATE PEDAGOGIC GRAMMAR METHOD?**

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**ABSTRACT:** Many scholars, linguists, and preceptors have proposed and discussed the benefits of explicit and implicit methods of language pedagogic in former research in the field of foreign and second language acquisition. They have drawn their attention to discriminate the dissimilarities between the methods of teaching grammar deductively and inductively; although, the result of which method is better remains inconclusive. A qualitative method is employed in this study with a view to investigating instructors' viewpoint as well as distinguishing what grammar pedagogy methods should be applied in class. This research will also put the focus on each preceptor's viewpoint of communicative language teaching because his or her viewpoint of his or her instructional skills can affect the way he or she conducts the language classroom. The participants, twenty-pre and in-service instructors in secondary schools in Thailand, will be selected. Interviews, documents and records as well as observations will be used as evidence to collect the data. The instructional implications of this research will be beneficial for language preceptors to understand, increase their awareness of grammar instruction, and become more critical of language pedagogy as we could see from the saliency and efficacy of grammar instruction in our today's language class.

**KEYWORDS:** grammar; second language acquisition (SLA); explicit grammar instruction; deductive approach; inductive approach; communicative method; implicit grammar pedagogy.

## **ART MEDIA, COMMUNICATIONS, INTER-CULTURAL COMMUNICATION**

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### **THE INVESTIGATING OF BRAND ARCHETYPES FOR THE NEW ENTRY PRODUCT OF THE CHOCOLATE MALT MILK INDUSTRY; THE CASE OF DMALT**

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**ABSTRACT:** This study report is to investigate brand archetypes in order to meet consumer needs and Dmalt's communication objectives. Based on a quota sample procedure, there were 452 Thai respondents from various sectors. This study employed questionnaires as a survey instrument and IBM SPSS and AMOS for statistical analysis. The results indicated that Dmalt should utilize the Caregiver archetype and express a brand message using online brand communication channels in order to suit the consumer needs of Dmalt's target market. This study emphasized the need of maximizing effectiveness and customer satisfaction, as well as develop a distinct brand personality, to boost customer recall of a weak or low-recall brand.

**KEYWORDS:** brand archetypes; communication channel; Dmalt; ANOVA.

## **CREATIVE GUIDELINES AS INITIAL STEPS FOR PUBLIC TRANSPORT INFORMATION IMPROVEMENTS - CASE STUDY: HAT YAI, THAILAND**

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**ABSTRACT:** Effective information provision in public transport services is one of the improvements in the system of measures that can attract more users, regardless of the city and its regional or national influence reducing, on this way, the number of cars on the road, the traffic flow and air pollution. In an attempt of contribution to accessibility of public transport information improvements, this study outlines a practice-based design project that will use participatory design (PD) collaboration system model (CSM) in creating the prototype of display graphics for public transport in Hat Yai Municipality, Thailand that actively involves users in the design process. Focusing particularly on Songthaew transportation mode, the purpose of this chapter is to prepare material for the final version of route maps and travel instructions based on users' expectations and information accessibility parameters that include legibility, functionality and aesthetic of graphic content for essential guidance to users in public space. Based on examples from overseas studies, the main characteristics of public transport information system will be outlined and implications for possible improvements will be summarized. Next, an online user survey will be conducted regarding the current status and expectations from Songthaew information provision in public spaces that will target Hat Yai residents, visitors from Thailand and foreign visitors. The final results from the user survey will be organized to serve as a main guideline for creating visual components in the preparation process of participatory design practice.

**KEYWORDS:** Information; Public space; Accessibility; Participatory design; Graphic design.

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## **HOLISTIC HEALTH AND WELLNESS MANAGEMENT**

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### **CASE ARCHITECTURAL DESIGN PARAMETERS AFFECTING PATIENT'S PSYCHOLOGICAL REQUIREMENTS IN MENTAL HEALTHCARE FACILITIES**

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**ABSTRACT:** It has been evident that societal culture/personal behaviour factors have relationships with the usage of buildings and the design processes. This becomes more important for special buildings such as mental healthcare facilities due to the approved linkage between building properties and patients' treatment approaches. For such buildings, new ways are needed to evaluate building performance and ensure building compliance. However, one limitation of conventional Code Checking Systems is that they operate with conventional design code compliance logic that lacks the capability to inform the designer of the patient's psychological requirements. This paper reviews the patient's psychological requirements and their relevant Architectural design parameters in order to develop a framework for a Psychological-Based Code Compliance Checking BIM System for Healthcare facilities (with focus on Thailand as a case study). The paper will discuss the methodology based on the covered relevant literature. The main findings are about the identification of the key psychological factors, the architectural design parameters of healthcare facilities.

**KEYWORDS:** Code Compliance; Building Information Modelling; Mental Healthcare facilities.



## A REVIEW OF ADAPTATION OF THAI TRADITIONAL TELEMEDICINE

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**ABSTRACT:** This study aims to examine the challenges of integrating Traditional Thai Medicine (TTM) in telemedicine in Thailand and potential solutions to improve healthcare access and quality. TTM's hands-on techniques and reliance on visual cues create unique challenges for integration. The study shows that integrating TTM into telemedicine in Thailand is a complex process that requires a multi-faceted approach and faces challenges such as lack of infrastructure and limited access to technology. Solutions include developing standards and regulations, providing education and training for healthcare professionals, and developing TTM-specific telemedicine platforms. Telemedicine in Thailand is a crucial tool for delivering healthcare services, but faces challenges with integrating traditional Thai medicine. Studies suggest telemedicine can improve access to healthcare in rural and remote areas, with remote consultation, monitoring, and follow-up care improving quality of care and reducing costs. The development of Thai Traditional Telemedicine (TTM) combines traditional Thai medical practices with modern technology to preserve cultural heritage and improve access to healthcare in remote and underserved areas. Lack of standardization and regulation can lead to mistrust in its effectiveness, but further research is needed to understand the adaptation of traditional telemedicine in Thailand and its potential impact on healthcare access, patient satisfaction, and traditional medicine understanding. Policies and initiatives to support the growth of TTM are also recommended.

**KEYWORDS:** Thai Traditional Medicine; telemedicine; healthcare service; remote areas; adaptation.

## INTERNATIONAL STUDIES

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### THE REPRESENTATION OF GENDER DEFINITION THROUGH ANCIENT CHINESE FOLKTALES: SYMBOLS OF FEMININITY IDEOLOGY, NEGOTIATION AND SIMILARITY OF FEMALE STATUS AS CURRENTLY ERA

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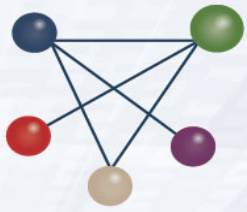
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**ABSTRACT:** In the view of ethnologist, there is the relation between folktales and the gender dimension. In this matter, Folktale is a kind of culture that represents ways of life of each ethnic group. Due to researcher interested about Chinese culture then to investigate and present explicitly about the issue involves the knowledge of Chinese culture, folklore, and gender, there are three purposes to explore. The first, to study the pattern of gender inequality aspects that appears in Chinese folktales, all of stories the protagonists are female. The second, to study symbols that appear in Chinese folktales those present gender definition of female. The third, to study the model of negotiation and definition of female status in Chinese folktales. In this matter, samples are four Chinese folktales composed before the Cultural Revolution of China such as The Butterfly Lovers, The Legend of White Snake, Tears that Bring Down the Great Wall and The Cowherd and the Weaver Girl. Researcher found out, in the situation of patriarchy; female was socialized to serve family according to expectation that adhere to social value about many good skills such as housework, embroidery, weaving, nurture a child and cooking etc. Moreover especially good woman has to obey parent and husband. In this matter, all four folktales explicitly present femininity ideology and negotiation in the situation of inequality between the different gender. Furthermore, these four folktales are discourse that present attempt to achieve new definition of female in the dimension equality. In addition, protagonists are female, and the main characters are expressive behavior that implicate the concept femininity in modern society hidden in ancient folktales.

**KEYWORDS:** Ancient Chinese folktale; gender inequality; femininity; Gender and Negotiation.





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