



multidisciplinary conference
University of Malta, 10-12 June 2024

BEING SEA • EU

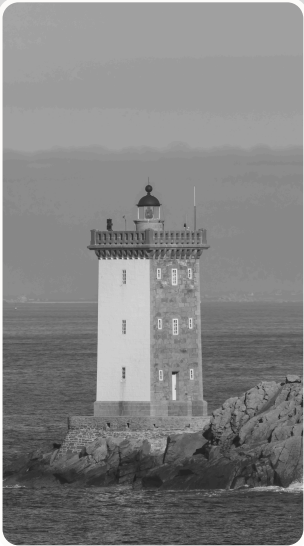
Abstract Booklet

BEING SEA - EU CONFERENCE

First edition | 10 to 12 June 2024 | Malta



RIDE THE WAVE OF KNOWLEDGE



WE ARE UNITED BY THE SEA



AN ALLIANCE OF 9
COASTAL EUROPEAN
UNIVERSITIES

2024



Photo by Arjun Puthiyadath Radhakrishnan





Kiel University
Christian-Albrechts-Universität zu Kiel



L-Università
ta' Malta



Université de Bretagne Occidentale



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UNIVERSIDADE DO ALGARVE



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Photo by Emma Berg

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ACKNOWLEDGEMENTS

The SEA-EU Alliance would like to express its deepest and unreserved gratitude, in no particular order, to the following extensive list of collaborators who lent their unstinting support so that this first edition of the BEING SEA-EU Conference could become a reality!

- The SEA-EU Alliance Coordination team at the UCA
- The Rectorate of the University of Malta
- The Maltese Parliamentary Secretariat for Youth, Research and Innovation
- The BEING SEA-EU Conference Organising Committee members
- The BEING SEA-EU Conference Scientific Committee members
- The co-authors of all the abstracts presented within this booklet
- The reviewers of all the abstracts presented within this booklet
- The session chairs
- Our counterparts (i.e. all eight non-Maltese SEA-EU Offices)
- The University of Malta's Conferences and Events Unit'
- The Malta Book Council
- The UM's Rector's Delegate for the SEA-EU 1.0 Alliance
- Dr. Lisa Pace and all the nominees tasked with conducting a SWOT Analysis of their respective coastal area and all participants within the 'Futures Workshop'
- All members of the two SEA-EU Observatories, on the Sustainable Blue Economy (OSBE) and on Migration and Human Rights (OMHR), and of the SEA-EU's 'Equity Promotion Expert Group'
- The brains behind the artistic design of this abstract booklet - David Ramirez Montano and Stefania Zdral
- Coordination and management of all logistical aspects of the 'Being SEA-EU' Conference - Isabella Bianco, Fernanda Giraldo Guzman, Stefania Zdral, Tamara Micallef, and Maria Grima Calleja
- The convener of the BEING SEA-EU Conference, Prof. Alan Deidun (current Rector's Delegate at the UM for SEA-EU).

As we say in Maltese, 'grazzi mill-qalb!'.

To be cited as:

'Deidun, A., Gauci, A., Montaño, D., Grima Calleja, M., Bonnici, C. (eds.) BEING SEA-EU Abstract Booklet. Proceedings of the first BEING SEA-EU Conference, Valletta, Malta, 10th-12th June 2024: 314pp.'

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BEING SEA - EU CONFERENCE
OPENING NOTES

And most importantly, our students, the most precious resource of SEA-EU, are principal beneficiaries of this coming together of institutional assets.

————— “ ” —————

Prof. Alfred J. Vella

PROF. ALFRED J. VELLA

Rector, L-Università ta' Malta



It is with great satisfaction for me to witness the organisation and acknowledge the back-office preparatory work involved in putting in place this important conference dubbed "BEING SEA-EU". Over 360 abstracts were submitted which required a massive task of review that was bravely undertaken by a small dedicated group of persons deriving from each university of the Alliance who served as the Scientific Committee. This Committee deserves our thanks. Without their commitment, we wouldn't be here celebrating this pivotal moment for SEA-EU. I would also like to thank, in particular, the staff within the SEA-EU office and the Conference Unit of L-Università ta' Malta, who under the able leadership of my energetic Delegate Professor Alan Deidun, coordinated the effort and took care of the logistics.

It is doubly gratifying that the conference is taking place on our Campus during a time when I have the honour of presiding over our Alliance. It is opportune to remind us of what SEA-EU means to us and why we should resolve to remain committed to its sustenance and growth going forward.

Since its inception as a 6-membered group and its later evolution to the present nine-member entity, the Alliance has made numerous initiatives possible that served to enrich the individual member universities in several ways. We have managed to build meaningful relationships and caused to be realised shared mutual goals thanks to the Alliance among which I would include, in primis, the building up and maintaining of joint management and operational structures such as the Governing and Executive Boards and the several other units which keep the organisation on course to achieve its aims. Universities are, in and of themselves, very complicated structures to manage effectively so that managing nine universities as a single organic unit towards common goals is no mean feat. The fact that administrative staff from all nine universities join forces together when working on common projects brings to the table a wealth of experience which serves to impress funders of projects positively with predictable favourable results. Our staff have participated in over 100 successful SEA-EU events including workshops, webinars, focus groups, staff weeks, conferences and sports and cultural events. And most importantly, our students, the most precious resource of SEA-EU, are principal beneficiaries of this coming together of institutional assets: they have learned from and enjoyed physical, blended and virtual mobilities involving Erasmus exchanges with SEA-EU destinations. They have been exposed to multilingualism and to the rich multiple cultures of Europe through our activities. Shortly, they will also benefit from the four new joint programmes that we are developing together. Moreover, students were always present and actively involved in all important decision taking and this is another achievement that merits mention and celebration.

May the contributions to this conference as documented by the abstracts found in this publication bring to the fore the fact that SEA-EU universities are vibrant with ideas and originality. I sincerely hope that our staff and students, especially the postgraduate and doctoral candidates, find inspiration to continue producing good stuff beyond that which is being presented during this important event.

A handwritten signature in black ink that reads "Alfred J. Vella". The signature is written in a cursive, flowing style.

Rector, L-Università ta' Malta

*The feeling of collaboration, and even friendship,
that has been instilled between the nine different
SEA-EU offices has paid off, given the smooth
running of the conference in a period of just a
few months.*

————— “ ” —————

Prof. Fidel Echevarría

PROF. FIDEL ECHEVARRÍA

SEA-EU General Coordinator



It is for me a pleasure to write this foreword to the proceedings of the first conference "Being SEA-EU" to be held in Malta in June 2024. The main aim of this conference is to showcase the outcomes of research conducted by academics and students based within the SEA-EU Alliance's partner Universities, which promulgates the SEA-EU identity, within a kaleidoscope of different disciplines and fields. This conference is an activity within the task 5.2 of the SEA-EU project, a task aimed to reinforce and increase regional links of the SEA-EU universities and their associated partners, targeting local society and thus bolstering and deepening a local and regional understanding of SEA-EU and its mission.

We are nine coastal Universities, witnessing the opportunities (tourism, hospitality, health care, fishing, port services, aquaculture), but also challenges and threats (storms, beach erosion, sea level rise, shipwrecks, noxious and toxic species) that affect our oceans. Marine and coastal ecosystems provide several "ecosystem services" that are directly used or enjoyed by people providing benefits to human well-being. At the beginning of the project SEA-EU 2.0 we proposed to advance this commitment to the sea with an annual conference, around the theme 'Being SEA-EU'. Such an event is now part of the regular SEA-EU calendar, and will be hosted by a different university in three successive years, on a rotational basis. This first conference in June 2024 will be hosted by the University of Malta at the Valletta campus, the original campus of the University, whose foundations were laid by the Knights of the Order of St. John in 1595 and which was inaugurated as a university in 1769, ranking it as one of the oldest in the world.

An overwhelming support by all nine participating Universities has been shown for this first "Being SEA-EU" conference, with almost 370 abstracts being submitted, going well above initial expectations, being evenly represented across different Universities and thematic. Indeed, it has been possible to submit abstracts for three different streams - STEAM, humanities and social sciences, as well as migration and human rights - ensuring the interdisciplinarity of the conference. Ad hoc sessions have been allocated within the programme for students to present their work, thus providing a platform for students to present to their peers. For those who cannot physically attend the meeting in Malta, a hybrid option is also offered, making the conference itself as inclusive as possible.

The SEA-EU office at the University of Malta was faced with the challenge of coordinating the review of all these abstracts on a wide variety of topics. It was very useful to have Scientific and Organising Committees with a broad and complementary academic background. The feeling of collaboration, and even friendship, that has been instilled between the nine different SEA-EU offices has paid off, given the smooth running of the conference in a period of just a few months. I am deeply grateful to the organisers of this event, to the nine SEA-EU universities and to all the physical and online attendees of this important event of our SEA-EU Alliance.

Fidel Echevarria

SEA-EU General Coordinator

Conferences are watershed moments, where bridges are built between like-minded individuals and where researchers and students venture outside their ivory towers to allow outsiders a sneak peek into the trappings of their work.



Prof. Alan Deidun

PROF. ALAN DEIDUN

UM Rector's Delegate of SEA-EU



US Congresswoman Sharice Davids, one of the first two Native American women to be elected in Congress, was quoted as stating that 'Strong alliances can thrive even where disagreements exist, but they cannot thrive where free and open communication is shut down.' This statement bears substantial relevance for the SEA-EU Alliance, here convened in this historic Valletta campus of the University of Malta for the first-ever 'BEING SEA-EU' Conference. SEA-EU is aspiring to morph into an effective and dynamic alliance of nine Universities which will resist the test of time. For this to materialise, inter-alliance communication is instrumental and this first BEING SEA-EU Conference is but one of the vehicles of communication that can be used to convey a joint alliance message.

The over-arching objective of the BEING SEA-EU Conference is, in fact, to showcase some of the multifarious research being conducted within the partner Universities. The Conference thematics have been deliberately selected so as to be as inclusive and as representative as possible, spanning over the STEAM disciplines (including the health and medical sciences), humanities and social sciences as well as over migration and human rights-linked disciplines. The SEA-EU Alliance academic and student communities have responded enthusiastically to our call to action, with a total of 370 abstracts being submitted to this first edition of the BEING SEA-EU Conference, of which many are being presented here in Valletta, either orally, or as a poster or through a pre-recorded message. The Conference should also hopefully serve as a congenial platform for students to be able to present their work in front of other students without the angst associated with presenting in front of a seasoned and exacting audience only.

Conferences are watershed moments, where bridges are built between like-minded individuals and where researchers and students venture outside their ivory towers to allow outsiders a sneak peek into the trappings of their work. Conferences are also the places where fledgling networks between academics separated by time and space are established. May this first of a trilogy of BEING SEA-EU Conferences be just that, so as to spearhead the delivery of a number of joint SEA-EU University publications in the months and years to come.

I wholeheartedly thank my colleagues within the SEA-EU Office as well as within the Conference Unit and within the Oceanography Malta Research Group of the Department of Geosciences at the University of Malta for their unstinting support over the past nine months of incessant work to make the Conference a success. I also thank all those who will participate in some way or another within the Conference, especially those who have to travel from far afield to get to our Mediterranean archipelago, for their expression of faith and trust within the SEA-EU Alliance. Lastly, but definitely not the least, I wish to thank our Rector, Prof. Alfred J Vella, the Maltese Parliamentary Secretary for Youth, Research and Innovation, Hon. Keith Azzopardi Tanti, the SEA-EU General Director, Prof. Fidel Echevarria, the SEA-EU General Coordinator, Laura Howard, the EU Commission and the other eight University SEA-EU offices for unreservedly supporting the Conference.

Alan Deidun

UM Rector's Delegate of SEA-EU

BEING SEA - EU CONFERENCE
ABSTRACTS



TOGETHER WE NAVIGATE THE FUTURE



SCIENCES
TECNOLOGY
ENGINEERING
MATHEMATICS
AND MEDICAL
HEALTH
SCIENCES





EXPLORING THE SPATIAL DISTRIBUTION, COMPOSITION, AND DEPTH-RELATED PATTERNS OF MARINE LITTER IN MALTESE WATERS: INSIGHTS FROM THE MEDITS SURVEY DATA

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Marine litter is one of the most serious anthropogenic challenges to the global marine ecosystem. Public awareness is often limited to the visible litter that washes up on beaches or floats on the ocean surface. Less attention is paid to marine litter that is deposited and accumulates on the seafloor. The Mediterranean Bottom Trawl Survey (MEDITS) aims to provide insights into the state of seafloor environments by systematically collecting marine litter from the seabed. This study analysed the MEDITS 2020/2021 marine litter dataset in terms of spatial, temporal and depth distribution in the Geographical Subarea (GSA) 15, i.e. off the coast of Malta. The composition of the litter and potential major sources were additionally determined. For these analyses, the two-sided independent t-test was applied using SPSS. Visualisation was accomplished by creating maps and bar charts using MATLAB and QGIS. Results reveal tourism and household items as primary contributors to marine litter, with plastics comprising the majority. Spatial distribution dynamics suggest that subsurface currents influence the transport of light litter like plastic, while heavy litter, such as metals, tends to remain localised. Compared to other Mediterranean regions, the seabed off Malta demonstrates a relatively clean state. This study not only contributes valuable insights into the local marine environment but also underscores the need for global strategies to address marine litter. The findings prompt considerations for future environmental management practices and highlight potential areas for further research in the broader context of marine ecology and pollution.

KEYWORDS

MARINE LITTER, MEDITERRANEAN SEA, SEAFLOOR ACCUMULATION, MEDITERRANEAN BOTTOM TRAWL SURVEY (MEDITS), GLOBAL STRATEGIES FOR MARINE LITTER, MARINE LITTER COMPOSITION, SPATIAL DISTRIBUTION

OPTIMIZATION OF AN ULTRASOUND-ASSISTED EXTRACTION METHOD FOR BIOACTIVE COMPOUNDS IN PURSLANE (PORTULACA OLERACEA L.)

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The growing concern for maintaining a balanced and healthy diet with increased vegetable consumption makes research on bioactive compounds present in foods of great interest. Recently, studies have shown that purslane (*Portulaca oleracea* L.) provides better nutrition than commonly used green leafy vegetables. Since ancient times, it has been used as a medicinal plant, anti-magic herb, and as food for both humans and animals. Due to the pharmacological properties it presents, the development of rapid, simple, and effective analytical methods becomes necessary to enable the extraction of these bioactive compounds of interest, in order to harness their beneficial effects on health and add greater value to the product. For this purpose, a Box-Behnken experimental design was carried out using ultrasound-assisted extraction (UAE), employing five factors (%EtOH in the extraction solvent, temperature, sample mass/solvent volume ratio, power, and cycle) and two responses, betaxanthins and flavonoid/oleraceins concentration. The most influential factors in the extraction were %EtOH and ratio. Subsequently, an investigation into the optimal extraction time was conducted, resulting in a fairly rapid method that allows the extraction of the highest amount of the compounds of interest in just 5 minutes. Furthermore, the developed method exhibited high precision in terms of repeatability and intermediate precision. Finally, the method was successfully applied to real samples to investigate the presence of these compounds in different parts of purslane (stem, leaves, and flowers) and in sprouts made from this plant. The leaves were the plant part with the highest concentration of bioactive compounds.

KEYWORDS

AGRI-FOOD ANALYSIS, ULTRASOUND-ASSISTED EXTRACTION, BIOACTIVE COMPOUNDS, PORTULACA OLERACEA L., BOX-BEHNKEN DESIGN, FUNCTIONAL FOOD

ENHANCING CETACEAN CONSERVATION EFFORTS THROUGH UAV-BASED GENETIC SAMPLING IN SAGRES, PORTUGAL

GRAHAM PATTERSON [UNIVERSITY OF ALGARVE]

This research introduces a pioneering method for cetacean study in Sagres, Portugal, via non-invasive genetic sampling with Unmanned Aerial Vehicles (UAVs), focusing on collecting environmental DNA (eDNA) from whale blow to identify the sex of individual whales. Collaborating with a decade-long scientific whale monitoring initiative, this project leverages UAVs to complement existing photo ID data, offering new insights into the sex distribution of whales. This integration aims to enrich our understanding of historical data, facilitating more informed conservation strategies. Utilizing modified DJI Mavic 2 Pro drones for sample collection, our approach prioritizes minimal animal stress. By expanding genetic profiles and sex determination capabilities, our project supports the addition of an ethical research method, promising significant contributions to cetacean research and the broader scientific community's understanding of marine mammal populations.

KEYWORDS

CETACEAN RESEARCH, GENETIC SAMPLING, UAV, WHALE CONSERVATION, SAGRES PORTUGAL, NON-INVASIVE TECHNIQUES, MARINE BIOLOGY, HISTORICAL DATA ANALYSIS

A PRELIMINARY INVESTIGATION INTO THE IMPACTS OF ARTIFICIAL LIGHTING ON SELECTED FISH AND BENTHIC COMMUNITIES IN MALTESE WATERS

FRANCESCA GRILLO; ALAN DEIDUN; ALESSIO MARRONE; ADAM GAUCI, [DEPARTMENT OF GEOSCIENCES, UNIVERSITY OF MALTA]

The increasing recognition of Artificial Light at Night (ALAN) as a potential concern for biodiversity is grounded in a growing body of research highlighting its impact on animal behaviour, migration, reproduction, and biological interactions. The quantification and exploration of the consequences of artificial light on marine biota in the Maltese Islands remain understudied. Utilising a Baited Remote Underwater Video (BRUV) equipped with artificial lighting, the study focuses on two distinct local sites within the Ċirkewwa harbour that are characterised by comparable communities and depth, but different lighting conditions. The experimental design involved the replication of the study in both space and time, capturing the communities' responses to a pulse disturbance, represented by introduced light from the BRUV. This response was examined both with and without the additional stress induced by an ongoing press disturbance, represented by the already-present ambient light. The study establishes a direct link between artificial light and the local abundance of both predatory and prey fish in areas influenced by varying light conditions and underscores the complex responses of marine communities to varying light conditions.

KEYWORDS

ARTIFICIAL LIGHTING, BAITED UNDERWATER CAMERA, FISH COMMUNITIES, BEHAVIOURAL CHANGES, MARINE BIOTA, PULSE DISTURBANCE, PRESS DISTURBANCE

ADVANCEMENTS IN EXTRACTION TECHNIQUES FOR PSILOCYBIN AND PSILOCIN FROM HALLUCINOGENIC FUNGI

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SCIENCES, UNIVERSITY OF CADIZ, PUERTO REAL]

Hallucinogenic fungi, particularly those containing psychoactive compounds such as psilocybin and psilocin, have garnered significant interest for their potential therapeutic applications and recreational use. Efficient extraction and precise analysis of these compounds are crucial for understanding their metabolism and pharmacological properties and ensuring safe consumption. There is still much unknown about the metabolism of these mushrooms and the factors that influence the production of these psychoactive compounds. Microwave-assisted extraction (MAE) and ultrasound-assisted extraction (UAE) techniques have demonstrated efficacy in extracting compounds from solid matrices. This study aims to optimize and compare MAE and UAE methods for extracting alkaloids prior to UHPLC analysis from *Psilocybe cubensis*. Box-Behnken design and surface-response methodology were used for determining the optimal extraction conditions in terms of temperature, power, time and solvent extraction. Once both extraction techniques were optimized, it was demonstrated that ultrasound-assisted extraction presented higher yields than microwave-assisted extraction. On the contrary, ultrasound-assisted presented a higher percentage of conversion of psilocybin to psilocin during the extraction process. Finally, the ultrasound-assisted extraction method was used to monitor the evolution of the biosynthesis of psilocin and psilocybin in *Psilocybe cubensis* mushrooms.

KEYWORDS

HALLUCINOGENIC FUNGI, PSYLOCIBE CUBENSIS, PSILOCIN, PSILOCYBIN,
MICROVAWE-ASSISTED EXTRACTION, ULTRASOUND-ASSISTED EXTRACTION

RESEARCH OF DRIFTED MARINE LITTER ON THE SHORES OF 6 BEACHES OF THE ISLANDS OF VIS AND BIŠEVO IN THE VIS ARCHIPELAGO – EASTERN COAST OF ADRIATIC SEA - CROATIA

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Marine litter is an increasingly common term that we hear and see on the coasts all over Croatia but also around the world in all seas and on the coasts. Until now, some research has been done to create guidelines according to the legislation in order to reduce environmental pollution of the coast, water column and seabed, all in order to reduce negative ecological effects, negative effects on biodiversity, economic losses, health impact as well as safety impact. The field research method is based on the DeFishGear methodology (DerelictFishingGear - waste management system in the Adriatic region) and includes the waste categorization, origin, size and mass of drifted waste on the shores of the beaches of the islands of Vis and Biševo, three of which are open to currents and southwest winds, and three closed bays are opposed to winds and currents. Research is planned to take place over a period of two years, during pre and post-summer seasons. In the first year of the study, 500kg of marine litter has been collected from the six beaches. The composition of the marine litter found on the beaches of Vis and Biševo is mostly made up of polymeric materials. The most common objects found on the beaches are: polystyrene boxes, various plastic parts, bottles, plastic caps and rings, plastic tobacco boxes, food wrappers, remains of fishing tools primarily made of shellfish, remains and cosmetic packaging, items for hygiene items etc

KEYWORDS

ADRIATIC SEA, RESEARCH, MARINE LITTER, PLASTIC, POLYMER WASTE, METHODOLOGY

CHALLENGES TO HEALTHY EATING IN THE OFFICE WORK-SPACE ENVIRONMENT

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Given that around half of the workforce in developed countries operates in office environments, in a predominantly sedentary position, understanding the challenges faced by these workers to eat healthy at their place of work is vital to motivate changes in eating habits. This study aims to gain insight on such challenges and eating habits of office workers with sedentary desk-jobs in Malta. A structured online questionnaire containing a mix of closed-ended and open ended-questions was designed to gather relevant data, and face validated. Ethical approval was granted by the Faculty Research Ethics Committee and the questionnaire was disseminated via social media. Respondents (n=225) were predominantly female, aged 45-54 years, non-smokers, overweight and well-educated. The primary challenges identified for maintaining a healthy diet at work were limited time for preparation (44.4%) and the perceived high cost (39.6%) of nutritious food. Additionally, 71.1% of participants feel that their workplace does not prioritize healthy eating. Participants belonging to a younger age-group were more likely to use food delivery apps at work ($p<0.001$). The trend also suggests that individuals with higher academic qualifications were more likely to prepare a healthier lunch ($p<0.001$). The findings of this study provide insight into the factors that influence the dietary choices of office employees. Most participants in this cohort struggle with affordability of healthy food and time constraints. Such factors may be potential targets for intervention.

KEYWORDS

OFFICE WORKERS, DIETARY HABITS, BARRIERS, WORKPLACE, MALTA

ALS FLY MODELS TO UNDERSTAND HOW GENE DISRUPTION LEADS TO DISEASE

SYLVANA TABONE, [UNIVERSITY OF MALTA]

Amyotrophic lateral sclerosis (ALS), the most common form of motor neuron disease, is characterized by the progressive degeneration of upper and lower motor neurons in the brain and spinal cord. Over the years, ALS pathogenesis has been linked with multiple genetic factors. Rare damaging variants in the D-amino acid oxidase (DAO) gene have been associated with ALS including multiple cases from Malta. DAO encodes a protein that catabolises D-amino acids, including D-serine, which indirectly controls motor neuron function. Making use of the *Drosophila* model system, this work aimed at confirming the link between DAO and ALS. The well-conserved *Drosophila* orthologue of DAO, *Daaol*, was downregulated through RNAi-mediated knockdown driven by a gene-switch system. Firstly, RT-qPCR confirmed efficiency of *Daaol* knockdown. Disrupted *Daaol* in *Drosophila* muscles and brain induced motoric deficits. Additionally, a temporal-control system investigated whether adult-specific *Daaol* disruption has consequences on motor function and survival. These findings provide compelling information about the *in vivo* function of the *Daaol* gene, confirming DAO as ALS-linked. A prevalent hypothesis suggests that downregulated DAO leads to intoxicating D-serine levels, resulting in uncontrolled NMDA receptor function hence motoric dysfunction. The presence of this mechanism is being tested through genetics and immunofluorescent staining of *Drosophila* brains. Ongoing work is also addressing whether additional Maltese ALS patients carry deleterious DAO variants. To this end, this investigation aids in thoroughly understanding the consequences of DAO gene disruption on neuromuscular function, allowing for the identification of targeted therapies beneficial for a large percentage of Maltese ALS patients.

KEYWORDS

ALS, DAO, MALTA, D-SERINE, DROSOPHILA

SENSORY ANALYSIS OF OLOROSO AND MISTELA WINES OF THE ZALEMA GRAPE VARIETY AGED IN THREE DIFFERENT OAK BARRELS IN AN ACCELERATED MANNER

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REMEDIOS CASTRO MEJÍAS; CARMEN RODRÍGUEZ DODERO,
[ANALYTICAL CHEMISTRY DEPARTMENT, FACULTY OF SCIENCES-
IVAGRO, UNIVERSITY OF CADIZ, SPAIN]

The wines of the Condado de Huelva Designation of Origin have a diverse typology, which includes white, red, rosé, fortified, fortified liqueur and sweet liqueur wines. Eleven white grape varieties and five red grape varieties are allowed. The minimum ageing times vary between 1 and 5 years depending on the type of wine. Tradition is the guiding principle of the winemaking rules in this DO, but there are many innovative initiatives that seek to improve the traditional processes. In order to evaluate the possibilities of shortening ageing times, this study analysed from a sensory point of view the evolution of two wines (Oloroso and Mistela), both of the Zalema variety, aged in three different oaks (American, Spanish and French) by means of traditional and accelerated ageing. The accelerated ageing methodology included as study variables the doses of oak chips and oxygen administered (micro-oxygenation). The tasting panel, made up of personnel from the winery and the University, selected the sensory descriptors of each wine according to published standards of the Sensory Analysis discipline, and subsequently underwent training to enable them to evaluate the wines included in the research. The Mistelas were defined on the basis of 11 sensory descriptors (aromatic intensity, alcoholic, toasted and oak olfactory notes; sweetness, acidity, warmth, smoothness and density; and the retronasal aromas of toast and ripe fruit), while the profile of the Oloroso wines included 15 sensory descriptors (aromatic intensity; olfactory notes of alcohol, toasted caramel, dried fruit and oak; acidity, bitterness, warmth, dryness; retronasal aromas of dried fruit, oak and toast; complexity, balance and length of aftertaste). The application of the accelerated ageing method results in a greater intensity in certain positive olfactory and taste notes, which increase the complexity of the mistelas and olorosos, without any defects being detected. The conclusions obtained were different depending on the wine, so it is proposed to extend the study to other wines and varieties of the area.

KEYWORDS

BEVERAGES TECHNOLOGY, WINE AGING, SENSORY ANALYSIS

VALIDATING AND GAP FILLING IN HF RADAR MEASUREMENTS FROM CALYPSO NETWORK

MALCOLM REFALO; ADAM GAUCI, [UNIVERSITY OF MALTA]

In this study, the performance of DINEOF (Data Interpolation Empirical Orthogonal Functions) is evaluated as a tool for filling coverage gaps in HF radar data obtained by the CALYPSO HF radar network. The study focuses on fine-tuning variables and input data length to optimize DINEOF's performance. The implementation details of MATLAB and Python scripts are presented, including scripts to introduce artificial gaps for evaluation and automate creation of files for gap filling. Results show that DINEOF performs best when using a 72-hour block of radar data as input and setting the alpha parameter to 0.1. The study found no clear relationship between missing data in the time frame to be filled and DINEOF's performance, suggesting that DINEOF has been optimized for extreme cases of data omission.

KEYWORDS

DINEOF, GAP-FILLING, REMOTE SENSING, PERFORMANCE OPTIMISATION, MATLAB, PYTHON

DESIGNING CULTURALLY-SENSITIVE TOOLS TO ASSESS THE DIETARY INTAKE OF JUNIOR AND SENIOR PRIMARY SCHOOLCHILDREN IN MALTA

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Knowledge on the contemporary eating patterns of Primary schoolchildren in Malta is scarce, with some evidence available from undergraduate and graduate students' research. This study aimed to develop two dietary assessment tools for junior and for senior Primary schoolchildren. Six focus groups were held in different schools around Malta to establish a pool of commonly consumed foods and drinks at different eating occasions. This was complemented by six 24-hour diaries recorded by the parents of young children. Altogether, the data obtained informed the development of two age-appropriate, culturally-sensitive tools in both Maltese and English. These tools were pictorial in nature and primarily sought to obtain frequency of food and drink consumption at different times of day. Some special questions also explored whether food was eaten at grandparents or when eating out, and how particular foods consumed were prepared. The dietary assessment tools were piloted with five senior and five junior children groups, in different state and non-state schools, facilitated by trained educator-researchers. Children whose parents had completed the diaries also tested the tools. The trialled tools were scrutinised for annotations made by the children and feedback was sought from the facilitators. The tools were then re-reviewed with amendments including addition/removal/consolidation of food items, changes in dish ingredients, and addition of a meal setting for the juniors. The results of the national survey to be conducted using these tools will provide evidence for the development of policies and interventions to help improve the dietary habits and, ultimately, health status of children

KEYWORDS

DIETARY ASSESSMENT, TOOL DEVELOPMENT, VALIDATION, CULTURALLY-SENSITIVE, AGE-APPROPRIATE, PRIMARY SCHOOLCHILDREN, MALTA

PLASTAMINATION: AN ENVIRONMENTAL AND PUBLIC HEALTH-RELATED CONCERN

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Plastic contamination (PLASTAMINATION) by non-biodegradable and biodegradable waste represents the main anthropogenic change in the biosphere and is considered an environmental trouble with possible health risk restricted to the marine species. Nevertheless, several *in vitro* and *in vivo* studies demonstrated the ability of the microplastics (MPs)/nanoplastics (NPs) to enter the food chain, bypass the biological barriers, be internalized in cells and target biological tissues, like the gut, brain and gonads. Apart from fish, the detection and the accumulation of MPs has been recently demonstrated in the tissues of terrestrial organisms (e.g., brain, blood, placenta, gonads and semen), included human. Hence, the worldwide diffusion of PLASTAMINATION in daily life may have ecotoxicological and health risk outcomes like neuronal and reproductive toxicity, immunotoxicity and inflammation, oxidative stress, metabolic dysbiosis, or poor gamete quality. The introduction in the market of bio-degradable polymers, like polylactic acid (PLA), may have a positive impact on the environment, but does not ensure their biosafety due to the paucity of studies in the field. Our project aims at investigating the potential toxicity of newly developed PLA-NPs in different experimental models (e.g., cell lines, zebrafish and rodents). Preliminary results in C6, HT29, Caco-2 cells and human peripheral blood mononuclear cells revealed that either polystyrene and PLA-NPs enter the cells potentially affecting their function. Moreover, *in vivo* studies on zebrafish larvae demonstrated their accumulation at different tissue levels and changes in heartbeat rate. In conclusion, ecotoxicological risks of MPs/NPs exposure warrant consideration and further studies on the health safety of biodegradable plastics are recommended.

KEYWORDS

MICROPLASTICS, NANOPLASTICS, NON-BIODEGRADABLE PLASTICS, BIODEGRADABLE PLASTICS, ENVIRONMENT, ANIMALS, HEALTH

SECCHI DEPTH TREND UNCERTAINTY: LOCAL PROCESSES, ALIASING, SPATIOTEMPORAL INTERPOLATION

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Secchi depth is a key descriptor in the Marine Framework Strategy Directive (MFSFD) that provides essential insights for the assessment of eutrophication and potential human impacts. This study focuses on three different areas in the eastern Adriatic Sea and uses a combination of in-situ and satellite measurements. The first area studied is Kaštela Bay, which has evolved from a major wastewater discharge area to a state of environmental recovery. The second area includes the delta of the Neretva River, which is characterized by port pollution and river discharge fluctuations. The third area is located in the open waters of the Adriatic Sea and is free from direct environmental influences, but is subject to changes related to the thermohaline circulation of the Adriatic and Ionian Seas. In-situ measurements with a white disk 30 cm in diameter, carried out quasi-monthly, but above all ten times a year, revealed different trends for each area. At the same time, satellite measurements were carried out using the Data-Interpolating Empirical Orthogonal Function algorithm on a 5 km spatial latitude-longitude grid with a temporal resolution of one day. Three different trends were found when analyzing the in-situ data: an increasing trend in Kaštela Bay, a decreasing trend around the Neretva Delta and a constant trend in open waters. All trends were statistically significant according to the Mann-Kendall trend test. However, due to the low temporal resolution of the in-situ measurements, the trends had to be verified using high-resolution satellite data. There were discrepancies between the trends derived from in-situ and satellite data. In particular, the trends derived from the satellite data in Kaštela Bay were weaker but with the same sign, while they had opposite signs in the Neretva Delta and in the open waters. Spatial interpolation of the satellite data helped to smooth the data and mitigate the effects of local conditions. The low temporal resolution of the in-situ data led to an aliasing effect that affected the reliability of the trends. Further refinement and validation of the trends using high-resolution satellite data is essential for a comprehensive understanding of the dynamics observed in the studied areas.

KEYWORDS

SECCHI DEPTH, MFSFD, EUTROPHICATION, IN SITU MEASUREMENTS, SATELLITE MEASUREMENTS, KAŠTELA BAY, NERETVA RIVER DELTA

NATURAL CAPITAL ACCOUNTING OF THE CORALLIGENOUS HABITAT IN MARINE PROTECTED AREAS OF SOUTHERN ITALY

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The Italian coastal strip has a unique biodiversity heritage in the European context. It hosts habitats whose protection is considered a priority for biodiversity conservation and management. Among these habitats, the coralligenous stands out for its biodiversity and role in the carbon cycle. However, it is also one of the most vulnerable marine habitats as it is extremely sensitive to environmental alterations, especially those related to human activities. Therefore, it is crucial to raise awareness on the ecological importance of this habitat and the role it plays for human well-being. In this context, environmental accounting tools are useful to assess the value of biotic and abiotic natural capital stocks embedded in marine ecosystems and the ecosystem services they generate. Marine Protected Areas (MPAs) can be considered as socio-ecological systems and laboratories for putting into practice sustainable development strategies, combining the conservation of marine ecosystems with sustainable socioeconomic activities. This study aims to assess the biophysical value of natural capital stocks embedded in the coralligenous habitat of three MPAs located in Southern Italy, implementing a biophysical and trophodynamic environmental accounting model. The environmental accounting model was based on biomass data collected through sampling campaigns in the investigated MPAs. The biophysical values of natural capital stocks were also converted into monetary units to facilitate the understanding of the importance of this habitat in socioeconomic and policy contexts. The results of this study can support local managers and policy makers in charge for achieving biodiversity conservation and sustainable development goals.

KEYWORDS

CORALLIGENOUS, MEDITERRANEAN SEA, BIODIVERSITY, CONSERVATION, NATURAL CAPITAL, MARINE PROTECTED AREAS

ROV-OPERATE: SYSTEM ENGINEERING OF AN UNDERWATER ROV FOR EARLY VERIFICATION AND AUTOMATIC SYNTHESIS

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University of Split has designed a ROV (or Remotely Operated underwater Vehicle) for marine infrastructure inspection. A ROV is not autonomous: it is operated by hand and is wired connected to a control ground station for the energy and communication facilities. This abstract described the ROV-Operate project, a project funded by the ANR « Investissements d'avenir » number ANR-19-GURE-0001 in the framework of the ERASMUS+ SEA UE consortium. In the ROV-Operate project, University of Split, University of Gdansk and University of Brest/Lab-STICC UMR CNRS 6285 are designing a new version of the ROV to increase its autonomy and to provide high enough computing resources for intensive computing payloads such as image recognition or Artificial Intelligence algorithms. Embedding such software may contribute to make the ROV more autonomous but raises challenges to manage computing resources and energy. On such systems, computing resources have to be managed in order to both enforce safety of critical functions and to run efficiently computing intensive applications to deliver useful results in the context of a limited amount of energy. The project focuses on two topics; the assessment of underwater image processing and object detection algorithms with the ROV's cameras and computing resources.

KEYWORDS

ROV, EMBEDDED SOFTWARE, ENERGY OPTIMIZATION, UNDERWATER IMAGES PROCESSING.

HETEROGENEOUS DATA INTEGRATION FOR INFORMED CONSERVATION: MAPPING COMMON BOTTLENOSE DOLPHIN DISTRIBUTION IN MALTA

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Understanding the distribution pattern of cetaceans is crucial for effective conservation management. Despite previous dedicated surveys and evidence of interactions with fishermen confirming the presence of common bottlenose dolphins (*Tursiops truncatus*) in Maltese waters, a comprehensive assessment of their distribution is currently lacking. This knowledge gap contributes to the absence of dedicated conservation measures for the species in the region. The present study used presence-only data gathered from various survey initiatives conducted between 2012 and 2021 within the Fisheries Management Zone of Malta. The MaxEnt Species Distribution Model (SDM) was used to predict the distribution of common bottlenose dolphins by incorporating available sighting data, environmental variables, and anthropogenic data into the model. The results revealed a significant influence of depth and chlorophyll-a concentrations on their distribution, highlighting a strong preference for productive and shallow waters. The habitat suitability map indicated a robust presence in coastal areas, with additional high-suitability zones identified in three offshore regions within the research area. The use of the MaxEnt SDM demonstrated its effectiveness in integrating heterogeneous data sources, resulting in a robust prediction of suitable habitat for the species. These findings establish a baseline assessment of common bottlenose dolphin distribution and habitat preference in Maltese waters. Recognising the association of dolphins with coastal areas holds significance for conservation efforts, as these areas are notably affected by anthropogenic activities. Aimed at informing decision-making processes, this research seeks to contribute to the conservation of this cetacean species in the region.

KEYWORDS

COMMON BOTTLENOSE DOLPHIN, MAXENT, SPECIES DISTRIBUTION MODEL, CETACEAN DISTRIBUTION, CONSERVATION MANAGEMENT

NEW RESULTS ON THE $[k]$ -ROMAN DOMINATION IN GRAPHS

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A Roman domination in graphs is a modeling of a military defensive problem of the Roman empire defined by Cockayne in 2004. Beeler et al. (2016), Abdollahzadeh et al. (2021) and Amjadi et al.(2021) introduced several variations of the Roman domination problem in graphs. In this work, we consider that any undefended place should be defended of a sudden attack by, at least, k legions. A function $f:V \rightarrow \{0,1,\dots,k+1\}$ such that $f(N[u]) \geq k + |AN(u)|$ for all vertex u with $f(u) < k$, where $AN(u)$ represents the set of active neighbours (i.e. with a positive label) of vertex u , is called a $[k]$ -Roman dominating function and it is denoted by $[k]$ RDF. We prove that the $[k]$ - Roman domination decision problem is NP-complete even when restricted to bipartite and chordal graphs. Here, we present several upper and lower bounds for the $[k]$ -RD number that permit us to estimate it with as much precision as possible. Finally, the graphs attaining the smallest values of this parameter are characterized.

KEYWORDS

DISCRETE MATHEMATICS, ROMAN DOMINATION, NP-COMplete PROBLEM.

INCIDENCE OF COLIFORM BACTERIA CONTAMINATION IN SEAFOOD FROM NAMIBE (ANGOLA)

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Coliform bacteria are microorganisms that are part of the normal intestinal microbiota of warm-blooded animals. Although coliform bacteria are unlikely to cause disease in humans they are used as indicators of water quality since their presence is indicative of faecal contamination and the potential presence of disease-causing organisms that cause morbidity and mortality in humans. The presence of coliforms in coastal marine waters is common when sewage treatment is scarce or non-existent and urban water run-offs are uncontrolled and their presence signals a potential public health risk of water-borne infections. The aim of the present study was to characterize coliform bacterial contamination in seawater and seafood along the coast of Namibe (Angola) and identify potential pathogenic bacteria that might pose a risk to human health. Seawater and bivalve mussel samples were collected from 4 different sites near urban areas and bacteria were isolated using classical microbiology approaches and characterized using molecular and biochemical methods. The results revealed diversity in the microbiota of the 4 locations and six different genera were found including at least 5 different *Escherichia coli* strains but also the pathogens *Klebsiella pneumoniae* and *Morganella morganii*. Identification of novel pathogenic strains of Enterobacteriaceae is being confirmed using genome sequencing coupled to virulence assays to identify the molecular basis of their virulence. This study identifies for the first time the diversity and type of pathogenic Enterobacteriaceae in coastal waters and seafood of the Namibe and gives an alert of a potential public health risk.

KEYWORDS

BACTERIA, COLIFORM BACTERIA, BIVALVES, SEAWATER, PATHOGENS

ADVANCES IN FORENSIC CHEMISTRY FOR FIRE DEBRIS INVESTIGATION: ELECTRONIC NOSES AND MACHINE LEARNING

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Forensic Chemistry plays a pivotal role in fire debris investigation, where the accurate analysis of residues is crucial for determining the cause, origin, and potential accelerants involved in fires. The identification and classification of these accelerants mainly ignitable liquid residues (ILRs) like gasoline or diesel, is one of the most challenging steps in fire investigation. This complexity arises mainly from the presence of interfering compounds, such as those resulting from pyrolysis, which can hinder the accurate identification of ILRs. Currently, the most widely used analytical technique in this field is Gas Chromatography-Mass Spectrometry. In this regard, ASTM E1618 standard (American Society for Testing and Materials) establishes a protocol for ILRs determination by visual comparison of chromatograms and target compounds with reference samples. This tedious task is time consuming since lacks automation, and is subjective, heavily reliant on the expertise of the analyst. In this study, a robust analytical method based on an electronic nose in combination with machine learning (ML) algorithms is developed for an objective and automatic identification of ILs in fire debris samples. Total ion spectra in combination with supervised ML techniques such as linear discriminant analysis (LDA), support vector machines (SVM), and random forest (RF) were evaluated for the determination of the presence/absence and the type of accelerant used. Classification models showed high performances with of up to 100% in some cases. The SVM model was used to create a prototype web application for the automatic data processing saving time and effort in data interpretation.

KEYWORDS

SCIENCE, FIRE INVESTIGATION, IGNITABLE LIQUID RESIDUES, FORENSIC CHEMISTRY, ELECTRONIC NOSE, MACHINE LEARNING

SOIL-WATER-VEGETATION INTERACTIONS WITHIN THE ROYAL BOTANIC GARDEN EDINBURGH'S EXPERIMENTAL RAIN GARDEN

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This paper presents findings from a systematic sampling study conducted at the Royal Botanic Garden Edinburgh's experimental rain garden. The primary objective was to evaluate the rain garden's efficacy in retaining surface water while investigating spatial and depth-related soil profile variations. Fieldwork was conducted during Summer 2023, focusing on key soil parameters such as volumetric water content [θ ; %], compaction [mPA], and infiltration rates [Ksat; mm/hr]. Spatial analysis of soil parameters revealed significant variability in moisture content (10% to 45% range), influenced by planting regimes and soil composition. Notably, the central rain garden area exhibited lower soil moisture levels, attributed to heightened evapotranspiration from denser vegetation and enhanced infiltration rates resulting from reduced compaction and deeper amended SuDS soil depth. Infiltration rates within the rain garden ranged from 320 to 480 mm/hr. Performance appeared to vary relative to the depth of the SuDS soil profile due to the tapered excavation of the rain garden construction. Highest infiltration readings (480 mm/hr) were recorded within the centre of the rain garden but decreased at the perimeter (320 mm/hr) due to a shallower amended soil depth (15 cm). These values are higher than the infiltration range of 100 – 300 mm/hr suggested by the UK CIRIA SuDS Manual but highlight a significant improvement against the wider catchment soil permeability (25 – 50 mm/hr). This study highlights the importance of targeted interventions to mitigate wider catchment runoff. These findings demonstrate the complexity of soil-water-vegetation interactions within rain gardens and emphasise the significance of tailored design and management strategies for optimising their performance in holistic urban water management.

KEYWORDS

GREEN INFRASTRUCTURE, SUSTAINABLE DRAINAGE SYSTEMS (SUDS), ENVIRONMENTAL MONITORING, CLIMATE RESILIENCE, SOIL-WATER INTERACTIONS, RAIN GARDENS, EDINBURGH

EFFECT OF ULTRASOUND AND CHEMICAL CROSSLINKING ON FUNCTIONAL PROPERTIES OF STARCH FROM MALANGA (COLOCASIA ESCULENTA)

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Taro (*Colocasia esculenta*) has been identified as a significant source of starch (80% db); however, starch sometimes does not have the functional properties necessary for industrial and pharmaceutical applications and modifications are needed. For the native starch functionalization, various processes could be used. Ultrasound (US) is a physical modification that produces high shear force used to degrade the polysaccharide structure; while chemical cross-linking (EQ) allows adding intra and intermolecular covalent bonds to the granule that strengthen its physical stability. The objective of this work was to research the effect of US and EQ on some structural and physicochemical characteristics of starch obtained from taro. Firstly, the isolation of native taro starch (ANM) and its characterization were performed. Subsequently, ANM was modified by US, evaluating different amplitudes (40, 50 and 60%) and times (5, 15, 25, 35 mins); and by EQ, using different levels of the mixture of sodium trimetaphosphate (STMP) and sodium tripolyphosphate (STPP) (STMP:STPP w/w: 30:70, 60:40, 90:10) in a proportion of 3 g for every 50 g of starch; showing significantly effect on the responses ($p < 0.05$). Greater tolerance to high temperatures, greater support to shear stress, reduction in the particle size, and resistance to enzymatic digestion are changes that can be obtained by these modifications. This suggests that both modifications cause changes in the ANM granule. Therefore, the modified starch produced can be a desired product for food and industrial applications as an emulsifier, thickener, gelling agent, or wall material.

KEYWORDS

CHEMICAL CROSS-LINKING, STARCH, ULTRASOUND, TARO, FUNCTIONAL FOOD

EVALUATING A SCHOOL-BASED INTERVENTION'S IMPACT ON LIFESTYLE HABITS AMONG CHILDREN FROM THE PROVINCE OF CÁDIZ: A QUASI-EXPERIMENTAL STUDY. PREVIENE-CÁDIZ STUDY

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Childhood obesity poses a pressing global health issue with significant long-term health implications. This study aimed to evaluate the effectiveness of a school-based intervention targeting lifestyle habits among schoolchildren in the province of Cádiz. The intervention sought to assess changes in body composition, physical fitness, physical activity levels, sedentary behaviours, dietary patterns, and sleep habits. A quasi-experimental design with a control group involved 833 8- and 9-year-old students from 25 schools of the province of Cádiz. The intervention comprised 10 theoretical-practical sessions, 2 workbooks (one for students and another for students and families), and a family-directed educational workshop. The study variables were, among many others, prevalence of overweight and obesity, overall physical fitness, family physical activity, weekend TV time, nutrition knowledge and beliefs, and weekend sleep duration. Delta variables of the study variables were calculated, and a difference-in-differences analysis was performed. Non-parametric tests were utilized due to variable non-normality. IBM SPSS Statistics software (version 24.0) was used, and statistical significance was set at $p < 0.05$. The experimental group showed modest improvements in overweight and obesity prevalence ($p=0.029$) and increased family physical activity days ($p=0.002$). However, no significant differences were observed in overall physical fitness or weekend TV time ($p > 0.05$). There were slight enhancements in nutrition knowledge and beliefs ($p=0.042$), while weekend sleep duration remained unchanged ($p > 0.05$). The intervention yielded modest and inconsistent effects on promoting healthier lifestyles among schoolchildren, indicating the need for further research into its long-term impacts and scalability.

KEYWORDS

CHILDHOOD OBESITY, SCHOOL-BASED INTERVENTION, HEALTHY LIFESTYLE HABITS, PHYSICAL ACTIVITY, DIETARY PATTERNS, QUASI-EXPERIMENTAL DESIGN AND EFFECTIVENESS ASSESSMENT

SHARING EXPERTISE IN HEALTH EDUCATION AND RESEARCH - WHAT IS THE ECHOES PROJECT ALL ABOUT?

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Healthcare expertise is unevenly distributed across Europe, leading to unequal availability of lecturers in some areas. This geographical distribution of experts influences the accessibility to knowledge, creating variations in the skill levels of healthcare professionals, resulting in variations in the quality of patient care these graduates can provide. Notably, smaller and low-income countries exhibit a more pronounced gap in expertise, exacerbating healthcare education and practice disparities. The ECHOES Project is a groundbreaking initiative with a core objective of developing a digital platform to facilitate the exchange of healthcare expertise among universities across Europe. The platform enables healthcare professionals and educators to register their areas of expertise, providing higher education institutions with easy access to these experts for joint educational and research activities. The project unfolds in distinct phases, commencing with identifying expertise gaps across Europe to inform the platform's development. Subsequent activities include the creation of the ECHOES platform itself and an extensive dissemination campaign targeting European healthcare experts and universities. Anticipated outcomes of the project include heightened collaboration and knowledge sharing among higher education institutions, expanding graduates' access to advanced expertise across Europe. This, in turn, strengthens the capacity of healthcare professionals and nurtures a culture of continuous upskilling, which is essential for positive disruption in the field. This project is funded by an ERASMUS+ grant [2023-1-MT01-KA220-HED-000156744] and involves five full and 12 associate partners

KEYWORDS

HEALTH SCIENCES, EDUCATION, RESEARCH, EUROPE, DIGITAL TRANSFORMATION, EXPERTISE, ERASMUS

RESONANCE ENERGY TRANSFER IN CADAVER

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Estimating time of death plays a crucial role in forensic investigations. Current methods for determining the post-mortem interval (PMI) have a relatively large margin of error due to the significant influence of external environmental conditions. Therefore, it is necessary to develop a new, more accurate method. The research presented here proposes the use of physical interactions between two spectroscopically active biomarkers, tyrosine and tryptophan. During the degradation processes, tryptophan among the other amino acids e.g. tyrosine, is released from the tertiary structure of proteins, leading to a linear increase in the percentage of its free forms with prolonged PMI. Due to the relatively low initial concentration of free forms of tryptophan in human body post-mortem, monitoring these changes using molecular spectroscopy techniques became possible by increasing the emission intensity with the use of toxic fluorescent probe(o-phthalaldehyde)[1]. In our research, we aim to exploit the physical process of resonance energy transfer between tyrosine(donor) and tryptophan(acceptor), which leads to increased emission intensity of tryptophan without affecting the concentration of the analyzed amino acids[2]. The extent of energy transfer depends in particular on the distance between the donor and acceptor. To ensure that the analyzed amino acids are at the right distance for the effect to occur, they are stabilized in specially designed rigid matrices. As a result of this process, the intensity of the emission of tryptophan will increase, making it easy to observe changes in the concentration of its free form with prolonged PMI, allowing us to estimate the time of death.

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KEYWORDS

FORENSIC SCIENCE, FLUORESCENCE, POST-MORTEM, RESONANCE ENERGY TRANSFER, TRYPTOPHAN, TYROSINE

ADVANCING LABORATORY OPEN-CHANNEL MEASUREMENTS USING COMPUTER VISION AND PHOTOGRAMMETRY TECHNIQUES

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This study involves innovative and cost-effective data analysis methodologies at the intersection of computer vision, photogrammetry, experimental hydraulics, and water level monitoring, specifically applied to laboratory open-channels. We introduce a technique for creating and characterising customised-roughness beds, enabling researchers to design experiments tailored to specific conditions and explore a wide array of scenarios. Employing photogrammetry, we achieve high-precision characterisation of bed roughness. We present a computer vision-based method for accurately measuring small-scale water level fluctuations, ensuring both spatiotemporal precision and accessibility at a reduced cost. Furthermore, we highlight a tailored algorithm that combines simple techniques to precisely detect the air-water interface in free surface flows against transparent walls.

KEYWORDS

LABORATORY OPEN-CHANNELS, COMPUTER VISION, PHOTOGRAMMETRY, EXPERIMENTAL HYDRAULICS, WATER LEVEL MONITORING, BED ROUGHNESS CHARACTERISATION, DATA ANALYSIS TECHNIQUES

ASSOCIATION BETWEEN INFLAMMATORY MARKERS, MITOCHONDRIAL FUNCTION AND CARDIORESPIRATORY FITNESS IN ADULTS WITH TYPE 2 DIABETES

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Type 2 diabetes (T2D) is a metabolic disorder characterized by insulin resistance arising from increased systemic inflammation related to body fat levels. This production of inflammatory agents could promote mitochondrial dysfunction and impair cardiorespiratory fitness, both phenomena related to the worsening of T2D. Therefore, this study aims to assess the association of inflammatory markers with mitochondrial function and cardiorespiratory fitness in adults with T2D. A total of 72 non-insulin dependent T2D patients (56±7 years) with obesity or overweight (body mass index = 34±6 kg/m²) were recruited. Plasma C-reactive protein (CRP) and Interleukin-6 (IL-6) were determined in fasting condition as inflammatory markers. Mitochondrial function was evaluated in permeabilized skeletal muscle fibres from vastus lateralis biopsy with high-resolution respirometry by adding pyruvate, malate, and glutamate, followed by ADP and Mg to assess complex I linked respiratory capacity (CI), and then by adding succinate to induce maximal respiratory capacity (CI+II). In a separated day, cardiorespiratory fitness (VO₂max) was assessed in an incremental test on a cycloergometer by indirect calorimetry. Spearman tests showed that CRP is negatively associated with CI ($\rho = -0.322$; $p = 0.006$), CI+II ($\rho = -0.265$; $p = 0.025$), and VO₂max ($\rho = -0.382$; $p = 0.001$), and positively associated with IL-6 ($\rho = 0.390$; $p = 0.001$). Hence, lower inflammation levels were associated with higher mitochondrial function and VO₂max. This study is part of the EDUGION/APETEX/MITOX project and is funded by INIBICA (PP11-007-2023) and the Spanish Ministry of Science and Innovation (PID2019-110063RA-I00/AEI/10.13039/501100011033 and PID2020-120034RA-I00/AEI/10.13039/501100011033).

KEYWORDS

PHYSICAL FITNESS, MUSCLE METABOLISM, INSULIN RESISTANCE, GLUCOSE METABOLISM, CYTOKINES, METABOLIC SYNDROME, MITOCHONDRIAL RESPIRATION

INFLUENCE OF MUSCULAR STRENGTH AND MEDITERRANEAN DIET ON CARDIOMETABOLIC RISK FACTORS IN YOUNG ADULTS

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The present study aimed to investigate the influence of muscular strength and adherence to the Mediterranean diet (MD) on cardiometabolic risk score (CRS) among young adults. Method: A total of 81 young adults (31 women) aged 22.8 ± 4.4 were enrolled in this project. Body fat percentage by bioimpedance, waist circumference, blood pressure, triglycerides, and glucose level were measured in fasting, and a Z-score was computed for CRS. Muscular strength was assessed using a handgrip for upper limbs and horizontal jump test for lower limbs, and a composite score as the mean of both limbs adjusted to body weight was calculated. A validated 14-item questionnaire of MD adherence was applied. The association between muscular strength and CRS was examined using linear regression adjusting for confounders such as age, sex, and MD. The differences in the mixed groups of muscular strength levels (High/Low) with MD adherence (High/Low) were analyzed using ANOVA, with statistical significance set at $p < 0.05$ following Bonferroni correction. Results: Linear regression showed an inverse association between muscular strength and CRS (all $p < 0.05$). Participants with high muscular strength, regardless of adherence to MD levels, showed lower CRS compared to participants with low muscular strength and low adherence to MD (-1.5 ± 1.2 vs. 2.4 ± 2.8). Conclusions: Higher muscular strength could be a protective factor for the development of cardiometabolic risk, regardless of age and adherence to MD. The combination of low muscular strength and low adherence to MD appeared to increase the risk for cardiometabolic issues at an early age in young adults.

KEYWORDS

HEALTH SCIENCE, PHYSICAL FITNESS, DIETARY PATTERNS, BEHAVIOURS, CARDIOVASCULAR RISK, LIPID PROFILE, MEDITERRANEAN NUTRITION

THE EFFICACY OF A NUTRITION EDUCATION VIDEO ON HEALTH RELATED QUALITY OF LIFE ON OLDER HOME-LIVING ADULTS: A RANDOMIZED CONTROLLED PILOT TRIAL

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Disease-related malnutrition can impact the health of older adults following surgical treatment in a hospital. The aim of this study is to investigate whether access to an educational video focusing on protein- and energy-rich meals can enhance the health-related quality of life in older home-living adults after discharge from the hospital. The seven-month, two-arm pilot trial took place in a rural area in Northern Norway from May 2022 to January 2023. Participants were 44 home-living older adults who had undergone surgery, aged 65-93, recruited from three different surgical departments in a regional hospital. The participants were randomly assigned to an intervention group (n=24) and a control group (n=20). The intervention group accessed an educational video focusing on protein- and energy-rich meals five days after discharge from the hospital, while the control group did not receive any intervention. Data on health-related quality of life were collected using the Norwegian RAND 36-questionnaire at baseline and three months after discharge from the hospital. The study's results will be presented at the conference, revealing how knowledge transfer through an educational video can impact health-related quality of life and improve patient-reported long-term outcomes among home-living older adults. The findings of the study can thus influence how health professionals use technology to improve the nutritional status of older adults discharged from the hospital.

KEYWORDS

HEALTH SCIENCES, TECHNOLOGY, KNOWLEDGE TRANSFER, PROTEIN-ENERGY MALNUTRITION, HEALTH EDUCATION VIDEOS, DISEASE-RELATED MALNUTRITION, FRAIL OLDER ADULTS

EFFECTS OF AN EDUCATIONAL PROGRAM ON HANDGRIP STRENGTH AND PHYSICAL FUNCTION OF LOWER EXTREMITIES IN OLDER ADULTS WITH FRAILITY OR PREFRAILITY

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Frailty is associated with decreased functional capacity in older adults. Improving muscular strength is a key determinant factor for autonomy in their daily activities. This study aims to assess the impact of an educational program based on exercise, nutrition, and cognitive function on handgrip strength (HG) and physical function of lower extremities (PFLE) among older adults with frailty or prefrailty, immediately post-intervention and six months after its completion. 156 older adults (101 women, aged 74.57 ± 6.60 years) with pre-frailty and frailty according to Fried's criteria were included, with 82 participants assigned to the control group (CG). Maximal voluntary HG strength was evaluated using a handgrip dynamometer. Participants also performed the 5-rep Sit to Stand test (5rep-STs) to evaluate PFLE. A factorial mixed-model ANOVA was used to determine the main effects of group (intervention vs. control), and time (pre-test vs. post-test vs. re-test). Significant interactions were followed up with Bonferroni post hoc. The intervention group (IG) maintained handgrip strength levels while the CG declined after one year ($p < 0.05$). Regarding the PFLE, the IG demonstrated improvement in their levels after the educational program ($p < 0.001$) and six months after its completion ($p < 0.01$), while the CG maintained PFLE levels. The findings suggest that educational interventions not only help maintain HG strength but also lead to improvements in PFLE, providing valuable insights for promoting autonomy and muscular health in this population. This study (project UMA20-FEDERJA-154) has been funded by 10.13039/501100011011 Junta de Andalucía and ERDF.

KEYWORDS

FRAIL, FUNCTIONAL ABILITY, MUSCULAR FORCE, EDUCATIONAL INTERVENTION, HEALTH PROMOTION, AGING, CLINICAL TRIAL

AUTOMATED BENTHIC DETECTION AND IDENTIFICATION SYSTEM OF KEY MARINE FEATURES THROUGH MACHINE LEARNING, MACHINE VISION PROTOTYPES AND ARTIFICIAL NEURAL NETWORKS

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The use of digitalization performing benthic marine habitats detection and mapping helps marine scientists to reduce the cost, time, and effort to perform benthic habitats identification. This study developed an innovative system capable of autonomously monitoring offshore aquaculture systems, providing real-time benthic habitat recognition. Seafloor data collection was carried out around the Maltese islands using a Remotely Operated Vehicle at different depths. Videos were extracted at defined frames per second, providing a number of 20,740 still images. Following a literature review from WoRMS, GBIF, iNaturalist and AlgaeBase, a list of benthic species and substrates were identified and annotated accordingly. Among the species observed, 22 unique assemblages were represented including *Posidonia oceanica* and *Cymodocea nodosa*. An AI assisted labelling was conducted using Roboflow to preprocess 16,561 still images, including resizing, normalization, and enhancement of images. These steps optimized image quality and launched the machine learning model training. The exploratory data analysis assisted in understanding the most represented class/species labelled, a heatmap for each species labelled, and a total number of images annotated. A study of habitats and biocenosis in relation to the identified classes has been conducted, then compiled into a standardized spreadsheet. Preliminary results based on more than 10,000 images of the Maltese benthos are highly encouraging. The instance segmentation model is being tested by experts through an online AI model deployment on Huggingface allowing to receive continuous feedback from experts for the model to be further fine-tuned, improving its accuracy, and reducing the rate of false positives.

KEYWORDS

ROV IMAGES LABELLING, BENTHIC HABITAT IDENTIFICATION, MACHINE-LEARNING, ARTIFICIAL INTELLIGENCE, DIGITAL TECHNOLOGY 3D PATH PLANNING, ENVIRONMENTAL MONITORING.

BLUEFIN TUNA, THUNNUS THYNNUS SIDE-STREAMS FROM MALTESE FARMS AS POTENTIAL RAW INGREDIENT FOR AQUAFEED

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Approximately 15,000 tonnes of bluefin tuna are produced annually in Malta; it is estimated that up to 40% of the biomass harvested is represented by side-stream that can be used as a source of fish oil and fishmeal as well as other compounds with functional properties. The utilization of this side-stream is hampered by logistical barriers (e.g., limited refrigerated space on the vessels). This study investigated the quality of different tuna side-streams derived from a tuna farm in Malta collected from October to December 2022, in the hours following the harvest. The oxidation state of the side-streams transported to a processing plant was assessed and the histamine content was predicted using a model based on temperature changes. No histamine formation by *M. psychrotolerans* and *M. morgani* was predicted. Dry matter ranged between 25.65% (head) to 53% (liver); the latter with the highest protein content (16%), while head and mixed samples accounted for 2.8% and 11.5% respectively. The liver showed the highest crude fat content, expressed as Ether Extract (EE), (35.9%), while the head had the lowest (20.04%). Highest oxidation (both primary and secondary) was observed in the liver. Rosemary extract was tested to improve the preservation of the side-stream, with scarce results. Aquafeeds for European seabass and shrimps containing tuna side-stream are currently being tested at AquaBioTech's Maltese facilities.

KEYWORDS

BLUEFIN TUNA, BY-PRODUCTS, OXIDATION, HISTAMINE, PRESERVATION, AQUAFEEDS

TERRA NOVA BAY POLYNIA HIGH RESOLUTION EXPERIMENT – TENORE

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The impact of polynyas on the polar oceans is known to be relevant for physical and ecological aspects. In latent heat polynyas, such as the Terra Nova Bay (TNB) polynya, the intense heat loss leads to rapid and persistent ice growth and the brine rejected increases the salinity of the subsurface waters, resulting in the production of High Salinity Shelf Water (HSSW) that contributes to Antarctic Bottom Water (AABW) formation. In recent decades, AABW has warmed, freshened and reduced in volume and Ross Sea Bottom Water, the second largest source of AABW, has experienced the largest freshening. This freshening has been linked to a decrease in salinity of HSSW in TNB between 1995 and 2006. Recently, an analysis on long-term mooring data collected in the TNB shows a HSSW salinity rebounded sharply after 2014. This evidence highlights the need of additional in situ measurements and studies for understanding the forcing that influence TNB HSSW salinity formation and variability. In this context, TENORE aims to improve the current knowledge of the TNB polynya, expanding the classical in situ measurement capabilities towards a hierarchical multiplatform approach that includes the use of underwater gliders, unmanned aerial vehicles and satellite platforms. The project aims at enlarging the understanding of the physical and biochemical processes in TNB and their role in the complex feedback between ocean and atmosphere in the climate change scenario. TENORE, coordinated by University Parthenope, is funded by the Italian Antarctic National Programme through the Italian Ministry of University and Research.

KEYWORDS

ROSS SEA; ANTARCTICA; POLYNIA; UNDERWATER GLIDER; AUV; HEAT FLUXES

SEABIRD PLASTIC INGESTION: MAPPING GLOBAL TRENDS AND IDENTIFYING RESEARCH GAPS

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Plastic pollution in marine ecosystems has emerged as a significant environmental concern, with profound implications for biodiversity and ecosystem health. The exponential increase in plastic production has resulted in significant amounts of plastic entering the oceans annually. Seabirds, being sensitive indicators of ecosystem health, are particularly vulnerable to plastic ingestion. This review provides a comprehensive overview of global plastic ingestion patterns among seabirds, highlighting variations in ingestion rates across different geographic locations, taxonomic groups, and species. The highest plastic ingestion rates were found in the North Eastern Atlantic (84.2%) and the Western Mediterranean Sea (65.6%). Procellariiformes exhibited the highest plastic ingestion rates among seabird orders (60.7%), with *Fulmarus glacialis* being the most studied species. Analysis techniques predominantly focused on the proventriculus and gizzard, but there is a growing recognition of the importance of examining the entire digestive tract. However, there is still a lack of standardized methodologies for plastic characterization, particularly concerning polymer identification. It is recommended that standardized techniques for comprehensive plastic analysis be adopted, including contamination controls and chemical analysis. Standardisation efforts are crucial for facilitating cross-study comparisons and monitoring global trends in seabird plastic ingestion. This ultimately aids in the formulation of effective conservation strategies.

KEYWORDS

CONTAMINATION, GLOBAL CHANGE, MARINE CONSERVATION, MARINE BIRDS, PLASTIC PRESENCE

A HOLISTIC ASSESSMENT OF THE CRAB FISHERY IN PORTUGAL

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Scientific knowledge about estuarine fisheries has been growing over the last decades, but some fisheries still lack basic information. One of the most misunderstood estuarine fisheries in Portugal is the green crab fishery. Hence, a holistic study was conducted to characterize this fishery across Portugal, conducting socio-economic and fishery assessments. Crab fishery has had high socio-economic importance since the middle of the 20th century, with crabs assuming high importance as seafood for the industry and as fishing bait. However, its importance is decreasing due to ageing of fishers and regulatory hurdles. Differences in socio-economic and fishing operational characteristics were observed across various Portuguese estuarine systems. Two different gears, box traps and drop nets, are employed in the fishery. Daily Catches varied among gears, systems, and months. Both fishing gears demonstrated low by-catch and selectivity studies reveal that mesh size of 20 mm in box traps and 30 mm in drop nets allow decrease undersize specimens in catches while maximizing catch rates. However, regardless of mesh size, both fishing gears still caught undersized crabs, which requires crabbers to sieve their catches. This study highlights that the estuarine crab fishery in Portugal has been an important socio-economic fishery in the past, but that its importance has diminished due to several factors including lack of proper regulations. Therefore, the baseline information collected can support a regulation for management measures for crab fishery in Portugal, allowing to re-stimulate this activity and contribute to local estuarine communities' socioeconomic enhancement.

KEYWORDS

CARCINUS MAENAS, ESTUARINE FISHERY, FISHING GEARS, BY-CATCH, SELECTIVITY, MANAGEMENT MEASURES

COASTLINE EXTRACTION FROM SENTINEL-2 IMAGES USING GIS TOOLS

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The coastal environment is subject to continuous changes due to both natural phenomena such as atmospheric and marine agents, and anthropic interventions such as the construction of ports or coastal protection works. As a consequence, it is important to monitor the coasts quickly and, if possible, at a low cost. For this purpose, free Sentinel-2 satellite images, which have a short revisit time and global coverage of the earth's surface, and GIS software can be used. In this work, a comparison of coastline identification techniques from Sentinel-2 images using free and open-source software, i.e., Quantum GIS, is presented. The experiments are carried out in the coastal area of Cilento, in the province of Salerno (Italy). The Normalised Difference Water Index (NDWI), which is generally recognised as one of the most performing methods when water features have to be detected, is applied. After calculating the NDWI, two classification approaches are implemented and compared: K-means which is an unsupervised technique, and Maximum Likelihood Classification as a supervised technique. To evaluate the effectiveness of the methods, the positional accuracy of each resulting coastline is established by direct comparison with a reference one that is achieved by visual interpretation of Sentinel-2 RGB composition and manual vectorization. Both techniques provide excellent results, since the RMSE of the shifts between each extracted coastline and the reference one is less than the pixel size (10 m). However, the advantage of using an unsupervised technique is highlighted, as it reduces working times and completely eliminates human error.

KEYWORDS

GIS, REMOTE SENSING, SENTINEL-2, COASTLINE DETECTION, IMAGE CLASSIFICATION, COASTAL ENVIRONMENT

AN INNOVATIVE, ECOLOGICAL APPROACH TO GROWING MUSSELS ON RECYCLED ROPES WITH BACTERIAL ENVIRONMENTAL DNA METABARCODING

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Mediterranean mussel is the most important shellfish species in Croatian marine aquaculture reaching a total production of 1.006 tonnes in 2022. In mussel farming process, the use of single-use plastic represents a major environmental problem, therefore one of the goals of the project "INNODAGNJA" was to investigate the possible use of ropes made from used fishing nets in the production process. The experiment was carried out from July 2022 to July 2023 at the commercial shellfish farm located in the Krka River estuary by comparing the growth and condition index of mussels cultivated on the traditional longline system with nylon mesh nets and recycled ropes. To monitor mussel growth, a direct method of marking individual shells was used. Results showed no statistically significant difference in the growth and condition index concerning the type of cultivation, indicating that recycled ropes can be successfully used for mussel farming. Furthermore, one of the risks in shellfish production is the presence of pathogens and coliform bacteria, which can be of natural origin, but also result from sanitary pollution, so this study applied the innovative method of eDNA metabarcoding to monitor the bacterial community in the water column and test whether eDNA approach can be used for disease surveillance and early warning system. In conclusion, a more ecologically acceptable farming system, with a timely reaction to potential pathogens, represents significant progress for the entire industry and has the potential to ensure growth and expansion of mussel farming industry and environmentally sustainable production.

KEYWORDS

AQUACULTURE, MYTILUS GALLOPROVINCIALIS, GROWTH, CONDITION INDEX, PATHOGEN DETECTION, ADRIATIC

MOLECULAR MODELLING AND DYNAMICS OF VAMP72A, A SNARE PROTEIN OF LOTUS JAPONICUS, RESPONSIBLE FOR FORMING MYCORRHIZAL INTERACTIONS

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Mycorrhiza is a ubiquitous and critically important form of interaction between plants and fungi. In spite of its prevalence, its biochemistry has yet to be fully understood. While its identification and quantification are, for the most part, attainable in routine study, the molecular mechanisms upon which it depends remain relatively unknown. Recently, it has been discovered that the proteins LjVAMP72a and LjVAMP72b of *Lotus japonicus* are essential for forming mycorrhizal interactions with fungi. Due to this connection, this research aims to predict the structure of LjVAMP72a using *in silico* computational biology methods. Furthermore, a molecular dynamics simulation was conducted in an appropriate environment to verify the structure's integrity. The results obtained here may provide further insight into the mechanisms of mycorrhizal communication as the protein's structure can now be compared with others and studied.

KEYWORDS

MYCORRHIZA, SYMBIOSIS, FUNGI, LOTUS, MOLECULAR DYNAMICS, BIOINFORMATICS, PROTEIN

ENZYMES PRODUCTION BY FUNGAL SOLID-STATE FERMENTATION AND ITS APPLICATION FOR SACCHARIFICATION OF RUGULOPTERYX OKAMURAE

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Since 2015, the Asiatic seaweed *Rugulopteryx okamurae* has been invading the Mediterranean coast affecting, the economy of the regional fishing and tourist sectors. This environmental problem is an opportunity to apply the circular economy approach. Enzyme hydrolysis is one of the most well-known processes used to obtain hydrolysates rich in monomeric sugars from different wastes for subsequent fermentative bio-processes (Agabo-García et al., 2023). However, the high cost of enzymes causes that this process won't be affordable at an industrial scale. The objective of this study is to obtain a lowcost enzymatic extract from the fungus *Aspergillus awamori* and to compare its capacity to hydrolyze *R. okamurae* biomass with commercial ones. For this purpose, solid-state fermentation was performed on the seaweed by the fungus *Aspergillus awamori* obtaining its excreted enzyme extract. This was used in the saccharification process by two strategies: 1. as liquid crude extract and 2. as lyophilized extract (both in proportion 6FPU/gbiomass). The saccharification was developed at 37°C for the first 3h and at 50°C for 69h, using a concentration of 10% w/v alga-phosphate buffer. The results obtained were compared to saccharification using CellicCTec2® at 50°C and also with 6 FPU/gbiomass. The results of the net total reducing sugars demonstrated that when using the crude or lyophilized extract, 3.52 g/L \pm 0.15 and 3.68 \pm 0.82 g/L of total reducing sugars were produced, respectively. The use of the commercial cocktail gave similar values of total reducing sugars, 3.78 g/L \pm 0.32. Results showed that it is possible to reduce highly the cost of the process by using crude or lyophilized enzymes.

KEYWORDS

RUGULOPTERYX OKAMURAE, SOLID-STATE FERMENTATION, LIOPHILIZATION, SACCHARIFICATION.

A CUMULATIVE IMPACT ASSESSMENT OF MALTA'S 25NM FISHERIES MANAGEMENT ZONE

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While numerous attempts have been made to define the scope and nature of Marine Spatial Planning (MSP), few have addressed its effective implementation. As the need for integrated approaches grows, the combination of MSP with Ecosystem-Based Management (EBM) emerges as a promising solution to address complex issues arising from failures in ocean governance. Ecosystem-based management is widely recognized as essential for mitigating human-induced pressures on marine environments. Various studies have sought to identify ways to implement the elements of EBM within MSP, and multiple tools have been developed for this reason. This study focuses on the application of EBM principles within MSP, specifically targeting Malta's 25nm fisheries management zone. Utilizing GIS and ODEMM's integrated Management Strategy Evaluation (iMSE) tool, this research carries out a Cumulative Impact Assessment (CIA) to evaluate the density of activities in the marine environment and possible conflicts that exist and assesses the impacts of the same anthropogenic activities. Results highlight significant impact risk, high connectance, and long recovery times around the coast, particularly in ports and harbours, and in protected areas underscoring the importance of adopting strict zoning measures and adaptive management strategies for sustainable marine spatial planning. This research contributes to advancing the understanding and implementation of EBM within MSP frameworks, crucial for effective ocean governance and environmental conservation.

KEYWORDS

MARINE SPATIAL PLANNING, ECOSYSTEM-BASED MANAGEMENT, CUMULATIVE IMPACT ASSESSMENT, ODEMM, IMPACT RISK, RECOVERY LAG, CONNECTANCE]

CONNECTING WEB3 TO A EUROPEAN DIGITAL IDENTITY WALLET IN MALTA: MAKING BRIDGED IDENTITIES WORK FOR STUDENTS

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After small states led the way in regulating cryptocurrency digital asset services, the concept of digital identity is becoming an important cornerstone for furthering cohesion policy goals of the European Union (EU). Since Malta legislated the regulatory frameworks for virtual assets in 2018, other island states advanced in regulating blockchain applications. Dominica recognised cryptocurrencies as legal tender and the Marshall Islands defined decentralised autonomous organisations (DAOs) as limited liability companies. These examples show Web3 can be governed, however, digital credentials have yet to close the gap between pseudonymous technologies and due diligence processes for real-world services – which typically require identifying their ultimate beneficial owners. DAOs are challenged to find effective methods to identify their members (who often want to remain anonymous), comply with regulatory requirements and enforce membership criteria. The competition among small states, both within the EU and globally, forces national higher education institutions participating in the SEA-EU initiative to educate their students for using digital credentials, as well as issue their diplomas in a format usable by DAOs but also compliant with EU standards. Thus, the Web3 Identities for DAOs and Education (WIDE) project aims to strike a balance between user needs and European compliance, investigating how students use bridging technology for transforming their EU digital identities into DAO-compatible credentials. To answer this question, this project employs a mixed-method approach, combining cognitive walkthroughs with a quantitative user survey. The findings will describe how graduates use the WIDE digital identity bridge to vote on options for their graduation celebration.

KEYWORDS

EUROPEAN DIGITAL IDENTITY, WEB3, BLOCKCHAIN, DISTRIBUTED LEDGER TECHNOLOGY, INTEROPERABILITY, EDUCATION CERTIFICATES, SMALL SCALE

DEVELOPMENT OF INNOVATIVE CORROSION SENSORS: FROM CULTURAL HERITAGE TO CIVIL ENGINEERING APPLICATIONS

S. RIOUAL; P. TALBOT; B. LESCOP, [UNIVERSITY OF WESTERN BRITTANY, BREST, FRANCE]

Corrosion is recognized as a global issue that causes widespread damages in many applications. This phenomenon is often associated with the presence of chloride in marine environment, atmospheric pollutants in industrial areas, and variation of humidity and temperature. Within this context, there is a real interest in monitoring either the corrosion of metals or the environmental corrosivity of specific areas. Recently, at the Lab-STICC laboratory, we have produced innovative corrosion sensors to perform such a monitoring. Sensors which are based on the RFID (Radio Frequency IDentification) technology are fully autonomous, wireless and display very low-cost. At the "BEING SEA-EU" conference, applications of these sensors to the cultural heritage and civil engineering sectors will be presented. These developments were made through the H2020 European project SensMAT (Preventive solutions for sensitive materials of Cultural Heritage - Grant agreement ID: 814596) and the French research program "Connected Bridges". As a first example, application of these innovative sensors to the field of cultural heritage conservation will be presented. In this case, the monitoring of the environmental corrosivity of showrooms and storage rooms by the proposed method provides important information on microclimatic variations and allow better conservation practices. As it will be shown, the method is not restricted to the cultural heritage sector, and can be applied to many applications. At the conference, a second selected case study will concern the monitoring of prestressed bridges exposed to marine environments.

KEYWORDS

CORROSION, SENSOR, CULTURAL HERITAGE, CONCRETE, PRESTRESSED BRIDGES.

CORROSION, A FUNDAMENTAL ISSUE FOR HYDROGEN PRODUCTION AND STORAGE

S. RIOUAL; B. LESCOPI; K. CHERGUI, [UNIVERSITY OF WESTERN BRITTANY, BREST, FRANCE]

Hydrogen offers possibilities to move away from fossil fuels and has consequently a crucial role in the energetic transition. Among the possible source of Hydrogen production, proton exchange membrane water electrolyzers (PEMWE) electrochemically split the water molecule in order to produce high-purity oxygen (at the anode) and hydrogen (at the cathode). The elevated capital expenditures deriving from the use of expensive corrosion-resistant materials undermine the economic competitiveness of this H₂ production technology. To date, on the PEMWE anode side, metallic bipolar plates and porous transport layers, are essentially made of titanium coated with precious metal layers (platinum, gold) so as to withstand the corrosive and oxidizing environment. In the project COSTO (Anti-Corrosion thin films for anodic Structural elements in proton exchange membrane water electrolyzers - PEPR H₂, agreement ANR-22-PEHY-0009 under the France 2030 program), we focus on the corrosion of the anode side of metallic bipolar plates produced by 316L stainless steel coated by titanium nitride. The main scientific and technical issues associated with such electrolyzers for H₂ production will be highlighted at the conference for a non-specialist audience. Another important feature for hydrogen manipulation concerns the diffusion of Hydrogen in steel. Indeed, due to its small size, Hydrogen atoms can easily diffuse inside steels leading to some problems of the adhesion of organic coating on steel. Such problems of delamination of coatings are treated within a project between France and India, results will be discussed at the conference.

KEYWORDS

CORROSION, HYDROGEN, STEEL, COATINGS, ENERGETIC TRANSITION.

A HIGH SENSITIVE MICROWAVE SENSOR TO MONITOR BACTERIA AND BIOFILM GROWTH – APPLICATION TO THE BACTERIA / BACTERIOPHAGE INTERACTION

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Bacterial biofilms have a significant economic and health impact in many different domains. In such films, the extracellular matrix prevents the diffusion of biocides, so antibiotic treatments require a concentration 500 to 1000 times higher than that used to eliminate the same bacteria when present as planktonic stage. Early detection of biofilms is therefore essential for effective eradication. In this conference, we will present the development of a real-time and label-free radiofrequency sensor dedicated to the monitoring of bacteria and biofilm growth. This sensor aims to fill the gaps left by conventional methods by offering a noninvasive, cost-effective, and efficient solution for real-time biofilm monitoring. Its principle relies on an open-ended coaxial probe sensitive to the variation of the electrical conductivity of the probed medium in the microwave range. To demonstrate experimentally such effects, two model bacteria, *Vibrio natriegens* and *Pseudomonas aeruginosa*, are considered. The bacteria growth was monitored in real time and compared to classical optical density results. As shown, the high sensitivity of the method highlights the bacterial development and also the biofilm growing at the early stage of its formation. The thickness of the bacterial biofilm formed can also be extracted from the data. Moreover, this sensor is able to successfully monitor the bacteriophage predation on the *Pseudomonas aeruginosa* bacteria. Several biological phenomena (bacterial and phage coevolution and bacterial resistance) were captured with the sensor. This demonstrates the potential of the sensor as a promising monitoring tool to complement existing techniques.

KEYWORDS

BACTERIA, BIOFILM, BACTERIOPHAGE, RADIOFREQUENCY, SENSOR, PSEUDOMONAS AERUGINOSA

UNIPARTHENOPE CENTER FOR MARINE AND ATMOSPHERE MONITORING AND MODELLING “METEO@UNIPARTHENOPE”

VINCENZO CAPOZZI; DIANA DI LUCCIO; GIUSEPPE AULICINO; BERARDINO BUONOCORE; PAOLA DE RUGGIERO; GIANNETTA FUSCO; RAFFAELE MONTELLA; STEFANO PIERINI; ANGELO RICCIO; ENRICO ZAMBIANCHI; GIORGIO BUDILLON, [DIPARTIMENTO DI SCIENZE E TECNOLOGIE, UNIVERSITÀ DEGLI STUDI DI NAPOLI “PARTHENOPE”]

Meteo@Uniparthenope is a real-time monitoring and forecast service focused on weather, marine and air quality simulations hosted at the University of Naples "Parthenope". Within Meteo@Uniparthenope, numerical and artificial intelligence models dedicated to meteorology (Weather Research and Forecasting, WRF), oceanography (Regional Ocean Model System - ROMS, Wavewatch III – WW3, Campania Regional Model - CROM) and air quality (CHIMERE), are developed and implemented with high spatial and temporal resolution. A high-performance computing (HPC) infrastructure is dedicated to the modelling activities. Real time, as well as delayed time monitoring of weather and sea conditions is performed at Meteo@Uniparthenope through a network of oceanographic and weather stations in the Campania Region. More specifically, the precipitation events and their evolution in space and time are surveilled through an X-band radar network, consisting of two single-polarization systems operating in Naples Castel Sant’Elmo and in Treviso. Additional contributions to the meteorological and climatological monitoring come from several automatic weather stations (mainly situated in the Gulf of Naples) and by a WMO centennial station located in Montevergine (Campania Apennines, 1280 m a.s.l.). The monitoring of the oceanographic properties and dynamics is realized by two tide gauges located in Ischia and Castellammare, one wave buoy and one coastal mooring located in the Sorrento area and a coastal HF radar network covering the area of the Gulf of Naples. Meteo@uniparthenope modelling and monitoring outputs are distributed through a dedicated webpage (<https://meteo.uniparthenope.it>) that also hosts a friendly interface for weather and marine forecast maps, tables and bulletins.

KEYWORDS

OCEAN, ATMOSPHERE, CLIMATE, AIR QUALITY, MODELLING, MONITORING, ARTIFICIAL INTELLIGENCE

MAPPING ENVIRONMENTAL RISK OF MARINAS IN PORTUGAL-MAINLAND

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This study applies the Pressure-State-Response (PSR) model to assess the environmental risk of marinas along the coast of mainland Portugal. The goal is to provide decision-makers, such as government agencies and harbour managers, with scientifically-based information that helps to manage marinas and neighbouring waterfronts. The PSR model integrates the evaluation of environmental pressures, state conditions, and societal responses. The steps of the work comprised: (a) build a database with information necessary to determine the environmental impacts of identified pressure activities, such as navigation, port operations, dredging, oil pollution, coastal litter, and nearby industrial activities; (b) identify specific environmental conditions at each marina by mapping and evaluating susceptibility, ecological value, and naturalness using Geographic Information Systems (GIS) tools; (c) consider locally implemented management strategies to mitigate or prevent negative environmental effects from human pressures; and (d) establish risk thresholds, categorize pressures, states, and responses, and map spatial variations of risk factors. The classification and hierarquization of the risk is applied to 27 marinas along the west and south Portuguese coast. The resulting maps can help establish priorities for intervention plans aimed at enhancing water quality.

KEYWORDS

ENVIRONMENT, MARINAS, RISK, MANAGEMENT, GIS, COAST, PORTUGAL

ENERGY DRINKS: ATTITUDES, PERCEPTIONS AND CONSUMPTION IN MALTESE UNIVERSITY STUDENTS

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Energy drink (ED) consumption is common among young adults although recent evidence indicates potential health risks necessitating further investigation into their perceptions of these drinks. This study aimed to investigate ED consumption patterns, attitudes, and perceptions among students. A cross-sectional survey comprising 23 questions was developed and face validated. Ethical approval was sought from the Faculty of Health Sciences Research Ethics Committee. An online version was disseminated to University of Malta (UM) students via the registrar and social media. Participants (n=111) were predominantly female (60.4%) with a mean age of 21.9 years. Statistical analyses were conducted to explore associations and trends in consumption patterns and perceptions. The prevalence of ED consumption among UM students was high (73.9%), with males being significantly more likely to be consumers (86.4%, $p < 0.001$) compared to females (65.7%). Consumption frequency was mostly once weekly (46.3%), with taste significantly influencing ED choice ($p < 0.001$). Reasons for consumption included staying awake, taste preferences, and perceived benefits during studying, while reasons for avoidance included health concerns and taste aversion. The majority of the participants perceived ED as relatively safe during studying and sport activities ($p < 0.001$). Both consumers and non-consumers acknowledged addiction risks and confirmed substantial exposure to the marketing of ED. While non-consumers tended to be more aware of health risks ($p = 0.612$), over half of the participants (55.8%) thought sugar posed health risks, but not caffeine. This exploratory study sheds light on the high ED consumption among students and highlights neutral attitudes and perceptions towards ED use, despite emerging health concerns.

KEYWORDS

ENERGY DRINKS, UNIVERSITY STUDENTS, CONSUMPTION, ATTITUDES AND PERCEPTIONS, HEALTH CONCERNS, MARKETING

PRELIMINARY MEASUREMENTS OF AIRBORNE PARTICULATE MATTER AND CARBON DIOXIDE CONCENTRATION GRADIENTS IN INDOOR ENVIRONMENTS USING PURPOSE-BUILT SAMPLING SYSTEMS

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Spatial variability of air pollutants in indoor microenvironments is largely ignored. This work investigates whether vertical concentration gradients of indoor air pollutants are appreciable, in light of human exposure. A brief monitoring campaign in three distinct non-industrial indoor environments was undertaken in which vertical concentration profiles of airborne particulate matter and carbon dioxide, were determined using two distinct, purpose built sequential sampling systems. One of the systems was specifically built for use with gas monitors and analysers. The second system is more universal and suits sequential air sampling of particulate matter. Both systems are electronically-controlled and automated. The preliminary outcomes of the campaign are presented, and given the measured variation in concentration over a height of approximately three metres, it is clear that further investigation is warranted especially in view of human exposure by different groups e.g., adults and children, and possibly different circumstances e.g., standing and sitting.

KEYWORDS

VERTICAL CONCENTRATION PROFILE, CONCENTRATION GRADIENT, MULTI-LEVEL SAMPLING, AIR QUALITY SAMPLING SYSTEM, INDOOR AIR QUALITY, INDOOR POLLUTION, HUMAN EXPOSURE

CYCLICAL CHANGE IN METACOGNITION ACROSS THE MENSTRUAL CYCLE

NICOLE D'AMATO CARUANA, [UNIVERSITY OF MALTA]

This study investigates changes in metacognition across the menstrual cycle among naturally cycling women. Metacognition, the ability to reflect on and regulate one's own cognitive abilities, is crucial in understanding subjective cognitive impairments often reported in the absence of objective cognitive performance changes. Despite its relevance, research on metacognition during the menstrual cycle remains limited. This study aims to address this research gap by examining metacognitive change and its covariation with physical and affective symptoms. Participants (n=121) completed the Daily Online Metacognitive Evaluation (DOME), a novel questionnaire developed specifically for this study, which included measures of physical and affective symptoms. Over the course of two full menstrual cycles, a total of 7,172 questionnaires were collected. Multi-level modelling, utilizing cosine regression functions, and structural equation modelling techniques were employed to analyze withinperson individual differences and the relationship between cognitive, physical, and affective changes. The results evidence a menstrual effect on metacognition and demonstrate that individual variations in cyclical change are consistently significant and hold greater importance than average levels of change. Looking at co-variations: cognitive, physical, affective, and headache symptom type changes were correlated but distinct. This study presents the first systematic documentation of metacognitive changes in the context of the menstrual cycle, shedding light on underlying causal mechanisms and informing menstrual symptom classifications. Notably, the evidence of symptom covariation supports the reclassification of metacognitive symptoms as primary symptoms alongside physical and affective symptoms, rather than as behavioural accessory symptoms as currently listed in the DSM-5. Beyond clinical implications, these findings hold significance in shaping social policies, such as those pertaining to menstrual leave.

KEYWORDS

METACOGNITION, MENSTRUAL CYCLE, INDIVIDUAL DIFFERENCES, STRUCTURAL EQUATION MODELLING, PREMENSTRUAL DYSPHORIC DISORDER (PMDD), MENSTRUAL LEAVE

GENETIC CHARACTERISATION OF SELECTED PROBANDS/KINDREDS WITH CONGENITAL HEART DISEASE.

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[UNIVERSITY OF MALTA]

Congenital Heart Disease is a rare disease affecting around 1% of the population. Within the past few decades, a minority of patients diagnosed with this disorder were known to survive until adulthood, hence the research in this field is ever growing. The dissertation titled "Genetic Characterisation of Selected Probands/Kindreds with Congenital Heart Disease" presents a comprehensive study aimed at elucidating the genetic underpinnings of congenital heart disease (CHD). The research encompasses two primary aims: Primarily it aims at the establishment of correlations between genotype and phenotype in probands/kindreds affected by CHD, and secondly aiming at the exploration of the genetic burden of variants associated with CHD within the Maltese population. Whole Genome Sequencing (WGS) is performed for the proband alongside the unaffected relatives for the identification of any genetic variants present. For any identified variants, sanger sequencing and in silico modelling were performed for the characterisation of these variants on the gene product and hence any genotype-phenotype correlation according to available literature. A single variant in the *BMPR2* gene was identified in the proband correlating to one of the phenotypes presented by the case, hence further allowing insight into the genetic aetiology of this case of complex congenital heart disease. The findings of this dissertation hold significant implications for clinical practice, genetic counselling, and public health interventions in Malta. The identification of genetic variants in correlation to CHD, especially with regard to de novo or inherited variations, gives in depth insight into the pathophysiology of this disease. Through these, this study contributes to the development of personalized medicine, early detection, and prevention strategies for individuals and families affected by CHD. Moreover, it provides a foundation for future research in the field of cardiovascular genetics and paves the way for advancements in precision medicine tailored to the Maltese population.

KEYWORDS

CONGENITAL HEART DISEASE (CHD), GENETICS, GENOTYPE, PHENOTYPE, PROTEIN MODELLING, MECHANISM OF DISEASE,

MARINE CIRCULATION AND WEATHER CONDITIONS DURING MUSSEL PAHS CONTAMINATION EVENTS IN THE POZZUOLI BAY (GULF OF NAPLES) IN 2016

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The Gulf of Pozzuoli, a marginal sub-basin of the Tyrrhenian Sea, is historically dedicated to the farming of bivalve molluscs despite it is characterized by strong anthropogenic impact. In this area, the results of biochemical monitoring show that concentrations of the polycyclic aromatic hydrocarbons (PAHs) in the mussels from the Lucrino area are significantly high and show a marked seasonality, with higher concentrations of PAHs in mussels primarily occurring in winter. The seasonality of contamination supports the hypothesis of a correlation with meteorological and oceanographic phenomena as coastal hydrodynamic processes. This study describes the marine and weather conditions over the Gulf of Pozzuoli during the winter 2016, when high levels of PAHs were registered. The analyses of available in situ data provided a clear view of the sea surface dynamics, and wind patterns during the days before each contamination event. In this work in situ data collected by Bacoli weather station and ADCP data were used. Numerical model output and satellite data were used to describe the large-scale circulation of the Gulfs of Pozzuoli and Naples. Based on these results, mussel contamination could be related to the remobilization, suspension, and transport of sediments from Bagnoli (ex-industrial area) to Lucrino, depending on the variability of marine and weather conditions. Future developments of this work include the analysis of rainfall trends to observe if there is a correlation between the rainfall peaks and the major PAH contaminations. Additionally, a cluster analysis is to be performed using a data set comprising several years of meteo-oceanographic observations.

KEYWORDS

HEALTH SCIENCES, TECHNOLOGY, KNOWLEDGE TRANSFER, PROTEIN-ENERGY MALNUTRITION, HEALTH EDUCATION VIDEOS, DISEASE-RELATED MALNUTRITION, FRAIL OLDER ADULTS

PHYSICAL FITNESS AND BODY COMPOSITION ARE ASSOCIATED WITH IMMUNOLOGICAL AND OTHER BIOMARKERS ALTERED BY COVID-19. THE COVIFIT A SEA-EU PROJECT

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COVID-19 disease has caused 15 million deaths in the entire population, resulting in 78% mortality in older adults. The benefits of regular physical activity on health, life expectancy, and the mental and physical consequences of the COVID-19 pandemic are well documented. Moreover, there are meta-analytic evidences that individuals with obesity have a higher risk of COVID-19 infection, prognosis and progression than normal weight individuals. It is believed that one of the mechanisms of improvement could be through improved fitness levels and functionality and body composition generated by such regular physical activity. Therefore, it is necessary to analyze the interaction between physical functionality, body composition and immune response and certain markers associated with COVID-19. Aim: To analyze the association of physical fitness and body composition with immune biomarkers and other biomarkers altered with COVID-19 in adults and the elderly. Methodology: Participants belonged to two different age groups: adults (50-64 years), and elderly (65 to 80 years). Physical fitness level was measured using a battery of field tests for aerobic capacity, muscle strength and balance. Body composition was measured with bioimpedance and a measuring rod. In addition, participants attended the Puerto Real hospital for fasting blood sampling and subsequent determination of COVID19-related biomarkers. Results: It was observed that better physical fitness and body composition were associated with better COVID-19-related immunological biomarker profiles. Conclusion: Participants presented associations between body composition and physical condition with immune biomarkers.

KEYWORDS

COVID-19, BODY COMPOSITION, FITNESS, INMUNOLOGY, BIOMARKERS, HEALTHY LIFESTYLE, OLDER ADULTS

UNTANGLING ALS IN MALTA: FROM GENES TO MECHANISMS

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Genetic risk for amyotrophic lateral sclerosis (ALS) is highly elevated in genetic isolates, like the island population of Malta, providing a unique opportunity to investigate the aetiology of this disease. Founded in 5000BC by settlers crossing the sea from neighbouring Sicily, the genomic insularity of Maltese from the rest of mainland Europe has been apparent since Neolithic times based on recent analysis of ancient and modern genomes. Here we characterize the genetic profile of the largest series of Maltese ALS patients identified to date and correlate this data with the clinical phenotype. Potentially damaging variants were identified in more than 30% of all patients with this underscoring one of the most populations with a high percentage of genetically explained cases in Europe. In support, the rate of familial ALS in Malta is higher than the European median and the percentage of juvenile ALS cases was higher than that expected for the population size. Notably, damaging variants in global major ALS genes C9orf72, SOD1, TARDBP and FUS were either absent or rare in ALS patients of Maltese ancestry. Importantly, we showcase work aimed at characterizing a novel ALS-linked gene in the fruit fly model system. Our *in vivo* findings support the notion that loss of gene function is a meaningful contributor to ALS. Through use of transcriptome profiling, we pin point pathways that are dysregulated as a result of gene loss, allowing us to arrive at mechanisms that can be targeted by precision medicine for the benefit of ALS patients.

KEYWORDS

ISLAND POPULATION, AMYOTROPHIC LATERAL SCLEROSIS, NEURODEGENERATIVE DISEASE, MALTA, GENOMICS, GENETICS, ANIMAL MODEL

CONTAMINATION OF THE BALTIC SEA SEDIMENTS BY THE RESIDUES OF PHARMACEUTICALS AND OTHER MICROPOLLUTANTS

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The contamination of the environment by the emerging contaminants, including pharmaceuticals, has gained a huge scientific attention over the last two decades. However, the problem of their occurrence in the marine ecosystems is still much less studied in comparison to other environmental compartments. The Baltic Sea is an inland sea located in the northern part of Europe. It is characterized by low salinity and relatively low biodiversity. Based on the last HELCOM report (2017) on the presence of pharmaceuticals in the Baltic Sea region, referring to the data from 2003 to 2014 it might be concluded that most of the available information focuses on the marine waters. The state of knowledge on the contamination of the Baltic Sea sediments by the residues of pharmaceuticals and other micropollutants is much more limited. Therefore, the main aim of this study was to assess the degree of contamination of marine sediments collected in 2017 – 2022 from different areas of the Baltic Sea with 31 different chemicals (pharmaceutical residues and other micropollutants). For this purpose the microwave-assisted solvent extraction (MAE) was selected for the extraction of selected compounds, followed by the solid phase extraction (SPE) technique used for purification and LC-MS/MS(MRM) for the final analysis. Based on the obtained results in this target analysis approach the presence of 19 out of 31 compounds was confirmed in the investigated marine sediments. Moreover, in order to expand our knowledge on their contamination by other chemicals, the most polluted sediments were also subjected to non-target analysis.

KEYWORDS

ANALYTICS, MAE, SPE, LC-MS/MS, EMERGING CONTAMINANTS, PHARMACEUTICALS, MARINE SEDIMENTS

PATIENTS' EXPECTATIONS OF AND EXPERIENCES WITH PSYCHOSOCIAL CARE NEEDS IN PERIOPERATIVE NURSING: A DESCRIPTIVE STUDY

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Meeting the psychosocial care needs of surgical inpatients is crucial for their overall wellbeing, recovery, and positive experiences. This descriptive study, conducted from September 2019 to April 2020, involved 194 surgical inpatients from Norway and Denmark. The study aimed to describe and compare surgical inpatients' subjective perceptions of the importance of fundamental psychosocial and overall care received. Results revealed that patients expected and experienced healthcare personnel to treat them with respect and dignity, involving and informing them throughout perioperative care. Average ratings for these aspects of psychosocial care needs ranged from 72.1% to 93.8%. Notably, there was congruency between patients' perceptions of the subjective importance (SI) of psychosocial fundamental care and their perceived reality (PR) of care. The alignment between high SI and high PR ranged from 59.1% to 92.2%, while congruency between low SI and low PR was between 0% and 6.6%. Incongruency between SI and PR varied from 5.9% to 39.6%, primarily due to higher PR than SI. Crucially, there were no significant associations between education level, sex, length of stay, age, and patient expectations or experiences with psychosocial care needs. The study emphasizes the importance of incorporating patient perspectives in further research to bridge the gap between patient preferences and healthcare personnel's plans, potentially reducing stress and workload for the latter. Understanding patient preferences is key to avoiding missed care and enhancing the overall patient experience in perioperative settings.

KEYWORDS

HEALTHCARE PERSONNEL, MISSED CARE, PATIENTS, PERCEIVED REALITY, PERIOPERATIVE CARE, PERSON-CENTERED, SUBJECTIVE IMPORTANCE

TEN YEARS OF REPEATED GLIDER MONITORING LINE ACROSS THE WESTERN MEDITERRANEAN SEA DURING THE ABACUS PROJECT

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The Algerian Basin Circulation Unmanned Survey – ABACUS – aims at investigating the high-resolution variability of the first 1000 m of the Western Mediterranean Sea across the Algerian Basin and aims to contribute to fill the gap in data collection in this area. Glider missions were carried out in the AB between 2014 and 2024 by Università degli Studi di Napoli Parthenope, in collaboration with SOCIB and IMEDEA CSIC-UIB. These missions were supported through the TNA calls of JERICO, JERICO-NEXT and JERICO S3 programmes, and through the SOCIB glider facility open access programme. A total of 28 glider transects were completed. Each mission had an average duration of about 40 days. They took place during fall and/or early winter over the ten years, with additional missions in late spring and early summer in the recent years. All the glider surveys followed the SARAL/AltiKa (2014-2016) and Sentinel-3A (since 2018) satellite groundtracks. The timings of the glider missions were accurately planned to optimize the synopticity between insitu and satellite observations. ABACUS gliders were equipped with a glider-customized CTD; a two-channel combo fluorometer sensor and an oxygen optode. Since 2021, gliders were also equipped with a passive acoustic probe to study wind and rain events during the mission, as well as the presence of marine mammals. Recently, ABACUS line was also added to the Boundary Ocean Observing Network (BOON) of the OceanGliders programme that proposes the long term and sustained observation of oceanographic features using the unique capabilities of the gliders.

KEYWORDS

STEM DISCIPLINES, OCEANOGRAPHY, UNMANNED VEHICLES, MARINE MONITORING

INTEGRATING FIELD EXPERIMENTS AND IMAGE ANALYSIS FOR ASSESSING SHADING-INDUCED LOSSES FROM THIN OBJECTS ON PHOTOVOLTAICS

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The impact of shading is recognised as one of the most detrimental phenomena to harvest energy from photovoltaic (PV) systems. However, existing studies concentrate on hard shading from buildings, only considering the dark portion of the shadow named umbra. This study analyses the performance of PV sources under thin object shading scenarios through field experimentation. A diverse set of shadow instances were analysed, varying in object thicknesses from 2mm to 20mm up to 250cm distance. Results show that thinner objects under 10mm are more dependent on the factor of distance, while thicker objects experience a higher percentage power loss due to a larger umbra shadow. Moreover, a 10mm object reduces power generation by 24.19% at 25cm, decreasing to 4.77% at 250cm distance. Doubling the thickness to 20mm results in a higher power loss of 36.56% at 25cm reducing to 21.27% even at 250cm from the PV source, highlighting the consistent presence of umbra shadow in thicker objects. Analyses on the image documentation observed that umbra shadow exclusively is rarely observed, while the majority of instance, both umbra and penumbra are present. To delve deeper into shadow formation, an innovative image processing tool was developed to quantify shadow and correlate as a proportion to the cell area while categorising into umbra and penumbra values. This approach was derived to align with SDG Target 7.2 ('Affordable and Clean Energy') as part of the 2030 Agenda for Sustainable Development. By deriving a model capable of determining the power loss rate from thin shading shading, the global energy mix could increase the share of renewable energy by enabling researchers to reduce inefficiencies under thin object shading conditions.

KEYWORDS

PHOTOVOLTAICS, SHADING, IMAGE PROCESSING, EXPERIMENTATION, POWER LOSS, THIN OBJECTS.

ON p -FROBENIUS OF AFFINE SEMIGROUPS

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An affine semigroup $S \subset \mathbb{N}^q$ is a set containing 0 and closed under addition. A finite set $A = \{a_1, \dots, a_h\} \subset \mathbb{N}^q$ is a generating set of S if $S = \{\sum_{i=1}^h \lambda_i a_i \mid \lambda_1, \dots, \lambda_h \in \mathbb{N}\}$. It is called a minimal generating set if it is the minimal set, according to inclusion, generating S and we write $S = \langle A \rangle$. Let $S = \langle A \rangle$ and $n \in \mathbb{N}^q$, the set $Z_n(S)$ denotes $\{\lambda = (\lambda_1, \dots, \lambda_h) \in \mathbb{N}^h \mid n = \sum_{i=1}^h \lambda_i a_i\}$. The minimum integer cone containing S is $C(S) = \{\sum_{i=1}^h \lambda_i a_i \mid \lambda_1, \dots, \lambda_h \in \mathbb{Q}_{\geq 0}\} \cap \mathbb{N}^q$. We say that S is a C -semigroup if $C(S) \setminus S$ is a finite set. For $q = 1$, S is called a numerical semigroup when $\mathbb{N} \setminus S$ is finite (equivalently, $\gcd(a_1, \dots, a_h) = 1$). In this work, we study the p -Frobenius vector of affine semigroups $S \subset \mathbb{N}^q$. Defined with respect to a graded monomial order, the p -Frobenius vector represents the maximum element with at most p factorizations within S . We develop efficient algorithms for computing these vectors and analyze their behavior under the gluing operations with \mathbb{N}^q .

KEYWORDS

MATHEMATICS, AFFINE SEMIGROUP, FACTORIZATIONS, FROBENIUS PROBLEM, GLUING SEMIGROUP, SEMIGROUP IDEAL

THE P-LAPLACE SIGNATURE FOR QUASILINEAR INVERSE PROBLEMS

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PRAKASH, [UNIVERSIDADE DE CONCEPTION]; ANTONELLO
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We treat an inverse electrical conductivity problem which deals with the reconstruction of nonlinear electrical conductivity starting from boundary measurements in steady currents operations. This talk is inspired by an imaging problem encountered in the framework of Electrical Resistance Tomography involving two different materials, one or both of which are nonlinear. Tomography with nonlinear materials is in the early stages of development, although breakthroughs are expected in the not-too-distant future. We consider nonlinear constitutive relationships which, at a given point in the space, present a behavior for large arguments that is described by monomials of order p and q . The original contribution this work makes is that the nonlinear problem can be approximated by a weighted p Laplace problem. From the perspective of tomography, this is a significant result because it highlights the central role played by the p Laplacian in inverse problems with nonlinear materials. The main result is that for "large" Dirichlet data in the presence of two materials of different order (i) one material can be replaced by either a perfect electric conductor or a perfect electric insulator and (ii) the other material can be replaced by a material giving rise to a weighted p Laplace problem. We obtain this result by using methods of the Calculus of Variations. Starting from the weak formulation of the problems involved, we study the asymptotic behaviors of the solutions from the estimates of the associated Dirichlet Energy and obtain convergence results in suitable Sobolev spaces.

KEYWORDS

QUASILINEAR ELLIPTIC PDES, LINEAR APPROXIMATION, ASYMPTOTIC BEHAVIOR, ELECTRICAL RESISTANCE TOMOGRAPHY, INVERSE PROBLEMS

TECHNOLOGICAL ADVANCES IN REDUCING THE ENVIRONMENTAL IMPACT OF OUTDOOR SWIMMING POOLS

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In recent decades, the construction of swimming pools for recreational activities has grown exponentially in southern Europe. Swimming pools are used for private or collective use in hotels or condominiums, especially in tourist areas. The environmental impact of these facilities, especially in terms of water and energy, is very high. In the case of outdoor swimming pools, since there is no heating, their use is very limited and concentrated over a short period of time, depending significantly on favorable weather conditions. Compared to buildings in general, there isn't as much research into reducing the negative impact of swimming pools. In this context, a consortium with the participation of the University of Algarve, developed a project (ECOPOOL++) and implemented a prototype to test various mitigating measures such as: thermal insulation on the inside of the pool tank, implementation of a system to maximize water efficiency through the use of an innovative cover as well as a system capable of using the water from washing the filters for other purposes and detecting anomalous consumption. With regard to energy efficiency, various solar energy collection systems were implemented to heat the pool water and an intelligent and predictive SMART management system was implemented. The ECOPOOL++ project was recently completed, but there are already results that partially validate the innovative solutions implemented.

KEYWORDS

SUSTAINABILITY, TECHNOLOGICAL ADVANCES, OUTDOOR SWIMMING POOLS, ENVIRONMENTAL IMPACT

HOOF CAPABILITY OF BAREFOOT-KEPT HORSES AND PONIES WALKING OVER ARTIFICIAL ENVIRONMENTS: AN ANATOMICAL AND RADIOLOGICAL STUDY

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Hoof capability of domesticated, barefoot-kept horses and ponies traversing artificial environments remains undocumented. In this study, four equines were walked in-hand for 16 days, covering a distance of 50 km, over three solid surfaces. Subsequently, we conducted an assessment of hoof morphology. Hooves ($n = 16$) were radiographed before and after the trial, spaced 3 weeks apart, for sole depth measurement. External measurements of feet were recorded 24 hours before day 1 and repeated on days 9, 10 and 18. Radiographs revealed increased sole depth in 11 hooves, notably at the palmar process, and some misalignment in certain phalanges. On day 9, after a 36-km distance, all hooves exhibited calloused soles and frogs, and required trimming. The front hooves of the horses had a pronounced, natural concavity. Hard surfaces were found to stimulate sole growth, with a portion of sole thickness preferentially accumulating within the dermal zone. Collectively, the maintenance of short trimming cycles to prevent misalignment, minimize hoof-wall loading and maintain a load-sharing system, may be necessary for barefoot-kept horses considering their rapid growth rate.

KEYWORDS

RADIOGRAPHS, HORSES, PONIES, BAREFOOT HOOVES, SOLE DEPTH, FORAGE

COMPUTER PROGRAMMING AS A TOOL TO ENHANCE STUDENTS' ABILITY TO UTILIZE ALGORITHMIC THINKING – A MASTERS PROJECT IN THE NORWEGIAN LOWER SECONDARY SCHOOL

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The recently updated curriculum for the Norwegian lower secondary school (LSS) came with many new concepts in the traditional STEM subjects. One of the new concepts was algorithmic thinking and included computer programming as a required student skill. Many students do not have a good enough understanding of these new skills. In this talk we will present our findings from a quantitative study in which we look at the relationship between computational thinking and text-based programming. To gather data, we recruited 5 teachers from LSSs who contributed to the project with 170 students in different grades. The study is experiment-based, where we issue pre- and post-tests to the students, with a period of three programming lectures in between. The tests were chosen from validated tests on computational thinking, translated to Norwegian and adjusted to a text-based approach, as the original tasks were mostly block-based. The education program is python-based and is made up of tasks with a basis in mathematical probability. Probability was chosen as the topic in line with the Curriculum, as well as making it stand out against similar projects which focus on geometry. We expect a significant improvement in the students score from the pre- to the post-test, which will make the case that computational thinking can be taught in schools by way of computer programming, as well as be a testament to the value and versatility of computer programming as not a separate subject, but intrinsically to the larger field of mathematics education.

KEYWORDS

STEM SUBJECTS, ALGORITHMIC THINKING, COMPUTER PROGRAMMING, MATHEMATICS EDUCATION

AT A SNAIL'S PACE: SUITABILITY OF CORNU ASPERSUM AND THEBA PISANA AS BIOINDICATORS FOR HEAVY METALS IN MALTA

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Heavy metals are a cause of environmental concern due to their toxic and bioaccumulative effects and therefore monitoring them is important. One way of doing this is by using a bioindicator species. This study set out to determine the suitability of both the soft parts and the shell of two snail species *Cornu aspersum* and *Theba pisana*, for monitoring heavy metals in Malta: arsenic, zinc, cadmium, copper, nickel, lead, chromium, aluminium, manganese, barium, and vanadium. Snails were sampled from various environmental situations from around Malta, and analysed using MP-AES to identify and quantify the metals. It was determined that individual samples had enough variation in metal profile to constitute calling them effective bioindicators and that there was significant variation between shell and soft part samples. Tests showed statistically significant differences between the soft parts of the two species, with *T. pisana* soft parts being found to be the better bioindicator for arsenic ($p=0.046$), cadmium (0.032), nickel (0.008), lead (0.012), chromium (0.007), and aluminium (0.014). The soft parts of *C. aspersum* were shown to be the most effective bioindicator for barium (0.004). In the case of vanadium, it was only detected in shell samples, meaning that shells (especially those of *T. pisana*) must be used as bioindicators for this metal. For zinc, copper, manganese, and vanadium there was no statistically significant difference between the two species. The most abundant metals found in the species were Arsenic > Cadmium > Chromium. This study demonstrates the potential of using snails as effective bioindicators for a wide range of heavy metals in Maltese environments, with notable variations observed between species and between soft parts and shell samples, emphasising the importance of careful selection when utilising bioindicators.

KEYWORDS

ECOTOXICOLOGY, ENVIRONMENTAL MONITORING, CHEMICAL ANALYSIS, MP-AES, BIOINDICATORS, HEAVY METALS, TERRESTRIAL SNAILS

THE INFLUENCE OF OLIVE STONE ON THE PHENOLIC PROFILE AND STABILITY OF EXTRA VIRGIN OLIVE OIL

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Extra virgin olive oil (EVOO) is the most important source of fat in the Mediterranean diet. The presence of phenols in EVOO has attracted particular interest in the scientific community in recent years, as phenols are recognized as powerful biological modulators, which rightly classifies olive oil as a natural functional food. However, their proportion varies greatly and depends on the variety itself, the agro-climatic factors, the harvesting method and the harvesting period, as well as to a large extent on the oil processing parameters. EVOO is extremely rich in phenols, which makes it special compared to other types of vegetable oil. To date, more than 40 phenolic compounds have been identified in EVOO and new ones are constantly being discovered (oleomissional, oleokoronal). Modern technology in the production of EVOO tries to preserve its valuable ingredients as much as possible, especially phenols, which are important for the nutritional properties, stability and quality of the oil. Olive stone represents one of important parameters in determining EVOO phenolic profile which precise role is still conflicting, according to available data. In addition, there is not study on its effect on oleocanthal and oleacein content in EVOO. In this study, we investigated the content and profile of phenolic compounds in EVOO obtained from destoned and stoned olive fruits from middle Dalmatia region over a 6-month period. Particular attention was paid to the content of major phenolic secoridoids – oleacein and oleocanthal - which contribute significantly to the health effects and sensory characteristics of EVOO. The quantitative and qualitative analysis of major phenolics from Dalmatian EVOO with and without stone was determined by Folin-Ciocalteu spectrophotometric method and UHPLC-MS/MS technique.

KEYWORDS

EXTRA VIRGIN OLIVE OIL, PHENOLICS, OLEACEIN, OLEOCANTHAL, MEDITERRANEAN DIET, FUNCTIONAL FOOD, HEALTH EFFECTS

P.R.E.C.I.S.E – PAIN REDUCTION THROUGH ENHANCED CONDITIONING AND INTELLIGENT SIMULATION ENVIRONMENTS

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Pain management is a daunting challenge in healthcare, affecting millions worldwide and significantly impacting the lives of patients and their families. Although existing pain management strategies offer relief, they often come with limitations, such as the risk of addiction, highlighting a clear need for an innovative, non-invasive, and effective solution. To address this, we propose a novel approach called PRECISE (Pain Reduction through Enhanced Conditioning and Intelligent Simulation Environments). PRECISE draws inspiration from the success of MORPHEUS, a pain distraction system with a remarkable 80% reduction in pain. However, a notable limitation of MORPHEUS is that the pain returns once its use is discontinued. PRECISE is designed to overcome this limitation by offering sustained pain relief even after the distraction therapy is ceased. Unlike MORPHEUS, which relies on Virtual Reality (VR) for pain distraction, PRECISE employs a more holistic approach. It melds AI-powered VR with Distraction Therapy, particularly emphasising on Conditioning to improve pain management outcomes. Through affective computing, the AI-powered VR tailors the experience to the patient's emotional state, providing an engaging distraction from pain and enhancing the therapy's overall effectiveness. What differentiates PRECISE is its innovative conditioning methodology, which delivers both temporary distraction and long-term pain relief without any side effects. Our preliminary experiments, using only tactile stimuli, have already showcased a significant margin of improvement over MORPHEUS without the necessity of VR equipment. As we progress to the next phase of PRECISE, we plan to enrich our approach by introducing visual and auditory stimuli.

KEYWORDS

AI, VR, DISTRACTION THERAPY, CONDITIONING, PAIN MANAGEMENT

MYVITOX - MYCOTOXINS FB1 AND OTA TOXICOLOGICAL EFFECTS ON HUMAN CELLS: NEW IN VITRO MODELS

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The presence of mycotoxins, naturally fungal metabolites, is a global problem in terms of food safety, and therefore it is of real interest to evaluate their exposure to humans. The current climate change scenario may also alter human exposure to emerging mycotoxins or co-occurrence. In this context, the aim of the Myvitox project is to evaluate toxicity of two main regulated mycotoxins (ochratoxin A and fumonisin B1) of human concern using innovative in vitro toxicological approaches to determine the real response of mixtures in human hepatic (HepaRG) and intestinal (Caco-2) cell lines. Mycotoxin cytotoxicity was determined using 2D (monolayer cultures), 3D (spheroids) and a transwell cell co-culture system by MTS assay with 0.1 to 247.6 μM OTA and 0.07 to 138.5 μM FB1 concentrations after 48 h exposure. For bioavailability, Caco-2 and HepaRG cells were seeded individually in 96-well plates, while co-cultures were performed in Transwell plates. The obtained results showed that HepaRG cells were more sensitive than Caco-2 cells, and an increase in HepaRG viability was observed in co-culture with Caco-2 cells compared to HepaRG alone. At all tested concentrations and for each model, differentiated cells were more sensitive than undifferentiated ones, except for OTA as undifferentiated HepaRG cells were more sensitive. For FB1, both cell lines presented similar values. In this contribution, we will present preliminary results of the funded project "MYVITOX" (European Union 's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 899546).

KEYWORDS

MYCOTOXINS, FOOD CONTAMINANTS, HUMAN CELL LINES, IN VITRO TOXICOLOGY, ANALYTICAL METHODS, HUMAN EXPOSURE

LONG SHORT-TERM MEMORY NETWORKS FOR FORECASTING SEA LEVEL AND SEICHE OCCURRENCES IN MALTA

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Over the years, a phenomenon which affected several Maltese coasts and harbours was noticed by the general public and impacted the activities that the local citizens would normally carry out on a particular day. The phenomenon which was observed is referred to as a seiche. The ability to predict seiches can help prevent the damage and mitigate the risks associated with these natural phenomena. This research presents a novel approach for seiche prediction in Marsaxlokk, Malta, using Long Short-Term Memory (LSTM) neural network models. The proposed LSTM models are trained using time series data obtained from two tide gauge stations installed in Marsaxlokk and Portomaso by the Oceanography Malta Research Group (OMRG), University of Malta. Due to the presence of missing data, this research also explores the use of gap filling methods to obtain complete time series datasets for the LSTM model training and testing. Two LSTM neural network models are presented. These are trained on the Portomaso dataset and tested on the Marsaxlokk dataset with the second model involving calibration. Calibration was considered because in the first LSTM model, a vertical shift between the actual and predicted Marsaxlokk sea level values was noted. This research shows that both LSTM models trained on prior periods were able to identify, on test data, the seiches that occurred on 28th November 2021 and 30th June 2022 and to also model the long-term dependencies that are important for predicting sea levels with enough lead time.

KEYWORDS

SEICHE PREDICTION, LSTM NEURAL NETWORKS, SEICHE MODELLING, TIME SERIES FORECASTING, GAP FILLING METHODS, SEA LEVEL

BRIDGING EDUCATION AND TECHNOLOGY FOR INNOVATIVE LEARNING EXPERIENCES: A TRANSFORMATIVE COLLABORATION OF STEMI, INKLUDO AND CODE CLUB PMF

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Implementation of changes in educational system is subject to strict and slow protocols, often resulting in inadequate and untimely responses to the need for innovation. However, in recent years, new avenues for introducing changes into the education have emerged, one from higher education and the other from business sector. At the Faculty of Science in Split, we actively encourage students to engage in voluntary activities throughout their studies, such as organizing workshops for children and collaborating with NGOs. These initiatives find their facilitation through the Code Club PMF programming school for children, where Computer Science majors guide workshops and offer mentorship for participants' projects. In contrast, within the business sector, Stemi tackles educational challenges by fostering a collaborative ecosystem involving the tech industry, educators, and learners. This paper describes the collaboration between Stemi and Code Club PMF in 2022/23, involving three tech-driven educational programs: IoT Greentech, AI Chatbot, and XR quizzes. In the IoT Greentech program, participants used sensors and data science methods to develop a smart garden. Through the AI Chatbot program, learners developed a chatbot for the Rehabilitation center Inkludo, an NGO dedicated to children facing learning difficulties. XR quizzes provided pupils with an immersive experience in learning about critical thinking and sustainable development. The collaboration benefits not only Code Club PMF participants but also provides significant advantages for Faculty of Science students, offering them an opportunity to contribute to the community as well as to become ambassadors for educational innovations in their prospective teaching careers.

KEYWORDS

EDUCATION, INNOVATIONS, STEM, PROGRAMMING, TECHNOLOGY, INTERDISCIPLINARY

BIO-INSPIRED NAVIGATION STRATEGIES FOR A SURFACE MARINE DRONE

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Surface robots, particularly Unmanned Surface Vehicles (USVs), play a pivotal role in addressing challenges in sea surface monitoring, especially in areas where human access is difficult, such as busy ports. Conducting manual inspections in these environments is impractical and risky, making surface robots a valuable solution with their efficient navigation capabilities, providing cost-effective solutions. However, the dynamic and unpredictable nature of sea conditions poses challenges for operators remotely controlling surface robots. To overcome these challenges, it is crucial to equip surface robots with intelligent navigation systems capable of adapting to sea conditions. These systems enable autonomous decision-making, real-time adaptation, collision avoidance, efficient path planning, and continuous monitoring. In our work, we introduced a bio-inspired navigation system incorporating attentional mechanisms directing sensory acquisitions and processing. This system modulates the activation of navigation behaviours, allowing for effective integration of deliberative and reactive activities, overseeing, and regulating multiple concurrent behaviours. The overall robot behaviour emerges from the interconnectedness of attentional mechanisms associated with each individual behaviour. Comparisons of our adaptive navigation strategy with standard strategies in a simulated environment demonstrated the essential role of intelligent navigation systems in enhancing the overall effectiveness of surface robots in navigating challenging marine conditions. The integration of such systems proves crucial for ensuring adaptability to the dynamic nature of the sea, showcasing the significance of our proposed bio-inspired navigation approach.

KEYWORDS

UNMANNED SURFACE ROBOT, BIO-INSPIRED NAVIGATION STRATEGIES, BEHAVIOUR-BASED ARCHITECTURES, SIMULATING ENVIRONMENT

SHORT- AND LONG-TERM STRATEGIES FOR THE EVOLUTION OF A SPECIALIZED BACTERIA LIFE CYCLE

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The transition from single cells to multicellularity requires acquisition of Darwinian properties at the new-higher level of organization. Primordial groups arise via mutations that cause clumping cells that are non-Darwinian. Darwinian properties at the collective level are first imposed externally in a process called ecological scaffolding. Once natural selection can act on the new-higher level entity, the next step is the endogenization of the externally imposed Darwinian properties. This can happen through the evolution of a developmentally regulated life cycle, which has a collective and a propagules phase. Our experiment imposes group selection to populations of the bacterium *Pseudomonas fluorescens* SBW25 via a life cycle, alternating between biofilm formation (collective) and swimming behaviour (propagules). It resulted in the evolution of lineages with different developmental programmes that regulate the transition through the cycle. Two of which were propagated for further nine generations. We found that although phenotypically similar in the short term, over the long term, lineages with different developmental programmes differed in their extinction rate and mutations accumulation. Lineages able to molecularly regulate the transition, experienced little death but higher mutation accumulation. In contrast, lineages with minimal molecular regulation showed higher variability in extinction rate and lower mutation accumulation. Much remains to be discovered concerning the complex dynamics observed, but what it is clear is that when lineages are the focus of selection, multiple strategies can evolve, but only those with both short- and long-term positive effects are likely to allow future evolutionary endogenization of externally imposed Darwinian properties.

KEYWORDS

MULTICELLULARITY, GROUP SELECTION, EXTINCTION RATE, LIFE CYCLE, MUTATIONS, DEVELOPMENTAL PROGRAMME, ECOLOGICAL SCAFFOLDING

MACHINE AND DEEP LEARNING APPROACH FOR AUTOMATIC MAPPING OF COASTAL WETLANDS ON THE BRITTANY COAST (FRANCE)

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Coastal wetlands are valuable ecosystems at the interface between terrestrial and marine environments, characterised by their dynamism and biological diversity. Understanding and mapping these areas is of paramount importance because of their crucial role in preserving biodiversity, regulating the climate and protecting against natural hazards such as flooding and coastal erosion. With this in mind, artificial intelligence (AI) and remote sensing approaches offer promising tools for mapping and quantifying these ecosystems efficiently and accurately. This study focuses specifically on the Brittany coast in France, where Machine Learning methods, in particular convolutional neural networks (CNN) and random forests (RF), have been employed. The results obtained demonstrated good performance, with overall accuracy (OA) and Kappa scores varying between 0.85 and 0.91, underlining the effectiveness of these approaches for the automatic mapping of coastal wetlands. This research highlights the potential of AI and remote sensing to contribute to a better understanding and management of sensitive coastal ecosystems, facilitating their long-term preservation.

KEYWORDS

DEEP LEARNING, CNN, COASTAL WETLANDS, AUTOMATIC MAPPING, RANDOM FOREST, MACHINE LEARNING, DETECTION

AN ENHANCED MODEL FOR SLACK-BASED MEASURE OF EFFICIENCY AND SUPER-EFFICIENCY

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In many models of Data Envelopment Analysis (DEA), an efficiency status For Decision-Making Units (DMU) is proposed, but in this paper, an enhanced slacks-based interval DEA approach computing interval targets, slacks, and crisp inefficiency score, and a Super-efficiency slacks-based model distinguishing the efficient DMUs is introduced. Interval arithmetic and Interval partial order are used and an Interval linear programming is solved. Finally, applications of these methods to sustainable tourism in the Mediterranean region during 2019 are applied. In this example, to consider the proposed approach, twelve Mediterranean regions applying inputs and outputs in three dimensions with an undesirable output are presented.

KEYWORDS

DATA ENVELOPMENT ANALYSIS (DEA), DECISION-MAKING UNITS (DMU), EFFICIENCY, SUPER-EFFICIENCY, SLACK-BASED MODEL

INVESTIGATION AND MATERIAL CHARACTERISATION OF ADDITIVELY MANUFACTURED TI-6AL-4V GRADED LATTICE STRUCTURES

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With the aerospace sector's increasing need for reducing emissions to meet sustainable development goals, strategies to reduce mass have become paramount. Lattices are structures with engineered porosity aimed at replacing solid components to reduce component mass and have garnered increased attention. However, stress concentrations between solid and porous sections will arise with an abrupt transition between lattice structures and design features in components such as holes. This work focuses on the generation of lattice structures through additive manufacturing, investigating the material performance of graded lattice structures. Specifically, this research explores lattice cell topologies manufactured through Laser-Powder Bed Fusion (L-PBF) with Ti-6Al-4V, focusing on a gyroid unit cell applying various graded designs to achieve varying strength-to-weight ratios with a smooth variation in both porosity and resulting mechanical properties. The obtained lattices will be investigated using compression, tensile and axial fatigue testing to determine the mechanical performance of monolithic and accompanying graded conditions in varying configurations.

KEYWORDS

LATTICE STRUCTURES, ADDITIVE MANUFACTURING, LASER-POWDER BED FUSION, TI-6AL-4V ALLOY

SIMULATION OF SEMI-SOLID PROCESSING WITH NOVAFLOW&SOLID SOFTWARE

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Semi-solid metal (SSM) processing involves the formation of metal alloys between the solidus and liquidus temperatures, resulting in a semi-solid slurry comprising liquid and solid phases. This intermediate technique offers distinct advantages over conventional forging and casting methods, including reduced risks of gas entrapment and shrinkage porosity, energy efficiency, prolonged die life, and improved dimensional tolerances. However, the successful implementation of semi-solid processing requires meticulous optimization of influencing parameters. Fluidity, solidification and mechanical properties depend on factors such as slurry temperature, mold temperature, the metal velocity at the gate and process pressure. This research focuses on simulating the semi-solid processing of A356 semi-solid aluminum alloy using NovaFlow&Solid software. The study includes the design of the mold considering the viscosity of the semi-solid slurry and mold filling characteristics. Moreover, the impact of three key input parameters (liquid fraction of the slurry, mold temperature and tool speed) on the final product has been investigated. Based on the results of the simulations, it can be concluded that the tool speed, mold temperature and slurry temperature greatly affects the sample cooling, deformation force and mold filling capacity. The obtained results underscore the significance of temperature and tool speed control in achieving optimal process efficiency.

KEYWORDS

SEMI-SOLID CASTING, ALUMINIUM ALLOY, SIMULATION, THIXOFROMING

DESIGN AND ANALYSIS OF A HIGH-PERFORMANCE, INTEGRATED DRIVE, IN-HUB ELECTRICAL MACHINE FOR THE DRIVETRAIN FOR THE FSAE UoM RACING TEAM

CHRISTIAN JOHN DALLI; MICHAEL GALEA; JOSEPH CILIA,
[UNIVERSITY OF MALTA]

The ever-increasing push towards greener transport is leading the industry towards ever more power-dense and torque-dense electrical machines. This is particularly important for traction applications in the automotive industry especially when it comes to race cars, which are known for their lightweight design, high power output and rapid response capabilities. The proposed research is focused on creating a cutting-edge electrical machine with exceptional performance characteristics which would then be utilized as the drivetrain for the FSAE UoM Racing Team. Traditional motor drive systems employ cables to link various components, which adds weight, creates a more complex design for the drivetrain, incurs additional losses, and causes electromagnetic interference (EMI). Integrated drive machines have demonstrated their value by reducing weight, lowering manufacturing costs and enhancing overall efficiency. Therefore, they present the ideal choice for a racing car application. The focus of this research is mainly placed on the design, analysis and implementation of the electrical machine, and the procedure taken to ensure that the motor reaches the required specifications. Achieving the required torque demand, whilst keeping the motor's mass to a minimum is the primary difficulty for this application. Key parameters which are typically used to identify the optimum motor design are the power-to-weight ratio, the power density, and the efficiency. This research diverges from the current trend of using gearboxes and advocates for the advantages of direct drive. To the author's knowledge, no other literature exists that investigates the combination of both In-Hub architecture as well as direct drive or the introduction of an integrated drive machine for the Formula Student Competitions.

KEYWORDS

FORMULA SAE (FSAE), IN-HUB DESIGN, DIRECT DRIVE, INTEGRATED DRIVE, PERMANENT MAGNET SYNCHRONOUS MOTOR (PMSM), FINITE ELEMENT ANALYSIS (FEA), ELECTRO-MAGNETIC AND THERMAL MODELLING

AGRICULTURAL VALORISATION OF THE INVASIVE SEAWEED RUGULOPTERYX OKAMURAE AS AN EXAMPLE OF CIRCULAR BIOECONOMY

MARÍA BENÍTEZ ALEU; LUIS LÓPEZ MOLINA; MARÍA ROCÍO RODRÍGUEZ BARROSO, [UNIVERSITY OF CADIZ]

The problem of massive accumulations of the invasive species *Rugulopteryx okamuræ* on the coasts of the province of Cadiz motivates the exploration of the use of seaweed tops for its possible valorisation as an agricultural amendment. The study aims to determine the feasibility of this application. Trials were carried out with different vegetable seeds (onion, tomato, parsley and grass) using commercial agricultural substrate mixed with varying concentrations of *Rugulopteryx okamuræ* tops, previously conditioned (washed and crushed) in concentrations of 10 % and 40 % of seaweed vs. agricultural substrate.) Seedling stems were measured after growth for 14 days, always compared to a commercial substrate control, quintuplicate replicates. The 10 % algal mass dosage showed higher stem growth for onion, parsley and grass compared to the controls, while the 40 % mixture gave better results for tomato. These results are supported by previous studies by Francesca Berti et al. in 2023 and Wagner Vendrame et al. in 2013 indicating that the combination of *Rugulopteryx okamuræ*-based compost and biological residues favours seedling growth. In conclusion, the introduction of algal biomass together with commercial substrate does not hinder the overall growth of the samples, with substantial improvements observed only in the case of tomato and turf, suggesting that the application of algal biomass may be beneficial in certain agricultural contexts.

KEYWORDS

CIRCULAR BIOECONOMY, INVASIVE SEAWEED, RUGULOPTERYX OKAMURAE, AGRICULTURAL AMENDMENT

EFFECTIVENESS OF DEBRIEFING AFTER THE USE OF COERCIVE MEASURES IN MENTAL HEALTH: A SYSTEMATIC REVIEW

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[HEALTH SCIENCES, UNIVERSITY OF CÁDIZ]

The use of coercive measures in mental health units creates controversy for several reasons: restriction of freedom, psychological distress suffered by those who experience them and the risks derived from their practice. In the actually, current models in mental health care are aimed at avoiding these measures. Debriefing is a discussion following a concrete event that allows to promote learning outcomes. Its use after the application of coercive measures is recommended by some mental health care models, but its application does not seem to be very widespread in clinical practice. Objective: To identify evidences on the application of debriefing after the use of coercive measures in mental health units. Methodology: Systematic review. A search was carried out in PubMed, Cochrane, CINAHL and Web Of Science considering published studies between 2013 and 2023. CASPe checklists were used to evaluate the methodological quality of the studies found. Based on the inclusion criteria and the methodological quality, 9 studies were finally selected. Results: After applying debriefing, the number and duration of coercive events decreased and the bond between patients and professionals improved. Including patients in the debriefing is essential to analyze the event. It facilitates to study new ways of intervention and to involve patients in their healthcare process, promoting their empowerment. It is important to follow a recommended methodology to guarantee the results. However, there are limitations that make it difficult to generalize the results: small sample sizes or different methods of performing the debriefing. Lack of time or willingness to participate can hinder its correct execution. Conclusions: Debriefing after the use of coercive measures can provide benefits such as improving the quality of care and reducing the use of these measures. However, a specific methodology needs to be established and more research needs to be carried out to obtain more conclusive results.

KEYWORDS

MENTAL HEALTH, DEBRIEFING, COERCIVE MEASURES.

QUALITY ASSURANCE SIGNALS IN MEDICINAL PRODUCTS REGULATORY SCIENCES

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In the domain of medical and health sciences, the regulation of medicinal products is enhanced by the discernment of signals to improve the availability of safe, high-quality, and effective pharmaceuticals. This study explores the pivotal role of signals as informative markers in quality assurance, with a particular focus on signal alertness in assessing complex factors like competence and compliance in a medicinal products regulatory environment. The research objectives include identifying signals and associated attributes derived from within the pharmaceutical regulatory landscape, developing an innovative framework for assuring signal quality, and evaluating the impact of educational tools on fostering awareness of signal quality assurance in the pharmaceutical regulatory domain. Methodologically, the study employs a retrospective analyses of internal audit reports, quality improvement forms, and deviations, in conjunction with a focus group analysis of signals embedded within operational regulatory procedures, complemented by the development and validation of a training program. The findings elucidate manifold avenues for augmenting signal detection within the pharmaceutical regulatory sphere, thereby strengthening the regulatory quality assurance framework. The identified training needs for signal categorization emphasize the necessity of structured modules covering key aspects such as data interpretation, critical thinking, and domain expertise development. In conclusion this research reflects on the interaction between data, communication, and governance to enhance the comprehension of how organizations interpret, decipher, and respond to signals in the pharmaceutical regulatory sciences. Through this investigation, enhancing regulatory agility and adaptability enables entities to effectively manage emerging challenges and seize opportunities within the regulatory framework.

KEYWORDS

MEDICINAL PRODUCTS, HEALTH SCIENCES, SIGNAL ALERTNESS, REGULATORY FRAMEWORK, QUALITY ASSURANCE, TRAINING PROGRAM, REGULATORY AGILITY

THE POSSIBILITY OF CREATION OF BIOELECTROCHEMICAL SYSTEMS BASED ON PSEUDOMONAS SPECIES

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Bioelectrochemical systems based on microbial cells are being intensively developed nowadays. This is a versatile technology that involves the electric current production through the oxidation of organic compounds and the synthesis of redox mediators. The purpose of this work was to determine the possibility of obtaining microbial fuel elements from *Pseudomonas aeruginosa* ATCC 27853, ATCC 15692 and *Pseudomonas fluorescens* ONU 110, ONU 111. To detect the microbial redox potential, the DREAM (dye reduction-based electron-transfer activity monitoring) method with methylene blue was used; the determination of phenazine spectrum was carried out according to Chang and Levitch techniques. Statistical analysis was performed by Student's t-test ($p \leq 0.05$). The obtained values of the DREAM coefficient indicate that microorganisms can generate electrons, thus reducing methylene blue. The maximum intensity was observed for *P. aeruginosa* ATCC 27853. It was established that the studied microorganisms produce phenazine derivatives, which are considered as stable redox mediators. The maximum production of phenazine-1-carboxylic acid was obtained for *P. aeruginosa* ATCC 27853, while the other strains showed significantly lower intensity of its accumulation. According to the ratio of oxidizing (oxychlororaphin, pyocyanin) and reducing (phenazine-1-carboxylic acid) forms, the investigated microorganisms can be arranged in the following sequence: *P. aeruginosa* ATCC 27853 >> *P. fluorescens* ONU 111 > *P. aeruginosa* ATCC 15692 > *P. fluorescens* ONU 110, where the first of the strains was characterized by maximum intensity of phenazine production and the highest redox potential. Consequently, the *Pseudomonas* genus strains could be considered as a perspective source for bioelectrochemical systems.

KEYWORDS

BIOELECTROCHEMICAL SYSTEMS, PHENAZINES, PSEUDOMONAS SP., DREAM ASSAY.

INFLUENCE OF EMISSION FROM MARITIME TRANSPORT IN THE STRAIT OF GIBRALTAR

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The emissions from maritime transportation, both greenhouse gases and traditional pollutants, are harmful to the ecosystem and human health. The large quantities of these pollutants emitted by shipping in the Strait of Gibraltar could be reduced if the Strait was declared an Emission Control Area (ECA). The main parameter for calculating these emissions is the energy delivered (Transient Energy) by ships in real time. Several methods of such calculations have been published. Ship Traffic, Energy, and Environment Model (STEEM, 2010), Ship Traffic Emission Assessment Model (STEAM, 2012) and the Fourth IMO Greenhouse Gases (GHG) Study (2020), are the most prominent. Recently our own models Ships Energy and Emissions Models (SENEM, 2020 and SENEM1, 2023) were published. Unlike other models, SENEM1 includes all the variables – both ship and external conditions - that influence the calculation of emissions. Using the SENEM1 emissions model, this study aims to compare the current situation in the Strait of Gibraltar and a possible future situation as an Environmental Control Area, ECA.

KEYWORDS

HEALTH, EMISSIONS, ENVIRONMENT, MARITIME TRANSPORTATION

SYMMETRIES, CONSERVATION LAWS, AND LINE SOLITON SOLUTIONS OF A TWO-DIMENSIONAL GENERALIZED KDV EQUATION WITH P-POWER

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A two-dimensional generalization of the Korteweg-de Vries equation with p -power is studied. This equation appears in many physical applications such as shallow water waves, ion acoustic waves, anharmonic lattice waves, and internal waves of stratified fluids. The objective of this work is to determine symmetries, conservation laws, and exact solutions of this equation. For $p > 0$, we derive all point symmetries and conservation laws including those existing for special powers with their physical meaning. The conserved quantities are studied. We also determine an explicit line soliton solution using some invariant under translation conservation laws for $p > 0$. Finally, by using invariant under scaling conservation laws we reduce the travelling wave ordinary differential equation for different values of p .

KEYWORDS

PARTIAL DIFFERENTIAL EQUATIONS, KORTEWEG-DE VRIES EQUATION, SYMMETRIES, CONSERVATION LAWS, CONSERVED QUANTITIES, TRAVELLING WAVE SOLUTIONS, LINE SOLITONS

TOWARD METABOLIC ENGINEERING OF OMEGA-3-LONG-CHAIN PUFAS IN PLANTA - PROMISING ROLE OF TWO ACYLTRANSFERASES FROM OLEAGINOUS MICROALGAE PHAEODACTYLUM TRICORNUTUM

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Eicosapentaenoic acid (EPA), an omega-3-long-chain polyunsaturated fatty acid (ω 3-LCPUFA), is crucial for human health, preventing cardiovascular and neurodegenerative diseases. The primary source of ω 3-LC-PUFAs consumption and supplementation is marine fish, although their native producers are oleaginous microalgae. Increasing demand for fish oils driven by population growth and sustainability concerns resulting from overfishing and aquaculture, create an urgent need to seek alternative sources. One possibility may be metabolic engineering of plants with an introduced enzymatic pathway producing ω 3-LCPUFAs. The first step of their efficient production in planta is to identify and characterize the genes and enzymes involved in lipid biosynthesis in microalgae. Our study focused on enzymes from diatom *Phaeodactylum tricornutum*, known for significant EPA production, reaching up to 30% of total fatty acids. We identified gene encoding acyl-CoA: lysophosphatidylcholine acyltransferase (LPCAT), responsible for phosphatidylcholine production – a key substrate for PUFAs synthesis. Detailed substrate specificity was conducted on microsomal fractions derived from yeast lines expressing PtLPCAT, and previously identified but not fully characterized diacylglycerol acyltransferase (PtDGAT2b), involved in triacylglycerol production. Both exhibited a unique preference for acyl-CoAs from the ω 3-pathway. In next step, to achieve in planta EPA synthesis, we transiently expressed in different combinations diverse desaturases, and elongase in tobacco leaves. Additionally, we examined PtLPCAT and PtDGAT2b action, with the most promising combination, to boost EPA production. The result of these experiments gave positive results elucidating that their co-expression can be used successfully in metabolic engineering of plants designed to obtain an elevated triacylglycerol level, enriched in ω 3-LC-PUFAs.

KEYWORDS

SCIENCE, PLANT SCIENCE, PLANT METABOLIC ENGINEERING, SUSTAINABLE DEVELOPMENT, OMEGA-3 PUFAS, OLEAGINOUS MICROALGAE

FERTILITY AND (EPI)GENETIC REGULATION OF MEIOTIC RECOMBINATION RATE IN MICE AND MEN

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Humans have 23 pairs of chromosomes, one of each pair from each parent, obtained by the process of reductional cell division called meiosis. But before we get one chromosome from a pair from each parent, there is recombination and shuffling between each pair. This introduces variation to ensure that we aren't identical half copies of each parent. From one species to another, from one chromosome to another, from one region in the chromosome to another, the rate of recombination can vary. In some species like humans and mice, but not all, recombination is absolutely required, both for introducing variation but also for ensuring that one chromosome from each pair is segregated properly during meiosis into the gametes, to maintain fertility, avoid sterility and disorders resulting from improper segregation of chromosomes like down syndrome. We explore genetic and epigenetic regulators of meiotic recombination in mammals, which are working in tandem. We carry out in silico analysis to characterize the variation and evolution of the proposed putative meiotic recombination regulators using genomic, transcriptomic, and epigenetic data with the overarching aim to uncover genetic factors affecting genome stability by dictating proper recombination and repair. We envision a comprehensive evolutionary description of the nature and dynamics of the putative meiotic recombination regulators in the context of diversity, population structure, hybrid sterility, and speciation. Further, there is medical potential to study the association between variation in the different meiotic recombination drivers and the disease states in which meiotic segregation and recombination errors manifest such as aneuploidy, pregnancy failure, sterility, congenital disorders.

KEYWORDS

KEYWORDS MEIOSIS, RECOMBINATION, GENETIC VARIATION, EPIGENETICS, MEDICAL GENETICS, EVOLUTIONARY BIOLOGY, STERILITY

COMPARISON OF THE IMMUNE RESPONSE OF THE MEDITERRANEAN MUSSEL (*MYTILUS GALLOPROVINCIALIS*) TO DIFFERENT BACTERIAL CHALLENGES

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Mariculture of bivalves is an expanding industry globally but is constantly at risk due to its high dependency on environmental conditions including the microbiota. The marine bacteria, *Vibrio* spp., are a diverse group containing well-known marine pathogens, that cause disease outbreaks in shellfish farms and are responsible for major losses in production. Bivalves can accumulate pathogenic *Vibrio* inside their tissues when exposed to contaminated environmental waters, and infections may be the outcome of the complex interaction between the bacterial pathogen virulence factors and the host immune system. Protection against microorganisms in bivalves relies primarily on innate immunity, which is relatively poorly understood. Therefore, identification and exploration of the cellular and molecular factors involved in the immune response to pathogens can contribute to the development of innovative molecular tools for monitoring and contribute to the implementation and advancement of corrective measures to avoid disease outbreaks. The objective of this study was to understand how *Vibrio* diversity affects the bivalve immune response by looking at the Mediterranean mussel (*Mytilus galloprovincialis*), the second most economically valuable farmed bivalve species globally. Mussels were primed with live and heat-killed pathogenic *Vibrio harveyi* and non-pathogenic *V. renipiscarius* to characterize the change in cellular and humoral factors involved in the innate immune response, after 16h and 96h post-priming, by looking at immune related haemocytes and mantle. The impact of the different challenges on the mussel immune response will be discussed, combining results from biochemical, transcriptomes and cellular assays.

KEYWORDS

AQUACULTURE, BACTERIA, BIVALVES, VIBRIO, INNATE IMMUNE RESPONSE

USE OF UNMANNED AERIAL SYSTEMS FOR MULTISPECTRAL PLASTIC WASTE DETECTION AND MONITORING ON THE COAST OF GRANADA

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Satellites have been broadly used for marine plastic debris detection and monitoring in remote sensing research. However, few studies have assessed plastic pollution on dry riverbeds with the use of spectral data acquired by drones. These riverbed channels represent a key source of plastic litter accumulation before it reaches the marine systems if actions are to be taken. In this research, high resolution multispectral and RGB (red, green, and blue) imagery data acquired by Unmanned Aerial Vehicles was combined with in situ surveillance to detect mismanaged macroplastics accumulation due to intensive farming on dry riverbeds in Castell de Ferro, a town located in the central part of the Granada coast in Spain which is famous for its tourism and plastic greenhouses. The data acquired with the sensors was then processed with a Supervised Classification Plugin used in QGIS and validated with in situ identification of the macroplastics. As a result, the multispectral sensor was considered to deliver the necessary data for accurate plastic litter detection, whereas the RGB imagery and the in-situ surveillance data acquired provided the required validation improving accuracy in the plastic litter detection achieving the main goal set for this research study. The aim of this study was to develop a methodology to detect plastic litter on coastal areas as a practical and cost-effective assessment tool for detecting and monitoring intensive agriculture residues for academic researchers and decision makers.

KEYWORDS

LOW ALTITUDE REMOTE SENSING, INTENSIVE FARMING, GREENHOUSES, MULTISPECTRAL SENSOR, DRONES, QGIS

EXACT SOLUTIONS TO A FAMILY OF LEVINSON-SMITH EQUATIONS

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This talk deals with the determination of general exact solutions to the Levinson-Smith equation. Such an equation is a second-order ordinary differential equation that was introduced as a generalization of the classical Liénard equation in order to model damped oscillators for which the corresponding damping term can depend on the first-order derivative. In our study, the theory of λ -symmetries is applied, which allows us to tackle the calculation of exact solutions in equations where the classical Lie symmetry method fails. We determine a family of Levinson-Smith equations admitting a λ -symmetry and for which the corresponding λ -symmetry-based integration method leads to the determination of the general exact solution for the whole family. Remarkably, equations lacking Lie point symmetries and a family of general Liénard equations are included in the considered family of Levinson-Smith equations.

KEYWORDS

LEVINSON-SMITH EQUATION, EXACT SOLUTIONS, λ -SYMMETRY, LIÉNARD EQUATION

ON C-SEMIGROUPS CONTAINED IN A GIVEN ONE

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Lately, numerous works have extended some of the main well-known results about numerical semigroups to algebraic structures of higher dimension. Following this line of research, we generalize properties, characterizations, invariants, and known conjectures about restricted numerical semigroups to restricted C-semigroups. From \mathcal{N}^p now on, is the p-dimensional space composed of all p-tuples of natural numbers. A C-semigroup is a non-empty subset of (for some non-zero natural number p), \mathcal{N}^p closed under addition, containing the zero element, and such that the complement of S in C is finite. We will denote by $C \subseteq \mathcal{N}^p$ the integer cone generated by S.

KEYWORDS

NUMERICAL SEMIGROUPS, AFFINE SEMIGROUPS, FROBENIUS PROBLEM,
WILF'S CONJECTURE, BRAS-AMORÓS'S CONJECTURE, IRREDUCIBLE
SEMIGROUPS

GRAPH DOMINATION, GRAPH ISOLATION AND THE ART GALLERY THEOREM

PETER BORG, [DEPARTMENT OF MATHEMATICS, FACULTY OF SCIENCE, UNIVERSITY OF MALTA]

Graph theory is an area of discrete (finite) mathematics that has soared in popularity during the last century. A graph here is not the usual plot but the abstraction of a network. Thus, graph theory is, loosely speaking, the mathematics of relations and connections, and can be applied to all networks (social / computer / communication / internet / transport / etc.). A graph consists of a set of objects, called vertices, together with a set of relations, called edges; any two vertices are either related (form an edge) or not related. The closed neighbourhood of a set S of vertices consists of the vertices in S together with each vertex that is related to at least one of them. It is denoted by $N[S]$. If $N[S]$ contains all the vertices of the graph, then S is called a dominating set. Domination theory is the popular study of dominating sets. Recently, this has been widened to the study of isolating sets, where the graph obtained by removing $N[S]$ must not contain copies of members of a prescribed set of graphs. A central aim is to determine how small an isolating set can be, especially when compared to the whole set of vertices of the graph. The Art Gallery Theorem (AGT) says that the smallest number of guards needed to guard the whole interior of an 'art gallery' (a polygon in general) is at most a third of the number n of corners of the gallery. The author's recent collaborative work on domination and isolation particularly led to extensions of AGT. In particular, Pawaton Kaemawichanurat and the author showed that if k is a non-negative integer such that at least one of every $k + 1$ consecutive corners must be visible to at least one guard, then the smallest number of guards needed is at most n divided by $k + 3$. This work will be outlined.

KEYWORDS

DOMINATING SET, ISOLATING SET, GUARDING SET, POLYGON, ART GALLERY THEOREM

A STUDY ON CONSERVED QUANTITIES AND SOLUTIONS FOR THE GENERALIZED DRINFELD-SOKOLOV SYSTEM

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The generalized Drinfeld-Sokolov system is a widely-utilized framework that characterizes wave phenomena across various contexts. Numerous aspects of this system, including its Hamiltonian formulations and integrability, have undergone extensive examination, leading to the derivation of exact solutions in specific scenarios. In this study, we employ the direct method of multipliers to systematically derive all low-order local conservation laws inherent to the system. These laws encapsulate physical quantities that exhibit constancy over time, such as energy and momentum, each accompanied by a comprehensive physical interpretation. Furthermore, our investigation extends to exploring the Lie point symmetries and first-order symmetries of the system. By leveraging these symmetries and constructing optimal systems of one-dimensional subalgebras, we successfully streamline the system of partial differential equations into ordinary differential systems, thereby uncovering novel solutions.

KEYWORDS

APPLIED MATHEMATICS, WAVE PHENOMENA, CONSERVED QUANTITIES, LIE SYMMETRIES, EXACT SOLUTIONS

AN AGENT-BASED MODELING APPROACH TO POLICY, MARKET, AND TECHNOLOGY EFFECTS ON AUTONOMOUS SHIPPING ADOPTION RATE BY INLAND SHIPOWNERS

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Autonomous shipping innovation has been the focus of research and industry institutions for the past couple of years. Research and industry organizations contribute through pilot projects, trials, experiments, and various forms of collaboration[1]. A common challenge for innovation is how to stimulate its diffusion [2]. Inland waterways transport (IWT) involves interconnecting stakeholders with different roles and behaviours in adopting autonomous shipping [5]. The adoption rate can be the defining factor in the success or failure of an innovation. The complex system approach is suggested for social, political, ecological, and economic policymakers due to its ability to anticipate and explain critical human behavior patterns, enabling better-informed action [3]. A complex system consists of many connections and interacting elements or agents, each with its behavior, leading to collective or emergent behavior [4]. Previous studies have addressed the variables affecting the adoption rate and the intention development process of adopting autonomous shipping by European inland shipowners[6]. Agent-based modelling (ABM) is a recommended modelling technique to simulate complex systems[3]. It has the ability to adapt to dynamic changes, which traditional economic modelling has failed to do in recent years [7]. To our knowledge, the ABM approach has not been applied to autonomous inland shipping. Therefore, we aim to fill this gap by applying variables that have the most significant impact on the adoption rate in this context using the ABM approach. The primary focus of this simulation is the shipowners. This paper proposes a theoretical decision model to understand an inland shipowner's decision to adopt autonomous shipping technology. Starting with ABM, this paper investigates the effects of different scenarios, including market, policy, and technology changes. The model simulates a heterogeneous population of inland ships with data inputs from the Clarksons ship register. Additionally, technological variety integrates costs from different level of autonomy. The findings provide market scenarios that reflect what authorities can expect by implementing different strategies. The market scenario reflects the available number of autonomous ships on the market. The policy implications reflect the development of subsidies and taxes available for shipowners to facilitate the adoption of autonomous shipping innovations. Lastly, the discussion focuses on how the development of technology would strongly influence the level of autonomy the ships will reach. In summary, the simulation results show different possible scenario outcomes and suggest conditions for wider autonomous shipping adoption by inland shipowners. At the time of this conference, the model will still be under development. However, we will consider different effects, including policy combinations, technology, awareness, and market behavior. The author is affiliated with the AUTOBarge project as an Early-Stage Researcher (ESR). This project has received funding from the European Union's EU Framework Programme for Research and Innovation Horizon 2020 under Grant Agreement No. 955768.

UNTANGLING ALS IN MALTA: FROM GENES TO MECHANISMS

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Genetic risk for amyotrophic lateral sclerosis (ALS) is highly elevated in genetic isolates, like the island population of Malta, providing a unique opportunity to investigate the aetiology of this disease. Founded in 5000BC by settlers crossing the sea from neighbouring Sicily, the genomic insularity of Maltese from the rest of mainland Europe has been apparent since Neolithic times based on recent analysis of ancient and modern genomes. Here we characterize the genetic profile of the largest series of Maltese ALS patients identified to date and correlate this data with the clinical phenotype. Potentially damaging variants were identified in more than 30% of all patients with this underscoring one of the most populations with a high percentage of genetically explained cases in Europe. In support, the rate of familial ALS in Malta is higher than the European median and the percentage of juvenile ALS cases was higher than that expected for the population size. Notably, damaging variants in global major ALS genes C9orf72, SOD1, TARDBP and FUS were either absent or rare in ALS patients of Maltese ancestry. Importantly, we showcase work aimed at characterizing a novel ALS-linked gene in the fruit fly model system. Our in vivo findings support the notion that loss of gene function is a meaningful contributor to ALS. Through use of transcriptome profiling, we pin point pathways that are dysregulated as a result of gene loss, allowing us to arrive at mechanisms that can be targeted by precision medicine for the benefit of ALS patients.

KEYWORDS

ISLAND POPULATION, AMYOTROPHIC LATERAL SCLEROSIS,
NEURODEGENERATIVE DISEASE, MALTA, GENOMICS, GENETICS, ANIMAL
MODEL

INTACT CELLS AS CATALYSTS FOR HEALING DAMAGED NEIGHBORING CELLS

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Due to the extended human lifespan in recent decades, age-related diseases have become a significant societal concern. Thus, efforts to discover strategies to postpone or slow down aging and age-related diseases are becoming more and more prevalent in life science research. During aging, cells accumulate random damage, leading to diverse characteristics among the cell populations within aging tissues. In the context of healthy aging and heterogeneous populations of cells, “cellular parabiosis” presents a promising theory. This phenomenon describes the suppression of aberrant phenotypes in damaged cells by a healthy population of cells. Although the bystander effect, which involves the transmission of abnormal characteristics from harmed cells to neighboring unaffected cells, has been thoroughly explained, the manner in which healthy cells, might impact the nearby damaged or dying cells is still not understood. In this study, we aimed to investigate how apoptotic cells behave in the presence of intact cells compared to the apoptotic cells in monoculture. We found that intact cells help recover apoptotic cells, while this effect was not exhibited when apoptotic cells were seeded in monoculture. Subsequently, we explored the potential role of gap junctions, tunneling nanotube-mediated intercellular communication, and factors secreted by the healthy cell in this recovery process. Our findings emphasize that variables that can prolong disease latency and possibly slow the aging process may be found as a result of cellular parabiosis.

KEYWORDS

CELLULAR PARABIOSIS, CELLULAR COMMUNICATION, CELL DEATH, APOPTOSIS

NEW DISCOVERIES ABOUT THE LITTLE FISH OF SÃO TOMÉ AND PRÍNCIPE

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The rivers of São Tomé Island are colonized by the little fish that includes at least three species: *Awaous lateristriga* (Duméril, 1861), *Sicydium brevifile* Ogilvie-Grant, 1884, *Sicydium bustamantei* Greeff, 1884. These endemic species are amphidromous fish, i.e., adults live upstream in the rivers, the larvae hatch and migrate to the ocean with the river flow, where they stay for a few months until they develop into post-larvae and migrate back to the rivers. Once in the rivers, the post-larvae must climb waterfalls to reach the habitats where they will develop into breeding adults. The migrations of the post-larvae sustain important local fisheries, where they are caught without any control or regulation. Due to heavy local consumption and reports of its decline over the years by communities, there is an urgent need to increase knowledge about the biology, ecology, and fisheries of the little fish, and to develop appropriate management and conservation measures. The LittleFish-STP project has been helping to eliminate these knowledge gaps by studying the little fish life cycle, feeding ecology, dispersal and fisheries. This project has also been characterising the habitats used by the little fish throughout the different stages of its life cycle. The valorization and involvement of local communities is integral to the project, facilitating the exchange of knowledge, and this project is working with communities to develop and sustainability of communities from environmental and socio-economic perspective.

KEYWORDS

ENDEMIC SPECIES, SUSTAINABILITY, GOLF OF GUINEA, SCIENCE, ENVIRONMENTAL AND SOCIO-ECONOMIC IMPORTANCE, EXCHANGE OF KNOWLEDGE, LOCAL COMMUNITIES

FORENSIC APPLICATIONS OF DNA-BINDING FLUORESCENT DYES

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Fluorescent dyes are now widely used in many types of scientific research, such as following processes in cells and tissues, labelling biomolecules or microscopic imaging. By using dyes that bind to nucleic acids, we can determine the quality and quantity of the material we are examining. Extensive research is available on the photophysics and complexation of various dyes with DNA, obtained under different experimental conditions, while the need to develop a method for detecting trace amounts of DNA is driven by issues related to the often toxic/mutagenic effects of currently used dyes and the search for safer alternatives. Increasing the sensitivity, efficiency and effectiveness of current techniques is desired by both the biological and physical sciences and the evolving forensic sciences. A wide range of dyes offers great potential for applications. The following research presents a comparison of dyes such as Acridine Orange, SYBR® Green I nucleic acid gel stain, Coomassie Brilliant Blue or Diamond™ Nucleic Acid Dye in their application in forensic science as dyes to visualise trace amounts of DNA. This research was supported by a grant National Science Centre 2021/41/B/HS5/03250 (M.Cz., E.G., A.L.).

KEYWORDS

BIOPHYSICS, FORENSIC SCIENCE, FLUORESCENCE, DYE, DNA, VISUALIZATION

DYNAMICS OF SERUM INFLAMMATORY MARKERS AND ADIPOKINES IN PATIENTS IMPLICATIONS FOR MONITORING ABNORMAL BODY WEIGHT. PRELIMINARY RESEARCH

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The World Health Organization defines obesity as a complex multifactor disease leading to increased risk of many illnesses. Overweight and obesity are currently found in about 60% of adults in the WHO European Region. There are more and more studies highlighting the link between inflammation and obesity. The objective of this study was to test for possible relationships between serum levels of Zinc α 2-glycoprotein (ZAG), Adiponectin, Leptin, Nesfatin-1, and Interleukin-6 (IL-6) in collected serum and body mass index (BMI). The research involved 46 participants categorized into three groups: those with a normal BMI (group I; n = 19), individuals classified as overweight (group II; n = 14), and people with obesity (group III; n = 13). Serum levels of IL-6, ZAG, Nesfatin-1, Leptin, and Adiponectin were measured by ELISA enzyme immunoassay (R&D Systems, Minneapolis, MN, USA) according to the manufacturer's protocol. The statistical analysis showed an upward trend for IL-6 ($p = 0.0008$), and Leptin ($p = 0.00001$), wherein an increase in the level of these markers correlates with a concurrent increase in BMI. Additionally, ZAG protein concentration was significantly and negatively correlated with HDL-C and LDL-C cholesterol levels. ($p = 0.001$, $p = 0.029$, for HDL-C and LDL-C). No statistically significant results were obtained for Nesfatin-1 ($p = 0.858$) and Adiponectin ($p = 0.578$). Based on the results of this study, we suggest that parameters such as IL-6 and Leptin could be used as indicators of obesity risk in people with abnormal BMI. Further studies are needed with a larger cohort of patients.

KEYWORDS

OBESITY, OVERWEIGHT, INFLAMMATORY MARKERS, HEALTH SCIENCE, BMI

A MIXED METHODS SCOPING STUDY OF THE CLINICAL MANAGEMENT OF PATIENTS WITH ACHILLES TENDINOPATHY IN MALTA

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This study aimed to explore the practitioners' perspectives in managing patients with Achilles tendinopathy, identify local barriers in Malta that could hinder appropriate management and understand the referral pathways to improve the patient recruitment process for a clinical trial. A two-phase sequential exploratory mixed-method study was undertaken. The first phase incorporated qualitative in-depth interviews with eight specialised sports practitioners. An inductive approach to thematic analysis of the transcribed data was undertaken by two independent researchers. Based on these results, a follow up questionnaire was formulated for the second phase. All general doctors, physiotherapists, podiatrists and osteopaths treating patients with Achilles tendinopathy were invited to participate. The Chi-squared statistical test was used to investigate the association between the profession of participants and the different aspects of management. Integration of the two phases were done providing a coherent data. Results show that patient-centred holistic care and proper communication is essential for understanding the psychosocial aspects and motivation of the patient, during all stages of the management plan. Local practitioners discussed the importance of working within an interdisciplinary team, however, they still tend to work on their own. The actual implementation of such an approach is faced with various barriers, including the need for structured referral pathways to guide practitioners into providing prompt effective treatment. We also identified actionable ways to promote advancement in the service given through an interdisciplinary team to maximise the resources available and manage more efficiently patients with Achilles tendinopathy.

KEYWORDS

STEM MEDICAL/HEALTH SCIENCES, PRACTITIONERS' PERSPECTIVE, MIXED-METHODOLOGY, BARRIERS, HOLISTIC CARE, INTERDISCIPLINARY

IMPLEMENTING AN INTEGRATED MULTIMETHODOLOGICAL APPROACH TO ASSESS MARINE NATURAL CAPITAL AND ECOSYSTEM SERVICES: A CASE STUDY IN THE MEDITERRANEAN SEA

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Marine and coastal ecosystems are recognized among the most productive ecosystems in the world. In the Mediterranean Sea, the Strait of Sicily has been recognized internationally as an "Ecologically or Biologically Significant Area" able to provide multiple benefits, supporting human life at different scales. Nevertheless, the Strait of Sicily is one of the most threatened areas in the Mediterranean basin. Anthropogenic pressures are degrading its natural capital and ability to provide ecosystem services, negatively affecting human well-being. In this context, the study and conservation of marine ecosystems in the Strait of Sicily represents an urgent need. Although several studies on the Strait of Sicily have been conducted over time, there is a knowledge gap on multimethodological approaches to comprehensively assess natural capital stocks and ecosystem service flows. The present study aimed to implement a multimethodological assessment framework combining environmental accounting methods and conventional ecological indicators. In particular, the eco-exergy method, coupled with the Shannon diversity index, was implemented to account for the complexity and organizational level of marine ecosystems in the Strait of Sicily, to find hotspot areas for conservation purpose. Approximately 58,000 records from the "International bottom trawl survey in the Mediterranean" (MEDITS) program were analyzed. In addition, the "System of Environmental-Economic Accounting Ecosystem Accounting" (SEEA-EA) framework was applied to assess a set of ecosystem services provided by the Strait of Sicily, in both biophysical and monetary terms. Results will be useful to policymakers in charge of developing strategies to achieve impelling conservation actions and sustainability goals.

KEYWORDS

NATURAL CAPITAL, ECOSYSTEM SERVICES, CONSERVATION, BIODIVERSITY, MEDITERRANEAN SEA

POSIDONIA OCEANICA BANQUETTE: ASSESSING THE LOSS OF ECOSYSTEM SERVICES DUE TO ITS REMOVAL

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The seagrass *Posidonia oceanica*, endemic of the Mediterranean Sea, is among the most complex and productive marine ecosystems in the world. It forms extensive beds providing valuable ecosystem services (ES), such as carbon sequestration and prevention of coastal erosion. In addition, depending on different environmental conditions, significant amount of *P. oceanica* dead leaves can be exported out of the bed and get to be deposited onshore, forming heaps known as “banquettes”. The latter constitute a major source of organic matter for detrital food webs and nutrients, other than acting as natural barrier against coastal erosion. Nonetheless, their occurrence in touristic areas is often perceived as a nuisance, thus leading local administrations to dispose their removal that causes the loss of ES generated by banquettes. In this study, based on samples collected in the context of monitoring activities performed along the coastline of Campania Region (Southern Italy), the biomass and the concentration of chemical elements of *P. oceanica* banquettes were assessed. The obtained data allowed a first estimation of the potential loss of ES due to banquette removal, investigating the disregarded ecological effects. Statistical analysis showed that there were no significant differences among the investigated sites. Therefore, an upscale of biomass and nutrients concentration values to the regional level was performed, revealing that about 40 tons of carbon are annually stored in the *P. oceanica* banquettes. Results highlighted the key role that *P. oceanica* banquettes can play in the blue carbon cycle and can support policy makers in charge for the sustainable management of marine and coastal ecosystems.

KEYWORDS

POSIDONIA OCEANICA, BANQUETTE, ECOSYSTEM SERVICE, SUSTAINABLE
MANAGEMENT, ENVIRONMENTAL ACCOUNTING, BLUE CARBON

365+ EARTHQUAKES IN 1 YEAR: THE MALTA SEISMIC ACTIVITY OF 2023

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2023 is marked as a very seismically active year for the Maltese islands. The first few months of the year were characterised by the occurrence of hundreds of earthquakes, in some cases several happening on the same day. A few earthquakes had a magnitude of about 5 and were felt by many on the islands. Although historically, this was not the first time that Malta has experienced intense seismicity, this is the first time that such a highly active period has been recorded on a modern seismic network in Malta. The Seismic Monitoring and Research Group within the Department of Geosciences at the University of Malta operates 8 broadband seismic stations across Malta, including Comino and Gozo. The real-time monitoring systems were put to the test with the automatic processing of the hundreds of earthquakes followed by manual verification by the SMRG team. We present the Malta Seismic Network, its operations, the preliminary seismicity map for 2023 highlighting the local seismic regions, and statistics about local earthquakes. We find that during 2023, the number of local earthquakes outnumbered those catalogued for 1995-2014. The results yield new and important information on an active fault system located off-shore about 120 km south of the Maltese islands. The new data contributes to identifying sea-related hazards, particularly important for underwater infrastructure, and will help bring the earthquake catalogue up to date and improve the overall seismic hazard assessment for Malta.

KEYWORDS

EARTHQUAKES, SEISMIC NETWORK, REAL-TIME MONITORING, SEISMICITY,
MALTA

SAR FOR MARINE APPLICATIONS

MAURIZIO MIGLIACCIO; FERDINANDO NUNZIATA; ANDREA BUONO;
MUHAMMAD ADIL; GIOVANNA INSERRA; MOZHGAN
ZAHRIBANHESARI; ANNA VERLANTI; FARAH ABBASI; LUIGI DI
MICHELE, (UNIVERSITÀ DI NAPOLI PARTHENOPE)

The space age has opened a new perspective to observe our planet in a non-cooperative way at different scales. Measuring several geophysical variables from space sensors has improved our planet knowledge and understanding of the evolution of the weather and climate. This is known as satellite remote sensing. In this paper we focus on the satellite microwave active spatial high-resolution sensor: the Synthetic Aperture Radar (SAR). It is an imaging sensor that can observe the Earth in a manner which is irrespective of solar illumination and almost independent of weather. Several spaceborne SARs have been launched providing a dense revisit time that is an important asset for marine applications. SAR images can be exploited to observe sea surface wind, coastline, sea oil spills and man-made objects. In this paper, the challenges to extract the geophysical variables of interest by SAR measurement are shown and the so-called physical approach as a key solution to the problem. Polarimetric SAR measurements are of great relevance to marine applications. Authors have developed innovative physically based procedures and a set of showcases covering all above applications will be shown at the conference. Focus will be paid to critical cases and therefore to underline that although image approaches may sound natural are unsatisfactory in challenging cases.

KEYWORDS

SEA, REMOTE SENSING, MICROWAVE, SAR, ENVIRONMENT, UN SDGS

MULTIFUNCTIONAL MOLECULAR MATERIALS

BENCHOHRA AMINA, [LABORATOIRE CEMCA, UNIVERSITY OF BREST]

Multifunctional materials are subject of an active research whether it is for an in-depth understanding of their properties or to harness their utility in a wide range of technological applications. This research topic has been finding in coordination chemistry an inexhaustible source of inspiration. In this presentation, I hope to demonstrate that point describing examples studied in the different groups I joined over the past years, showing either switchable magnetic properties or phosphorescence ones.[1] Finally, I will provide a glance of our current research at the crossroad of molecular magnetism and luminescence.

KEYWORDS

COORDINATION CHEMISTRY, MOLECULAR MAGNETISM, LUMINESCENCE, SUPRAMOLECULAR CHEMISTRY

ENVIRONMENTAL IMPACT ASSESSMENT USING ADVANCED TECHNIQUES TO IMPROVE THE SITUATION OF AWARENESS: THE VALUE OF BIOINDICATION IN COMPREHENSIVE MONITORING

MOHAMMED AJAOD; CRISTIANO CICCARELLI; MARCO DE MIZIO; MASSIMILIANO LEGA, [PARTHENOPE UNIVERSITY OF NAPLES]

This research, rooted in environmental awareness, seeks to fundamentally transform environmental monitoring and impact assessment by integrating advanced earth observation techniques with proximal sensing, remote sensing, and in situ data collection methods. Proximal sensing provides detailed, high-resolution data essential for understanding localized environmental processes, while remote sensing extends our reach, offering wide spatial coverage and the ability to monitor areas that are difficult or dangerous to access. In situ data collection remains crucial for verifying and validating observations from both proximal and remote sensing technologies. The combination of these methods enables the collection of diverse environmental data, enhancing our ability to observe, detect, and predict environmental changes over different scales and time periods. This integrated approach not only advances monitoring capabilities but also supports informed decision-making by delivering precise and timely environmental information to all stakeholders involved. As the research progresses, a particular emphasis will be placed on the value of bioindicators in environmental impact assessment. Bioindicators are organisms or biological responses that reveal the presence of environmental contaminants, providing a living measure of environmental conditions. These indicators are crucial for assessing the cumulative effects of pollutants and habitat changes, offering an early warning of environmental degradation. The expected outcomes of this research include the creation of innovative bio-indication methods, improved early detection of environmental changes, more cost-effective monitoring solutions, and a comprehensive validation of new techniques against established methods. This research exemplifies the power of interdisciplinary approaches in enhancing environmental science and promoting better stewardship of our planet's resources.

KEYWORDS

ENVIRONMENTAL MONITORING, PROXIMAL SENSING, REMOTE SENSING, IN SITU DATA, IMPACT ASSESSMENT, BIOINDICATORS

ADVANCING PATIENT SAFETY: A PATIENT-CENTERED APPROACH TO INCIDENT REPORTING IN MEDICAL DEVICE MANAGEMENT

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This study endeavours to develop a patient-centred Incident Reporting (IR) framework to enhance communication and transparency among stakeholders focusing on bolstering patient safety. The methodology entails three phases: (i) needs assessment, (ii) the development of a quality management system supporting the IR framework, and (iii) the implementation of the IR framework. Phase 1 involved a literature review of IR systems across European Member States, culminating in the formulation and validation of IR Forms for healthcare professionals and patients through expert panel consensus. Phase 2 focused on devising Standard Operating Procedures for IR receipt, processing, and collaboration with regulatory bodies, which received unanimous approval from the expert panel. In Phase 3, the pilot implementation of the IR framework. Between January 2022 and March 2023, a total of 216 IRs were reported. Out of a total of 216, 186 incidents were addressed through 14 Incident Action Group meetings. The study highlights the efficacy of the patient-centred IR framework in fostering incident disclosure and resolution, thus augmenting patient safety and healthcare quality.

KEYWORDS

INCIDENT REPORTING, MEDICAL DEVICES, PATIENT-CENTRED, TRANSPARENCY, COMMUNICATION, PATIENT SAFETY, HEALTHCARE QUALITY

PQ DASHBOARD – DISTANT READING OF MALTESE PARLIAMENTARY QUESTIONS

JOEL AZZOPARDI, [DEPARTMENT OF AI, FACULTY OF ICT, UNIVERSITY OF MALTA]

Distant Reading is defined as the application of computational tools and natural language processing (NLP) techniques to bodies of text to discover knowledge and extract trends across multiple documents. This study applies distant reading methodologies to analyse Parliamentary Questions (PQs) from the 14th legislature of the Parliament of Malta, spanning from 2022 to the present. The Parliament of Malta publishes all answered PQs on its portal. However, these PQs are available only in Maltese, and while the portal provides basic search capabilities and categorises PQs by various criteria (such as category, heading, MP, ministry, and sitting), it does not reveal the overarching topics being discussed or enable tracking of trends in topics' popularity and MPs' activity. The aim of this project is to enhance the accessibility of these PQs and provide added value and utility to the general public. Automated scraping techniques are employed to systematically collect the latest PQs, including their questions, answers, and associated metadata, from the parliamentary website. Subsequently, Neural Machine Translation is utilised to translate the content into English, facilitating broader comprehension and analysis. Additional knowledge discovery and NLP techniques are then applied to identify significant patterns and trends within the PQs. The knowledge discovered is presented in an interactive web-based dashboard in the user's language of choice (English or Maltese), providing aggregated insights and enabling users to perform detailed analyses according to their specific interests.

KEYWORDS

PARLIAMENTARY QUESTIONS, NATURAL LANGUAGE PROCESSING, KNOWLEDGE DISCOVERY, DISTANT READING, DATA VISUALISATIONS, WEB-BASED DASHBOARDS, NEURAL MACHINE TRANSLATION

APPLICATION OF MOLECULAR DESIGN TO TRACE ANALYSIS IN THE FORENSIC SCIENCES

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The research presented is motivated by the rapid progress in molecular design. The proposed physical solution in this area mainly concerns fluorophore with long lifetime, with a strong emphasis on the characteristics of effective inter-system conversion. Recently, an innovative approach has emerged which suggests the possibility of controlling the deactivation processes of excited states. The mixing of states with different multiplicity can significantly weaken the prohibition of intercombination even for such states for selected fluorophores in certain solid matrices. As a result, directly induced long-lived phosphorescence emission can be observed at room temperature. This newly discovered physical effect is not only the subject of fundamental research, but we believe that it has significant application potential, including the detection of forensic traces, including fingerprints and traces of DNA. [1] Another avenue within molecular design is the optimisation of aggregation processes. Molecular design using a full range of spectroscopic methods, from steady-state to time-resolved, competes with the long, inefficient and expensive methods of traditional organic synthesis. The production of fluorescent probes and optically active materials has potential applications in the world of detection of trace amounts of substances, whether in a living organism or outside, including crime scene analysis in the field of forensic science.

[1] E. Alexander, J. Chavez, L. Ceresa, M. Seung, D. Pham, Z. Gryczynski, I. Gryczynski. *Dyes and Pigments* (2023) 217 111389-111395.

KEYWORDS

FLUORESCENCE, MOLECULAR DESIGN, ENERGY TRANSFER, MOLECULAR SPECTROSCOPY, DNA DETECTION

EFFECTS OF HYDROXYTYROSOL – DONEPEZIL HYBRID COMPOUNDS ON ENZYME INVOLVED IN ALZHEIMER’S AND OTHER NEURODEGENERATIVE DISEASES

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Alzheimer’s disease (AD) is one of the most common neurodegenerative diseases, characterized by progressive decline in memory and other cognitive functions that ultimately results in dementia. The pathological hallmarks of AD are the extracellular accumulation in the brain of beta-amyloid proteins (A β) and the intracellular deposition of neurofibrillary tangles (NFTs) composed of hyperphosphorylated tau proteins. Nowadays, drugs currently used for AD, such as Donepezil, are effective in mild to moderate AD and can improve cognition in the patient, but on the other hand, they can cause several toxic side effects. Therefore, chemical research is directed towards the realization of hybrid compounds that can act as an adjuvant in the treatment of this neurodegenerative pathology. In this study, seven hybrid compounds (HTs) were synthesized having hydroxytyrosol group bound the N-benzylpiperidine moiety of Donepezil, to obtain potential multi-target drug. Here, we used a SH-SY5Y neuroblastoma cell system model miming AD pathogenesis to check the effects of the HTs synthesized on A β 1–40 fibrillogenesis. Furthermore, the inhibitory property of the HTs on enzymes involved either in neurodegenerative disorders (Acetylcholinesterase, Butyrylcholinesterase, BACE-1) or oxidative stress (Monoamine oxidase A and B, xanthine oxidase), was also evaluated. Our results pointed to the identification, among the compounds tested, of selective and differential inhibitors of enzymes tested. These results, together with the finding that some HTs showed a protective action against A β -induced cell toxicity, suggest that these molecules can be considered as lead compounds for the development of potential drugs to be used against neurodegenerative diseases.

[1] E. Alexander, J. Chavez, L. Ceresa, M. Seung, D. Pham, Z. Gryczynski, I. Gryczynski. *Dyes and Pigments* (2023) 217 111389-111395.

KEYWORDS

FLUORESCENCE, MOLECULAR DESIGN, ENERGY TRANSFER, MOLECULAR SPECTROSCOPY, DNA DETECTION

AIQUAM++: PREDICTING THE BACTERIA CONTAMINATION IN FARMED MUSSELS WITH HIGH-PERFORMANCE COMPUTING AND ARTIFICIAL INTELLIGENCE

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AIQUAM++ is an advanced version of the Artificial Intelligence-based Water Quality Model (AIQUAM), which represents a significant leap in the application of High- Performance Computing (HPC) and Artificial Intelligence (AI) for predicting bacterial contamination in aquaculture, specifically within mussel farms. AIQUAM++ is a decision- making tool combining three distinct AI models for seawater quality predictions. AIQUAM++ implements a sophisticated hierarchical and heterogeneous parallelization schema using MPI, OpenMP, and CUDA technologies to enhance prediction speed and accuracy. AIQUAM effectively performed time series classification by leveraging various algorithms and then utilized a weighted majority report to predict the most accurate result. This model aimed to support local authorities in monitoring aquaculture by predicting contaminant levels in mussels, focusing on ensuring public health and environmental sustainability. AIQUAM++, on the other hand, elevates the original framework's capabilities by significantly improving computational efficiency. This enhancement allows for rapid, precise predictions of contaminant levels at multiple points within mussel farms. By harnessing the power of advanced parallel computing techniques, AIQUAM++ can process large datasets more swiftly, enabling stakeholders to make informed decisions faster. The upgrade to AIQUAM++ addresses the critical need for scalable and efficient prediction tools in the aquaculture industry, offering a proactive approach to managing contamination risks. This paper details the technical advancements of AIQUAM++, including its implementation and the impact of its enhanced predictive performance on aquaculture management and food safety regulation. Through this innovative integration of HPC and AI, AIQUAM++ sets a new standard for environmental monitoring and decision-support tools, promising significant contributions to the sustainability and safety of aquaculture practices. The use case presented is an application of AIQUAM++ in the Bay of Naples (Campania Region, Italy) and the results are encouraging as the model reached a correct prediction rate of 93%.

[1] E. Alexander, J. Chavez, L. Ceresa, M. Seung, D. Pham, Z. Gryczynski, I. Gryczynski. *Dyes and Pigments* (2023) 217 111389-111395.

KEYWORDS

HIGH-PERFORMANCE COMPUTING (HPC), MPI, OPENMP, CUDA, TIME SERIES CLASSIFICATION, DEEP LEARNING, ENVIRONMENTAL MONITORING

MODELLING THE INTERACTIONS OF AN ENERGY STORAGE SYSTEM INTEGRATED WITH AN OFFSHORE, GREEN HYDROGEN PRODUCTION PLANT FOR CENTRAL MEDITERRANEAN WATERS

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Hydrogen production from offshore renewable power plants will be essential for decarbonising the maritime sector. As previous studies have shown [1], the establishment of such production would benefit from the integration of an energy storage system, enabling the smoothening of the intermittency of the electrical energy produced from the renewable source and thus also increasing the production efficiency of the downstream hydrogen production process. Previous work [2] focusing on the North Sea has shown the effectiveness of using the Floating Liquid-piston Accumulator using Seawater under Compression (FLASC) technology to smoothen the intermittent electricity supply from offshore wind turbines before being fed to the electrolyser. This paper investigates the impact of integrating the FLASC Energy Storage System (ESS) technology in offshore green hydrogen production in the central Mediterranean, which is characterised by weaker wind resources. In addition, studies of potential deep water sites in Malta's Exclusive Economic Zone (EEZ), as well as a preliminary insight into potential maritime-sector end-users of the hydrogen product, have led to the identification of a number of preferred locations for offshore modular hydrogen production systems. High-level wind measurements from a LiDAR unit installed at a coastal location in Malta [3] are used in conjunction with in-house numerical models to study the impact of FLASC integration on the operation of the wind-driven hydrogen plant. The work forms part of the project "Hydro Pneumatic Energy Storage for Offshore Green Hydrogen Generation – HydroGenErAtion" and presents preliminary schemes for the development of such stand-alone offshore Hydrogen production modules in which the end product will be used to supply maritime sector end-users and foster decarbonisation in this sector. This project contributes to the SDG 7 goals by providing solutions for the better interfacing of offshore renewable energy and energy storage for the decarbonisation of the hydrogen production process and of the maritime sector. The research presented in this paper forms part of the work undertaken in the project: "Hydro Pneumatic Energy Storage for Offshore Green Hydrogen Generation - HydroGenErAtion"; funded by The Energy and Water Agency under Malta's National Strategy for Research and Innovation in Energy and Water (2021-2030) - Project Reference: EWA 64/22.

KEYWORDS

DEEP OFFSHORE WIND POWER, GREEN HYDROGEN, ENERGY STORAGE, ELECTRICITY STABILIZATION

EXTERNAL CONDITIONING FACTORS OF DIABETES CONTROL IN ELDERLY PEOPLE WITH DIABETES LIVING IN NURSING HOMES IN CÁDIZ

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The ageing population, with the increase in dependency rates and the development of chronic diseases such as diabetes mellitus, means that, nowadays, more and more elderly people are living in nursing homes. The prevalence of diabetes in nursing homes in Cadiz is 23.44%. Age is also associated with greater complexity in the management of diabetes. However, nurses are in a unique position, thanks to their knowledge and skills, to improve diabetes care. Therefore, we have conducted a mixed, multicenter, provincial study to establish the main modifiable factors, from the nurses' perspective, associated with the nursing home, the residents with DM and the nurse, that influence the nurses' care to elderly people with diabetes in nursing homes in the province of Cadiz. After the cross-sectional observational study, it was found that the knowledge of nurses in nursing homes in Cadiz could be improved, as they obtained a score of 5.33 in the Diabetes Management Knowledge Assessment Tool 14. This tool was translated and validated into Spanish in the study. Also, after the 18 in-depth interviews, the nurses determined that family visits to the nursing home and the center's meal times, among others, are factors that are detrimental to the control of the disease. However, continuity of care and communication between the nurse assistant and the nurse, among others, are factors that favor diabetic control. In conclusion, these results highlight the need for specific interventions to improve the care of residents with diabetes in nursing homes in Cadiz.

KEYWORDS

HEALTH SCIENCES, DIABETES, NURSING HOMES, NURSES, DIABETES MANAGEMENT, NURSES KNOWLEDGE

APPLICATION OF RENEWABLE ENERGIES IN HOUSES LOCATED NEAR THE COASTAL AREA IN THE MEDITERRANEAN ENVIRONMENT

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The internal air temperature, in summer conditions, in spaces equipped with windows turned south presents higher values, while in spaces equipped with windows turned north presents lower values during the day. A Double Skin Façade, DSF, system installed in windows turned south, is able to heat and transport the air inside the building in order to improve the thermal comfort level that the occupants are subjected to. In this study, two DSF systems were used in a small family house. The DSF systems are installed in front of the two south-facing windows of the house. Each DSF system is subjected to solar radiation and is used as a heating system operating in forced ventilation mode. The study is made in winter conditions. In the numerical simulation, as external air temperature was used in Mediterranean environment conditions. The simulation was done using software that simulates the thermal response of both the building and the DSF system with complex topology. The numerical model considers energy and mass balance integral equations for building opaque surfaces, building transparent surfaces and building space internal air. The software evaluates the solar radiation simulator, the radiative and convective coefficients evaluation, the glass radiative properties and the thermal comfort that the occupants are subjected to. In the case studied, the DSF is used to heat the air, that is transported to all building spaces. This work evaluates the thermal comfort that the occupants are subjected to in a building equipped with a DSF system. Using the DSF system it is possible to guarantee acceptable thermal comfort conditions, not only are spaces turned to south, but also to west, north and east.

KEYWORDS

SCIENCE, TECHNOLOGY, ENGINEERING, MATHEMATICS

RESISTANT AND DURABLE CONCRETE STUDY WITH REPLACEMENT OF COPPER SLAG AND BLAST FURNACE

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Concrete is one of the materials that today consumes many natural resources in its production, generating a problem due to the excessive use of natural resources, as well as an ecological imbalance. Approximately 48.3 million tons of aggregates are consumed in the world, which leads to excessive use of materials. It is reasonable to think that it would be necessary to use alternative and sustainable materials that replace part of the aggregate and cement to be used with alternative and sustainable materials. Slag from the steel and copper industry can be an alternative as substitutes for both aggregate and cement. This study shows the replacement of part of the aggregate with copper slag and a percentage of the cement with steel production slag. Both the resistant and durable capacity of the material are evident in the results obtained, achieving a more ecological, green and practically equally resistant material with the reuse of waste.

KEYWORDS

CONCRETE, COPPER SLAG, IRON SLAG, RESISTANCE, DURABILITY

SOIL-WATER-VEGETATION INTERACTIONS WITHIN THE ROYAL BOTANIC GARDEN EDINBURGH'S EXPERIMENTAL RAIN GARDEN

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This paper presents findings from a systematic sampling study conducted at the Royal Botanic Garden Edinburgh's experimental rain garden. The primary objective was to evaluate the rain garden's efficacy in retaining surface water while investigating spatial and depth-related soil profile variations. Fieldwork was conducted during Summer 2023, focusing on key soil parameters such as volumetric water content [θ ; %], compaction [mPA], and infiltration rates [Ksat; mm/hr]. Spatial analysis of soil parameters revealed significant variability in moisture content (10% to 45% range), influenced by planting regimes and soil composition. Notably, the central rain garden area exhibited lower soil moisture levels, attributed to heightened evapotranspiration from denser vegetation and enhanced infiltration rates resulting from reduced compaction and deeper amended SuDS soil depth. Infiltration rates within the rain garden ranged from 320 to 480 mm/hr. Performance appeared to vary relative to the depth of the SuDS soil profile due to the tapered excavation of the rain garden construction. Highest infiltration readings (480 mm/hr) were recorded within the centre of the rain garden but decreased at the perimeter (320 mm/hr) due to a shallower amended soil depth (15 cm). These values are higher than the infiltration range of 100 – 300 mm/hr suggested by the UK CIRIA SuDS Manual but highlight a significant improvement against the wider catchment soil permeability (25 – 50 mm/hr). This study highlights the importance of targeted interventions to mitigate wider catchment runoff. These findings demonstrate the complexity of soil-water-vegetation interactions within rain gardens and emphasise the significance of tailored design and management strategies for optimising their performance in holistic urban water management.

KEYWORDS

GREEN INFRASTRUCTURE, SUSTAINABLE DRAINAGE SYSTEMS (SUDS), ENVIRONMENTAL MONITORING, CLIMATE RESILIENCE, SOIL-WATER INTERACTIONS, RAIN GARDENS, EDINBURGH

DECARBONIZATION OF MARITIME TRANSPORT AND ALTERNATIVE FUELS (GREEN BLUE ECONOMY)

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To stop global warming and avoid its disastrous consequences, we must stop adding GHG's to the atmosphere. This sounds difficult, because it is, the world has never been faced with such a big challenge. Every country will have to change its habits, because almost all activities of modern life, the manufacture of things, our travels involve the emissions of GHG. If nothing changes, the world will continue to produce GHG's, climate change will get worse and worse, and the impact on humans will in all probability be devastating, but things can change, we already have some of the tools we need, and that should be by moving into a Green-blue economy. The International Maritime Organization contributes to international cooperation to facilitate access to clean energy research and technology, in particular energy-efficiency and advanced, cleaner fossil-fuel technology, and promotes investment in energy infrastructure and clean-energy technology. Transition toward carbon neutrality in maritime transport requires short & medium-term solutions, the former based on transition fuels (LNG), the latter on not yet fully available alternative fuels (green hydrogen, ammonia, methanol, and electricity). Dealing with such complexity is difficult for the operators of ships to assess the impacts on both technical and economic aspects, my research program has the ambition to support them by developing a set of toolkits facilitating the path toward carbon neutrality by establishing different scenarios regarding the option of alternative fuels in the Mediterranean Sea and consequently establishing Green Shipping.

KEYWORDS

ALTERNATIVE FUELS, GHG EMISSIONS, CARBON NEUTRALITY, GREEN SHIPPING, ENERGY EFFICIENCY, OPTIMIZATION

IMPLEMENTING PODIATRIC TELEMEDICINE WITHIN A PRIMARY CARE SETTING: PROGRESS SO FAR

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In the dynamic healthcare landscape driven by technology, adapting and enhancing services is essential. COVID-19's impact on podiatry underscores the need to swiftly address challenges and optimize patient care. A scoping study was conducted to delineate the existing telemedicine guidelines concerning foot and ankle ailments and explore their applicability to podiatric care. A void was identified in the literature regarding telemedicine guidelines specific to podiatry. A Delphi method fostered dialogue among diverse stakeholders to achieve a consensus and formulate telemedicine guidelines tailored to podiatric practice. Subsequently, the implementation phase encompasses three key components: training for healthcare practitioners, outreach initiatives, and a pilot study to execute the guidelines and evaluate feasibility. This evaluation will involve administering a telephone-based questionnaire to patients referred by podiatrists during clinical consultations. The development of podiatric telemedicine guidelines addresses a recognized gap in the literature and offers structured support to foot and ankle healthcare providers. The pioneering inclusion of service users in guideline development signifies a holistic approach to care. The forthcoming study's focus on assessing feasibility within primary care reflects a pragmatic step towards practical implementation, considering logistical, technological, and patient-centric factors. This initiative promises to enhance access to care and presents opportunities for refining practices, addressing challenges, and shaping the future landscape of podiatric telemedicine. Through collaborative efforts to bridge gaps, support providers, involve patients, and navigate implementation challenges, stakeholders can collectively advance telemedicine in podiatric care, ultimately improving patient outcomes and healthcare delivery.

KEYWORDS

PODIATRY, TELEMEDICINE, TECHNOLOGY, GUIDELINES, HEALTHCARE

EFFECT OF PARAMETRIC MODIFICATIONS AND POST-PROCESSING ON SURFACE PROPERTIES FOR Ti-6Al-4V MANUFACTURED USING ELECTRON BEAM POWDER BED FUSION

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Electron beam powder bed fusion (EB-PBF) can produce highly complex parts with near-net-shape and minimal waste. EB-PBF parts made from light and highperformance materials such as Ti-6Al-4V have been used in the transportation and energy sectors to produce lightweight parts that can significantly improve energy efficiency and reduce fuel consumption without compromising structural strength. However, parts made using EB-PBF have a relatively high surface roughness compared to traditionally wrought and machined parts. This is partly due to the pre-heating stage, in which powder melting and sintering occurs in addition to the step effect inherent to the additive manufacturing process together with the roughness generated by the melt pool dynamics during solidification. In this work, changes in the beam parameters are investigated to improve the surface properties of EB-PBF produced parts. In conjuncture with this investigation, post-processing techniques, such as chemical immersion will also be utilised to further reduce the surface roughness.

KEYWORDS

ADDITIVE MANUFACTURING, ELECTRON BEAM POWDER BED FUSION, SURFACE SPECTROSCOPY, SURFACE ROUGHNESS, Ti6-AL4-V, METAL POWDER, POST-PROCESSING

DIGITAL TWIN TECHNOLOGIES FOR TEACHING SUSTAINABILITY AND BALANCING CHALLENGES WITHIN LEARNING FACTORY

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The integration of the digital twin technology into the learning factory environment provides a completely new approach to teach sustainability and balance between economic prosperity and environmental responsibility. The learning factory at the University of Split is an environment where students or industrial partners gain hands-on experience that bridges theoretical knowledge with practical applications. Furthermore, learning factory concept emphasizes critical thinking, systems understanding and proactive problem-solving. Digital twin as virtual replica of physical systems offers a platform to explore different scenarios as a result of the decision-making process. Students or industrial partners are empowered to study the consequences of their decisions regarding resources, resilience and sustainability which are pillars of the new industrial paradigm - Industry 5.0. In this study, the main steps to develop digital twins are represented. Further, it is shown how to use digital twin and navigate real systems supported by methods for operations management relevant to optimize the system's performance. Depending on the specific challenges of the system, specific methods are selected to identify inefficiencies, bottlenecks, or specific areas of interest. This process involves analysis of system performances under different conditions, adjusting input parameters, reconfiguring flows, or resources allocation to identify and evaluate improvement strategies. The main part is to validate the digital twin, its accuracy and reliability. By applying digital twin technology to teach about sustainability and balancing challenges, students or industrial partners can be empowered to become drivers of positive change and build environmentally conscious organizations resilient to frequent changes and new challenges.

KEYWORDS

DIGITAL TWIN, SUSTAINABILITY, RESILIENCE, BALANCING, LEARNING FACTORY, INDUSTRY 5.0

BIOFOULING DETECTION IN TIDAL STREAM TURBINES THROUGH DUAL IMAGE DATASETS AND SOFT VOTING ENSEMBLE TRANSFER LEARNING

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This study addresses the biofouling challenges of tidal stream turbines to ensure their reliable and optimal operation. In response to this necessity, we present an effective methodology employing a soft voting ensemble transfer learning-based approach for the detection and extent classification of biofouling. The proposed framework incorporates essential components such as data augmentation, data pre-processing, including image resizing, and data segmentation, forming a comprehensive image-based approach. To overcome the constraint of limited datasets, experimental investigations were conducted, resulting in the acquisition of two datasets: one from the tidal stream turbine platform at Shanghai Maritime University and the other from the Tidal Turbulence Test facility at Lehigh University in Pennsylvania, USA. The three prominent convolutional neural network models, namely VGG, ResNet, and MobileNet, trained on these datasets, demonstrate precise detection and classification of turbine conditions, achieving an accuracy of 0.83 for the SMU dataset and 0.90 for the LU dataset. The noted disparity in accuracy for the SMU dataset is attributed to its smaller size, highlighting the significant impact of dataset scale on classification performance. This research contributes valuable insights to the advancement of resilient biofouling detection and classification strategies tailored for tidal stream turbine systems.

KEYWORDS

TIDAL STREAM TURBINE, BIOFOULING, DETECTION, CLASSIFICATION, ENSEMBLE TRANSFER LEARNING.

ANALYSIS OF MICRO COASTAL LITTER IN THE VISIBLE AND INFRARED BANDS THROUGH THE USE OF A SPECTROMETER AND A HYPERSPECTRAL CAMERA

SARAH J. FIALA; ADAM GAUCI; ALAN DEIDUN, [UNIVERSITY OF MALTA]

Continuous and extensive plastic use, coupled with inadequate waste management, has resulted in the pervasive existence of plastic pollution in the marine environment. Of particular concern is the widespread distribution of microplastics, posing a significant threat to marine life and public health. The absence of a standardised approach for microplastic analysis has been evident, prompting significant efforts within the scientific community. Traditional methods have proven time-consuming and impractical for standardisation. Establishing a standardised method is essential for comprehensive and precise result comparisons, yielding dependable data and conclusions, while being fast, non-invasive, and superior to existing alternatives. This study aimed to assess the efficiency of a hyperspectral camera in accurately identifying microplastics, specifically their polymer type. A hand-held near-infrared (NIR) spectrometer, known for its accuracy despite slower results, served as the comparative method. Forty microplastic samples were collected from a beach in Malta and investigated using both a NIR spectrometer and a hyperspectral camera. The NIR spectrometer successfully identified four polymer types: polyethylene (PE), polypropylene (PP), polyvinyl chloride (PVC), and polyolefins (PO), producing unique spectral signatures for each sample. These spectral signatures were then compared to those generated by the hyperspectral camera, which exhibited minimal variability and distinct, prominent spectral patterns for each polymer type. This study demonstrates the capability of hyperspectral imaging (HSI) to efficiently and accurately establish a baseline for microplastic identification, thereby highlighting its potential as a standardised method and the need for developing a spectral library.

KEYWORDS

PLASTIC POLLUTION, MICROPLASTIC ANALYSIS, NEAR-INFRARED SPECTROSCOPY, HYPERSPECTRAL IMAGING, STANDARDISED METHOD, COMPARATIVE SPECTRAL SIGNATURE ANALYSIS

PRODUCTION OF BIOPLASTICS PRECURSORS (POLYHYDROXYALKANOATES) FROM MACROALGAE

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Rugulopteryx okamurae is an invasive macroalgae, which has accumulated in large quantities in the Gibraltar Strait, causing serious environmental and social problems, affecting marine life and local economy in the area. Due to its extensive expansion, it has spread in the south of Spain towards the Atlantic and Mediterranean coasts. Given the high availability of this macroalgae biomass, the aim of this work is to use it as raw material for the production of precursors for bioplastics, specifically polyhydroxyalkanoates (PHAs), in the line of the principles of bioeconomy and circular economy. Seaweeds have the potential to emerge as a preferable raw material over terrestrial biomass for producing high-value products through biotechnological processes. They offer the advantage of not requiring land occupation or irrigation for cultivation, do not compete with human food sources like energy crops, and exhibit a rich polysaccharide chemical composition. In this work, PHAs production from macroalgae biomass was performed using monosaccharides or volatile fatty acids, derived from saccharification and dark fermentation, respectively, using a pure culture (*Cupriavidus necator*) and a mixed culture of PHA-producing microorganisms selected from sewage sludge. Several pretreatments were applied before these processes to enhance organic matter accessibility and improve PHAs production.

KEYWORDS

MACROALGAE, BIOPLASTICS, PRETREATMENTS, DARK FERMENTATION, ENZYMATIC SACCHARIFICATION, POLYHYDROXYALKANOATES



ART
HUMANITIES
SOCIAL
SCIENCES





THE JOINT ACTION THEORY IN DIDACTICS: A MAJOR ADVANCE WITHIN THE ALLIANCE, ESSENTIAL PERSPECTIVES FOR LEARNING (TO LIVE) TOGETHER

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The theory of Joint Action in Didactics (JATD) was developed about twenty years ago at the University of Western Brittany, a member of SEA-EU. This theory analyzes teaching and learning practices from the point of view of the joint and coordinated actions of teachers and students, guided by the knowledge to be transmitted and acquired, which presupposes the development of each person's ability to know what he can and must do to enable this transmission-appropriation, while anticipating the actions and expectations of the other. The JATD thus considers the didactic relationship as a cooperative, transactional game (Sensevy, 2011): each person acts through the other and through the teaching-learning milieu according to what he or she expects to have to do in order to be successful (didactic contract). By modeling the strategic interactions of teachers and students in the form of games, in which winning depends on playing "winning moves" to learn by adapting to the other and to the situation, in order to promote the transmission and appropriation of the knowledge at stake, the JATD has made a major contribution to the understanding of the logic at work in human interactions, seen as knowledge practices (Collectif Didactique pour Enseigner, 2024). This communication illustrates main advances around the question of cooperation between teachers, students, researchers and trainers in innovative cooperative engineering devices (ibid.), aimed at learning to live together by learning together, by focusing on the notion of adjustment, which I explored in my recent research (Le Paven Jarno, 2023).

KEYWORDS

DIDACTICS, JOINT ACTION, TEACHING-LEARNING, KNOWLEDGE, COOPERATION, LIVING TOGETHER, ADJUSTMENTS

THE ADOPTION OF BLOCKCHAIN TECHNOLOGY IN THE SEAFOOD SUPPLY CHAIN: ENABLING FACTORS AND BARRIERS

LAURA ROMA; ROCCO AGRIFOGLIO, [UNIVERSITY OF NAPLES PARTHENOPE]

The purpose of this study is to investigate existing research on blockchain technology in the seafood supply chain to understand enabling factors and barriers influencing blockchain adoption. Blockchain is a digital, decentralized, and distributed ledger that records data across multiple servers, called nodes, in peer-to-peer network. The usage of blockchain technology in the seafood supply chains is spreading considerably thanks to the possibility of ensuring the fish products' traceability and legality. Indeed, the blockchain technology allows for strict adherence to regulations on fishing zone, size restrictions, and species protection for wild-caught. In the other way, it also enables the collection, storage, and share data along all seafood supply chain phases from catch to consumer. It is no coincidence, in fact, that numerous studies have focused on the diffusion of blockchain in fisher industry and on patterns of adoption. However, despite the benefits of using blockchain technology, many companies are not inclined to adopt blockchain due to several reasons that academic literature is still investigating today. There is a lack of studies exploring the reasons for the blockchain technology non-adoption in seafood supply chain. Using the Systematic Literature Review method, our research explores the literature about blockchain adoption's enabling factors and barriers in the seafood supply chain. Findings continue to provide an overview of the current state of academic research in the areas of blockchain adoption in seafood supply chain and provides useful insights for academics and fisher industry managers.

KEYWORDS

BLOCKCHAIN ADOPTION, SEAFOOD SUPPLY CHAIN, BLOCKCHAIN ENABLING FACTORS, BLOCKCHAIN BARRIERS, BLOCKCHAIN NON-ADOPTION

SENSORY CONSUMER EXPERIENCES AND WELL-BEING IN TOURISM AND HOSPITALITY MARKETING: OPPORTUNITIES AND CHALLENGES

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This paper explores the opportunities and challenges sensory marketing introduces for hospitality and tourism in managing consumer experiences considering its potential impacts on perceived well-being. The research intends to offer relevant insights for hospitality and tourism organizations management and provides future research directions. A critical literature review was undertaken to explore theoretical approaches, conceptual developments, and empirical evidence related to the impact of sensory consumer experiences on hedonic and eudaimonic well-being in tourism and hospitality contexts. Where relevant, this reflective approach is illustrated with case examples. Sensory marketing opens many exciting opportunities for hospitality and tourism and poses some great challenges. Hospitality and tourism organizations need to use multi-sensory stimuli strategically to customize and co-create hybrid virtual and physical experiences before, during, and after the visit. Research opportunities also emerge for adopting and operationalizing a responsible managerial approach to designing sensory consumer experiences. This research critically analyzes the early applications of sensory marketing in hospitality and tourism. This integrative-critical approach can aid different stakeholders in better understanding the practical implications of sensory experience design in the hospitality and tourism industry, considering consumers' well-being outcomes. The paper reflects on the potential of sensory stimuli in hospitality customer experience and value co-creation, considering its impacts on perceived well-being. Besides putting forward a research agenda for further exploiting its potential for hospitality and tourism organizations management, this paper highlights opportunities and challenges around the topic.

KEYWORDS

SENSORY CONSUMER EXPERIENCE, CUSTOMER EXPERIENCE DESIGN, SENSORY MARKETING, FIVE SENSES, RESPONSIBLE MANAGEMENT, UNIVERSAL DESIGN

THE CONVENTUS PROJECT: BUILDING COLLABORATIVE RESEARCH FOR A LOCAL LIVING HERITAGE

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Located in the city of Lagoa (Algarve, Portugal), the former Convent of São José, founded in the 18th century, functioned as a female religious house until it was secularized at the beginning of the 20th century. Since then, it has had several functions. It has been an elementary school, the parish of Lagoa, a police office, the Lagoa Parish Council, municipal services and, since 1993, it has functioned as a Cultural Centre, being recognized today as one of the city's main historical and cultural buildings. In this scenario and attending to the neighborhood bonds and community ties of this living heritage, the CONVENTUS project aims to build a new inclusive and plural perspective on its history, architecture, urban impacts, functions, and social interactions throughout its three centuries of existence. Working from an expanded definition of cultural heritage, which focus on the intrinsic and structural relation between the tangible and the intangible dimensions of this monumental heritage, thus considering cultural heritage as a social construction in permanent negotiation among the community members, the local inhabitants and the specialist coming from academy, the CONVENTUS project will apply a diachronic approach to the study of the building, crossing historical and architectural research with participatory action research (PAR), through a crossdisciplinary and multiscale sociocultural collaboration. At the same time, as part of this project, a network will be created to share concepts, methods, and tools to promote collaborative approaches to historic buildings of a similar nature that are potential or serve as cultural centers, which will generate a shared experience from which to rethink the use and the social/cultural function of these assets based on comparative methodologies linked to situated knowledge. In this presentation we will share the latest results of the project to show: i) how we are collectively discovering and celebrating the history of this iconic place, but also building its present, to create fair, useful and sociocultural sustainable solutions, both for its future and that of the local community; and ii) the strategies for the way this project can inform and be informed by similar experiences in other cities, namely in the context of the SEA-EU Alliance.

KEYWORDS

CULTURAL HERITAGE, HISTORY OF THE BUILD ENVIRONMENT,
PARTICIPATORY METHODOLOGIES, DIACHRONIC APPROACHES,
MICROHISTORY, LIVING HERITAGE, COLLABORATIVE GOVERNANCE

BRIDGING ACADEMIA AND INDUSTRY: A COMPETENCY-BASED EVALUATION OF CAREER PATHWAYS FOR PHD HOLDERS IN MARINE AND MARITIME SCIENCES

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The expansion of doctoral programs through the Bologna education system has led to an increased number of PhD graduates, creating a highly specialized workforce. European universities, however, cannot offer academic positions to all, compelling many to seek employment in the non-academic job market. The international ERASMUS+ project 'Beyond academia: broadening the career horizons of doctoral students in marine and maritime sciences in Europe' (SEA-EU DOC) investigated whether these PhD holders are prepared for non-academic roles, the interest of employers in hiring them, and the match between the skills acquired during doctoral studies and those required by the market. In a partnership of maritime universities, SEA-EU DOC focused on the employment of PhD holders in marine and maritime sectors, emphasizing the importance of soft skills in professional development. Surveys conducted among PhD holders and employers, and in-depth interviews with sixty PhDs from six European universities, identified a significant skills gap. Despite possessing specialized knowledge, many PhD holders lack essential communication skills, crisis management, presentation of achievements, and career management. The project outcomes highlight complex career paths for PhD holders, their expectations from universities, employer demands, and strategies for universities to better prepare graduates for non-academic careers, especially in marine-related industries and institutions. SEA-EU DOC suggests enhancing doctoral education with targeted transferrable skill training, aligning education with market demands, and supporting PhD holders' transition to the non-academic job market.

KEYWORDS

PHD HOLDERS, NON-ACADEMIC JOB MARKET, MARINE AND MARITIME SCIENCES, TRANSFERRABLE SKILLS, SKILLS GAP, CAREER PATHWAY IN MARINE AND MARITIME SECTORS

SYSTEMATIC LITERATURE MAPPING ON SUSTAINABLE PRACTICES FOR THE PROTECTION OF INTANGIBLE CULTURAL HERITAGE

HILAL AKDEMIR; MARIA ALEXANDRA PATROCÍNIO RODRIGUES
GONÇALVES, [UNIVERSITY OF ALGARVE]

This study aims to conduct a systematic mapping of empirical research, particularly focusing on sustainable practices, addressing gaps in the current literature. Following systematic mapping guidelines, relevant empirical studies will be synthesized and analyzed, employing a concept matrix to categorize (1) exploration of geographical and cultural contexts; (2) key empirical methodologies; (3) evaluation of safeguarding methodologies' main conclusions; (4) identification and analysis of primary challenges; (5) identification of gaps and recommendations for future research. Papers meeting the inclusion criteria—explicitly focusing on the sustainable approaches on safeguarding / preserving / protection / conversation of intangible cultural heritage, written in English, and peer-reviewed journal articles—will be considered. The search will be conducted in the Scopus database. To the best of current knowledge, such a comprehensive mapping of research in this domain has not been undertaken. Safeguarding intangible cultural heritage presents a multifaceted challenge that requires interdisciplinary approaches and empirical insights to address effectively. By consolidating empirical evidence, this review aims to inform policymakers, practitioners, and researchers about the current state of knowledge in safeguarding intangible cultural heritage. It will also guide future research directions and interventions, facilitating informed decision-making in this critical area of cultural preservation.

KEYWORDS

INTANGIBLE CULTURAL HERITAGE, SAFEGUARDING CULTURAL HERITAGE,
PRESERVING CULTURAL HERITAGE, LITERATURE MAPPING, SYSTEMATIC
MAPPING, SUSTAINABILITY

REMOTE WORK AND RETURN MIGRATION - A LITERATURE REVIEW PAPER TO EXPLORE THE NEXUS OF DIGITAL EMPLOYMENT AND HOMELAND RETURN

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Due to the widespread adoption of digital remote work, the COVID-19 pandemic provided new opportunities for migrants to return to their home countries without relinquishing their professional pursuits in the host country. While there is extensive literature on return migration and remote work, the intersection of these two realms was barely unexplored. Starting from the project “Moving forward by coming back. New horizons for intra-EU mobility” (University of Cádiz, University of Malta), which focusses on migrants who have emigrated from Malta and Spain and returned to their familiar country, this paper marks an initial and substantial stride in bridging these two literature traditions by looking at unexplored aspects. The paper is divided into two main parts. The first one highlights the extensive opportunities and risks for returning migrant pursuing their job remotely. These range from realizing the desire to return, achieving a better work-life balance, and experiencing higher life satisfaction to economic benefits. Conversely, the associated risks should not be underestimated, as the disadvantages of remote work and return migration can be mutually amplified in unforeseen ways. The second part explores the development of potential impulses by returning home while working remotely. While it demonstrates how return migrants engaged in remote work can play a key role in their home country’s economic and social development, it also acknowledges that they may hinder certain developmental tendencies. From an ecological standpoint, the paper also draws conclusions that point in both directions. In summary, this literature review paper underscores that the interplay between remote work and return migration represents a nuanced balance encompassing both potential positive and negative impacts. Given the anticipated increase of this phenomenon and its ability to redefine the job market by decoupling work from a fixed location, the aspects identified in this paper should provide insights for future research.

KEYWORDS

REMOTE WORK, RETURN MIGRATION, PROFESSIONAL MOBILITY, ECONOMIC DEVELOPMENT, SOCIAL DEVELOPMENT, GENDER DYNAMICS, ENVIRONMENTAL IMPACT

SEA AS A LIFE COMPANION: AN AUTOETHNOGRAPHIC ANALYSIS OF THE CONSTRUCTION OF IDENTITY THROUGH THE FILTER OF MEMORY STUDIES AND THE CONCEPTS OF INTERCULTURAL MEMORY AND MEMORY LANDSCAPES

BEATA KARPIŃSKA-MUSIAŁ, [UNIVERSITY OF GDANSK]

The author of the proposal will discuss the relationship between memory, identity, and space, particularly focusing on the author's personal experiences intertwined with the sea and maritime life. Drawing on Zygmunt Bauman's notion that memory encoded in space extends our sense of self and immortality, the author employs analytical-evocative autoethnography to explore how memories shape personal and professional identity. The study challenges the prevailing sociological perspective that prioritizes social memory over individual recollections, arguing that individual memory plays a crucial role in shaping identity in today's context of increasing individualization. While acknowledging the significance of collective narratives in fostering communal belonging, the author highlights the power of individual memory to foster self-determination and autonomy. This qualitative study aims to investigate whether contemporary social atomization leads to a parallel atomization of identity formation based on individual memory landscapes, as posited by Luhman's theories on modernity (Luhman 1998:3 in: Kapralski 2010: 21). The author analyses the concept of "multiculturalism of memory," which recognizes the validity of underprivileged (meant as not in the mainstream, not politicized) groups' historical perspectives, thus undermining universal "grand narratives." Through various metaphors, such as the sea as a habitat of childhood or a sea as bridge between two homes, the author illustrates how the sea serves as a metaphor for the intertwining of memory and identity shaping in her own case. Ultimately, the study seeks to exemplify the term "BEING SEA-EU" through qualitative, autoethnographic research and exploration of its findings and conclusions.

KEYWORDS

IDENTITY, SPACE, MEMORY, MULTICULTURAL MEMORY, MEMORY LANDSCAPE, SEA METAPHORS

MOVEMENT AND STILLNESS: THE DEPICTION OF THE MIGRATORY JOURNEY IN FRANCOPHONE AFRICAN LITERATURE AND CINEMA

ANABEL SAID, [UNIVERSITY OF MALTA]

Migration remains a pressing and multifaceted issue in the contemporary world. Many in search of a better life put themselves through a perilous journey in order to pursue their dreams. In public discourses, the experience of migration is often condensed to images of overcrowded boats which reduce the matter to a frozen moment where the migrant is suspended between the sky and the sea, cut off from their past and their future. Such a portrayal eliminates any humane element: at best, human beings are reduced to mere silhouettes; at worst they are transformed into a dangerous, invasive Other, the ultimate enemy. This oversimplification of a complex reality is counteracted by the artistic sphere which aims to present a more extensive view. Focusing on a selection of francophone African literary and cinematic works such as Fatou Diome's *Le Ventre de l'Atlantique*, Tahar Ben Jelloun's *Partir* and Merzak Allouache's *Harragas*, this study explores the representation of the migratory journey, analysing the deeper meanings behind recurring motifs and salient absences. Through their works, authors and filmmakers highlight the complexities of the migrant's voyage which constitutes a paradoxical space, both imaginary and real, initiatory and tragically conclusive. Central to this exploration is the representation of the sea which stands out as an ambivalent, glittering stretch, a repository of shattered dreams and bodies. Through this analysis, this study aims to shed light on narratives which challenge simplistic interpretations and foster a more profound understanding of the human experience behind the headlines.

KEYWORDS

MIGRATION, JOURNEY, SEA, VIOLENCE, FRANCOPHONE LITERATURE,
FRANCOPHONE CINEMA

MISERY IN MALTA: AN ECONOMETRIC ANALYSIS

MARIE BRIGUGLIO; MELCHIOR VELLA; DANIEL GRAVINO,
[UNIVERSITY OF MALTA]

Understanding the factors that affect wellbeing can help policy-makers identify where they need to intervene to alleviate misery and to allocate resources accordingly. As part of the Malta Wellbeing INDEX project, this report presents an analysis of 2018 microdata on the self-assessed wellbeing of the Maltese population collected by the National Statistics Office (NSO) through the Survey on Income and Living Conditions (n=9815). Informed by the extant literature, we first construct a model that is conceptually capable of explaining why different people experience diverse levels of misery and wellbeing including both material and lifestyle conditions. We then synthesize the data capturing life satisfaction in various domains (0-10 scale) and the self-assessed frequency of feeling diverse emotions (0-4) into two distinct factor variables. We employ econometric analysis to forecast these variables as well as two other standard proxies of wellbeing (life-satisfaction and happiness). We find that by far the strongest predictors of misery are the inability to work, material deprivation, illhealth, and poor social interaction. We further observe that higher income is associated with higher life-satisfaction, but not with more happiness. Districts across Malta emerge as powerful predictors of wellbeing, possibly capturing some of the unexplained variance.

KEYWORDS

ECONOMICS, WELLBEING, MISERY, ECONOMETRICS, MALTA, LIFE-SATISFACTION, AFFECT

INFLUENCE OF EMISSION FROM MARITIME TRANSPORT IN THE STRAIT OF GIBRALTAR

MIŁOSZ WOJTYNA, [UNIVERSITY OF GDAŃSK]

A sustainable future is only possible if our individual and collective capacities to think critically are maintained. Within the contemporary attention economy (a regime of cognitive capitalism) that promotes cognitive labour over physical labour, those capacities are put to a test that goes beyond the mere challenges of work and self-actualisation. The astounding abundance of information we process every day, the relative (un)verifiability of it, the violence of the screen, the looming dangers of automation, the “social acceleration” characteristic of modernity obsessed with growth, and the excess of positivity that we have embraced as an illusory respite from disciplinary societies, have all been proven to cause burnout, overload, and anxiety, and lead to individual and societal “infarctions”. Referring to the works of Byung-Chul Han, Hartmut Rosa, and Mark Andrejevic, among others, I not only diagnose the epistemic and psychological challenges our information societies confront today (and the ones we are faced with individually – at work, at home, in our communities and democracy), but also propose solutions for everybody who wants to maintain a hygienic, sustainable relationship with information and their own brains. The solutions are based on my “cauliflower model” – a method of using interpretation as a cognitive defence against infoglut, burnout, and cognitive overload not just for ourselves but also for those we care about. With that empathetic tool, we might hope to preserve what’s the most important – our individual and collective readiness to think and act in non-automatic ways.

KEYWORDS

SOCIAL ACCELERATION, COGNITIVE CAPITALISM, INTERPRETATION, COMMUNICATION, BURNOUT SOCIETIES, ACHIEVEMENT SOCIETIES

HOW TO PEEL THE CAULIFLOWER? INTERPRETATION AGAINST BURNOUT IN ATTENTION ECONOMY

MIŁOSZ WOJTYNA, [UNIVERSITY OF GDAŃSK]

A sustainable future is only possible if our individual and collective capacities to think critically are maintained. Within the contemporary attention economy (a regime of cognitive capitalism) that promotes cognitive labour over physical labour, those capacities are put to a test that goes beyond the mere challenges of work and self-actualisation. The astounding abundance of information we process every day, the relative (un)verifiability of it, the violence of the screen, the looming dangers of automation, the “social acceleration” characteristic of modernity obsessed with growth, and the excess of positivity that we have embraced as an illusory respite from disciplinary societies, have all been proven to cause burnout, overload, and anxiety, and lead to individual and societal “infarctions”. Referring to the works of Byung-Chul Han, Hartmut Rosa, and Mark Andrejevic, among others, I not only diagnose the epistemic and psychological challenges our information societies confront today (and the ones we are faced with individually – at work, at home, in our communities and democracy), but also propose solutions for everybody who wants to maintain a hygienic, sustainable relationship with information and their own brains. The solutions are based on my “cauliflower model” – a method of using interpretation as a cognitive defence against infoglut, burnout, and cognitive overload not just for ourselves but also for those we care about. With that empathetic tool, we might hope to preserve what’s the most important – our individual and collective readiness to think and act in non-automatic ways.

KEYWORDS

SOCIAL ACCELERATION, COGNITIVE CAPITALISM, INTERPRETATION, COMMUNICATION, BURNOUT SOCIETIES, ACHIEVEMENT SOCIETIES

PARTICIPATING IN SEA-EU MOBILITY: QUESTIONS OF LINGUISTIC READINESS AND SELF-ASSESSMENT

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MAŁGORZATA ROCLAWSKA-DANILUK; MACIEJ RATAJ; ANNA
GIERUSZ-MATKOWSKA, [UNIVERSITY OF GDAŃSK, POLAND]

Research on study abroad (SA) receives attention in second language (L2) or foreign language education as multilingualism and multiculturalism is becoming more widespread through education, workforce, migration, and affordable transportation. These research studies the differences, such as L2 language development and use, between students who participate in SA programs and those who do not. Another line of research addresses the L2 development process of students participating in SA programs. This current study focuses on SA programs provided by SEA-EU, an alliance of 9 European coastal universities. Research on SA typically takes the preparation of students going abroad as its initial stage and explores how students can be linguistically, socially, and psychologically prepared for their new learning environment. This current study, however, emphasizes one earlier step: the several factors students take into account before deciding whether to participate in SA programs. Specifically, this study investigates factors that are language-related and learners' initial assessment of their Basic Interpersonal Communication Skills (BICS) and Cognitive Academic Language Proficiency (CALP), to use Cummins' (2000) terms. The participants in this study are 200 students from University of Gdańsk and Nord University, which are both SEA-EU universities. These participants did not participate in short-term or long-term mobility programs but might participate in the future. The research tool is an online questionnaire. This study aims to reveal the participants' evaluative views on their L2 competence and performance in relation to living and studying abroad through the context of BICS and CALP. This study expects to provide both home universities and host universities with information they can use to increase the number of students going abroad.

KEYWORDS

LINGUISTIC READINESS, SELF-ASSESSMENT, SECOND LANGUAGE DEVELOPMENT, STUDY ABROAD, BASIC INTERPERSONAL COMMUNICATION SKILLS, COGNITIVE ACADEMIC LANGUAGE PROFICIENCY

FRENCH CONSUMERS' PERCEPTIONS OF SUSTAINABLE FOOD: AN EXPLORATION OF INDICATORS AND DETERMINANTS OF TRUST IN PRODUCTS AND ACTORS IN THE FOOD SYSTEM

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This study examines the perceptions of French consumers regarding sustainable food by investigating the indicators and factors influencing trust in sustainable food products and actors within the food system. A preliminary qualitative analysis was conducted through semistructured interviews with 21 participants. The primary discoveries are 1) Sustainable food is predominantly linked with organic, seasonal, and local products, particularly for fruits and vegetables. 2) Two main categories of trust indicators were recognized: intrinsic indicators associated with the product itself (appearance, taste, freshness, etc.) and extrinsic indicators related to labeling, place of sale, price, brand, packaging, etc. 3) It was noted that for sustainable food, the affective dimension of trust is nearly as crucial as the cognitive dimension, and that retailers were the entities that instilled the most trust among respondents, followed by producers and farmers. The practical implications of this research aim to offer decision-makers and stakeholders in the food industry with valuable insights on the factors influencing trust, to enhance support for consumers in their shift towards healthier and more sustainable food options.

KEYWORDS

SUSTAINABLE FOOD, SUSTAINABLE CONSUMPTION, TRUST, FOOD SYSTEM ACTORS, FRENCH CONSUMER

NAVIGATING TOMORROW'S WATERS: A CASE STUDY OF TECHNOLOGICAL INNOVATION IN THE PORT OF NAPLES

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The widespread implementation of digital technologies in all aspects of human activities has become imperative, especially for business. Ports are vital components of international trade, whose efficient functioning is crucial for enhancing a country's competitiveness. For such a reason, their ability to adapt to market requirements is becoming increasingly dependent on their capacity to digitalize their operations, a complex and challenging process that should not be underestimated. Based on the application of stakeholders theory, this study seeks to analyse the relationship between the adoption of digital technologies and the competitiveness of ports. A case study has been carried out in the port of Naples, which serves as a vital hub connecting the western Mediterranean region to the rest of the world. The findings of this study demonstrate that the utilization of digital technologies is essential for ports to increase their competitiveness on a worldwide scale, especially when the national industrial system significantly relies on seaway transportation. By leveraging the transformative power of digitalization, port operations may be revolutionized, leading to a stronger national economy, enhanced stakeholder engagement, and sustainable growth. The main contribution of this study is to provide practical recommendations that can be readily adopted by Port Authorities and policymakers to fully embrace the digitalization process. Finally, a digital transition plan has been proposed for the port of Naples to provide significant insights into the direct relationship between the use of new technology and the competitiveness of the port.

KEYWORDS

DIGITALIZATION, MARITIME COMMUNITY, PORT COMPETITIVENESS, SUSTAINABILITY, COLLABORATION, PORTS AND HARBOURS, INTERDISCIPLINARY APPROACH

REIMAGINING CAREER GUIDANCE PRACTICES: THE CONTEXT OF INFORMAL WORK

CHRISTINE GARZIA, [EURO-MEDITERRANEAN CENTRE FOR EDUCATIONAL RESEARCH, UNIVERSITY OF MALTA]

Career guidance, as Sultana (2017) posits, is a social practice that holds diverse meanings across various contexts, including "different cultures, institutional traditions, and economic realities" (p. 4). This study delves into a particular context, the informal economy, in which over 60% of the global workforce earns their livelihood. While various scholars have sought to address the gaps related to the work experiences and trajectories of marginalised individuals, including those in informal work, the relationship between career guidance and informality is relatively in its infancy. Our understanding of the intricate and heterogeneous nature of informality from a career trajectory perspective remains under-explored, especially with regard to gendered disparities. The voices of women participating in informal work are hardly heard, leading to gaps in our understanding of the interplay between livelihood transitions and the dynamics of gender and other socio-demographic variables. To comprehensively grasp the meaning of career guidance practices in different contexts and to consequently reimagine these practices in a context-sensitive manner, it is essential to engage with these 'missing voices', bringing their lived experiences to the fore. Reflecting on ten interviews with women workers in Malta, the emerging research unveils their reasons for entering informal work. By examining structural, institutional, and behavioural factors, the study uncovers key themes like limited access to formal employment and gender-based barriers disproportionately impacting women. The study instigates a critical discourse on social justice-informed career guidance practices that are relevant and meaningful in specific contexts, and that seek to pave the way to decent work.

KEYWORDS

CAREER GUIDANCE, DECENT WORK, GENDER, INFORMAL ECONOMY, SOCIAL JUSTICE

WHY ADOPTING AN INTERSECTIONAL APPROACH MAKES SENSE WHEN IMPLEMENTING EQUALITY, DIVERSITY AND INCLUSION IN HIGHER EDUCATIONAL INSTITUTIONS

JOSANN CUTAJAR, [UNIVERSITY OF MALTA]

Higher educational institutions tend to conceptualize discrimination as happening to a single, discrete group. They rely on addressing discrimination on a single-axis basis. With the increase in diversity at institutional and social level (Gurría, 2018), institutions find themselves underequipped when it comes to addressing intersectional discrimination. Intersectional discrimination occurs when an individual or group of individuals are discriminated against based on grounds which intersect producing a new type of discrimination. When individuals experience discrimination on a number of basis, institutions find it difficult to address the qualitatively different experience that occurs when identities interact with each other in a way that they are inseparable (Fredman, 2016). People live at the intersections of grounds, rather than being confined within single grounds (Center for Intersectional Justice, 2021). The purpose of this paper is to emphasize the importance of adopting an intersectional approach when it comes to promoting diversity, equality and inclusion in higher educational institutions. It will also explore how an intersectional lens can help inform policy interventions and action.

KEYWORDS

DISCRIMINATION, DIVERSITY, EQUALITY, INCLUSION, INTERSECTIONALITY, POLICY, HIGHER EDUCATIONAL INSTITUTIONS

SPATIO-TEMPORAL MODELLING OF MARITIME LEISURE AND PROFESSIONAL FISHING ACTIVITIES IN THE MARINE PROTECTED AREA OF THE ARCACHON BASIN: THE MACUMBA PROJECT

KIMBERLEY CLOIREC; FRÉDÉRIC AUDARD; CYRIL TISSOT, [BREST, UNIVERSITÉ DE BRETAGNE OCCIDENTALE]

One of the missions of the Arcachon Basin's Marine Natural Park (PNM-BA) aims to promote a balance between the development of sustainable human activities and the preservation of marine ecosystems. In collaboration with the Office Français de la Biodiversité, the present research focuses on quantifying, characterizing, and locating tourist, recreational, and professional uses within the PNM-BA. The method relies on a twofold model: an a-spatial model to predict daily attendance and a spatial model to predict its spatial distribution. The data, sourced from AIS maritime traffic data and contextual variables including calendar, physical, regulatory, and accessibility factors, are combined and supplied to various models (GLM, GAM, Random Forest) to understand and forecast maritime traffic patterns. A first aspatial model effectively predicts daily boating attendance across the basin on an annual scale ($R^2=0.87$). Subsequently, a second model investigates the impact of tides on the distribution of daily boat use within the PNM-BA at a fine spatial scale, employing comparative approaches of dynamic spatio-temporal models, such as spatio-temporal regressions and machine learning techniques. Furthermore, the results of this study will contribute to cumulative effects models assessing socio-ecosystem impacts, thus providing a decision-making resource to refine visitor management strategies and enhance positive environmental and economic spinoffs.

KEYWORDS

SOCIAL SCIENCES, COASTAL MANAGEMENT, VISITOR MONITORING, MARINE PROTECTED AREA, SPATIAL MODELLING, HUMAN ACTIVITIES

EXPLORING THE ULTIMATE REALMS OF THE ARCTIC: A POSTCOLONIAL ANALYSIS OF EDWARD L. MOSS'S SHORES OF THE POLAR SEA (1878) THROUGH TEXT AND IMAGE

CANDIDA BASILE BALDASSARRE, [UNIVERSITY OF NAPLES, PARTHENOPE]

The icy lands at the North and South poles represent the ultimate terrestrial frontiers, which make a good setting for mythology, legends, and fiction. Such frosty and inhospitable landscapes are characterized by sparse human presence compared to more densely populated regions; yet, they have been home to some indigenous cultures. The Arctic has long been an invaluable setting for not just the awful but the awesome, since it symbolises a great blank space, a white screen onto which humankind can project its fears. Building upon these premises, the proposal focuses on the representations of Arctic landscapes, by offering a unique examination of Edward L. Moss's Arctic expedition narrative *Shores of the Polar Sea: A Narrative of the Arctic Expedition of 1875-6* (1878), which is part of the historical "Bourbon collection" kept at Parthenope University of Naples. Given that the book under scrutiny contains several engravings and chromolithographs, the main purpose of the investigation is to provide a survey of the intricate layers of meaning embedded within Moss's text, exploring how different semiotic modes of representation can contribute to the construction of Arctic narratives and identities in the colonizer's culture. By integrating insights from literary and visual studies, my paper offers a multimodal analysis of some multimedia passages taken from Moss's Arctic exploration account, unearthing their broader socio-political implications through a postcolonial lens.

KEYWORDS

ARCTIC LANDSCAPES, EDWARD MOSS, WESTERN NARRATIVES, MULTIMODAL ANALYSIS, POSTCOLONIALISM

A CONTRASTIVE ENGLISH-ITALIAN ANALYSIS ON CELL-BASED FOOD TERMINOLOGY

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In the emerging field of cell-based food production, terminology harmonisation represents a crucial challenge. Terms commonly employed by the industry often generate inconsistencies, unclarity and confusion. Such ambiguities stem from difficulties in defining what a cell-based product is. At the same time, there are significant irregularities in the nomenclature of cell-based products, so much so that there is even the question as to whether they can be properly classified as “meat” or not. An accurate and unambiguous use of terminologies in this field is necessary. The study aims at shedding light on how current terms are employed in English and Italian, and proposing guidelines for terminology harmonisation by carrying out a terminological contrastive analysis of cell-based food, examining both its scientific accuracy and public perception. Through a comprehensive review of literature, regulatory documents, and the analysis of public discourse, two specialised study corpora– one in English and one in Italian– are built and used for terminological extraction through Sketch Engine in order to investigate the wide range of terms currently used to describe cell-based food products, as well as their linguistic nuances and potential implications for consumers’ understanding, knowledge and acceptance. Candidate terms are then analysed in their contexts of occurrence in order to identify the implications of their use. Preliminary findings are meant to provide an overview of the current status of such terminology, specifically its usage, in both English and Italian languages.

KEYWORDS

CELL-BASED FOOD, TERMINOLOGY, NOMENCLATURE, RISING TECHNOLOGIES, PUBLIC PERCEPTION

THE INTERSECTION BETWEEN DISABILITY AND SEX: EXPLORING THE REPRESENTATIONS OF DISABLED WOMEN

DR AMY CAMILLERI ZAHRA; MARY ANNE LAURI,
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The public portrayal of disabled women and the representations that society has of them have implications and consequences that can be pervasive and can greatly impact the lives of disabled women in a number of tangible ways. The policies and practices which shape disabled women's lives are very often constructed by people who have uncritical and stereotypical ideas about disabled women. Therefore, it is important to understand the origins and significance of what people generally think about disabled women because those thoughts will likely shape the policies and practices and everyday encounters which construct disabled women's lives. In this paper I will explore the representations of disabled women in Malta held by non-disabled people. The study presented in this paper is underpinned by social representations theory, intersectionality theory and the social model of disability. Data for this study was collected through four focus groups with different group of Maltese society. Participants were recruited via snowball sampling. The data collected from the focus groups was analysed using thematic analysis. Four sub-ordinate themes emerged from the focus group data and these are: i) Ambivalence, ii) Misconceptions, iii) Equality Issues and, iv) Employment. This study illustrates that some of the social representations which were prevalent in the 1980s are unfortunately still impeding the lives of disabled women in Malta today.

KEYWORDS

DISABILITY, DISABLED WOMEN, REPRESENTATIONS, QUALITATIVE STUDY

INTERACTIONS BETWEEN MARINE MAMMALS AND (SMALL SCALE) FISHERIES: EXPLORING ISSUES AT STAKE IN SEA-EU SEAS AND POTENTIAL FOR SEA-EU-SEARCH@9 2024

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As well defined in Jog et al (2022), two types of interactions exist between marine mammals and fisheries: direct interactions, which involve bycatch and depredations; and indirect interactions, which occur due to trophic competition. Whereas this work mostly focusses on depredation, it can be expended to bycatch issues, which can result in the closing of (mostly small-scale) fisheries due to unintended entanglement of marine mammals for instance. Depredation is likely to occur in all Seas-EU seas, and involve, for instance: depredation of cod and salmon by seals in the Baltic seas; coastal fish eaten on nets by dolphin in the Mediterranean Sea; monkfish eaten on nets by grey seals in North-Brittany; carps eaten by cormorans in German and Polish ponds; tunas eaten by sharks in Portugal or by killer whales in the Gibraltar Strait. While being a global phenomenon, depredation is still rather unknown and raises a lot of sustainability issues. This work aims to brush the scene of these interactions in different areas, primarily from an economic perspective. But it also ambitions to (i) serve as a starting point for the conduct of a review of the phenomenon in the 9 Sea-EU regions, thanks to the development of an emergent SEA-EU-SEARCH project and (ii) bring together different sciences (e.g. ecology, sociology, anthropology) to fully capture the wisdom of the phenomenon in different Sea-EU situations.

KEYWORDS

ECONOMY, FISHERIES, MARINE MAMMALS, SUSTAINABILITY, DEPREDAATION, SEAEU, COLLABORATION

GENDER AND DIVERSITY – CHALLENGING INTERSECTIONAL DYNAMICS

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The concept and idea of intersectionality make for complicated and complex discussions in contemporary academic discourse as well as in policy making. In this paper we will explore the dynamic relationship between gender and diversity, focusing on analytical challenges and institutional frameworks. Gender, as a multifaceted construct encompassing not only biological characteristics but also cultural, social, and psychological dimensions, intersects with various dimensions of diversity including, but not limited to race, ethnicity, sexuality, class and able-bodiedness. The starting point is a wish to see intersecting “variables” or axes of power as intertwined to better confront inequalities, thus constituting a better take on diversity issues. Current institutional frameworks in universities, as well as in Sea-EU policies, underline the interconnectedness of gender and diversity as crucial for fostering inclusive environments, promoting equity, and dismantling systemic barriers. However, the translation from gender equality to diversity management is not easy neither in theory nor practice. Through a critical analysis of intersectionality as theoretical framework and empirical examples from Norwegian university diversity efforts, I will discuss the intricate terrain of gender and diversity, shedding light on the complexities, challenges, and opportunities inherent in the concept and practices of intersectionality.

SMART AND AUTOMATED DETECTION AND QUANTIFICATION OF ADULTERATIONS IN HIGH QUALITY HONEY BY VIS-NIRS IN COMBINATION WITH MACHINE LEARNING

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Honey is frequently adulterated, usually by the addition of sweeteners or low-cost honeys. This study presents a novel approach based on visible near-infrared spectroscopy (Vis-NIRs) combined with machine learning (ML) algorithms to accurately identify and quantify adulterants in honey. Two distinct botanical origins of honey (orange blossom and sunflower) were examined, each intentionally adulterated with varying percentages of low-cost honey (ranging from 5% to 50%). Exploratory analysis revealed a discernible trend in grouping samples based on both botanical origin and the presence of adulteration. In the supervised classification analysis, support vector machines (SVM) and random forests (RF) demonstrated the best performance, detecting 100% of the adulterated samples. Additionally, a regression study was conducted to quantify the percentage of adulteration, with support vector regression (SVR) yielding the best result: a coefficient of determination (R^2) of 0.991 and a root mean squared error (RMSE) of 1.894. These results demonstrate the potential of combining ML techniques with spectroscopic data, providing a robust method for automated quality control in honey production. The presented approach not only enhances the precision of identifying adulterants but also provides a reliable tool of quantifying their presence. In addition, this tool has been published for free at the following link: https://agr291.shinyapps.io/App_Honey/. In this way, any user could detect and quantify adulterations in a fast and objective way. A video of how it works can be found at the following link: https://drive.google.com/file/d/1OpUEX7itYn1H9lF_gN8afCXEsF9d1xc7/view?usp=sha ring

KEYWORDS

SCIENCE, HONEY, ADULTERATION, MACHINE LEARNING, VISIBLE NEAR INFRARED SPECTROSCOPY, SUPPORT VECTOR MACHINE, RANDOM FOREST

DEVELOPING UNDERGRADUATE STUDENTS' ABILITY TO REFLECT ON THE MARINE ENVIRONMENT THROUGH WRITING

DANIEL XERRI, [UNIVERSITY OF MALTA]

The marine environment is considered to be one of humanity's most precious resources; however, it is increasingly under threat from overfishing, pollution, global warming and a host of other problems. The severity of these issues becomes even more pronounced for the inhabitants of small island states. While they have a high dependence on the sea, this is at times taken for granted. This presentation focuses on the experiences of a group of students attending a reflective writing class in English at a university in Malta. By means of a series of activities focusing on the threats facing the country's marine environment, the students are equipped with the ability to develop their thinking on a local issue that has global ramifications. Their capacity to critically assess their own attitudes, beliefs and behaviours as citizens of a small island state is developed via reflective writing tasks aimed at encouraging them to step into the role of activists who can contribute to marine conservation. This case study utilises data gathered from semi-structured interviews, student writing, and the tutor's fieldnotes. It helps to show how a glocalised approach to the teaching of reflective writing can enable young people to develop their thinking and practices with respect to the marine environment, which is not solely significant for them as inhabitants of a small island state but forms part of the common heritage of humanity.

KEYWORDS

MARINE ENVIRONMENT, REFLECTIVE WRITING, GLOCALIZED LANGUAGE EDUCATION, SMALL ISLAND STATES, MARINE CONSERVATION

THE SEA CASTS A NET(WORK) TO SPREAD A CULTURE OF SUSTAINABILITY. THE ROLE OF THE SCIENTIFIC FOUNDATIONS AND THE CASE OF THE NEAPOLITAN FOUNDATION “ANTON DOHRN”.

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The sea has always been essential for human activity and cultural evolution. It has always been associated with the concept of "net(work)", which, in different forms and content, has characterised the various epochs: from the fishing net to the road network, until to the value network, networking, network organization and inter(net). Today, the sea and its ecosystem are in danger and the "net(work)" can take on its worst meaning, as a trap and an instrument of destruction. However, the sea and the "net(work)" can once again be seen as essential elements for a positive "reverse course" and for the reestablishment of a culture of sustainability that extends to the entire ecosystem. Scientific foundations (or similar organizations) – a central network node between different actors such as universities, public and private organizations, schools and other institutions can contribute to this new role of the sea and "net(work)" for the re-launch of a culture of sustainability. The methodology is based on the business case study analysis with a focus on the Neapolitan Foundation “Anton Dohrn”, established in 1955 and linked to the Stazione Zoologica A.D. (founded in 1875). We analyze the role, strategy and economics of the Foundation to understand how it can contribute to sustainable progress and support scientific research and culture, assisting researchers from all countries. The paper could be useful for both academics and practitioners: increasing knowledge of the literature stream and providing useful implications on the scientific foundation as a tool for sustainable value creation.

KEYWORDS

SEA, NETWORK, SCIENTIFIC FOUNDATION, STRATEGY, SUSTAINABLE VALUE CREATION

BEYOND PANDEMICS: IMPROVING CLIMATE RESILIENCE AND HEALTH SYSTEMS IN SMALL ISLAND STATES

STEFANO MONCADA; LUCA NGUYEN [ISLANDS AND SMALL STATES INSTITUTE, UNIVERSITY OF MALTA]

The "Beyond Pandemics" project, which received the Research Excellence Award by the University of Malta in 2022, aims to assess climate and health preparedness in the context of small island states by identifying key factors capable of strengthening resilience in the face of increasing global challenges. The results of an original systematic literature review revealed that there are no comprehensive conceptual frameworks that jointly address crises, such as climate change and COVID-19. Gaps remain in understanding how small island states can strengthen their resilience to such simultaneous crises. By adopting a mixed-methods approach, including participatory focus groups, elite interviews, and household surveys in Malta and Mauritius, the study finds that in the absence of such integrated conceptual approaches, there exists a continuum collaborative and integrated approach between state/government and individual/community actions to address climate and health risks. The results suggest that a synergistic strategy, encompassing both proactive state-planning and coordination of community-actions, significantly enhances the effectiveness of resilience building measures in small island settings. The findings of this project advocate for policy frameworks that include community interactions and feedback more pro-actively, while showcasing the importance of interdisciplinary research to address sustainability issues in island contexts.

KEYWORDS

SUSTAINABILITY, RESILIENCE, SMALL ISLANDS, CLIMATE ADAPTATION, PUBLIC HEALTH, COMMUNITY INVOLVEMENT

THE BLUE ECONOMY IN CROATIA: ANALYSIS OF THE KEY BUSINESS INDICATORS

SLAĐANA PAVLINOVIĆ MRŠIĆ, [UNIVERSITY OF SPLIT, FACULTY OF ECONOMICS, BUSINESS AND TOURISM, CROATIA]

The aim of this paper is to provide an overview of the firms associated with the blue economy in Croatia and to investigate their contribution to the Croatian economy. This research departs from the definitions provided in the European report where blue economy refers to economic activities based on or related to the oceans, seas and coasts, and are classified in two categories: marine based activities and marine-related activities. The practical challenges of operationalisation of such a definition in the Croatian business landscape are addressed in this research. The initial definition provides a data collection frame while the secondary firmlevel data on the main business indicators are collected and analysed, i.e. the number of employees, revenues and profits. The data is aggregated at sectoral, NUTS3, and geographical level in order to identify specific differences between island and coast based activities. The results are compared with the other relevant indicators, as well as with the national indicators in order to add to the understanding of the importance of the blue economy in Croatia.

KEYWORDS

BLUE ECONOMY, CROATIA, FIRM, EMPLOYMENT, REVENUE, PROFIT

BLUE ECONOMY KNOWLEDGE MANAGEMENT: INITIATIVES AND ICT SUPPORT

DANIELA GARBIN PRANIČEVIĆ [FACULTY OF ECONOMICS BUSINESS AND TOURISM SPLIT]

The core blue economy focus is on the sustainable management of blue resources (i.e. coastal and oceanic resources like oceans, seas, rivers, lakes and other water bodies). The additional focus are within the other related blue economy components like sustainable fishing, renewable energies, ecotourism, preservation of biodiversity, waste management, and shipbuilding. Keeping in mind the blue economy mission is to exploit the potential of the aforementioned resources/areas in a sustainable way in order to stimulate economic growth while maintaining the ecological balance of the sea; it seems that the importance of knowledge management in the field of the blue economy is growing over time. Therefore, in the paper research part, it will be search out and analyze several (i) current initiatives and (ii) technological solutions for knowledge management within a sustainable blue economy. The paper end will include following considerations: (i) the benefits/advantages of the mentioned initiatives/solutions for blue economy stakeholders, (ii) the potential difficulties/obstacles of applying them, and (iii) the directions how these initiatives/solutions can be better recognized and valued in the wider society.

KEYWORDS

BLUE ECONOMY (SDG 14), KNOWLEDGE MANAGEMENT, ICT SUPPORT, ANALYSES, BLUE ECONOMY INITIATIVES

MEDICAL SURVEILLANCE FOR ASBESTOS-EXPOSED RETIRED WORKERS IN THE MARITIME SECTOR: INSIGHTS FROM A POPULATION HEALTH STUDY

OLIVIER CRASSET, [LABERS, UBO, BREST]

In France, asbestos has been banned since 1997. Nevertheless, as the health effects of exposure are delayed by decades, retirees are now very concerned by the risk of illness. The Brest region is home to a large number of civil and military shipyards, as well as naval, fishing and trading activities. The workers and sailors who have worked there are among the most exposed populations. Under certain conditions, these retirees can benefit from a medical monitoring program to detect the onset of any illness as early as possible, and provide better care. Since 2021, the sociology laboratory at the University of Brest has been conducting an interventional population health research on post-occupational monitoring of cancer (Rispop29), funded by the French National Cancer Institute (Inca). The aim of this research is to analyze how the system works, and to identify the factors that may encourage people to seek post-occupational monitoring. The take-up rate remains very low, for reasons linked to traceability issues, administrative complexity, lack of information among beneficiaries and physicians, and the anxiety caused by the examinations. The results highlight the importance of administrative and psychological support for potential beneficiaries from social security institutions, occupational medicine and victims' associations. Following a recent legislative reform of occupational health, the various stakeholders now have the opportunity to apply the best practices identified.

KEYWORDS

OCCUPATIONAL HEALTH, SECONDARY PREVENTION, ASBESTOS, POST-OCCUPATIONAL MONITORING, HEALTH POLICIES

SUSTAINABILITY OF PET DOGS IN COASTAL TOWNS

ELIZABETH MICALLEF [UNIVERSITY OF MALTA]

Two interconnecting ideas will be discussed in this paper. As a result of the carbon footprint created by every living being there is a problem with human populations, but often forgetting the dog populations. This overpopulation creates global warming effecting coastal towns. Unfortunately, mental health issues arise because of overcrowding and the presence of dogs in all public spaces. Many find the presence of strange dogs everywhere they go very alarming and threatening and so prefer to stay away and face loneliness thus leading to mental health problems.

KEYWORDS

MENTAL HEALTH, GLOBAL WARMING, CARBON FOOTPRINT, LONLINESS, PET DOGS, STRESS, DISCOMFORT

TAKING ACTION AGAINST ONLINE HATE SPEECH: MEDIA LITERACY AND THE PROPS PROJECT AT THE UNIVERSITY OF ALGARVE - CIAC

ANA FILIPA MARTINS; SUSANA COSTA; BRUNO SILVA; MIRIAN TAVARES, [RESEARCH CENTRE FOR ARTS NA COMMUNICATION - UNIVERSITY OF ALGARVE]

Media education and research at the University of Algarve have been based on interaction with the community as well as on artistic and cultural creation and production. The various projects developed in this area have provided and taken advantage of partnerships with regional media organisations, associations, public institutions, and schools, among other national and international partners. While involving UAlg researchers and students, these projects are opportunities to develop students' citizenship skills, in addition to the knowledge and technical competences they acquire. The PROPS project - Interactive Narratives Propose Pluralist Speech is an ongoing research project being conducted with the help of public funding. The project aims to analyse and counter hate speech online, specifically in the context of video games. Its aim is to combine the study of issues related to hate speech that children and young people may be exposed to when playing online video games with the production of interactive narratives that meet their interests and languages, proposing alternative ways of acting while aiming to stimulate their creativity and critical thinking. Implemented in schools in the Algarve region and beyond, and involving various educational stakeholders, this project has already produced a number of relevant results. On the one hand, it has made it possible to better understand the occurrence of online hate speech among young people and, on the other, their perceptions of this issue and how to combat it for a fairer and more diverse society.

KEYWORDS

ARTS, HUMANITIES AND SOCIAL SCIENCES, MEDIA LITERACY, INTERACTIVE NARRATIVES, ONLINE HATE SPEECH, CITIZENSHIP AND INCLUSION

ECOLOGICAL DYNAMICS-BASED TEACHING METHODOLOGY FOR TEACHER TRAINING

VANDA CORREIA, [SPRINT, SPORT PHYSICAL ACTIVITY AND HEALTH RESEARCH & INOVATION CENTER]; KEITH DAVIDS, [SPORT AND PHYSICAL ACTIVITY RESEARCH CENTRE, SHEFFIELD HALLAM UNIVERSITY]

This communication seeks to introduce the importance of integrating ecological dynamics framed teaching methodologies into teacher training programs for physical education (PE). It will emphasize the need to align perspective, such as ecological dynamics, nonlinear pedagogy, and constraint-led approaches, with curricular guidelines to design effective learning opportunities for children. Additionally, understanding motor development and learning theories will be conveyed as essential for educators to incorporate evidence-based practices into their teaching methodologies to counter prescriptive and reproductive teaching styles. Examples of application of these ecological ideas will be discussed, illustrating their practical implementation. The communication will also underscore the significance of hands-on pedagogical experiences in PE, through simulated intervention scenarios and real intervention scenarios with children. It will advocate the creation of dynamic learning environments that promote exploration, adaptation, and inclusivity, fostering children's holistic development. Last, the communication will highlight the benefits of collaborative learning through peer observation and emphasize the need for reflective practice skills among future PE teachers. Overall, it will stress the importance of aligning ecological learning theory with practice to provide stimulating and contextualised conditions for the development and learning of children in physical education.

KEYWORDS

SOCIAL SCIENCES, SPORTS, TRAINING

GREEN TRANSITION AND FINANCIALLY CONSTRAINED HOUSEHOLDS: A COMPARATIVE ANALYSIS ON THE SEA-EU ALLIANCE COUNTRIES

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[UNIVERSITY OF NAPLES PARTHENOPE]

In the current economic context, environmental awareness is a key factor in promoting the implementation of "green behavior" and "green economic policies", leading to a fair, healthy, and environmentally friendly system. Empirical evidence shows that there is a strong correlation between environmental issues and business cycle. As a matter of fact, the concern about environmental issues increases during expansionary phases and decreases over recessionary periods (Kahn and Kotchen, 2010). Furthermore, opinions about climate change and pro-environmental behaviors are primarily determined by households' socio-economic conditions (Scruggs and Benegal, 2012). In light of that, we investigate the effects of different environmental policies in an economy where households are heterogeneous in their budget constraints and, therefore, are differently cared about environmental issues. To this purpose, we set up and simulate Two-Agent New Keynesian (TANK) model, for the Italian economy, augmented with environmental awareness. We carry out both a short- and long-run analysis to investigate the effects of environmental shocks on consumption behaviours. Two results are highlighted by the analysis. First, since we find that financially constrained agents are less willing to pay for better environmental quality than richer ones, either as a result of increased emissions from a positive productivity shock and of a preference shock, the model does explain the stylized facts. Second, environmental shocks are important drivers of the business cycle and generate significant welfare effects. Finally, the model is estimated using Bayesian techniques comparing data from different countries in the SEA-EU Alliance.

KEYWORDS

ENVIRONMENTAL AWARENESS, ENVIRONMENTAL POLICY, GREEN BEHAVIOUR, GREEN CONSUMPTION, GREEN TRANSITION

COASTAL GREEN CITIES IN EASTERN EUROPE: A COMPARATIVE STUDY

SILVIA GOLEM; SLAĐANA PAVLINOVIĆ MRŠIĆ, [FACULTY OF ECONOMICS, BUSINESS AND TOURISM SPLIT, UNIVERSITY OF SPLIT, CROATIA]; ALEKSANDRA KOSZAREK-CYRA, [UNIVERSITY OF GDAŃSK, FACULTY OF MANAGEMENT, POLAND]

The importance of urban green space for the quality of live and sustainable urban development has been well documented in the literature. The aim of this paper is to compare the current state and future prospects of urban green space planning and management experiences of two coastal Eastern European cities - the city of Gdynia, Poland and the city of Split, Croatia. The study delves into the idiosyncratic urban green practices along with identifying the common factors behind their success or failure, thereby providing insights for urban green space provisions and maintenance. The research focus was placed on examining elements of the process of green space management in cities. Among other things, the areas of green spaces, city policies on tree cutting and planting or designation of new green spaces were analyzed. Elements of municipalities' greenery planning strategies were also examined. To conduct the survey, a research tool was created in the form of a questionnaire consisting of questions addressing the issues under study. The data collected from the questionnaire was compared and similarities and differences in the policies of the two coastal cities were identified. The implications of the results on the green space planning and management are assessed. The study will contribute to the knowledge about green spaces in coastal Eastern European cities.

KEYWORDS

COASTAL CITIES, GREEN SPACES, EASTERN EUROPE, ECOSYSTEM SERVICES

BEYOND WASTE : EXPLORING CONSUMER PERCEIVED RESIDUAL VALUE OF FRESH FOOD PRODUCTS

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LEGALL-ELY; BERTRAND URIEN, [UNIVERSITÉ DE BREST]

Perceived value theory has received significant attention from researchers understanding consumption. However, criticism has emerged regarding its "partial vision", focusing on purchase and consumption values and neglecting other facets of value, such as Perceived Residual Value (PRV), which is perceived by consumers at the post-consumption phase (Kręziak et al., 2020a). Yet, this concept is very interesting, particularly in the context of circular economy, since it enables us to study the types of values remaining in a product at the end of its life. While PRV has been studied in the context of non-perishable products, its exploration in the case of food products remains unexplored. This paper addresses this gap by proposing a measurement scale for PRV, specific to fruits and vegetables (F&V). Following Churchill (1979) paradigm, and drawing on 30 semi-structured interviews and a survey with 1048 French consumers, this research identifies and validates four dimensions of PRV for F&V: symbolic RPV, hedonic RPV, individual utilitarian RPV, and biospheric PRV. Symbolic PRV is the residual value associated with the efforts and resources invested in the product's production, while hedonic PRV represents the sensory pleasures still remaining in damaged F&V. Individual utilitarian PRV encompasses health, nutritional and convenience residual benefits. Finally, biospheric PRV relates to the residual value for biosphere, since damaged F&V could serve to feed nature or animals. Insights from this study can guide communication strategies aiming to reduce food waste to consider symbolic, hedonic and biospheric perceived dimensions and shift from the utilitarian perspective. This research also constitutes an example of new knowledge which will be transmitted, among others, in one the module of our master's degree "Turquoise" thus contributing to training the "turquoise manager". The various colleagues involved in the realization of this Turquoise master's degree are teachers/researchers and are able to create new knowledge which will then be transmitted in the teaching of this master's degree.

KEYWORDS

PERCEIVED VALUE, RESIDUAL VALUE, FOOD WASTE, FRUITS & VEGETABLES

WHAT MAKES STUDENTS GO ON EXCHANGE? PERSONAL GROWTH MOTIVES, CONSCIENTIOUSNESS, AND PRACTICAL OBSTACLES PREDICT INTENTION TO STUDY ABROAD

IVAN CERNICKY, [NORD UNIVERSITY]

Although many universities actively promote student mobility, few studies have explored the factors influencing students' decisions to participate in exchange programs. Either such studies tend to remain internal or, somewhat paradoxically, the issue has not been studied rigorously often enough. This study, based on a survey ran at Nord University (N=344), examined perceived availability of information, practical and financial obstacles, motivational factors, and personality traits in the context of intention to take part in exchange. Using multinomial logistic regression, we predicted the intention to participate in an exchange program with 65% accuracy, compared to a baseline (no information) accuracy of 42%; this difference was statistically significant, $p < .001$. The strongest predictors were personal growth motivation, high conscientiousness scores, and fewer practical obstacles. Younger age was also a significant predictor, but not a strong one. On the other hand, against our expectations, availability of information, financial concerns, academic motivation, and openness to experience trait did not predict intention to go on exchange.

KEYWORDS

STUDENT EXCHANGE, PERSONAL GROWTH, ACADEMIC, MOTIVATION, INFORMATION AVAILABILITY, PERSONALITY TRAITS

UNDERACHIEVEMENT AND EARLY CHILDHOOD EDUCATION – A SYSTEMATIC REVIEW

PROF. SUZANNE GATT; DR. ROSIENNE CAMILLERI; DR.
CHARMAINE BONELLO, [FACULTY OF EDUCATION, UNIVERSITY OF
MALTA]

Early School Leaving is a linked to unemployment, poverty and poor health, leading to social inclusion. Some groups of young people in society have a greater probability to drop out of school compared to others. Underachievement at school can be considered as a precursor of early school drop out in many cases. It is thus worth understanding what factors lead students to underachieve. Understanding better what social determinants are at play in making children underachieve, governments and educators can take action to prevent underachievement and early school leaving. This paper presents results from initial research carried out as part of an EU Horizon funded project Scirearly, (<https://scirearly.eu/>) focusing on underachievement and how educational practices can support students and prevent underachievement. A team of researchers across Europe carried out a series of systematic reviews on how identified social determinants may contribute to students underachieving and eventually dropping out of school. This paper focuses on the results of the systematic review carried out with respect to early childhood education and care (ECEC). Findings show that there is little research looking at early years' education and underachievement. The research identified in the systematic review highlights how elements leading to underachievement start being evident very early in life. Children born prematurely, with medical issues or with behavioural problems start struggling at preschool stage. There is also limited monitoring and support to children falling behind in learning and development at this stage which can prevent children from falling further behind as they grow up.

KEYWORDS

UNDERACHIEVEMENT, EARLY CHILDHOOD EDUCATION AND CARE,
SYSTEMATIC REVIEW, SCIREARLY

AN EMPIRICAL ASSESSMENT OF CIRCULAR ECONOMY IN THE COUNTRIES OF THE SEA-EU ALLIANCE

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Within the new paradigm of ecological transition, consumers, enterprises and stakeholders have to pursue strategic targets based on environmental, social and economic sustainability. Considering the growing scarcity of natural resources and the need to preserve our environment, the importance of promoting the circularity of economies is increasingly evident, through the reuse, recycling and recovery of materials. By reducing the use of primary inputs, promoting sustainable consumption and product design, product and process innovation, limiting waste production, the circular economy helps to improve the efficient use of natural resources and reduce negative environmental impacts, including pollution of soil, air and water bodies. Moreover, by helping to mitigate these problems, the circular economy supports the long-term sustainability of our planet. The 2023 Report on the circular economy in Italy offers an updated picture of our country's performance and the policies adopted at European and national level, highlighting the importance of a cross-country and collaborative approach to identifying sustainable consumption/production practices. In this work, the performances in terms of the circular economy of the partner countries of the SEA-EU Alliance will be compared. The results achieved by individual countries will be evaluated based on some key indicators of particular significance for measuring the circularity rate of the economy, chosen from those derived from the application of the Bellagio Charter, using the latest data available for each of the metrics involved in the analysis and investigating time patterns among the Alliance countries. This can help to find a set of information to be shared among the students of the Alliance to raise circularity awareness and promote sustainable practises.

KEYWORDS

ECONOMICS, SOCIAL SCIENCES, NATURAL RESOURCES, COMPOSITE INDICATORS, INTERNATIONAL COMPARISON

FIRMS' SUSTAINABILITY STRATEGIES BETWEEN BLUE AND BEAUTY ECONOMIES. THE CASE STUDY OF "ANTONINO DE SIMONE 1830 – IMPRESA STORICA"

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The blue economy paradigm is radically impacting on laws, regulations, and international conventions in the field of sustainability. In the blue economy perimeter, the business activities are rapidly expanding. Among these, worth of particular attention is the fishing of red coral. Indeed, the General Fisheries Commission for the Mediterranean (GFCM), FAO body, over the years has established a series of mandatory recommendations to make coral fishing eco-compatible with the marine environment and sustainable in all the interested Countries of the Mediterranean basin. The introduced measures affected the entire supply chain, from the collection methods of raw material up to the production of finished precious jewels. In this regard, the concepts of blue economy and beauty economy seem strictly correlated; the development of sustainable models that can leverage - in an integrated perspective - on the marine environmental protection also impacts on the craftsmanship processes of coral creations, typical expressions of the Made in Italy. These aspects have led several coral firms to improve their business models from a sustainable perspective, always in line with their traditional, but non-conventional, artisanal tradition. Our research aims to investigate how firms can embrace sustainability strategies to create/improve their business models by highlighting the synergic links between the assumptions of the blue and beauty economies. The study identifies "ANTONINO DE SIMONE 1830 – IMPRESA STORICA" as an illustrative "business case study", an Italian coral jewellery manufacture firm based in Torre del Greco with a two-century-long history of success, resilience and adaptive capability to sector changes.

KEYWORDS

SUSTAINABILITY STRATEGIES, BLUE ECONOMY, BEAUTY ECONOMY, CASE STUDY, FIRM

COMING TO TERMS WITH OCEAN LITERACY: MULTILINGUAL CORPORA, LEXICAL DATABASE AND LINGUISTIC KNOWLEDGE REPRESENTATION TO SUPPORT MARINE BIODIVERSITY

SILVIA DOMENICA ZOLLO; VIRGINIA CARRELLA, [UNIVERSITY OF NAPLES PARTHENOPE]

In this contribution we present the results of the research project Ocean literacy: linguistic observations, terminological data and lexicographic modelling from multilingual corpora being carried out at the University of Naples Parthenope, with the double objective of: (1) to collect, codify and analyse technical-scientific lexicons and discourses related to the domain of marine biology through the use and experimentation of the most recent tools and approaches adopted in the scientific literature (Zollo, 2024); (2) to promote oceanic conservation and literacy (i.e. marine flora and fauna, management of marine protected areas, conservation and protection techniques, etc.) through linguistic models and strategies aimed at the dissemination of knowledge from a citizen science perspective in a multilingual context (Zollo, in press). Within the theoretical framework of corpus linguistics, specialised languages and specialised lexicography, and in line with the project's objectives, we will firstly set out the methodological choices made for the constitution of the ZooCor corpus, a medium-sized bilingual specialised corpus relating to the field of marine fauna; secondly, we will propose a pilot study based on the semi-automatic extraction of terminological units (TUs) present in the corpus by means of the Termostat software. This extraction will then be aimed at an initial metaterminological analysis of the TUs by means of the Lexical Semantics approach, as well as a proposal for classifying the main TUs by means of terminographic cards, dictionary entries, thesauri, etc., according to various coding levels that consider the citizen audience for the purposes of dissemination and ocean literacy.

KEYWORDS

OCEAN LITERACY, SCIENTIFIC TERMS, LINGUISTICS, LEXICOLOGY, SPECIALISED LANGUAGES, CORPUS LINGUISTICS, MARINE CONSERVATION

SUSTAINABILITY AND HUMAN RESOURCE MANAGEMENT IN EUROPE

IPROF. SREĆKO GOIĆ, [UNIVERSITY OF SPLIT, FACULTY OF ECONOMICS, BUSINESS AND TOURISM, CROATIA]

The implementation of the concept of sustainability in the area of human resource management points towards the necessity to achieve not only the economic goals of an enterprise, but also to meet and balance the needs of the employees. Sustainable human resource management should support the strategy of sustainable development, take care of employees' development, health, and well-being, facilitate environmentally friendly practices, support the development of employees' competencies and promote life-work balance. As part of a broad international study, a survey based on a specially designed questionnaire was conducted during 2022. The research/ survey scope was to get a broad international insight and basis for the analysis of how much and in which way sustainable development practices have been conveyed to sustainable human resource management, and how sustainable human resource management practices affect employee organizational identification and job satisfaction. The sample included N= 14,502 respondents from 54 countries. In the research, the following fundamental variables have been covered: green and sustainable HRM, job satisfaction, well-being, organizational identification, work engagement and values. In this paper, a comparative analysis of the results from nine countries (from which member universities of the SEA EU Alliance come) will be made: Croatia, France, Germany, Italy, Malta, Norway, Poland, Portugal, and Spain. These nine countries not only very well represent different parts of Europe, but in their economic and social development they are very involved in promoting the principle of sustainability. This comparative analysis will try to determine how much thinking about sustainability is present in human resource management in the SEA EU Alliance countries, and how much thinking about broader aspects of sustainability (ecological, social and economic) are included in the design of the concept of sustainable human resource management. Using appropriate statistical methods, on the basis of data from empirical research, it will be examined what similarities there are, and how different the current situation and perceptions of 'sustainable HRM' are in the observed countries.

KEYWORDS

HUMAN RESOURCE MANAGEMENT, SUSTAINABILITY, EUROPE, JOB SATISFACTION

COGNITIVE FUNCTIONS IN PRE-ADOLESCENT CHILDREN INVOLVED IN SPORT

ILONA BIDZAN-BLUMA; PAWEŁ JUREK; MAŁGORZATA LIPOWSKA,
[GDANSK UNIVERSITY]

The research aimed to investigate the cognitive profiles of children engaged in soccer and gymnastics. Methods: The study encompassed 176 participants, consisting of 88 boys and 88 girls aged 10-12 years, with a mean age of $M=11.06$ and $SD=0.77$. Individual cognitive function assessments were conducted over a 2-hour period. Participants were selected based on age and engagement in specific types of exercises: Group 1 ($n = 59$) involved in closed-skill exercises, Group 2 ($n = 58$) engaged in open-skill exercises, and a comparison group ($n = 58$) comprising children not regularly participating in such sports. Results: Children practising soccer exhibited superior selective attention, sustained attention, attentional control, and cognitive flexibility compared to those not regularly involved in sports. Gymnasts exhibited enhanced verbal working memory. Both athlete groups demonstrated higher performance in the phonological loop and immediate free recall of visual material compared to the control group. Conclusions: Children practising soccer demonstrated better cognitive functions, particularly in areas related to attention and flexibility. Gymnasts exhibited enhanced verbal working memory. These findings underscore the cognitive benefits associated with sports participation in childhood. The study contributes valuable insights into the specific cognitive domains influenced by different types of physical activities among children, shedding light on potential implications for educational and sports interventions.

KEYWORDS

COGNITION, SPORT GYMNASTICS, SOCCER, CHILDREN

COLLABORATE AND THINK (CAT): KNOWLEDGE EXCHANGE THROUGH GAME-BASED LEARNING

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School Equality, Diversity and Inclusion (EDI) is characterized by challenges, including limited financial and human resources. The use of board games to stimulate students learning, motivation and inclusion in primary and secondary schools has attracted the attention of researchers in recent years. However, most of the above games pursue individual objectives such as learning, motivation and inclusion, neglecting the possibility of integrating all three mentioned objectives into a single tool. In this regard, the research group intends to propose an experimental table game that aims to create links and relationships between these three mentioned areas. The project describes a new teaching strategy that consists of a modular table game called “Collaborate and Think” (CaT) through which you can learn concepts and notions relating to conventional teaching disciplines, such as English, history and geography. The CaT uses gamification and social constructivism methodologies to increase learning, motivation and inclusion of students. The CaT includes 46 interactive stations designed to accommodate eight players aged between 8 and 14, while the role of teachers is to encourage participants to share knowledge. Frame theory and expected results will be reported.

KEYWORDS

GAMIFICATION, EDUCATION, SOCIAL CONSTRUCTIVISM, COOPERATIVE LEARNING, PEDAGOGY, BOARD GAME

NOSTALGIA IN POST-YUGOSLAV FICTION: STORIES BETWEEN TRAUMA AND MEMORY

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Our research aims to illustrate the ways in which European literature approaches trauma and nostalgia for the war-lost homeland by employing the ancient Greek idea of the impossible return to the waters of the past (Pettinaroli and Mutis, 2013) and the trope of the heroes' strenuous way back home, notably illustrated by Odysseys' journey (Willem and Logie, 2015; Garrocho, 2019). We believe that the fictional sails of rough seas of the unknown can be interpreted as a metaphorical representation of the state of rupture between the nostalgic desire to reclaim a no longer existing world and the workings of the past trauma annihilating its memory. Specifically, we analyse the above mechanisms in literature produced by writers of ethnically mixed origins in the aftermath of the Yugoslav Civil War. We look at two representative examples of literary creation from post-Yugoslavia – the fiction of contemporary emigrant writers from Bosnia and Herzegovina, Saša Stanišić and Bekim Serjanović. The main object of our research lies in examining the therapeutical potential of recounting personal histories through fiction to alleviate traumatic past experiences. We address this topic from the perspective of memory and trauma studies (Bloom, 199; Molloy 2015), which are contrasted with on-the-ground findings of authors writing on witness reports given before war tribunals (Hayner, 2001). It is our opinion that the current historical moment strongly calls for such research as a means of remedying nostalgia towards a no longer accessible, war-torn past, by restoring and preserving the memory of the lost (Ruiz Sánchez, 2005).

KEYWORDS

IDENTITIES, POST-YUGOSLAV LITERATURE, TRAUMA, NOSTALGIA, CIVIL WAR AFTERMATH

SYNERGIES, SIMILARITIES AND DIVERGENCES IN THE FEMALE CONVENT SYSTEM: NEW PERSPECTIVES AND HYPOTHESES IN THE PORTUGUESE ANDALUSIAN CASE

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From the stays carried out at the UALG thanks to the Erasmus+ teaching and training grants granted by the UCA, we have been able to develop a line of research that is consolidated after more than a decade. With the completion of major academic work within the UCA (TFG, TFM) and the completion of a Doctoral Thesis with international mention and cum laude, in addition to presentations in international forums (Colombia, USA, Portugal or Italy) and publications, we have designed various strategies and methodologies to approach the female convent system in the Portuguese-Andalusian area. Paying special attention to the configuration of the buildings from a gender perspective, we have focused on the analysis and reflection of the flows that occur in different territories, focusing on the case of the convents of the Purísima Concepción of Lebrija (Seville), and Nossa Senhora da Assunção of Faro (Algarve). The evolution of the communities and buildings in the context of the respective religious orders represents an interesting counterpoint that allows us to establish hypotheses about the functioning of the convent system on both sides of the border. A permeable border that allows transfers and exchanges in such a way that both territories act as a mirror, and, in cases, acting under diametrically opposite coordinates: the incidence of confiscation movements and the (dis)continuity experienced by these cultural entities.

KEYWORDS

HISTORY OF ARCHITECTURE, CONVENTUAL SYSTEM, GENDER, ANDALUSIA, ALGARVE, 18TH CENTURY, 19TH CENTURY

MAPPING THE LANDSCAPE: A COMPREHENSIVE ANALYSIS OF HIGHER EDUCATION PROGRAMS IN TOURISM IN PORTUGAL

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CLÁUDIA RIBEIRO DE ALMEIDA, [UNIVERSITY OF THE ALGARVE,
CINTURS]

In line with the global evolution of tourism and its growing international importance, higher education training in Portugal (PT) has seen significant growth, namely through the diversified offer of bachelor's (BSc), master's (MSc) and doctoral (PhD) programmes in the field of tourism by Higher Education Institutions (HEIs). This article analyses the main indicators of these courses' demand for and supply, their distribution in the public and private education system and their main curricular characteristics. In this sense, as a methodology, it uses secondary data from various public bodies that provide up-to-date information, while also considering the legislation applicable to creating each type of course. The main results show that HEIs offer 35 bachelor's degrees in public education in Portugal, 49 master's degrees and 5 doctorates, in public and private education. In 2022, the occupancy rate for BSc stood at 81.1% during the first phase, with 44.7% selecting these courses as their first choice, and in the third phase, the occupancy rate reached 91.1%. In postgraduate training, most MSc (79.6%) and PhDs (80%) are offered by public HEIs, and the results show similarities across these courses regarding duration, ECTS credits, final work types, teaching language, number of available slots, and scientific areas, albeit with distinct specializations and curricula. The study shows that the course curricula enable students to meet the demands of the tourism industry and develop advanced research, strategic thinking and innovation skills, revealing the importance of this type of research in defining educational plans and strategies capable of responding to market needs.

STAYING SHORT, IMPACTING BIG: THE ROLE OF SHORT-TERM RENTALS IN A TOURISM DESTINATION

CLÁUDIA RIBEIRO DE ALMEIDA; ANA ISABEL RENDA, [UNIVERSITY OF THE ALGARVE, CITUR]

The proliferation of LCCs, has democratized travel, making European coastal destinations more accessible to a wider demographic demand. The accessibility and convenience offered by LCCs have stimulated an increase in tourist arrivals, increasing the demand for alternative accommodation, such as short-term rentals (STRs). Furthermore, the prevalence of internet access and booking platforms has enabled private owners and small businesses to promote their accommodations to tourists. Nowadays, STRs play a key role in the evolving landscape of sun and beach tourist destinations, offering accommodation options that satisfy the preferences of different groups of travellers. This study focuses on the dynamics of STRs in a sun and beach tourism destination located in the south of Portugal (Algarve), using data from the Portugal Tourism Board (PTB) which comprises of more than 44.200 registers. Since 2018, around 24,000 new registrations have been recorded, indicating a huge expansion of the sector. Apartments constitute 64.7% of STR offerings, followed by villas (31.6%). These STRs comprises 151.000 rooms and 165.000 beds, mainly in Albufeira (22.2%), Loulé (15.5%) and Portimão (13.6%). Owners are mainly from Portugal (90.5%) and the UK (3.4%). When compared to STRs, the 656 traditional tourism accommodations, as the PTB reports, offer only 46,000 rooms and 125,000 beds. This data underscores the substantial scale of the STR sector compared to traditional lodging options. In conclusion, this study demonstrates that STRs play a crucial role in tourism. By diversifying the accommodation offered, they help attract different tourists, increasing the resilience of the destinations since they offer different preferences and cater to all budgets hence enriching the overall tourist experience.

KEYWORDS

SHORT-TERM RENTALS, TOURISM DYNAMICS, ACCOMMODATION PATTERNS, GEOGRAPHICAL DISTRIBUTION, OWNERSHIP DYNAMICS, LOW-COST CARRIERS, DEMOCRATIZATION OF TRAVEL

COME BE MY LIGHT: MOTHER TERESA'S EXPERIENCE OF SPIRITUAL DARKNESS

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UNIVERSITY OF MALTA]

The aim of this study is to explore the meaning of the experience of spiritual darkness in the life of Mother Teresa of Calcutta (1910-97). This research is a bibliographical one and the analysis method used is hermeneutical in nature. Texts written by Mother Teresa found in her diary *Come Be My Light* are primarily analysed through the tools of deconstruction, coding and intertextuality. Three major themes emerged: (a) Experiencing the Passion of Jesus Crucified Within Her; (b) Total Surrender to Jesus Crucified; (c) Satiating the Thirst of Jesus Crucified in the Poorest of the Poor. These themes that emerged from the deconstruction of the text are here interpreted through the analysis of a number of priests and scholars. Additionally, cross-references to the spiritualities of St. John of the Cross and St. Thérèse of Lisieux are also made. The experience of Mother Teresa largely shows that through the experience of "interior darkness" she was intimately united with Jesus Crucified. As she surrendered fully to Him, she experienced His passion and sought to satiate His thirst for love in the poorest of the poor, in whom she saw Him suffering "darkness" too. Spiritual richness can be derived from Mother Teresa's experience. The spiritual darkness that she experienced can shed light on the spiritual thirst that is currently discernible in the West, wherein many people living with interior emptiness, are seeking meaning in a world marked by extreme commercialism and profuse moral relativism.

KEYWORDS

MOTHER TERESA, SPIRITUAL DARKNESS, JESUS CRUCIFIED, EMPTINESS, EXPERIENCE, SUFFERING, HOPE

THE GREEN PORT CHALLENGE: A COMPARISON OF RESPONSES TO POLICY IN ALGECIRAS, GDANSK&GDYNIA AND MALTA

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Global maritime transport emissions oscillated between 600 and 1,100 megatons of CO₂ per year over 2010-2018 (Jaramillo et al., 2022). To mitigate greenhouse gas emissions, policy action at different levels has been initiated. This is expected to affect maritime transport including transport chains as well as its key fixed infrastructure - maritime/sea ports. The ambition of the European Union has recently crystallised in three major new or updated regulations: Emissions Trading System, FuelEU and Alternative Fuels Infrastructure. Their impacts on maritime/sea ports and the overall shipping industry are yet to be seen. This paper explores this aspect by focusing on three European ports: Algeciras (Spain), Gdańsk&Gdynia (Poland), and Malta's Freeport. They are all leading container transshipment ports with growth prospects in terms of cargo handling volume. Specifically, the plans and actions of their port authorities are examined. While the topic of green ports has increasingly received attention, the scientific literature on the effect of the aforementioned regulations on particular ports –diverse due to management models, location and operational specifics– is scarce to date. We find evidence that the three ports have started to react to the policy-driven impulses to decarbonise the sector. However, we conclude that their perception of the benefits and risks of policy are dissimilar and so are their reactions, in terms of type and promptness. This research is limited by the insufficient availability of high-quality data. Further research is also needed to estimate quantitatively the effect of legislation on the operations of other ports as well.

KEYWORDS

SOCIAL SCIENCES, ECONOMICS, GREEN PORTS, GREENHOUSE GAS EMISSIONS, MARITIME TRANSPORT, POLICY, ALTERNATIVE FUELS INFRASTRUCTURE

ANALYSIS OF CO2 EMISSIONS FROM SHIPS IN THE SEA-EU ALLIANCE COUNTRY: A BLUE ECONOMY PROSPECTIVE

BAJRAMI MARIO; DE SIMONE MARCO; MANCUSO CLAUDIO;
REGOLI ANDREA, [UNIVERSITY OF NAPLES PARTHENOPE]

As the European Green Deal states, the blue economy will contribute to making our economy a resource-efficient economy by promoting a green and sustainable transition, therefore investigating this topic is of great importance. The maritime industry occupies a vital role in the global economy, facilitating the transport of goods and people across borders. Although maritime transport generates relatively fewer emissions than road or air transport, it produces carbon and other polluting emissions due to its large volumes and strong dependence on fossil fuels, negatively impacting marine ecosystems and aggravating climate change. Decarbonizing maritime transport will reduce not only greenhouse gas emissions, but also air and water pollution and underwater noise, while offering new economic opportunities. Consequently, this project aims to analyze Co2 emissions from maritime transport in the nine countries that are members of the Sea-EU Alliance. The objective is to study this phenomenon through a comparative analysis of historical emission data taking into account the embarkation and disembarkation of both passengers and cargo, to identify policy measures to increase the sustainability of maritime transport. Understanding the dynamics of Co2 emissions in relation to maritime activities is essential for promoting environmentally responsible practices and advancing the objectives of the Blue Economy Agenda within the EU-Maritime Alliance. By examining trends in emissions and traffic volumes, the analysis seeks to identify potential areas for emission reduction strategies and sustainable practices in maritime operations. In conclusion, constant collaboration between alliance countries is a crucial pillar allowing the development of new strategies and innovative solutions for shaping a more sustainable future for the maritime sector.

KEYWORDS

BLUE ECONOMY, CO2 EMISSIONS, CLIMATE CHANGE, MARITIME TRANSPORT, SUSTAINABILITY, DECARBONIZATION

EMBARKING ON MARITIME AUTONOMOUS SURFACE SHIPS (MASS) WITH PRECAUTIONS

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Autonomous shipping, is not just a vision of the future, but real projects are underway around the world. However, new challenges to international shipping laws and regulations have arisen from the safety, security, and environmental concerns of autonomous ships under scientific uncertainty. Emerging risks may include software bugs and IT issues, cyber-attacks, on-the-spot decision-making in dynamic environments, piracy, and collision avoidance, etc. These scientific uncertainties may give coastal States grounds to deny such vessels access not only to their internal and territorial waters, but even to their EEZs, by applying the 'precautionary principle' in international environmental law. While abundant studies have noted the potential of autonomous ships to be emission-free and reduce air pollution to the environment, research has paid scant attention to the significant uncertainties of the autonomous shipping that may lead to new environmental risks such as traffic incidents and oil spills. Currently, a joint working group of the IMO's Maritime Safety, Legal and Facilitation Committees on Maritime Autonomous Surface Ships (MASS) has been established to develop a goal-based MASS Code. The IMO's Marine Environment Protection Committee has agreed to review the instruments for autonomous ships in the later stages of the regulatory process. It is therefore necessary to assess the compatibility of the autonomous ships with international environmental law. Our current Humboldt research has made progress on 'Preventing Pollution from the MASS: Implementing the Precautionary Principle' with a preliminary report. This presentation would share the research outputs for discussion and comment at the 'BEING SEA-EU' Conference.

KEYWORDS

SOCIAL SCIENCES, AUTONOMOUS SHIPS, INTERNATIONAL ENVIRONMENTAL LAW, SHIP-SOURCE POLLUTION, MASS, PRECAUTIONARY PRINCIPLE

MEASURING THE EFFICIENCY OF SUSTAINABILITY OF TOURISM IN THE 27 MEMBER STATES OF THE EUROPE UNION USING DATA ENVELOPMENT ANALYSIS

JULIO-LOZANO RAMÍREZ; MANUEL ARANA-JIMÉNEZ; M. CARMEN SÁNCHEZ-GIL; ATEFEH YOUNESI, [UNIVERSITY OF CÁDIZ]

Sustainable development is fundamental in any sector, aiming to guarantee economic growth, environmental preservation, and social well-being. For its part, tourism represents one of the most important drivers of development worldwide, not being exempt from planning and strategies in sustainability. This study focused on the 27 countries of the European Union and evaluated tourism from a sustainable approach. For this purpose, variables are selected in the three areas of sustainability that directly relate to tourism. The model based on efficiency used is Data Envelopment Analysis, which is determined in two stages, the first defining those efficient and inefficient countries and the second, where those efficient countries are ranked. Finally, improvement targets are set for those countries with inefficient results.

KEYWORDS

SUSTAINABLE TOURISM, GOALS, DEA, GHG EMISSIONS, BEST PRACTICES

CODE-SWITCHING AND OTHER NON-STANDARD FEATURES CHARACTERISING INFORMAL COMPUTER MEDIATED COMMUNICATION IN THE MALTESE CONTEXT

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A number of multimodal features such as particular language and punctuation use, emoticons, and modified spelling, constitute a typical property of Computer-mediated communication (CMC). These non-standard features express ideas and emotions, and serve as contextualisation cues for written language. This study is a further development upon the description of 'Il-Malti Mghaġġel' (Brincat & Caruana 2011), lit. rushed Maltese, in CMC. It illustrates how non-standard features are defined against the yardstick of the politically elected 'standard' variety, despite the fact that standard and non-standard varieties deserve the same level of social legitimacy and recognition in their specific spheres of use. The study highlights code-switching (CS) with English as a prevalent non-standard strategy in CMC, particularly in Anglophone Malta. An interactional analysis is conducted of a CMC corpus on which the study is based, with interpretations of motivations behind the use of non-standard features. The study takes into account popular beliefs that stigmatise informal CMC features and fear that they may give rise to students' impoverished writing in the standard variety; it demonstrates that students may be 'dual-skilled' or 'digraphic', able to navigate between scripts, spellings and languages. CMC appears to be permitting the expansion of Maltese writing for social interaction, strengthening the range and richness of a language whose users may have traditionally been reluctant writers. The strong presence of a non-standard variety on social media substantiates the versatility of Maltese.

KEYWORDS

NON-STANDARD FEATURES, STANDARD LANGUAGE, VARIETY CODE-SWITCHING, CMC, MALTESE CONTEXT, INFORMAL WRITING, LEGITIMACY

ASSESSING THE ROLE OF PRAGMATIC COMPETENCE IN ENGLISH LANGUAGE EXAMS: ORAL PROFICIENCY INTERVIEWS AND COMPUTER-BASED SPEAKING TESTS]

CRISTINA HERAS RAMÍREZ, [UNIVERSITY OF CADIZ, SPAIN]

The SEA-EU Alliance has brought to focus the need for university students and teachers to communicate in a Foreign Language (FL). Learning FL goes beyond the knowledge of linguistic forms; and involves developing the ability to communicate in real-life situations appropriately and purposely. This ability is captured by the Common European Framework of Reference for Languages (CEFR) pragmatic competence, one of the communicative language competences, which is concerned with actual language use. Although its teaching and testing have received a burgeoning research interest in the Applied Linguistics and FL fields over the last 30 years, pragmatic competence is a multi-faceted and complex phenomenon that is difficult to measure objectively and comprehensively. Thus, the purpose of this talk is twofold: first, to thoroughly analyse the CEFR, a well-known international standard for learning and teaching languages; second, to determine how the CEFR descriptors on pragmatic competence are accommodated into the speaking rubrics of two English proficiency exams: Cambridge Advanced and Aptis Advanced. While Cambridge Advanced assesses face-to-face speaking with an Oral Proficiency Interview, Aptis Advanced is a fully computer-based test. Therefore, we will examine how the delivery format influences the guidelines for assessing pragmatic features in speaking at an advanced level. The results of this study establish to what extent this competence is fully and objectively portrayed in current high-stakes language exams. The conclusions suggest that the assessment of pragmatic skills is vague and ambiguous, thereby, applying these scoring criteria depends upon the examiners' interpretation.

KEYWORDS

APPLIED LINGUISTICS, ENGLISH AS AN FL, SPEAKING, ORAL PROFICIENCY INTERVIEW, COMPUTER-BASED LANGUAGE TESTS, PRAGMATIC COMPETENCE, CEFR

UNMANNED MARITIME SYSTEMS AS A CHALLENGE TO MARITIME SECURITY LAW – CURRENT STATE OF PLAY AND THE WAY FORWARD

FILIP WALCZAK, [UNIVERSITY OF GDAŃSK]

Unmanned Maritime Systems (UMSs) are a wide group of vessels used for an ever-growing number of duties. In recent years they have proven their capabilities in armed conflicts, e.g. operating during the Russian aggression on Ukraine and as part of Houthi rebels' terrorist attacks on shipping. As such, UMSs may be considered both an indispensable tool in providing maritime security, as well as a threat to shipping, underwater critical infrastructure, and environment. The purpose of the study is to determine whether existing maritime law provisions are efficient in regulating the usage of UMSs, as well as to indicate existing legal gaps or issues which may potentially arise in the future. For that purpose, dogmatic analysis of appropriate legal norms will be used in conjunction with relevant case study. As the International Maritime Organization is currently reviewing existing IMO Conventions and working on new legislation in the context of civilian autonomous shipping, the United Nations Convention on the Law of the Sea should be reviewed as well. A review of the UNCLOS should take into account results of the relevant IMO activities, as well as crucial aspects related to maritime security. The latter includes, inter alia, the status of UMSs as "ships" or "warships" under UNCLOS, relevant duties of the flag states, and applicability of the right of innocent passage to unmanned systems. Furthermore, as UMSs may be used to commit unlawful acts at sea, including piracy, existing definitions of such acts should be scrutinized in the context of UMSs.

KEYWORDS

SOCIAL SCIENCES, INTERNATIONAL LAW, MARITIME LAW, SECURITY,
UNMANNED VEHICLES, UNCLOS

UNRAVELLING THE SUSTAINABLE TAPESTRY: EXPLORING ORGANIZATION DYNAMICS IN CIRCULAR ECONOMY ENTERPRISES

FLORIANA POLLIO, [UNIVERSITY OF SALENTO; FILOMENA RIEMMA, UNIVERSITY "PARTHENOPE" OF NAPLES]

Sustainability has emerged as a critical imperative for businesses, transcending mere corporate social responsibility to become a cornerstone of organizational strategy and operations. This study aims to delve into the nexus between sustainability, business organization, and organizational behavior, with a specific focus on circular economy companies. By examining the intricate interplay of organizational variables within such enterprises, this research seeks to elucidate how sustainability practices are not only integral but also transformative for organizational success. Drawing upon the principles of the circular economy, which emphasizes resource efficiency, waste reduction, and closed-loop systems, this study will explore various organizational dimensions pivotal for achieving sustainability objectives. Key organizational variables to be investigated include leadership commitment to sustainability, organizational culture fostering innovation and sustainability mindset, employee engagement and empowerment, supply chain management practices, and stakeholder collaboration mechanisms. A case study methodology will be employed, with a particular circular economy company, i.e., n'SeaYet association, serving as the focal point of analysis. Through in-depth interviews and document analysis, data will be gathered to assess the company's sustainability initiatives and their impact on organizational variables and dynamics inherent in sustainable business models. By illuminating the organizational antecedents and characteristics underpinning successful sustainability practices within circular economy companies, this research aims to contribute to both theoretical understanding and practical implications for businesses seeking to integrate sustainability into their organizational fabric. Ultimately, the findings of this study aspire to inform strategic decision-making processes, driving the adoption of sustainable practices and fostering a more resilient and responsible business ecosystem.

KEYWORDS

ORGANIZATIONAL PERFORMANCE, CIRCULAR ECONOMY, HUMAN RESOURCE MANAGEMENT, ORGANIZATIONAL CULTURE, ORGANIZATION DYNAMICS

A SHARED HERITAGE: COMMUNITY COLLABORATION IN SAFEGUARDING MALTESE UNDERWATER CULTURAL HERITAGE

REBECCA XERRI, [UNIVERSITY OF MALTA; MAJA SAUSMEKAT,
HERITAGE MALTA – UNDERWATER CULTURAL HERITAGE UNIT]

The UNESCO Convention on the Protection of the Underwater Cultural Heritage (2001) acknowledges 'underwater cultural heritage as an integral part of the cultural heritage of humanity'. It highlights how the various underwater remains of the human past form part of a shared heritage, that belongs to no one person alone but humanity as a whole. In line with this, the Convention believes in the importance of cooperation at the macro and micro levels, ranging from State and professional institutions to stakeholder groups and the public. Malta signed the Convention in 2021, however, even prior to this, Malta has been internalising the principles of community involvement and collaboration in its underwater cultural heritage sector. This presentation will detail the work that Heritage Malta's Underwater Cultural Heritage Unit has been carrying out with stakeholder groups and the public since its formation in 2019. Discussions of particular initiatives will be accompanied by survey data reflecting community interests in underwater cultural heritage garnered from Rebecca Xerri's ongoing doctoral studies at the University of Malta. The core focus of this presentation is sustainable management strategies for safeguarding underwater cultural heritage. It conducts an analysis of top-down vs. bottom-down management systems and highlights both the advantages and disadvantages of opening up cultural heritage management beyond the professional sphere. The presentation uses the recent creation of the world's first deepwater archaeological park in Xlendi Bay, Gozo, as a case study for how community involvement is integral to large-scale heritage projects.

KEYWORDS

UNDERWATER CULTURAL HERITAGE, COMMUNITY COLLABORATION,
HERITAGE MANAGEMENT, ARCHAEOLOGY, ACCESSIBILITY

THE CIRCULAR ECONOMY PRACTICES IN THE MARITIME INDUSTRY

RAFFAELA NASTARI; SABRINA PISANO; LUIGI LEPORE, [BUSINESS ADMINISTRATION, DEPARTMENT OF LAW, UNIVERSITY OF NAPLES PARTHENOPE]

The aim of the research is to investigate the circular economy disclosure released by companies operating in maritime industry according to the institutional theory. Circular economy is considered a useful system for achieving sustainable development while fostering the achievement of the Sustainable Development Goals. The disclosure of circular economy information has attracted the attention of the policy maker and institutions. Recently, the European Commission issued the Corporate Social Responsibility Directive 2022/2464/EU aiming at requiring companies to release circular economy disclosure according to the sustainability standards developed by the EFRAG in 2023. Among these, there is a standard specifically focused on the circular economy information companies should release (ESRS n. 5 – Resource use and circular economy). Directive will become mandatory for companies starting from 30 June 2024. Within the maritime industry the adoption of circular economy, articulated in 6 principles, is become imperative to ensure growth in a sustainable manner (e.g. scrapping ships for recycling, controlling emissions through decarbonisation and re-use of materials), because this sector is the pillar of the existing infrastructure of world trade. However, little research has been conducted on the circular economy information disclosed by companies in the maritime sector. The research will conduct a content analysis of the sustainability reports published by companies operating in the maritime industry for the fiscal years 2023-2024 (that is before and after the implementation of Directive 2022/2464/EU) developing a disclosure index on the basis of the ESRS n. 5. The research will provide practical implications for companies and policymakers.

KEYWORDS

CIRCULAR ECONOMY, MARITIME INDUSTRY, SUSTAINABILITY REPORTING, SUSTAINABLE DEVELOPMENT GOALS, INSTITUTIONAL THEORY, DISCLOSURE INDEX

UNVEILING DIVERSITY MANAGEMENT DYNAMICS: A CASE STUDY OF ITALY'S NATIONAL SOCIAL SECURITY INSTITUTE

VIVIANA COLOMBI EVANGELISTA, [PARTHENOPE UNIVERSITY OF NAPLES]; LUDOVICA DEL BARONE, [UNIVERSITY OF SALENTO]

In an age characterized by globalization and profound societal shifts, the importance of promoting diversity and implementing effective diversity management within Public Administration (PA) has gained unprecedented recognition. Within organizational frameworks, the strategic implementation of diversity management stands out as a key element, wielding considerable influence in fostering elevated performance, exceptional quality, and fortifying the resilience and sustainability of public organizations. To uphold the effectiveness of the public sector it is essential for human resource management (HRM) to adopt a perspective that not only recognizes but actively embraces diversity. Despite the critical role of diversity and diversity management in contributing to improved public sector performance at both individual and organizational levels, scholars have overlooked the underlying mechanisms and conditions governing this relationship. This study employs a qualitative approach to investigate the National Social Security Institute (INPS - Istituto Nazionale della Previdenza Sociale), Italy's primary entity for the public retirement system. The objective is to delve into how the implementation of diversity management practices leads to enhanced performance under specific conditions. The research aims to identify managerial practices that cultivate diversity in public organizations, making a valuable contribution to the existing literature on diversity management in the public sector. Beyond advancing theoretical understanding, this investigation aspires to provide practical insights for the development of public policies that foster performance improvements in public organizations, thereby addressing the evolving demands of the contemporary landscape.

KEYWORDS

DIVERSITY MANAGEMENT, HUMAN RESOURCE MANAGEMENT (HRM), PUBLIC MANAGEMENT, PUBLIC VALUE

THE EFFECT OF MONETARY POLICY ON INCOME INEQUALITY

D'AUSILIO DOMENICO, [UNIVERSITY OF NAPLES PARTHENOPE]

This paper evaluates the distributional effects of monetary policy in developed countries. The central aim is to elucidate the intricate relationship between monetary policy and income inequality. The empirical analysis is implemented on a panel of OECD countries from 2000 to 2020. To reach this goal, three regression models are estimated. The dependent variables are the Gini index as a measure of overall inequality, alongside the income shares held by both the top decile and the bottom decile of the income distribution. The main covariate of interest is the broad monetary base (M2) while GDP per capita, union density and government spending are included as relevant controls. The empirical analysis is carried out using the Arellano-Bond estimator for dynamic panels. The results show that on average, monetary policy has an inverse relationship with income inequality. However, the magnitude of this effect depends on several characteristics, including the economic cycle and the labour market structure. The findings underscore the importance of adopting a multifaceted policy approach that integrates monetary, fiscal and structural measures to promote inclusive growth and societal well-being.

KEYWORDS

MONETARY POLICY, INCOME INEQUALITY, DYNAMIC PANEL REGRESSION, OECD COUNTRIES

TECHNOLOGY-ENABLED AGILE WORKING ARRANGEMENTS, AND HRM PRACTICES IN THE PUBLIC SECTOR: A LITERATURE REVIEW OF CASE STUDIES

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Public administrations around the world have been moving towards more agile technology-enabled ways of working with the aim to become more adaptable to emergencies such as COVID-19, improve efficiency, and enhance employee wellbeing. Some of these changes have been successful, while others failed to bring the expected results. This paper examines a range of case studies present in the literature related to the introduction of technology-driven solutions within public sector organisations in different countries. A total number of 55 case studies is collected and analysed at 3 levels: micro (individual), meso (organisational), and macro (societal). Leavitt's (1965) diamond model comprising four key elements: task, people, technology, and structure, is used as a theoretical framework to guide the case studies review. Through conducting a thorough case studies analysis, the research contributes to the literature on technology implementation and adaptation in the public sector. It encourages a deeper understanding of the diversity of technology-driven organizational practices including new ways of working implemented globally. This study also seeks to make observations from the reviewed case studies concerning successful and unsuccessful public sector HRM practices. These observations firstly, could uncover directions for future research and secondly, reveal useful insights into what makes a technological change successful thus helping to develop actionable recommendations for policymakers and organisational leaders operating in the public sector.

KEYWORDS

SOCIAL SCIENCES, HRM, PUBLIC SECTOR, ORGANISATION, CASE STUDIES, TECHNOLOGY, INNOVATION

FRAGILISATION DE LA LIBERTE ACADEMIQUE EN FRANCE WEAKENING OF ACADEMIC FREEDOM IN FRANCE

LE CORNEC UBERTINI ANNE-HÉLÈNE, [INFORMATION AND
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BRITTANY]

A new ideology from the United States is spreading in French universities and endangering the academic freedom of teachers and researchers. This new current is characterized by its perfect opposition to the French Republic: "France is an indivisible, secular, democratic and social Republic" (Art. 1 of the 1958 Constitution). It indeed promotes multiculturalism or communitarianism, reasonable accommodations with common law for religious reasons, individual freedoms above collective freedoms and the primacy of minorities over the majority. Nothing new in the United States, it seems, except that it is radicalizing and reinforcing the intergroup conflicts inevitable when a society is organized into distinct communities. The religious and racial substrate of American society nourishes a new racist and totalitarian religion, intolerant of freedom of expression, freedom of teaching and freedom of research, and therefore academic freedom. Censorship, rewriting, exclusion, incrimination are the tools of control. This ideology is spreading across the European continent and French universities are not spared. The progress of this trend was recently demonstrated by the publication, in December 2023, of the Guide to secularism at university from the association of university presidents. They enjoin us, among other things, to "avoid asking any questions that are too controversial." Sharing experience on this subject with SEA-EU academics could be useful for the common defense of academic freedom.

KEYWORDS

ACADEMIC FREEDOM, FREEDOM OF EXPRESSION, CENSORSHIP,
COMMUNICATION, PROPAGANDA

RETURNING IN REMOTE WORK. LABOUR MOBILITY IN SPAIN AND MALTA IN THE AFTERMATH OF THE COVID-19

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GARCÍA, [UNIVERSITY OF CADIZ]

As a result of technological developments and the gig economy, remote work has become a prominent trend since 2009, further accelerated by the COVID-19 pandemic. Many employers have facilitated the choice of remote work, allowing employees to work from different locations. Based on previous studies, while remote work offers benefits like improved work-life balance and environmental impact reduction, it also reproduces existing inequalities based on job position, territory, gender, and age. Yet, little is known about the impact of remote work on return mobilities, its implications for addressing vulnerabilities and inequalities, and whether this changes our understanding of the impact of remote work on individual workers, on addressing vulnerabilities and inequalities, and the broader impact on the environment. In this paper, we combine the literature on remote work and contextualize it in a return mobilities framework. We draw on qualitative and comparative research with working-age adults (aged 18-64) residing in Spain and Malta who migrated to other states and returned to their localities of origin. The study is part of a 1.5-year collaborative project of researchers within the SEA-EU consortium. We aim to explore the nature and different typologies in this nexus. The paper considers the micro-macro continuum of this reality in both countries. For this reason, it tries to understand aspects of a cultural, economic, and social nature in relation to the personal decision to return to the country of origin, as well as structural issues related to welfare and social protection policies, labor rights, and taxation.

KEYWORDS

RETURN MIGRATION, REMOTE WORK, LIFE-WORK BALANCE, GENDER,
INEQUALITIES, COVID-19 PANDEMIC, SOUTHERN EUROPE

EMOTIONAL RESPONSES TO THE ECOLOGICAL CRISIS: INSIGHTS FROM MALTA

CLAIRE BONELLO; PROF. MARY ANNE LAURI, [UNIVERSITY OF MALTA]

The ecological crisis is a global phenomenon with profound implications for individual well-being, yet its specific impacts on mental health within the Maltese context remain understudied. This mixed-methods study investigated the emotional, cognitive, and behavioural experiences of 243 Maltese adults in response to the ecological crisis and climate change. Through a quantitative survey, participants reported on their levels of anxiety about seven environmental events and six personal impacts. Additionally, they responded to an open-ended qualitative question soliciting their immediate associations with climate change. Findings revealed that more than half of the participants often or almost always felt anxious about deforestation, ocean pollution, resource depletion, and their personal waste production. Emerging from content analysis of the open-ended question, participants predominantly associated climate change with environmental phenomena like "global warming" and "extreme weather", while emotional responses, such as "hopelessness" and "anxiety", were less frequently cited. Despite limitations in generalisability, this study underscores the importance of recognising the mental health implications of the ecological crisis and climate change. While participants demonstrated awareness of environmental events and personal impacts, there is a need for a more explicit link between environmental changes and emotional responses to inspire hope and resilience, and spur action in the face of environmental challenges in Malta and beyond.

KEYWORDS

ENVIRONMENTAL PSYCHOLOGY, ECOLOGICAL CRISIS, ENVIRONMENTAL EVENTS, PERSONAL IMPACTS, MENTAL HEALTH

TIDES OF CHANGE: A SYSTEMATIC LITERATURE REVIEW OF INNOVATIONS FOR A SUSTAINABLE BLUE ECONOMY

JENNIFER NICOLE ELSTON; HUGO EMANUEL DOS REIS SALES DA CRUZ PINTO; CARLA FILIPA SEQUEIRA VALENTE NOGUEIRA

The Blue Economy, a dynamic field intertwining ocean sustainability, innovation, and economic progress, stands as a beacon of hope for fostering inclusive growth while championing sustainable practices. This systematic literature review embarks on a journey to unravel the intricate relationship between innovation and sustainable practices within the Blue Economy, with the aim of uncovering the transformative power of innovation in advancing sustainability and identifying barriers to adoption of new technologies and processes. By delving into the multifaceted landscape of sustainability and innovation studies within the Blue Economy, this communication illuminates the potential of innovative approaches in propelling sustainability within coastal and marine areas. At the end of the 20th century, Nobel laureates collectively compiled a list of the top ten challenges facing humanity over the next fifty years. These include energy, water, food, the environment, poverty, terrorism and war, disease, education, democracy, and population. Global attention is shifting to the sustainability of the oceans, driven by survival risks and the looming threat of resource scarcity (Li et al., 2020). So, how does innovation contribute to the development of sustainable practices in the blue economy, and what are the barriers to their widespread adoption? Using this interrogation as a compass to navigate the existing literature, and through a comprehensive analysis of the role of innovation in promoting sustainable practices, this review aims to provide hints for the main directions for a sustainable Blue Economy.

KEYWORDS

BLUE ECONOMY, INNOVATION, SUSTAINABILITY, SUSTAINABLE INNOVATION, SUSTAINABLE DEVELOPMENT, MARITIME ECONOMY, OCEAN ECONOMY

HERITAGE ECOLOGIES: CONNECTING HERITAGE AND ENVIRONMENT FOR CLIMATE RESILIENCE IN ISLANDS

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This research shares the preliminary findings of an EU Marie Skłodowska-Curie Action, Eco-Heritages, which identifies and studies plural heritage sites and cultural expressions intimately connected with local landscapes, and how climate change impacts these tangible and intangible sites in small islands of the Southwestern Indian Ocean and the Mediterranean. Local heritages and traditional knowledges represent fundamental connections with landscapes and environmental history, and have sustained vernacular livelihoods for long periods of time. While climate change adaptation measures impact insular social, economic and environmental contexts, culture and heritage are fundamental dimensions of island life and can effectively contribute to policy and decision making that establish paths for sustainable and meaningful futures, fostering adaptation. We present the results of a systematic literature review, reflecting on the lack of island literature and island culturally context specific evidence regarding the links between heritage and climate resilience. While there is a body of work on culture and climate change, insular contexts are scarcely represented. Despite their small geographical scale, insular social and natural contexts provide important case-studies to global discussions on the impacts of climate change on societies and their social and cultural consequences.

KEYWORDS

ISLANDS, CULTURAL HERITAGE, CLIMATE CHANGE, ENVIRONMENT, COAST, LANDSCAPE, RESILIENCE

A CONTEXTUAL REVIEW AND CRITICAL DISCUSSION OF THE THEORIES UNDERPINNING THE PHOTOVOICE METHOD

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Photovoice, a participatory action research method, is increasingly being acknowledged as an effective tool to empower marginalised communities. In the 1990s, Catherine Wang and Mary Anne Burris developed the method by hinging it on Freire's critical pedagogy, feminist theory and documentary photography. Three decades later, upon evaluating reviews of photovoice projects, Seitz and Orsini (2022) concluded inconsistent methods, not sufficiently grounded in foundational theories, were a major deficit in the body of knowledge. Prior to planning a photovoice project to empower adult women with Attention Deficit Hyperactivity Disorder, a contextual review of underpinning theories was conducted. Both seminal texts and illustrious critiques of these ideologies were contemplated. This presentation provides an overview of major tenets and lacunas of each theory, together with an explanation of how they each reconcile with ontology and epistemology of the participatory paradigm. Moreover, core similarities and differences between the three, as discerned through the review, are debated. The discussion culminates in an explanation detailing how pivotal methodological procedures had a carefully pondered theoretical rooting, thus addressing the gap identified by Seitz and Orsini (2022). Insights provided should intrigue those interested in the photovoice method and academics on Research Ethics Committee boards, who may not be familiar with the epistemological grounding of participatory action research. Acquaintance with the three constitutional doctrines engenders an appreciation of the paradigm shift required to conduct participatory action research, whilst more critical readings of various iterations of each standpoint facilitate navigation of this shift.

KEYWORDS

SOCIAL SCIENCES, PARTICIPATORY ACTION RESEARCH, PHOTOVOICE, THEORETICAL UNDERPINNINGS, CONTEXTUAL REVIEW, CONCEPTUAL GAPS, PARADIGM SHIFT

EUROPEAN BLUE HUMANITIES. THE LITERARY ARCHIVES OF THE SEA

SOPHIE GUERMÈS, [UNIVERSITY OF WESTERN BRITTANY]

The matrix of all Western literature is a maritime epic, the Iliad and the Odyssey. Since ancient times (Homer, then Virgil), how has literature helped us approach the sea? What does it contribute to our relationship with the sea? And how does literature create a collective memory of the sea? The hypothesis underlying the conception of this presentation is that Literature plays the role of witness in times gone by, notably when cinema did not yet exist, as well as that of a warning bell in modern times. It raises urgent questions: life at sea, traditions and cultures, the evolution of boats, technical developments, the discovery of marine animals and aquatic plants, maritime disasters; but also the preservation of the oceans, the climate emergency, sustainable development, responsible fishing. I want to show that literature is not just entertainment (adventure novels) or pure art (poetry), but also has an educational function. The study of a common literary heritage (novels, poems, plays, letters, diaries of the sea) will enable the transmission that is lacking today in European institutions (imagination, emotions, etc.) and thus make Europe less abstract, more accessible. In a globalized world, this research defends the idea that maritime literature can contribute to the construction of a European identity, enriched by new challenges (ocean pollution, climate change, protecting endangered species, etc.). It creates a strong sense of belonging, of being part of a community.

KEYWORDS

LITERATURE, SEA, EUROPE, IDENTITY, CULTURE, CLIMATE, EDUCATION

SAFETY OF NUCLEAR FACILITIES, THEIR IMPACT ON INTERNATIONAL SECURITY, IN THE LIGHT OF NUCLEAR POWER PLANTS IN UKRAINE

MAREK NIEMCZYK, [UNIVERSITY OF GDANSK]

Nuclear power plants are an important element of the concept of critical infrastructure. The rank of the facilities results from the seriousness of the consequences resulting from damage to a nuclear installation or takeover of the facility by hostile personnel. Discussed issue raises an appropriate research question: How does securing nuclear power plants affect international security? The research process that allowed for obtaining the answer to the question is based on the takeover of the Zaporozhye and Chernobyl Nuclear Power Plants by the troops of the Russian Federation. Russian actions taken against nuclear power plants have revealed many possible international threats. Significant security needs of nuclear facilities were also identified and should be implemented. The most important needs should be understood as technical solutions directly in the place where the power plant is located, as well as additional regulations of law and international policy regarding conduct towards nuclear facilities, including liability for their damage. The issues raised were supported by the author's research, which includes qualitative methods, including field research - conducted in the Chernobyl Exclusion Zone (2021). Field research included active observation, measurements and interviews. Moreover, through correspondence, interviews were conducted with the Ukrainian agency for the management of the Chernobyl Zone, which resulted in obtaining extremely important information about the activities of Russian troops towards the facility and the staff of the Chernobyl Power Plant. Regarding the Zaporozhye Nuclear Power Plant, appropriate document and information analysis was undertaken about the actions of Russian troops towards the facility and its personnel. The conducted research and its analysis allowed the author to formulate the research hypothesis: The security of nuclear facilities has a significant impact on international security.

KEYWORDS

INTERNATIONAL SECURITY, WAR IN UKRAINE, NUCLEAR POWER PLANTS,
RADIOLOGICAL THREATS, NUCLEAR SAFETY

VENTURING INTO WONDER - AESTHETIC PATHWAYS TO LEARNING ENGLISH AS A SECOND LANGUAGE

INGRID HEKNEBY BRASETH [NORD UNIVERSITY]

This article is part of the PhD project 'Entering the Adventure – Aesthetic Learning Processes in English Language Education'. The background and motivation of the study is to shed light on a knowledge gap in The Norwegian National Curriculum ("Kunnskapsløftet 2020") and in Norwegian National guidelines for teacher education programmes when it comes to aesthetic learning processes and teenagers/older learners. The aims and objectives of this third article in the research project are to study how teachers make use of such learning processes in teaching English as a second language in Norway, and what impact this has on their pupils. The research question of the article is: How can aesthetic learning processes influence the teaching and learning of English as a second language in upper secondary school? This is linked to the main research question of the PhD project: "How can experiencing and aesthetic learning processes enhance learning?" It is a qualitative study which focuses on English Language Education in year 1 in upper secondary schools in Norway. Teachers and pupils from both vocational studies and general studies are represented. The methods applied are: a) Questionnaire, b) Observation c) Interviews of pupils and teachers (focus groups and individual). Three different lesson plans are included in the study: 1) the use of performance and play when learning about British history and civilization, 2) the use of reading roles when reading a novel, and 3) the use of multimedia when learning about a challenging topic.

KEYWORDS

ARTS, HUMANITIES, SOCIAL SCIENCES, EDUCATION, AESTHETICS, ENGLISH

ART ATTACK! A STORY OF TOMATO SOUP, ACTIVISTS, AND ART MASTERPIECES. AN ASSESSMENT OF PUBLIC ATTENTION AFTER ENVIRONMENTAL ACTIVIST ATTACKS ON ART

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In 2022 a series of attacks targeted a number of cultural goods. Various proenvironment movements aimed in this way to promote a greener agenda, trying to make the headlines in order to affect public attention and lobby the government. These attacks, typically carried out by young activists who threw substances at masterpieces, had the purpose not of ruining the works (to date no permanent damage has been caused), but of provoking a cultural shock in Western public attention, and highlighting the importance of taking action against climate change. By means of a quantitative analysis, exploiting data from Google Trends results for web searches and the inclusion of climate action from the 2030 Agenda for Sustainable Development of the United Nations to build a counterfactual, we analyze the effect on public attention of these attacks. Results show that this strategy leads to an increase in attention paid by the general public towards climate change, and therefore could increase public awareness about the issue, putting a spotlight on the fight against climate change.

KEYWORDS

ART ATTACK, LAST GENERATION, ENVIRONMENTAL PROTESTS, CLIMATE CHANGE, SDG, CULTURAL SHOCK

THE ENERGY PERFORMANCE GAP IN RESIDENTIAL BUILDINGS: EVIDENCE AND IMPLICATIONS

DHEERAJ KUMAR, [FACULTY OF BUSINESS, ECONOMICS AND SOCIAL SCIENCES, CHRISTIAN-ALBRECHTS-UNIVERSITÄT ZU KIEL]

This study rigorously investigates the prevalent discrepancies between anticipated and actual energy performance in residential buildings, known as the energy performance gap. Through detailed analysis, it identifies several key contributors to this gap: inaccuracies in Energy Performance Certificates (EPCs), variability in building characteristics, differences in occupant behavior, and the limited effectiveness of thermal renovation measures. The research highlights the oversimplification of complex interactions within buildings by current energy performance estimation methodologies, leading to optimistic energy use predictions. Furthermore, the role of regulatory frameworks in exacerbating or mitigating the energy performance gap is examined, focusing on the implications of this gap for achieving climate targets and reducing household energy costs. The findings suggest that improved accuracy in EPCs, alongside measures that encourage energy-conscious behavior among occupants, could significantly narrow this gap. To bridge these discrepancies, a suite of policy interventions is proposed. These include refining the methodology for EPC issuance, promoting energy-efficient behaviours through educational programs, and incentivizing the adoption of advanced thermal renovation technologies. By addressing the identified factors, such policies have the potential to substantially reduce residential energy consumption, thereby contributing to the achievement of environmental sustainability goals. This study emphasises the necessity of a holistic approach to energy performance assessment and policy development. It advocates for the integration of accurate data collection, realistic modelling, and comprehensive policy strategies to enhance energy efficiency in residential buildings, ultimately fostering a more sustainable energy landscape.

KEYWORDS

ENERGY PERFORMANCE GAP, ENERGY PERFORMANCE CERTIFICATES (EPCS), OCCUPANT BEHAVIOR, ENERGY ECONOMICS, THERMAL RENOVATION, ENERGY POLICY, SUSTAINABLE HOUSING

CARBON ACCOUNTING AND DIGITAL TWIN FOR CLEAN ENERGY PROCESS IN THE SHIPPING INDUSTRY: AN ANALYSIS THROUGH SUSTAINABILITY REPORTING

ASSUNTA DI VAIO; ELISA VAN ENGELENHOVEN; ANTONIO GAROFALO [UNIVERSITY OF NAPLES “PARTHENOPE”, NAPLES ITALY]; DANIEL BALSALOBRE-LORENTE, [UNIVERSITY OF CASTILLA-LA MANCHA, CIUDAD REAL, SPAIN]

This study explores the decarbonization practices and initiatives for cleaner energy implemented by shipping companies to meet the Sustainable Development Goal (SDG) 7 “Affordable and Clean Energy” from United Nations (UN) 2030 Agenda. This study seeks to clarify the linkages between the information from carbon accounting and sustainability reports, as well as between the information reported in the reports and the innovation paths which, currently, are screening the shipping companies into future scenarios, i.e. Digital Twin. Under the lens of the stakeholder and legitimacy theories, this study analyses manually and by NVivo software, the content in sustainability reports published from 2015 to 2023 by the 30 major shipping companies for provide systematized framework about the decarbonization disclosure. The content analysis of decarbonization mainly focuses on new technologies and renewable resources adopted by shipping companies as enabling factors for the pursuit of SDG7 and environmental impact measures, under a Sustainability Disclosure Standards' regulatory process still underway (i.e. GRI, ISSB, SASB) for supporting the reporting journey and sustainability disclosure, mostly for the decarbonization through new technologies and renewable resources. This is the first study to conceptualize and analysis the linkages between decarbonization, carbon accounting, sustainability reports, and digital twin in the shipping industry.

KEYWORDS

CARBON ACCOUNTING, SDGS, RENEWABLE RESOURCES, SUSTAINABILITY REPORTS, SHIPPING SECTOR, CONTENT ANALYSIS.

PERCEPTIONS OF GENDER (IN)EQUALITIES IN A HIGHER EDUCATION INSTITUTION (HEI): STUDENTS AND STAFF (PROFESSORS AND NON-PROFESSORS)

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Despite women outnumbering men in higher education institutions (HEIs), the persistent underrepresentation of female academics underscores the enduring gender inequalities within academia. This study addresses the imperative to address these inequalities by examining the influence of management's commitment to gender equality issues on gender disparity and offensive behaviors within HEIs. Drawing upon the framework of psychosocial safety climate (PSC) theory, we conducted two studies within a public HEI to explore these dynamics. Study 1 (n = 134) focused on students' perceptions of management's involvement in gender equality concerns, while Study 2 (n = 271) investigated staff perceptions, particularly in relation to the promotion of a work-life balance culture (WLBC). Our findings reveal that while women consistently reported higher levels of gender inequality within academia, no significant gender disparities were observed in offensive behaviors. Notably, both students and staff perceived a reduction in gender inequality when management demonstrated proactive engagement with gender equality issues and endorsed a WLBC. However, staff members with children faced an elevated risk of experiencing offensive behaviors. This research underscores the critical role of proactive management in fostering inclusivity and mitigating gender disparities within HEIs. By prioritizing gender equality concerns and advocating for supportive work-life balance cultures, HEIs can create environments that promote equity and foster academic success for all.

KEYWORDS

GENDER EQUALITY, ACADEMIA, STAFF, STUDENTS, OFFENSIVE BEHAVIORS, WORK-LIFE BALANCE

PERSONAL DATA PROTECTION AND THE RIGHT TO PRIVACY IN THE DIGITAL AGE

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In today's interconnected world, where data is being generated, collected, and shared at an unprecedented rate, personal data protection and right to privacy has become a critical concern. Protecting personal information is not only a matter of safeguarding our individual rights but also maintaining trust in the digital ecosystem. In this article, the author will present the importance of data privacy in digital age, explore privacy laws and regulations with emphasis on General Data Protection Regulation 2016/679 (GDPR) and its implementation in practice.

KEYWORDS

DATA PROTECTION, DIGITAL AGE, INDIVIDUAL RIGHTS, PERSONAL DATA, PRIVACY

STRATEGIC BUSINESS PLAYERS IN SEA-LAND LOGISTICS AND MULTIMODAL OPERATIONS: A PERFORMANCE-BASED APPROACH

MARIAROSALBA ANGRISANI; MARCO FERRETTI; MARCELLO RISITANO [UNIVERSITY OF NAPLES PARTHENOPE]

The domain of sea-land logistics and multimodal operations is composed by a set of business actors operating as focal determinants across diverse transportation modes, specifically bridging maritime and terrestrial networks. The present study investigates the major performance components and drivers characterising the mentioned players involved in the maritime sector by analysing the interplay of key aspects, patterns, and innovative strategies employed to grant competitiveness and performance advancements among shipping companies, freight forwarders, logistics providers, and intermodal operators. While acknowledging the transformative influence of innovation on the transport and logistics sector, recent studies (e.g. Acciaro and Sys, 2020) emphasise the limited attention given to understanding how economic actors in the maritime industry approach innovation and its impact on strategic processes and performance. Positing that the degree of innovation alone does not sufficiently explain firm performance, our research attempts to investigate the linkages between strategy processes and innovation outcomes for the competitiveness and performance of maritime logistics operators, specifically in the context of shipping, ports, terminals, and transport operators. The research is explorative in nature and builds upon a systematic review of the academic contributions on the topic published in the last decade (2013-2023) from a managerial perspective. The analysis endeavours to isolate distinct patterns that describe the ways in which effective strategies shape the level of success of their implementation and identify differences among selected types of performance and competitiveness indicators. Preliminary results are expected to provide a model able to describe the role and challenges faced by business players in sea-land logistics. Useful implications for the advancement of theory and practice refer to gathering insights at the intersection of Industry 4.0 and Industry 5.0, thus contributing to the ongoing discourse on innovation, strategy, and optimisation in the maritime industry.

KEYWORDS

SEA-LAND LOGISTICS, BUSINESS PLAYERS, CHALLENGES, COMPETITIVENESS, PERFORMANCE, INNOVATION.

THE EVOLUTION OF LOW-COST CARRIERS ON A SUN AND BEACH TOURISM DESTINATION IN SOUTHERN EUROPE: INSIGHTS FROM ALGARVE, PORTUGAL

CLÁUDIA RIBEIRO DE ALMEIDA, [UNIVERSITY OF ALGARVE, CINTURS]

The development of low-cost carriers (LCCs) has significantly transformed the tourism landscape in sun and beach destinations across Southern Europe, offering the opportunity for traffic expansion and development of new routes and frequencies along the year. Using as reference, data from ANA, Portugal Airports, this study examines the importance of LCCs in the context of the Algarve, a popular tourism destination in the south of Portugal. Analysis of Faro airport data reveals a substantial shift in travel patterns, with LCC arrivals accounting for approximately 80% of total traffic in 2023, followed by regular (18%) and charter flights (2%). This represents a remarkable departure from previous decades, where charter flights dominated with more than 80% of the overall traffic (80's and 90's), signalling a paradigm shift in aviation preferences, with profound implications for the destination, influencing visitor behaviour, average length of stay, and accommodation preferences. Tourists arriving on LCCs tend to seek shorter stays and are more inclined towards alternative accommodations such as short-term rentals, contributing to the diversification of the lodging sector. Moreover, the rise of LCCs has injected a new dynamic into the destination, prompting a proliferation of service offerings and attracting a more diverse range of markets to the Algarve region. In conclusion, the dominance of LCCs at Faro Airport underscores their pivotal role in shaping the tourism in the destination, pointing out that is essential for destination stakeholders to capitalize on emerging opportunities and navigate the challenges of a rapidly changing market.

KEYWORDS

LOW-COST CARRIERS, SUN AND BEACH DESTINATIONS, TOURISM DYNAMICS, SHORT-TERM RENTALS, TOURISM DYNAMICS, DEMOCRATIZATION OF TRAVEL

UNDERSTANDING THE ECONOMIC IMPACT OF POLYCYCLIC AROMATIC HYDROCARBONS (PAHS) CONTAMINATION ON MUSSELS FARMING. INSIGHTS FROM SOUTH ITALY

MARIAROSALBA ANGRISANI; YURI COTRONEO; FEDERICA GIOIA;
ARMANDO SACCO; ANNARITA SORRENTINO; GIAN PAOLO STELLA,
[UNIVERSITY OF NAPLES PARTHENOPE]

Mussels farming experience significant consequences due to the possible contamination of mussels before their distribution to markets. During contamination events, companies are forced to suspend their activity until they register contamination levels lower than allowed. In the specific context of southern Italy, a limited area of the Pozzuoli bay (Campania Region) is affected by the phenomenon of polycyclic aromatic hydrocarbons (PAHs) contamination in the winter season. This area was characterised by the presence of relevant industrial plants (steel mills, cement factories, production of fertilizers) that contributed to high levels of environmental pollutants and potentially hazardous chemicals (e.g., toxic / potentially toxic metals, PAHs). These facilities have inevitably exerted influence on the quality of marine ecosystems and human health, up to now. While oceanographic, meteorological, biological and ecological aspects of the problem are analysed by a complementary research unit the management perspective focuses on the consequences for the mussel farming companies in terms of decrease of profitability due to forced production interruptions which imply a suspension of the workforce activity. Hence, the study aims to analyse the economic impact of PAH contamination on local firms operating in the sector. The paper presents a qual-quantitative analysis to detect the managerial and economic implications of the effects of the contamination on both the operations and the supply chain management. In the first phase, a comprehensive understanding of the main patterns and characteristics of the supply chain and operations management of the mussel production (affected by PAHs contamination) will be conducted. Subsequently, a data collection process through in-depth interviews with key local firms will be carried out. Expected findings will set the basis for the definition of a business model able to suggest options to support local firms in the field.

KEYWORDS

MUSSELS FARMING, ECONOMIC IMPACT, POLYCYCLIC AROMATIC
HYDROCARBONS (PAHS)

ON THE STATUS OF SCENTS IN THE PHILOSOPHY OF ART

ANNA PRUS [UNIVERSITY OF GDANSK, MEDICAL UNIVERSITY OF GDANSK]

I would like to focus on an analysis of the aesthetic value of scents, asking whether olfactory art can challenge the thinking of the olfactory sense itself as this secondary or even, under Freud's influence, as an instinct or animal nature, extinct with the course of civilization (Jenner, 2011). The ephemerality of scents, which often has spiritualistic connotations, is appealing to contemporary artists who continue to seek subjective experience, maneuvering cultural, sociological and neurobiological conditions. The interest in this area is not something new, there were authors who claimed that the study of the cultural history of fragrance is the essence of human culture (Classen, Howes, Synnott, 2002, p. 3), but, when it ceases to be a means and becomes an end, it seems a kind of breakthrough. Given the physiological adaptability and habituation of the sense of smell and its individual variability, it is difficult to draw firm conclusions. In the light of the fact that the sense of smell allows us to express psychosomatic sensations and has the strongest sensory connection to the hippocampus or - desperately using mathematics - we can distinguish between over trillion odours (Bushdid, Magnasco, Vosshall, & Keller, 2014), we should not disregard this sphere so ostentatiously. As it turns out, however, it becomes difficult for us even to symbolise olfactory sensations in the form of a linguistic sign, but as I try to prove, there is a huge potential in many dimensions in the art of olfaction and the sense of smell itself.

KEYWORDS

SCENTS, OLFACTORY ART, NEUROAESTHETICS, NEUROPHYSIOLOGY, PHILOSOPHY OF MUSIC, ARTS, HUMANITIES

BRIDGING THE DEMAND-SUPPLY GAP IN SUSTAINABILITY KNOWLEDGE: THE EUROPEAN UNIVERSITY OF THE SEAS IN FOCUS

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An urgent need to save the planet and society from humans and their short-term, utilitarian behavior raised the importance of sustainable development. This concept represents a longterm balance between economic growth, social progress and prudent natural resources management. Since 2015, when the United Nations released 17 sustainable development goals (SDGs), sustainability has been depicted more clearly and operationally. It has become the official rhetoric of country leaders and policymakers around the globe. However, this topdown approach and various public policies will not be sufficient to meet the target year of 2030 and fulfil the global goals. Sustainability needs to be incorporated horizontally and practiced daily in each part of society. To change personal and organizational behavior towards sustainable futures, raising awareness about the state of the planet, social injustice and inequalities is the starting point. Developing appropriate sustainability skills is the next one. Higher education institutions (HEIs) should be at the forefront of this mindset-changing process and contribute vastly to filling the void between the demand for and supply of sustainability skills. In line with that, this paper aims to detect both the supply and demand side of the SDGs story at the European University of the Seas. To be more precise, academic staff and students of four universities within the SEA-EU alliance participated in the questionnaire research, disclosing their knowledge and attitudes about the SDGs, current state as well as prospects, perceived barriers and willingness to learn/teach about them. Consequently, we propose concrete policy actions to the University's Governing Board.

KEYWORDS

SUSTAINABLE DEVELOPMENT, SUSTAINABILITY SKILLS, ECONOMIC EDUCATION, EUROPEAN UNIVERSITIES, QUESTIONNAIRE

INVESTIGATING THE USE OF NEURO-LINGUISTIC PROGRAMMING (NLP) METHODS IN MANAGEMENT SETS

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In this study, we want to explore the potential application of Neuro-Linguistic Programming (NLP). It offers a novel framework for understanding human behaviour and communication patterns. It is increasingly applied in management contexts for its potential to enhance leadership effectiveness, team dynamics, and organizational performance. Grounded in the interplay of neuroscience, language, and behavior, NLP provides insights into how individuals perceive and engage with their surroundings. Managers can leverage NLP techniques such as rapport-building, reframing, and anchoring to foster deeper relationships, open communication channels, and effective issue resolution within teams. Furthermore, NLP equips managers with tools to drive positive change at individual and organizational levels. Strategies like modeling effective behaviours, setting compelling goals, and employing linguistic patterns for motivation can foster personal development and initiate improvement initiatives. Integrating NLP principles into management processes also offers opportunities to enhance decision-making and stimulate creativity. Through visualization and metaphor utilization, managers can tap into the subconscious mind's resources, unlocking creative problem-solving abilities and promoting unconventional thinking among team members. While the potential benefits of NLP integration in management are significant, practitioner competency and ethical considerations are paramount. Effective implementation requires a thorough understanding of NLP principles and sensitivity to individual and cultural differences in the workplace. Overall, incorporating NLP approaches into management practices can improve leadership efficacy, teamwork, and organizational success. By embracing NLP concepts, managers can facilitate team growth and create cultures that support continuous excellence.

KEYWORDS

COMMUNICATION PATTERNS, BEHAVIORAL PATTERNS, TEAM DYNAMICS, LEADERSHIP EFFECTIVENESS, MANAGEMENT, AND NEURO-LINGUISTIC PROGRAMMING (NLP)

ANALYSIS OF OFFSHORE LABOUR MARKET TRENDS USING OFFSHORE WIND ENERGY IN THE BALTIC SEA REGION AS AN EXAMPLE

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This presentation delves into the dynamic landscape of the offshore labour market, using the burgeoning offshore wind energy sector in the Baltic Sea Region as a focal point. To grasp the evolving trends in hiring practices within this industry, data from LinkedIn job postings was scraped, providing a real-time snapshot of employment opportunities. By scrutinizing these job offers, the study unveils patterns in skill demand, geographic distribution of roles, and emerging job profiles. Attendees will gain insights into the changing demands of the offshore labour market and its implications for workforce development and industry stakeholders. This analysis serves as a valuable resource for understanding the trajectory of offshore employment trends and informing strategic decisions in the renewable energy sector.

KEYWORDS

OFFSHORE WIND, LABOUR MARKET, BALTIC SEA, BLUE ECONOMY, DATA MINING

THE WAY CULTURE AND INSTITUTIONS AFFECT MOTHERS AND FATHERS DIFFERENTLY – FOCUSING ON MALTA’S LEGISLATION

VANIA TABONE, [UNIVERSITY OF MALTA]

Many women from all over the world struggle to engage in paid employment. They very often find themselves employed in precarious jobs with little or no career progression (International Labour Organisation, 2022). They are constrained to choose between paid employment and family care and are bound to adhere to their explicit countries’ traditional gender roles. According to the International Labour Organisation (2015) women, who are socially anticipated to shoulder most of their family’s responsibilities, face a motherhood penalty when they return to their place of work after taking a career break or parental leave (Grimshaw and Rubery, 2015). The Organisation for Economic Co-operation and Development (2019), confirms that most of the world’s carers are women, who provide informal care to their children, who may at times be chronically ill, as well as to their elderly relatives. Various research studies from all over the world offer mutual understandings on the motherhood wage gap and on the fatherhood bonus. Their aim is primarily to discover the obscure roots for the motherhood penalties, which may entail a sticky floor or glass ceiling that destroys their career progression and subsequently have a toxic effect on their salaries (Budig and England, 2001). They also try to determine the fathers’ involvement at their place of work after having a child, examining whether they confront the same problems mothers do, or whether they are otherwise rewarded with a fatherhood bonus for their ‘consistent and more reliable characteristics’ on becoming a father (Hodges and Budig, 2010). This research study will adopt a triangulation mixed-method in order to find out whether the motherhood wage penalty and the fatherhood bonus do exist in our own country, specifically at the University of Malta. Textual analysis of relative collective agreements and other related documents will take place in order to elicit any problematic junctures that may be present among UM staff. A survey, will be distributed to all UM staff while semi-structured interviews will take place to members of staff those from academia, administrative, industrial and technical, who have partaken any family-friendly measures these last ten years.

THE MOTHERHOOD PENALTY IN MALTA, EU AND NON- EU MEMBER STATES

VANIA TABONE, [UNIVERSITY OF MALTA]

Many research studies from all over the world sustain that mothers face a motherhood wage penalty upon their return to work after a career break. In fact, generally mothers face a penalty of seven per cent that can be lowered to five per cent if they attend training or enhance their education while on their career break (Budig and England, 2001). It is interesting to note that the longer the career break the harsher the penalty. The penalty also increases with every additional child. The motherhood penalty can be partly explained by the fact that women, after becoming mothers, reduce their working hours in order to juggle work with family responsibilities. In addition, some women may find themselves discriminated by their employers who may perceive them as less productive once they are burdened with childcare. This paper provides statistics that show how Malta is trending within EU, many of which show that the motherhood penalty can be the reason behind issues such as the gender pay gap. In fact, the gender pay gap widens as more women enter the world of work (Arulampalam, Booth and Bryan, 2007; Tijdens and Van Klaveren 2012; Doherty, Levine, Moldavskaya and Xiong, 2017). It could also be triggering low fertility rate since Malta ranks the lowest within the EU. This is a problem for many countries, while the birth rate is decreasing, the ageing population is increasing making it even more difficult to find enough working people from the new generations who pay National Insurance that help fund pensions for the elderly.

VIRTUE-BASED FRIENDSHIP AS A FUNDAMENTAL VALUE AND THE CONDITION OF SOCIAL PROGRESS ACCORDING TO CLASSICAL AUTHORS AND ST. JEROME

IVAN BODROŽIĆ; MAJA RONČEVIĆ; DORIS ŽURO, [CATHOLIC
FACULTY OF THEOLOGY - UNIVERSITY OF SPLIT]

Following the example of Saint Jerome, we have focused on demonstrating how the Christian virtue of friendship can help overcome various tensions even in today's society. Using the historical-theological method, our intention is to show that St. Jerome lived in a time when different worlds and civilizations met and clashed, such as the pagan world and the Christian world. In a world full of tensions between Christians and pagans, a way out had to be sought for the whole society, which was in danger of falling into internal conflicts and social and ideological divisions. In such an environment and context, Christians tried to find a common agreement based on values. That is why St. Jerome strives to promote friendship as an unquestionable value because friendship is identical for all people. In this regard, he draws on classical authors such as Aristotle and Cicero, who wrote extensively on the value of friendship. He is convinced that pagans and Christians share a common scientific culture. Because of this common culture, which is to be enjoyed and on which intellectuals agree in their reflections, friendship is one of the fundamental values. In fact, friendship was significant in both the pagan and Christian worlds, and virtue was expected on both sides as a necessary condition for a healthy friendship, contributing to society's organic development. 'Health' friendship can be differentiated from selfishness and avarice, which are the cancers of society and helps to build a more just, peaceful, and generous world.

KEYWORDS

FRIENDSHIP, COEXISTENCE, VIRTUE, RECONCILIATION, PEACE, HUMAN RIGHTS, HUMANE SOCIETY

A SYSTEMATIC REVIEW OF INTERVENTIONS AIMED AT ENHANCING SELF-ESTEEM AND BODY IMAGE IN BREAST CANCER WOMEN

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Nowadays, Breast Cancer (BC) is the most common tumour in women worldwide, considered a global public health. Among BC women, some of the most common psychological symptoms in the adaptation to the disease are low self-esteem and problems related to body image. In this line, there are numerous studies aimed at boosting different psychological variables in this population, such as body image and self-esteem. However, these are usually separately observed despite their relationship and their relevance in the process of the illness. Indeed, there were no reviews that synthesized the findings related to interventions aimed at enhancing both, self-esteem and body image in BC women. Therefore, the present review aims to identify and examine the interventions aimed at boosting both variables in this population. The PRISMA statement was followed and a thorough search was performed on various databases such as Web of Science, PubMed, PsychInfo, PsychArticles, and Scopus. Among 287 studies, only 8 articles met the eligibility criteria. From the studies included in the review, we extracted interventions that were grouped into three types: 1) Group therapies, 2) Physical activity therapies, and 3) Cosmetic and beauty treatments. The levels of effectiveness of the different interventions varied between them, and within each, in their impact on self-esteem and body image. More interventions focused on developing body image and self-esteem in these women are needed due to their ability to predict the psychological functioning and quality of life of women with breast cancer.

KEYWORDS

BREAST CANCER, INTERVENTIONS, SELF-ESTEEM, BODY IMAGE, HEALTH, PSYCHO-ONCOLOGY, SYSTEMATIC REVIEW

THE ASPIRATIONS AND CONCERNS OF STUDENTS WITH DISABILITY IN HIGHER EDUCATION: A SURVEY OF STUDENTS AT THE UNIVERSITY OF MALTA

PAUL A. BARTOLO; ANNE-MARIE CALLUS; LIBERATO CAMILLERI; MICHELLE BORG; MARCHITA MANGIAFICO; EDWARD MAZZACANO D'AMATO; RAMONA VELLA VIDAL; CARMEN SAMMUT, [UNIVERSITY OF MALTA]; ALISTAIR DE GAETANO, [AUTISM ADVISORY COUNCIL, MALTA]; JONATHAN VINCENT, [UNIVERSITY OF LANCASTER]

An increasing number of students with disability are enrolling in higher education. This is also the situation at the University of Malta: over the past few years the number of students who registered as having a disability at the University has risen from 0.83% to 2.2%. The aspirations and experiences of these students were studied by the ACCESS-Disability Support Unit of the University of Malta in its search for improving the services offered to students with disability. Data was collected through a survey with quantitative and openended questions that was completed online by 51 students with disability, while a semistructured interviews were held with four autistic students. The findings showed that the University is catering substantially to the needs of students with disability and that these students see the services and support offered by the ACCESS unit as generally enabling them to pursue their studies equitably. At the same time, the findings highlight the challenges that these students continue to experience as they struggle with an ableist culture; respondents also call for further understanding and improvement in the inclusiveness of the University system and support services in several ways. The study suggests that higher education institutions seeking to provide equitable education should listen to student concerns to develop better understanding of student needs as well as to enable more equitable participation of all students.

KEYWORDS

DISABILITY, MENTAL HEALTH, HIGHER EDUCATION, INCLUSION, EQUITY, UNIVERSAL DESIGN, ACCOMMODATIONS

PREPARING STUDENTS FOR THE FUTURE OF WORK: LESSONS FROM CANADIAN UNIVERSITIES

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Technologies are disrupting the way we live, work and play. This disruption is changing the future of work and will require different work skills from employees. Various employability reports suggest that undergraduate students are not ready for work when they graduate. They are criticized by industry as lacking the skills which would enable them to add real value to their work. Furthermore, employability reports also suggest a gap between academia (research) and industry (practice). This presentation is an attempt to bridge this gap: to explore how to better prepare undergraduate students for the future of work. To answer this question, case study approach was utilized. TA reached out to the top 25 Canadian universities (according to the Times Higher Ranking 2024) for an interview. Interview schedule was based on five following exploratory areas: (1) What are the most valuable skills for the students? (2) How are universities preparing students for the future? (3) What works? (4) What are the challenges? (5) What are your suggestions for other universities? 10 universities agreed to participate and were subsequently interviewed. These recorded interviews were transcribed and major themes were identified. The preliminary findings indicate that co-op, work- integrated learning, community service learning, and experience-based learning are vital considerations. Furthermore, the future of learning should include opportunities to learn via gamification and other smart methods. This may require institutions to build "classrooms" where students sitting from different departments are trying to solve problems using their interdisciplinary and entrepreneurial approach. This presentation will be useful for students, lecturers, and industry representatives since the SEA-EU Alliance engages with all these stakeholders, involved in an effort to foster creativity, interdisciplinary curriculum and entrepreneurial skills for learners. We will conclude with a few pointers on careerist aspirations of students e.g. internships and work placements are great for students of marketing and accountancy, but how to best prepare those studying philosophy or linguistics? Lifelong learning is critical so our ending remarks will be on workers returning to university for professional development and the importance of offering micro credentials. We suggest that universities in the SEA-EU alliance, especially as they develop joint degree offerings, review their courses in light of these important research findings.

KEYWORDS

EDUCATION, UNDERGRADUATE STUDENTS, FUTURE OF WORK, SKILLS, LIFELONG LEARNING

STUDY, WITHIN A COOPERATIVE ENGINEERING DEVICE, OF THE STRENGTH OF THE ACTS OF LANGUAGE THAT INSTITUTIONALISE PUPILS' RESPONSIBILITY

FABRICE LOUIS ET MAËL LE PAVEN JARNO, [CENTRE FOR RESEARCH ON EDUCATION, LEARNING AND DIDACTICS, UNIVERSITY OF WESTERN BRITTANY]

This research focuses on the long-term responsibility of pupils in their learning in physical and sport education (PSE), in order to combat their persistent difficulties in engaging autonomously in situations. Two hypotheses are put forward: firstly, that the development of responsibility relies on new abilities to be built up through collective awareness, and secondly, that the use of cooperative learning devices makes it possible to give an 'illocutionary force' (Austin, 1962) to the acts of language institutionalizing pupils' responsibility. Our methodology is that of cooperative engineering, where teachers, researchers and trainers work together in an iterative process of designing, implementing and evaluating teaching-learning devices. In particular, the aim is to build systems that encourage the exercise of intellectual virtues (confidence, perseverance, curiosity, honesty, rigour, caution - Pouivet, 2020), making it easier for pupils and teachers to agree on the actions they need to take to learn. Particular attention is paid to the illocutionary force of some of the teacher's speech acts, as their existence can be seen as proof of the success of the accountability mechanisms. The engineering work focuses on reducing initial asymmetries between participants through engineering dialogues and analysis of data from lessons and filmed interviews. The scientific and professional spin-offs of this joint work on the conditions and effects of pupil empowerment in PSE will be presented in this communication.

KEYWORDS

RESPONSIBILITY, AUTONOMY, COOPERATION, COOPERATIVE ENGINEERING, PHYSICAL AND SPORTS EDUCATION, INTELLECTUAL VIRTUES, DIDACTICS.

A STUDY OF IDENTITY AND INTERSECTIONALITY IN TEACHER TRAINING PROCESSES IN SCIENCE EDUCATION

DANIEL MANZONI-DE-ALMEIDA [INSPE, UBO, FRANCE; SOCIETY & DIVERSITY, BREST, FRANCE]

Identity studies in the field of education and science have been gaining ground in the last decades of the 21st century. This interest is linked to the aim of understanding how the processes of constructing knowledge in science are closely linked to the identities of researchers or teachers and to understanding individual and collective mechanisms on issues of diversity and inclusion in culture and science education. The aim of this work was to investigate the question of the identities, in particular the life and professional history movements, of two researchers in the natural sciences (a man and a woman) in the decisionmaking and mobilization of subjective elements for the creation and development of teaching sequences involving their research themes and the theme of COVID-19 in the composition of chapters for a science teaching book of the "Health Teaching" project (BIENVENUE et Actions Marie Skłodowska-Curie, [MSCA-EU]). The study was carried out: i) through individual, semistructured interviews; ii) analysis of the teaching sequences produced by the researchers. The results of the analysis showed important intersectional markers (of gender, social class and ethnic origin) in the researchers' discourses on the processes of engagement with science, the specific scientific theme and which reflect on their visions of teaching and science. In conclusion, the investigation of identities in the production of science and teaching can be good tools in the processes of training researchers and teachers from a perspective of gender equality, equal opportunities, greater diversity and inclusion in science and education.

KEYWORDS

DIVERSITY AND INCLUSION, STEM TEACHER TRAINING, HEALTH TEACHER TRAINING, IDENTITY IN SCIENCE TEACHING, INTERSECTIONALITY AND SCIENCE TEACHING

ORGANIZATIONAL RESILIENCE AND THE ROLE OF INDIVIDUAL ADAPTIVE CAPABILITIES

DANA ABDULLATIF; LIONEL HONORÉ; SOPHIE LE BRIS,
[UNIVERSITÉ DE BRETAGNE OCCIDENTALE]

In extreme contexts, Hannah and al. (2009) identified four types of organizations and we are interested in one of them: High Reliability Organizations (HROs), where the prevalence of rules (or procedures) is particularly pronounced. They operate in turbulent, technologically complex environments; thus, they must learn to evolve and adapt to high uncertain and complex situations to fulfill their mission. The Navy identified as an HRO by Roberts & al. (1994), applying mechanistic systems (following orders and procedures) typically suited for stable environments (Burns & Stalker, 1961). However, studies like Eberl & al., 2015 suggest that rules may limit actors' capacities and organizational flexibility in critical situations. This study aims to investigate how HROs maintain resilience in unexpected situations, requiring adaptation and flexibility, even when strict adherence to procedures appears impossible. The objective of this study is to evaluate the vulnerability levels for a system and examine its capacity to achieve missions in degraded modes. We conducted an observation on a French navy ship, to understand how it operates and anticipate future critical situations. Our findings showed that a great part of the training conducted aboard the ship involves preparing a list of unforeseen events. Naval personnel learn from their mistakes in order to avoid repeating them during actual accidents and to handle various types of incidents. Anticipating every situation is impossible and some procedures may not suffice. Therefore, in handling increasingly critical situations, individual or team adaptive and dynamic capabilities appear not only necessary but indispensable for maintaining a high level of organizational resilience.

KEYWORDS

HIGH RELIABILITY ORGANIZATIONS (HROS), ORGANIZATIONAL FLEXIBILITY, ORGANIZATIONAL RESILIENCE, UNEXPECTED SITUATIONS, VULNERABILITY, RULES, ADAPTIVE CAPABILITIES

SYSTEM ERROR: THE INCOMPATIBILITY OF FREE MARKET ECONOMICS AND SDG ATTAINMENT

FRANÇOIS ZAMMIT, [UNIVERSITY OF MALTA]

This paper claims that there is a contradiction between the free-market economics implemented in the European single market and the drive towards attaining the SDGs. In a free-market economy based on price mechanisms and competition there are few drivers towards reducing poverty (SDG1) or inequality (SDG10). As illustrated by the austerity measures adopted following the 2008 financial crisis, participation in the competitive market order, as envisioned by theorists like Hayek, does not allow for a collective action towards the attainment of SDGs because these are envisioned as forms of a controlled economy. Prioritising economic growth in a liberalised economy does not allow for the necessary checks and balances necessary to protect societal wellbeing (SDG8) effectively creating vulnerable categories of people which may be considered as forms of bare life as conceptualised by Giorgio Agamben. These vulnerable categories of people are reduced to economic units directed by market mechanisms and undergo a process of subjectification governed by the competitive order.

KEYWORDS

SDGS, INEQUALITY, COMPETITIVE ORDER, HUMAN CAPITAL, FREE MARKET

PARTICIPATORY SPATIAL PLANNING TOWARDS SOCIAL SUSTAINABILITY IN MALTA

WENDY JO MIFSUD, [FACULTY FOR THE BUILT ENVIRONMENT, UNIVERSITY OF MALTA]

The practice of spatial planning in Malta is relatively young and is as yet dealing with the challenges of post-colonialism that characterise governance on these Islands. It is nevertheless understood that spatial planning is intimately associated with sustainability since it concerns the allocation of environmental resources with the consequent economic and social impacts. This research defines the relationship between spatial planning and social sustainability in Malta, to understand how cultural specificities influence the motivation for people to participate in planning consultation processes on the Islands. The results are informed by data gathered while carrying out a series of participatory mapping initiatives with stakeholders of four cultural infrastructure sites in Valletta, Malta's capital city. Held at a time when such sites were being developed to uphold Valletta's role as European Capital for Culture, it was found that there is a strong relationship between post-colonial traits, exemplified by a lack of social capital promulgating top-down statutory consultation processes. It is evident that should consultation be adapted to the needs of the stakeholders by investing in a thorough understanding of their values and circumstances, a far richer experience is created, with great potential for capacity-building within the community.

KEYWORDS

CULTURAL INFRASTRUCTURE, PARTICIPATORY PLANNING, POST-COLONIALISM, SOCIAL CAPITAL, SOCIAL SUSTAINABILITY, SMALL ISLAND STATE, SPATIAL PLANNING

THE INFLUENCE OF ENTREPRENEURIAL ECOSYSTEMS ON THE SUSTAINABLE PERFORMANCE OF ACADEMIC SPIN-OFFS FROM SPANISH UNIVERSITIES

DAYSI RUEDA CORDONES; CARMEN CAMELO ORDAZ; NOELIA FRANCO LEAL, [UNIVERSITY OF CADIZ]

This research explores the concept of sustainable entrepreneurship, focusing specifically on academic spin-offs from Spanish universities. These spin-offs, founded by professors or researchers, aim to commercialize university-developed knowledge and technologies while maintaining sustainability principles. The literature review reveals a fragmented understanding of sustainable performance in academic spin-offs, highlighting the need for integrated, multi-level studies. This doctoral thesis seeks to fill this gap by examining various dimensions and contexts influencing the sustainable performance of academic spin-offs within the Spanish university framework. The study adopts a comprehensive approach, considering the entrepreneurial ecosystem, the evolutionary stages of spin-offs, and network structures impacting interactions within the ecosystem. A representative sample of academic spin-offs associated with Spanish universities will be analyzed using statistical techniques such as Multiple Regression Analysis and Analysis of Variance (ANOVA). The research aims to provide a holistic understanding of sustainability in academic spin-offs, addressing complexities within a dynamic entrepreneurial ecosystem. Ultimately, this research contributes to academic literature by establishing a solid conceptual framework and providing practical insights for implementing sustainability strategies in academic spin-offs. By addressing identified gaps and advancing understanding in this field, the study enhances knowledge of sustainable entrepreneurship within the academic context. This doctoral thesis represents a significant advancement in the study of sustainability in academic entrepreneurship and serves as a foundational resource for future research in this area.

KEYWORDS

SUSTAINABLE ENTREPRENEURSHIP, ACADEMIC SPIN-OFFS, ENTREPRENEURIAL ECOSYSTEMS, SPANISH UNIVERSITIES, SUSTAINABLE PERFORMANCE, MULTI-LEVEL STUDIES, NETWORK STRUCTURE

INNOVATIVE BUSINESS MODELS FOR THE SUSTAINABILITY OF CRUISE INDUSTRY. AN ITALIAN EMPIRICAL EVIDENCE

D'AMORE GABRIELLA; SCALETTI ALESSANDRO, [UNIVERSITY OF NAPLES PARTHENOPE]

In the last decades, cruise companies have received many institutional and social pressures to transition towards environmental sustainability. As a result of the 2030 Agenda, which has clearly mapped out the global path towards sustainability, cruise companies have gained awareness of the need to rethink their business models to contribute to sustainability challenge. The introduction of ecological innovations into their products, processes and structures can also represent an opportunity to achieve a competitive advantage and improve their financial performances. However, the transition from a traditional business model to an innovative and sustainable business model requires the development of human capabilities able to manage innovation by integrating new knowledge and skills within the organizational structure. This research aims to understand how institutional and social pressures related to environmental concerns impact on business models and the role of dynamic capabilities into transform traditional business models in innovative and sustainable business models. After an in-depth mapping of the academic debate on the role of technology and dynamic capabilities into foster sustainability, the research focuses on the analysis of an Italian shipping company. Mec.Ship S.r.l. innovated completely its business model, with the support of digital technology, to answer to the new ecological requirements imposed by external stakeholders to its clients, mainly represented by cruise companies. Our case study contributes to academic literature, showing the role of dynamic capabilities in the diffusion of innovation within business boundaries and the role of new technologies into accelerate the ecological transitions.

KEYWORDS

ECOLOGICAL TRANSITION, CRUISE COMPANIES, DIGITAL TECHNOLOGIES, BUSINESS MODELS, DYNAMIC CAPABILITIES, INNOVATION, SUSTAINABLE PERFORMANCE

PREDICTORS OF CREATIVE CAREER ASPIRATIONS AMONG SECONDARY SCHOOL STUDENTS IN MALTA

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In recent years, scholars, governments and policymakers have shown increasing interest and investment in the creative industries, recognizing their significance in terms of employment, economic growth, and social well-being. However, for these investments to yield positive outcomes, it is crucial to attract young individuals towards pursuing careers in the creative industries. While efforts over the past two decades have largely focused on promoting STEM (Science, Technology, Engineering, and Mathematics) careers, the Arts have received comparatively less attention. Despite the recent evolution of STEM into STEAM by including the Arts, there remains a gap in the literature concerning young people's perceived attractiveness of careers in the creative industries, and on the factors that shape aspirations towards such careers. This paper contributes towards filling this gap by addressing the following research question: What are the factors underlying secondary school students' creative career aspirations? Data were gathered from 400 students aged 11 to 16 attending nine schools in Malta. A questionnaire, structured around the 4 Ps model of creativity (Rhodes, 1961) and informed by prior research, was distributed during class. Correlations and OLS regressions were conducted to examine the relationships between various factors. Results indicate that engaging in creative activities, both at school and during leisure time, positively shapes aspirations towards creative careers. Additionally, gender and parental education were identified as significant predictors of career preferences, with girls showing a greater tendency to aspire to careers in the Arts, and higher parental education being negatively associated with creative career aspirations.

KEYWORDS

CREATIVE CAREER ASPIRATIONS, CREATIVE CAREERS, ARTS CAREERS, STEAM, STUDENTS

COMPANY RESILIENCE IN THE TOURISM INDUSTRY: A SYSTEMATIC LITERATURE REVIEW

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Which characteristics determine whether a company in the tourism industry can resist and overcome a disruptive event such as a global pandemic or a war? To answer this question, through a systematic literature review of peer-reviewed publications, this paper explores the determinants of company resilience in the tourism sector. Despite the current relevance of the topic, this study highlights the fragmented nature of existing research and identifies several perspectives and determinants of resilience within the literature, emphasizing the need for resilience-building measures to reduce economic and social costs associated with crises and prepare firms for future disruptions. Importantly, the results provide support to the idea of human capital as one of the main determinants of company resilience in the tourism industry. Given the historical prevalence of precarious work arrangements in this industry, that contribute to reduce its attractiveness amongst the labor force, the imbalance between the supply and demand of the labor market is suppressed through temporary workers, which may have an impact on human capital and undermine company resilience. Furthermore, implications and avenues for future research are identified.

KEYWORDS

COMPANY RESILIENCE, ECONOMIC RESILIENCE, DETERMINANTS OF RESILIENCE, TOURISM INDUSTRY, HUMAN CAPITAL, SYSTEMATIC LITERATURE REVIEW

ACCOUNTABILITY UNDER GRI STANDARD FOR BIODIVERSITY IMPACTS: A COMPREHENSIVE ANALYSIS IN THE CRUISE INDUSTRY

ASSUNTA DI VAIO; GIUSEPPE DELL'AMURA; LUIGI LEPORE, [UNIVERSITY OF NAPLES "PARTHENOPE", NAPLES, ITALY]; DANIEL BALSALOBRE-LORENTE, [UNIVERSITY OF CASTILLA-LA MANCHA, CIUDAD REAL, SPAIN]

This study investigates the accountability of cruise corporations regarding their impact on marine biodiversity. It examines the linkages between waste management practices on-board cruise ships and marine biodiversity. This study also investigates into the role of new technologies and renewable resources as enablers in achieving the Sustainable Development Goals (SDG#14) defined in the United Nations' (UN) 2030 Agenda. Specifically, it deepens biodiversity accounting through the analysis of sustainability reports published by major cruise corporations that aim to gain legitimacy from stakeholders about their behaviors in mitigating climate changes. Therefore, this study analysis the content of the biodiversity disclosure of the major cruise corporations in the cruise industry, i.e. Carnival Corporation Plc, Royal Caribbean Group, Norwegian Cruise Line Holding Ltd., and MSC Cruise. The data collection is composed of over 20 documents published from 2018 to 2022 including sustainability reports and website pages through which the major cruise corporations, which cover over 80% of the cruise market, narrate their commitment to marine biodiversity protection by adopting initiatives, practices and environmental scores according to the Global Reporting Initiative (GRI) Standard for Biodiversity Impacts. This study highlights interesting results allowing to discuss the <biodiversity dress> of cruise corporations, which may not align with their actual practices.

KEYWORDS

BIODIVERSITY ACCOUNTING; SUSTAINABILITY REPORTING; MARINE BIODIVERSITY (SDG#14); WASTE MANAGEMENT; CORPORATE SOCIAL RESPONSIBILITY

CHALLENGES OF CONTEMPORARY INSURANCE ACCOUNTING: VALUATION OF INSURANCE LIABILITIES, ACCORDING TO INTERNATIONAL FINANCIAL REPORTING STANDARDS

EWA SPIGARSKA; MARIA WIKTOROWICZ, [UNIVERSITY OF GDANSK]

The lecture focuses on the challenges of contemporary insurance accounting in the context of changes introduced by IFRS 17 (International Financial Reporting Standards). The aim of this work is to present the importance of the correct valuation of insurance liabilities and the standardization of valuation methods, both for the insurance company as an enterprise and for the entire insurance market and users of financial information. It also presents the impact of the way insurance companies' liabilities are presented in their financial statements on individual investment decisions, risk assessment and the global financial market. The lecture identifies the main factors influencing the liability valuation process, such as market volatility, changing market and regulatory conditions, and the complexity of insurance products, as well as the development of modern technologies. The authors focus on the current regulation of methods and processes used to measure insurance liabilities and attempt to assess the changes introduced by IFRS 17 in relation to the previously applicable IFRS 4 regulation. The aim of the speech is to present a practical approach to the ways and methods of valuing insurance liabilities, including a thorough review of each valuation method and an indication of its advantages and possible limitations. The authors also analyze the impact of the choice of the liability valuation method on the presentation of the financial results of the insurance company. The lecture ends with an analysis of the prospects for the development of insurance accounting in the context of the introduction of modern technologies. It presents the challenges and opportunities of using advanced data analysis and artificial intelligence in the context of increasing the precision of insurance liability valuation and improving risk assessment, as well as threats to the transparency of results. The authors highlight the need to further standardize practices improving the transparency and comparability of financial reporting in the insurance sector. The purpose of analyzing these issues is to contribute to a better understanding of the challenges facing insurance accounting practitioners and to identify areas requiring further research and improvement.

KEYWORDS

CHALLENGES OF THE MODERN FINANCIAL MARKET, IFRS 17, IFRS 4, INSURANCE MARKET

CHALLENGES OF THE CONTEMPORARY INSURANCE MARKET: DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ESTABLISHING A FRAMEWORK FOR THE RECOVERY AND RESOLUTION OF INSURANCE AND REINSURANCE UNDERTAKINGS (IRRD)

EWA SPIGARSKA; MARIA WIKTOROWICZ, [UNIVERSITY OF
GDANSK]

The lecture focuses on the challenges of the contemporary financial market, in the context of the changes proposed in the Insurance Recovery and Resolution Directive (IRRD). In the current situation of economic uncertainty caused by economic crises resulting from armed conflicts, epidemics, climate changes and social transformations, it seems particularly important to support regulations on the solvency of insurance market entities (Solvency II), which constitute a key link in the global economy. The speech analyzes the key aspects of IRRD and their implications for the insurance industry. Key requirements for recovery actions, resolution and resolution of insurance market entities (insurance and reinsurance undertakings) and their potential impact on the insurance market, including the amount of premiums and the situation of investors, are discussed. The authors also focus on the analysis of regulations in the context of similarities and differences between the IRRD and the BRRD implemented in the banking sector, as well as the impact of the implementation of regulations on the safety of the insured and the entire financial market. The aim of the speech is to present a model of conduct in the event of insolvency or a threat of insolvency of an insurance company (as well as a reinsurance company). The institution of compulsory restructuring as a restructuring measure is particularly analyzed. The lecture is intended to stimulate discussion on possible models of behavior in the event of a loss of financial liquidity for insurance market entities.

KEYWORDS

CHALLENGES OF THE MODERN FINANCIAL MARKET, IRRD, SOLVENCY II,
INSURANCE MARKET

THE ROLE OF INNOVATIONS IN PRESERVING THE MARINE ENVIRONMENT

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Innovative entrepreneurship plays a crucial role in protecting and preserving the marine ecosystem. With the increasing threats of pollution due to industrial activities and urbanization of coastal areas, innovative solutions and companies are becoming critical factors in sustainable development and have the potential to be catalysts for positive change in preserving the marine ecosystem. Providing a platform for global companies that strive for a cleaner aquatic environment in innovative ways through initiatives, technological innovations, and business strategies is necessary. The research explores public sentiment regarding pollution's predominant causes and the necessity for integrating and fostering new approaches to safeguard the marine environment. The paper surveyed coastal cities' populations in the region of Dalmatia. The results show different perspectives of respondents regarding their responsibilities in marine pollution and protection and the impact that businesses have on the matter. Furthermore, the respondents' knowledge of innovative products and services varies due to their demographic characteristics. The results highlight the urge to create innovative solutions to protect the marine environment and enable sustainable development in the blue economy.

KEYWORDS

INNOVATIVE ENTREPRENEURSHIP, BLUE ECONOMY, MARINE POLLUTION, INNOVATIONS, SUSTAINABLE DEVELOPMENT

GREEN AND SUSTAINABLE PORT TRIANGLE FRAMEWORK: PORT OF GDAŃSK (POLAND) AND PORT OF SPLIT (CROATIA)

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Ports are vital for the environmental, economic, and social sustainability of sea basins like the Baltic and Adriatic basins. The Baltic Sea, one of the most heavily trafficked seas globally, transports up to 15% of the world's cargo transportation, while the Adriatic Sea's importance is constantly increasing due to the growing number of container transshipment operations. Also, a continuous increase in passenger traffic generates additional sustainability challenges. Furthermore, seaports play a crucial role in those sea basins, generating diverse effects on the natural environment and socio-economic development. Ports are also essential for the sustainability of many coastal cities worldwide, such as Gdansk and Split. Therefore, the paper creates a green and sustainable port business triangle (GSPBT) to investigate green and sustainable practices in three different business dimensions, i.e., in goals, plans, and reporting (GSPBT-v1), operating activities (GSPBT-v2), investments, incentives, and projects (GSPBT-v3). The paper used a semi-structured questionnaire to conduct qualitative research via interviews with port operators. The results indicate that both investigated ports, the Port of Gdansk and the Port of Split, develop diverse green and sustainable practices in all three dimensions of the GSPBT. However, the research revealed mixed results considering the evaluation of the green port (GP) variable and the sustainable port (SP) variable in the GSPBT dimensions. The results show that ports' green, environmental, social, and economic performances are higher in GSPBT-v2 and GSPBT-v3 than in GSPBT-v1.

KEYWORDS

GREEN PORT INDICATORS, SUSTAINABLE PORT INDICATORS, GREEN AND SUSTAINABLE TRIANGLE, STRATEGY, BUSINESS PERFORMANCE

SOCIO-ECONOMIC IMPACTS OF NAUTICAL TOURISM ON ISLAND DESTINATIONS: THE ISLAND OF HVAR, CROATIA

ELI MARUŠIĆ, [UNIVERSITY OF SPLIT, FACULTY OF MARITIME STUDIES, CROATIA]; SLAĐANA PAVLINOVIĆ MRŠIĆ, [UNIVERSITY OF SPLIT, FACULTY OF ECONOMICS, BUSINESS AND TOURISM, CROATIA]; JELENA BAJIĆ, [UNIVERSITY OF SPLIT, FACULTY OF MARITIME STUDIES, CROATIA]

The literature has already stressed that tourism may contribute to the local communities economically and socially but also drive diverse negative impacts. This study investigates how the identified general trends apply to the case of nautical tourism on the Island of Hvar. Namely, the nautical sector plays a vital role in the economies of island destinations, generating the majority of revenues, jobs, and overall prosperity of the local communities. The island of Hvar is one of the vital nautical points and tourist centers on the Adriatic, and its towns, Hvar, Stari grad, and Jelsa, largely determine the island's socio-economic development. This study integrates different perspectives on the problem by surveying a heterogeneous sample of community members related to the effects of nautical tourism on the island of Hvar. Furthermore, the study compares diverse community stances on the sector's economic and social impacts on the observed island destinations based on respondents' distinct characteristics. The results show various positive and negative effects of increased nautical tourism. The findings of this research add to the existing knowledge of nautical tourism's role in island destinations and enable the development of a research design at a broader geographical scale. The main subject of this research interest relates to the social and economic dimensions of sustainable development, and the environmental aspects of the extended research will be integrated into future studies.

KEYWORDS

NAUTICAL TOURISM, ISLAND DESTINATIONS, THE ISLAND OF HVAR, SUSTAINABLE, DEVELOPMENT, SOCIO-ECONOMIC IMPACTS

WHY IS IT RISKY NOT TO BUILD DIVERSE, INCLUSIVE AND GENDER EQUAL CULTURE WITHIN ACADEMIA?

HAB NATASZA KOSAKOWSKA-BEREZECKA, [DIVISION OF CROSS-CULTURAL AND GENDER PSYCHOLOGY]; MAGDALENA ŻADKOWSKA, [DIVISION OF SOCIOLOGY OF EVERY DAY LIFE, UNIVERSITY OF GDAŃSK]

Gender equality as one of the manifestations of effective diversity management has, in recent decades, become widely accepted as an important goal for many academic and research institutions. Scholars and practitioners agree that gender equality is important because it is morally appropriate to ensure equal opportunities across genders and because it yields a broad variety of positive consequences for individuals, groups, and societies. In institutions that promote inclusion and gender equality, lower job turnover and higher job satisfaction are evident, while teams are more productive and innovative. This also applies to scientific teams and groups – effective diversity and inclusive management in academia can translate into more innovation and higher performance of researchers - reaching gender equality is one of the tools for seizing the profits from diversity and inclusion. In our presentation, we will enlist seven reasons why it is worthwhile to invest time in building inclusive and gender equality-oriented working environments in academia, and we will share seven lessons learned from our experience as both scholars and practitioners supporting academic institutions in implementing gender equality plans.

KEYWORDS

GENDER EQUALITY, GENDER STEREOTYPES, GENDER EQUALITY PLANS IMPLEMENTATION

THE GREEN HORIZON: UNVEILING THE TIMELESS WISDOM OF JOHN M. KEYNES' CENTURY-OLD ESSAY IN THE QUEST FOR EUROPE'S GREEN TRANSFORMATION

JĘDRZEJ SICIŃSKI, [UNIVERSITY OF GDAŃSK, FACULTY OF
MANAGEMENT]

Nearly a century ago, the renowned economist John M. Keynes published an essay titled "Economic Possibilities for our Grandchildren". This work aimed to diagnose progress, wealth allocation mechanisms, and anticipate challenges for future generations over the next 100 years. Initially released in Polish translation in 2020 within the bulletin of the Polish Economic Society (PTE), the essay sparked widespread interest within the national scientific community. It acted as a catalyst for numerous discussions, culminating in the publication of the monograph "Keynes and Contemporary Issues," wherein the academic community analyzed the forecasts of the eminent economist. Alongside accurate projections, the essay consolidates fundamental economic principles crucial for development, economic transformation, and the enhancement of living standards. This presentation aims to underscore Keynes's recommendations and thoughts from the 100-year-old essay as potential guidelines to facilitate the realization of green economic transformation in Europe. The Green Deal, one of the most ambitious contemporary projects, presents significant implementation challenges due to society's heavy reliance on fossil fuels. This essay endeavors to identify the timeless factors within J.M. Keynes's century-old essay that can aid in navigating the energy transformation in a smoother and more sustainable manner.

KEYWORDS

GREEN TRANSFORMATION, KEYNESIAN ECONOMICS, FOSSIL FUELS, GREEN TRANSITION

RECENT TRENDS IN NAUTICAL TOURISM: THE COMMUNICATION STRATEGIES OF THE PORTUGUESE NAUTICAL STATIONS

ELSA PEREIRA [1]; VAHID AGHDASH [2]; JOÃO FILIPE MARQUES [3]; MARIA JOÃO CUSTÓDIO [4]

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Nautical tourism is a product with great development in Europe and much potential to promote and develop tourism destinations. The aim of this study was to analyse the strategic alliances for the development of the offer of nautical tourism products, namely the communication strategies and the selling processes adopted by 'Nautical Stations' (NS) in Portugal. This study can be classified as applied descriptive research through the use of qualitative methods. Between September and December 2021, 17 Portuguese nautical stations' application forms were collected and imported to NVivo for content analysis. The results show that the main communication strategies of the Portuguese Nautical Stations were the organization of press trips, the creation of specific tabs with information about the nautical station in the municipalities' platforms, and the development of websites. Most of the NS selling processes were done through direct reservations with the different companies of the destination. Future studies could further examine the role of strategic alliances in enhancing destination competitiveness, explore how digital marketing strategies and Marketing 5.0 may support the creation of innovative products and services in NS and investigate the evaluation of the costs and benefits of a communication and selling strategy in the context of those strategic alliances.

KEYWORDS

COMMUNICATION, DESTINATION STRATEGY, NAUTICAL STATIONS, NAUTICAL TOURISM, SELLING, SPORT TOURISM

THE RELATIONSHIP BETWEEN RELIGIOSITY AND AMBIVALENT SEXISM: A SYSTEMATIC REVIEW AND META-ANALYSIS

JURAND SOBIECKI; NATASZA KOSAKOWSKA-BEREZECKA; ARTUR SAWICKI, [UNIVERSITY OF GDANSK]

The objective of this systematic review and meta-analysis is to explore and analyze the existing research on the relationship between religiosity and two forms of ambivalent sexism (i.e. benevolent and hostile). The aim is to investigate how this relationship interacts across different demographics, identify patterns underlying the links between religiosity and ambivalent sexism, and offer insights for future research. A comprehensive search of electronic databases was conducted for peer-reviewed articles published between 2001 and 2023. Two independent reviewers screened the publications to determine their eligibility based on pre-specified eligibility criteria. A narrative synthesis approach and meta-analysis based on Fisher's z-transformed correlation coefficients were used to summarize the findings. Publication bias was assessed using funnel plots. The findings are reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The findings suggest that religiosity is associated positively with both forms of ambivalent sexism. The stronger positive correlation was between religiosity and benevolent sexism ($z = .29$, 95% CI [.26, .33]) compared to religiosity and hostile sexism ($z = .19$, 95% CI [.13, .25]). However, the relationship varied significantly across studies suggesting moderating roles of religious affiliation and gender. The empirical models that would allow a better understanding of this relationship are proposed and tested using data from 62 countries. The work was funded by the National Science Centre in Poland (grants number 2017/26/M/HS6/00360 and 2023/49/N/HS6/01936).

KEYWORDS

RELIGIOSITY, AMBIVALENT SEXISM, BENEVOLENT SEXISM, HOSTILE SEXISM, FAITH

THE IMPACT OF EMOTIONAL CAPITAL ON SUSTAINABLE DEVELOPMENT GOALS: AN EXPLORATORY ANALYSIS IN SPANISH HUMAN RESOURCE MANAGERS

JESUS BARRENA-MARTINEZ; MARIA JOSE FONCUBIERTA-RODRIGUEZ; WALA JARRAR MOHAMMED, [BUSINESS MANAGEMENT DEPARTMENT, UNIVERSITY OF CADIZ]

The crisis generated by COVID-19 has revealed the importance of emotions and their management in the field of human resources management. This article contributes to the literature on human resources by studying how a type of capital, whether emotional or not, significantly affects the achievement of sustainable development objectives. 95 human resources managers from small and medium-sized companies provided responses for the study. The results aim to elucidate whether there are sustainable development objectives to which human resources managers who incorporate socially responsible decisions contribute to a greater extent than others. The full article will show the academic and professional implications of the study.

KEYWORDS

SOCIAL SCIENCES, SUSTAINABILITY, SUSTAINABLE DEVELOPMENT GOALS

MEASURING THE EFFICIENCY OF SUSTAINABILITY OF TOURISM IN THE 27 MEMBERS STATES OF THE EUROPE UNION USING DATA ENVELOPMENT ANALYSIS

JULIO-LOZANO RAMÍREZ; MANUEL ARANA-JIMÉNEZ; M. CARMEN SÁNCHEZ-GIL; ATEFEH YOUNESI, [UNIVERSITY OF CÁDIZ]

Sustainable development is fundamental in any sector, aiming to guarantee economic growth, environmental preservation, and social well-being. For its part, tourism represents one of the most important drivers of development worldwide, not being exempt from planning and strategies in sustainability. This study focused on the 27 countries of the European Union and evaluated tourism from a sustainable approach. For this purpose, variables are selected in the three areas of sustainability that directly relate to tourism. The model based on efficiency used is Data Envelopment Analysis, which is determined in two stages, the first defining those efficient and inefficient countries and the second, where those efficient countries are ranked. Finally, improvement targets are set for those countries with inefficient results.

KEYWORDS

SUSTAINABLE TOURISM, GOALS, DEA, GHG EMISSIONS, BEST PRACTICES

INVESTIGATING THE USE OF NEURO-LINGUISTIC PROGRAMMING (NLP) METHODS IN MANAGEMENT SETS

FEDWA BELGHAIT; JESUS BARRENA MARTINEZ; MARÍA JOSÉ
FONCORTA RODRIGUEZ, [UNIVERSITY OF CÁDIZ]

In this study, we want to explore the potential application of Neuro-Linguistic Programming (NLP). It offers a novel framework for understanding human behaviour and communication patterns. It is increasingly applied in management contexts for its potential to enhance leadership effectiveness, team dynamics, and organizational performance. Grounded in the interplay of neuroscience, language, and behavior, NLP provides insights into how individuals perceive and engage with their surroundings. Managers can leverage NLP techniques such as rapport-building, reframing, and anchoring to foster deeper relationships, open communication channels, and effective issue resolution within teams. Furthermore, NLP equips managers with tools to drive positive change at individual and organizational levels. Strategies like modeling effective behaviours, setting compelling goals, and employing linguistic patterns for motivation can foster personal development and initiate improvement initiatives. Integrating NLP principles into management processes also offers opportunities to enhance decision-making and stimulate creativity. Through visualization and metaphor utilization, managers can tap into the subconscious mind's resources, unlocking creative problem-solving abilities and promoting unconventional thinking among team members. While the potential benefits of NLP integration in management are significant, practitioner competency and ethical considerations are paramount. Effective implementation requires a thorough understanding of NLP principles and sensitivity to individual and cultural differences in the workplace. Overall, incorporating NLP approaches into management practices can improve leadership efficacy, teamwork, and organizational success. By embracing NLP concepts, managers can facilitate team growth and create cultures that support continuous excellence.

KEYWORDS

COMMUNICATION PATTERNS, BEHAVIORAL PATTERNS, TEAM DYNAMICS,
LEADERSHIP EFFECTIVENESS, MANAGEMENT, NEURO-LINGUISTIC
PROGRAMMING (NLP)

GREEN AND SUSTAINABLE PORT TRIANGLE FRAMEWORK: PORT OF GDAŃSK (POLAND) AND PORT OF SPLIT (CROATIA)

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Ports are vital for the environmental, economic, and social sustainability of sea basins like the Baltic and Adriatic basins. The Baltic Sea, one of the most heavily trafficked seas globally, transports up to 15% of the world's cargo transportation, while the Adriatic Sea's importance is constantly increasing due to the growing number of container transshipment operations. Also, a continuous increase in passenger traffic generates additional sustainability challenges. Furthermore, seaports play a crucial role in those sea basins, generating diverse effects on the natural environment and socio-economic development. Ports are also essential for the sustainability of many coastal cities worldwide, such as Gdansk and Split. Therefore, the paper creates a green and sustainable port business triangle (GSPBT) to investigate green and sustainable practices in three different business dimensions, i.e., in goals, plans, and reporting (GSPBT-v1), operating activities (GSPBT-v2), investments, incentives, and projects (GSPBT-v3). The paper used a semi-structured questionnaire to conduct qualitative research via interviews with port operators. The results indicate that both investigated ports, the Port of Gdansk and the Port of Split, develop diverse green and sustainable practices in all three dimensions of the GSPBT. However, the research revealed mixed results considering the evaluation of the green port (GP) variable and the sustainable port (SP) variable in the GSPBT dimensions. The results show that ports' green, environmental, social, and economic performances are higher in GSPBT-v2 and GSPBT-v3 than in GSPBT-v1.

KEYWORDS

GREEN PORT INDICATORS, SUSTAINABLE PORT INDICATORS, GREEN AND SUSTAINABLE TRIANGLE, STRATEGY, BUSINESS PERFORMANCE

HANDYKIDS – A STUDY OF STUDENTS’ AND PUPILS’ AGENCY WITH SCIENCE MATERIALS AND TOOLS IN ARTS AND CRAFTS WORKSHOPS

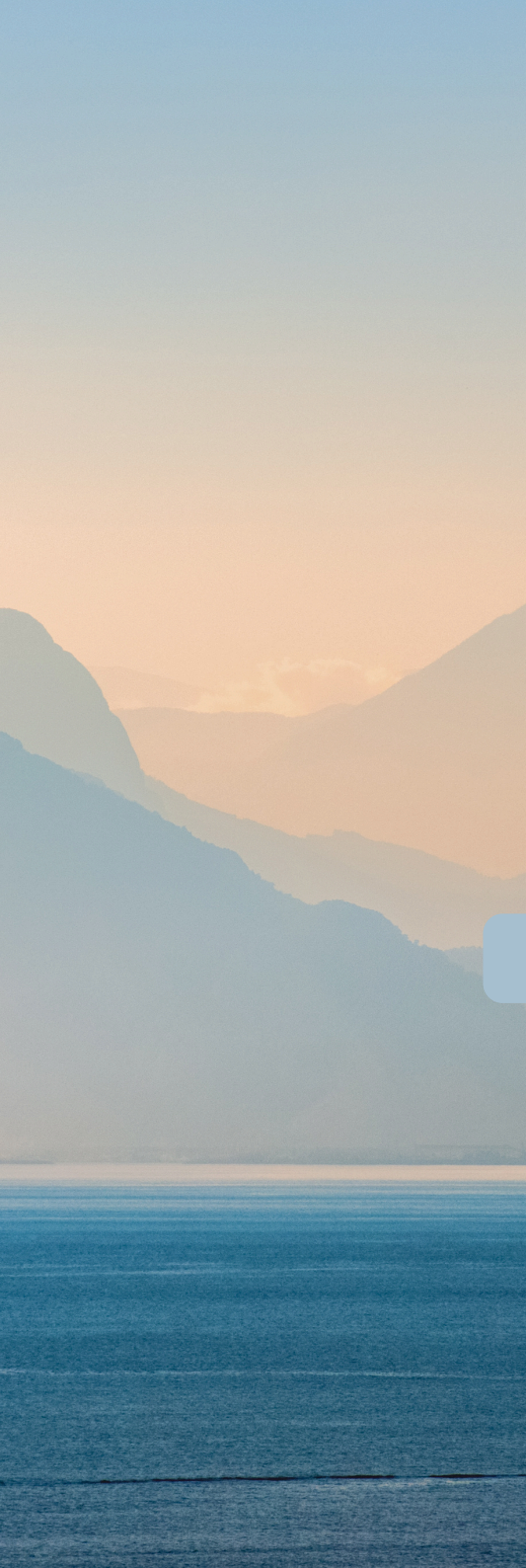
NINNI ANITA ROTMO OLSEN; SOLVEIG ÅSGARD BENDIKSEN,
[NORD UNIVERSITY, LEVANGER, NORWAY]

In higher education art and crafts students are guided to explore materials and tools in aesthetic learning processes and through this, create new knowledge based on their own experiences in workshops. Experimental methods are often used in workshop environments. Post-qualitative methodology focuses on human actions in interaction with materials and tools in workshop environments. Barad (2007) explains material reality as an active, agentic force that interacts with discourses, emotions, and people. Actions are thus not understood as passive social constructions. This implies that people interact perceptually, emotionally, and intellectually with materials and tools. An art pedagogical action-oriented method challenges more traditional teaching methods and creates workshop strategies. The starting point of this action-oriented method is that participants lack fundamental prior knowledge of these basic materials and tools. In the research project HandyKids, we have examined students' and pupils' agency in relation to sustainable materials and tools. Here, participants are offered to explore and reuse natural raw materials, which they then transform into composites for use in their own productions. The study shows that the agency that arises in the interaction between participants, materials, and tools provides knowledge of and skills in how participants themselves can create materials and tools and learn concepts related to these. It shows that an action-oriented method contributes to increased awareness of one's own consumption and leads to reduced resource use and alternative production patterns. The HandyKids project collaborates with the University of Cadiz through the SEA-EU alliance, where Norske Skog is also a practical partner.

KEYWORDS

ARTS, HUMANITIES, SCIENCE MATERIALS, SUSTAINABILITY, SOCIAL ENVIRONMENT, CRAFTMANSHIP, INTERNATIONALIZATION

EXPANDING KNOWLEDGE ACROSS THE SEAS



MIGRATION HUMAN RIGHTS





BARRIERS TO UKRAINIAN REFUGEES' ACCESS TO HEALTH SERVICES IN POLAND – A QUALITATIVE STUDY IN TRICITY

ELŻBIETA ANNA CZAPKA, [UNIVERSITY OF GDAŃSK, POLAND]

Poland, due to the long border with Ukraine, cultural proximity, and a large group of Ukrainian labor migrants staying in the country, became the main destination for refugees from war-torn Ukraine. Refugees are particularly vulnerable population regarding health, due to forced displacement, exposure to violence, loss of livelihoods, and precarious living conditions. The aim of this study was to identify the main barriers experienced by the refugees from Ukraine in accessing health care services in Poland. A qualitative interview-based study was carried out in 2023. It is part of a larger study of Ukrainian refugees in Tricity. In-depth semi-structured interviews were conducted with 15 refugees. The interviews were transcribed, coded, and analysed. Thematic analysis was performed to identify barriers related to the use of Polish health care services. Ukrainian refugees encountered several barriers when accessing healthcare services. Among the frequently experienced barriers were communication challenges, and unfamiliarity with navigating Polish healthcare system. Additionally, barriers were associated with the structure of the healthcare system, perceptions of doctors' skills and practices, and attitudes among healthcare staff. The research indicates that both systemic and patient-related factors act as obstacles for migrants seeking access to healthcare services in Poland. The findings stress the importance of regular evaluation of access and utilisation of health care services for successful inclusion of refugees into the Polish health system. By prioritising the health and well-being of all categories of migrants, following the 2030 Agenda call to "Leave No One Behind", communities can contribute to building resilient and sustainable societies.

KEYWORDS

UKRAINIAN REFUGEES, ACCESS TO HEALTH SERVICES, BARRIERS, SUSTAINABLE SOCIETIES

MIGRANT ORGANIZATIONS AS ARENAS AND ACTORS OF HOMEMAKING: CONCEPTUALIZING INTEGRATION FROM BELOW

ALYSSA MARIE KVALVAAG; YAN ZHAO, [NORD UNIVERSITY]

Norwegian policymaking has increasingly focused on the role of civil society and volunteerism in the integration of migrants (Norwegian Ministry of Education and Knowledge 2021; Stein and Fedreheim 2022). In these policies, civil society organizations, including migrant organizations, are seen both as (1) social arenas to gather and (2) actors that provide information, guidance, and services to migrants (Stein and Fedreheim 2022). These bottom-up practices are often considered necessary conditions for “everyday integration” in political discourses. Yet, how do migrant organizations themselves construct the meaning of their work, which is portrayed as “integration work”? Based on interviews with leaders of migrant organizations in northern Norwegian coastal areas, this article approaches the nexus between civil society organizations and integration from below by analyzing how migrant organizations describe their “integration work.” We argue that although migrant organizations are increasingly called upon for and are actively engaged in “integration work,” integration is not necessarily a concept that resonates. Rather, their work may be better understood as part of homemaking processes (Boccagni and Hondagneu-Sotelo 2023). We highlight the ways in which migrant organizations position themselves in relation to non-migrant populations/actors in their local communities. Migrant organizations, as arenas and actors of homemaking, carve out space in their communities and create places of belonging for migrants and non-migrants alike.

KEYWORDS

MIGRATION, MIGRANT ORGANIZATIONS, EVERYDAY INTEGRATION, HOMEMAKING, COMMUNITY BUILDING, CIVIL SOCIETY, VOLUNTEERISM

HOW DOES HUMAN CAPITAL INFLUENCE THE MIGRATION IMPACT ON FDI IN AFRICA?

IRENE AWELANA ATADANA, [UNIVERSITY OF NAPLES PARTHENOPE]

The rapid surge of migrants in developed countries in recent decades has promoted many studies on the socio-economic impacts of migration. Given the importance of Europe as a destination continent for African migrants and that migration issues remain topical in the EU policy agenda, it is important to investigate how African migrants in Europe impact Foreign Direct Investment (FDI) flows to their countries of origin. This study examines whether human capital matters in the relationship between African migrants in Europe and FDI flows to Africa. This study uses the gravity model on panel data (from 2010 to 2020) of the stock of African migrants in the top six destination European countries with the largest number of African migrants as a measure of migration as well as FDI inflows from these countries to 25 African countries as a measure of foreign direct investment. Using instrumental variable analysis, allowing for possible endogeneity of our migration variable, we find a significant and positive relationship between African migrants in Europe and Outward FDI to Africa. Furthermore, our empirical results indicate that human capital amplifies the positive effect of African migrants on FDI inflows.

KEYWORDS

MIGRATION, FOREIGN DIRECT INVESTMENT, HUMAN CAPITAL

ASSIMILATION AND HEALTH OF IMMIGRANTS IN ITALY

TIZIANA VENITTELLI, [UNIVERSITY OF NAPLES PARTHENOPE]

A growing empirical literature in economics has recently explored the influence of the sociocultural inclusion of foreigners in destination country on their economic well-being. Most of these studies find a positive relationship between immigrants' identification with the host country and their employment status, wages, and life satisfaction. A number of theoretical contributions shed light on the mechanisms through which identification with a group or society may be conducive to higher economic performance of individuals, such as self-esteem and psychological well-being. However, empirical analyses on the link between identification with the host country and psychological well-being are less common in economics, while they are more extensively performed in cross-cultural psychology. In this paper I examine whether immigrants' cultural assimilation to the host society affects their subjective psychological, physical and general well-being. Using survey data collected by the Italian National Institute of Statistics (ISTAT) in 2011 on the socio-economic inclusion of immigrants living in Italy, I find that assimilation to Italian society increases immigrants' psychological well-being, as measured by their mental health status. Moreover, I find that also the general well-being of foreigners, captured by their opinion on life satisfaction, increases as a consequence of the process of assimilation to Italy. The study provides evidence of a null effect of assimilation on physical well-being. I find that also the attachment to the home country culture positively affects the general and psychological well-being of immigrants.

KEYWORDS

IMMIGRATION, CULTURAL INTEGRATION, PSYCHOLOGICAL WELL-BEING, LIFE SATISFACTION

SAFEGUARDING LIVES AT SEA: ASSESSING HUMAN RIGHTS COMPLIANCE AND SAR COOPERATION AMONG SOUTHERN EUROPEAN STATES IN MIGRANT CRISIS

MARÍA DE LOS ÁNGELES BELLIDO LORA, [UNIVERSITY OF MALTA]

In a high-intensity migratory context such as the one experienced in recent years in the Mediterranean Sea, cooperation between neighbouring states is increasingly essential to ensure the safeguarding of human life at sea and the fulfilment of the international duty to provide assistance at sea. However, the efficacy of this cooperation is significantly influenced by conflicting interests among the involved actors, predominantly focused on securitization and migration control, and compounded by deficiencies that have impeded the integration of humanitarian considerations within search and rescue (SAR) regulations. The main objective of this research is to examine how the coordinated response of southern European states conforms to or deviates from international human rights law provisions during the rescue of migrants. This study explores migration factors specific to each Mediterranean region, shedding light on the implications of relations between Southern states for the implementation and proper execution of coordination arrangements in their respective SAR areas of responsibility. In particular, the research will pay meticulous attention to the humanitarian and human rights considerations intertwined with the conduct of migrant search and rescue operations by the actors involved. Through this rigorous analysis, we aim to provide valuable insights that can inform future policy and practice in maritime rescue operations, ensuring the safeguarding of human life and compliance with international legal frameworks.

KEYWORDS

MIGRATION, HUMAN RIGHTS, MARITIME OPERATIONS, SEARCH AND RESCUE, STATE COOPERATION, INTERNATIONAL LAW

LEARNER CORPUS OF POLISH LANGUAGE "FOKO"

EWA BADYDA; LUCYNA WARDA-RADYS, [THE UNIVERSITY OF GDAŃSK]

The Learner Corpus of Polish Language "FoKo" was created as part of a larger scientific project carried out at UG, focusing on examining communication barriers encountered by foreigners in the Polish environment. The project arose in response to the mass influx of children with migration experience into Polish schools, particularly intensified by the outbreak of war in Ukraine, presenting new didactic challenges for Polish teachers. The corpus was developed by linguists from UG and its content consists of written works by students with migration experience attending schools in the Pomeranian region. Approximately 300 works were collected. The material was gathered consistently and uniformly: the works are essays, written on a given topic, done by hand, in the presence of the subject teacher. In the future, grammatical annotation of the texts is planned. This will allow for searching the material for the use of specific words and language errors. The corpus material is intended to serve as a valuable resource for researchers studying the acquisition of Polish as a foreign language, providing insights into the language development of young individuals in this context. Additionally, it aims to support Polish school teachers in understanding the linguistic challenges faced by students for whom Polish is not their native language, aiding in the development of effective teaching strategies. Diagnosing the communication problems of young people with migration experience is intended to serve in the future for planning actions aimed at overcoming communication barriers encountered by them in the Polish environment, particularly within the school context, and facilitating their better integration into it.

KEYWORDS

COMMUNICATION BARRIERS, CHILDREN, MIGRATION EXPERIENCE, INTEGRATION

REGISTRATION OF HOTEL GUESTS. A CASE STUDY IN SHORT-TERM MOBILITIES TO DANZIG IN THE SUMMER OF 1860

KAJETAN OLEJKO, [FACULTY OF HISTORY AT UNIVERSITY OF GDANSK]

In nineteenth-century Europe, migrations entered a new period as nation states increased restrictions on the free movement of people. Commonly travelling between regions and states required official documents, which included short-term mobilities. In the Kingdom of Prussia, the police gathered data of all hotel guests, regardless of their origin. This paper drives attention of historians to the importance and usefulness of such data for description of short-term mobilities of that era. It will be demonstrated on the basis of the city of Danzig (Gdansk), an important Baltic seaport and a state fortress. The guests who registered in the city hotels were required to provide a wide range of personal information. Key parts of the information gathered were then printed in the local daily newspapers. A sample from such data published in the summer of 1860 allows a case study pondering the origin of guests, their companionship while traveling, and professional occupation. The newspaper publications allowed for the examining of specific group from among many individuals crossing the city border on daily basis, which was of interest to the police. How many of hotel guests were residents of the nearest region or the other provinces of the Kingdom of Prussia, and how many came here from abroad? The visa process for travel documents carried out by the police and consuls present in the city will be shortly described. In addition to issues of geographical origin and the professional occupation, available forms of travel and possible purposes of the trip to Danzig of this community will also be discussed. With this study a significant contribution to mobility in the key port city on the Southern Baltic shore is to be presented.

KEYWORDS

PORT CITY OF DANZIG, SHORT-TERM MIGRATION, SOCIAL HISTORY, TRAVEL IN THE SOUTHERN BALTIC, INTERNATIONAL MOBILITY, SEA TRADE

EARLY CHILDHOOD EDUCATION ON THE ISLAND OF MARAJÓ: CHALLENGES AND HUMAN RIGHTS VIOLATIONS

LETÍCIA WASKEVICZ DIAS [UNIVERSITY OF ALGARVE]

On Marajó Island, especially in the municipality of Melgaço, Pará, early childhood education is surrounded by significant challenges stemming from intricate socio-economic and environmental problems. Despite its rich cultural heritage and biodiversity, the region suffers from a lack of basic infrastructure, such as adequate sanitation, reflecting extensive poverty and institutional neglect. This situation exacerbates socio-economic vulnerability, especially in quilombola communities, where the struggle for land regularisation and access to basic rights is intense. These challenges contribute to a scenario where the sexual exploitation of children and adolescents becomes a sad reality, with girls being particularly affected, often seen as means of subsistence in the face of a lack of opportunities. The precariousness of access to essential services deteriorates not only physical health, but also children's ability to learn, showing a clear violation of human rights. The island's geographical isolation, combined with poor transport infrastructure, further limits access to quality educational services, leaving children at a disadvantage from the very beginning of their academic lives. This context highlights the urgent need for integrated public policies that address not only deficiencies in early childhood education, but also the broad spectrum of socio-economic factors that affect life on Marajó Island, thus promoting sustainable development that guarantees the rights and dignity of all children in the region. It is therefore imperative that comprehensive and inclusive measures are implemented to ensure a brighter future for future generations on Marajó Island.

KEYWORDS

MIGRATION AND HUMAN RIGHTS. EARLY CHILDHOOD EDUCATION. SEXUAL EXPLOITATION.

LIVING THROUGH PREGNANCY AND MOTHERHOOD IN MALTA: THE LIVED PERINATAL EXPERIENCES OF SUB-SAHARAN AFRICAN AND EASTERN EUROPEAN MIGRANT WOMEN

MS CHRISTIE HILI; PROF. RITA BORG XUEREB, [FACULTY OF HEALTH SCIENCES, UNIVERSITY OF MALTA]; PROF. CHARLES SAVONA-VENTURA, [FACULTY OF MEDICINE AND SURGERY, UNIVERSITY OF MALTA]

Malta has seen an increase in maternities among sub-Saharan African (SSA) and Eastern European (EE) migrants in the past decade. This study addressed the dearth of research identified following a systematic literature review by exploring the lived perinatal experiences of EE and SSA migrant women in Malta, using interpretative phenomenological analysis methodology. Following ethical clearance, a homogenous sample of eight SSA (Eritrean, Nigerian) and twelve EE (Bulgarian, Romanian, Serbian) women was recruited by purposive sampling. Women participated in one-to-one, in-depth interviews which were audio-recorded, transcribed verbatim, and analysed by close, line-by-line interpretation of participants' narratives. The findings obtained accentuated the multifaceted challenges that SSA and EE migrant women experienced in Malta during pregnancy and after birth. An evident theme applicable to both populations contradict the known proverb "it takes a village to raise a child" because pregnancy and motherhood were experienced in isolation, in the absence of their supportive community. This was evident particularly for EE women where the COVID-19 pandemic travel restrictions deprived them of familial support. SSA women were more concerned about finding and keeping employment since juggling maternal responsibilities and living expenses was a struggle that placed them on the brink of poverty. Additionally, while violation of human rights was experienced by EE women through xenophobic attitudes from Maltese citizens, racial discrimination was reported by SSA migrants based on their melanin skin. This research suggests the implementation of integration policies to safeguard migrant women's health and the setting up of a perinatal support service for migrant women.

KEYWORDS

MIGRATION, HUMAN RIGHTS, HEALTH, MIGRANT WOMEN, PREGNANCY, MALTA, INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS

MIGRANT PARENTING AS EMPOWERMENT. THE EDUCATIONAL CARE OF MIGRANTS MOTHERS WITHIN THE PROCIDA INTEGRATED RECEPTION SYSTEM

MARIA LUISA IAVARONE DISMMEB, [UNIVERSITÀ DEGLI STUDI DI NAPOLI, PARTHENOPE]; SARA GEMMA, [UNIVERSITÀ DI MACERATA-UNIVERSITÀ DEGLI STUDI DI NAPOLI PARTHENOPE]; FRANCESCO GIRARDI, [LESS SOCIETÀ COOPERATIVA SOCIALE]

Our proposal offers a "female empowerment educational model" aimed at the bio-psycho-social wellbeing of migrant mothers, often victims of prostitution and trafficking, hosted at the SAI (System of Reception and Integration) on the island of Procida since 2018 under the AIDA project – 'Arturo's Island', funded by the Ministry of the Interior (Department of Civil Liberties and Immigration), promoted by the Municipality of Procida and LESS Social Cooperative. After having identified migrant women as a specific target group, currently, the AIDA project accommodates 25 beneficiaries from Iran, Nigeria, and Ukraine. Various outcomes have been achieved through the project in terms of self-empowerment, social and parenting skills, and support to the educational models of the welcoming country by "hands-on" activities for mothers and children. Since 2018, the project has initiated agency implementation (Giddens, 1979) through cooperation between the project's multidisciplinary team and the local, educational, and health services. This process has made the "Procida model" a unique example of "second reception", centered upon the intercultural coexistence (Dusi, 2007; Iavarone et al., 2015; Portera, 2004). Through a participatory action-research approach and a holistic vision, the AIDA project has brought together the entire chain of formal and informal services at the local community level to implement a support network for the personal and social empowerment of the beneficiaries. This has been notably achieved through the facilitation of job placements through internships and apprenticeships within local artisan workshops, significantly bolstering wellbeing of the beneficiaries in order to embody a comprehensive approach to care and integration.

KEYWORDS

EDUCATION, MIGRATION, HUMAN RIGHTS, EMPOWERMENT, AGENCY, COMMUNITY CARING, SOCIAL SERVICES

ADDRESSING ETHICAL CONCERNS: ARTIFICIAL INTELLIGENCE IN MIGRATION MANAGEMENT

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This paper explores the ethical challenges of employing artificial intelligence (AI) in migration management (MM). In the first part, an overview of the ethical issues arising from the deployment of AI in MM is provided. As previous research has shown, there is a vast array of possible unethical consequences and human rights violations, including discrimination, bias, and privacy breaches, that could occur if the so-called 'algorithmic-driven humanitarianism' (Ahmad, 2020) is not properly overseen and if ethical standards are not followed. In the second part of the paper, the key ethical principles that should ground the use of AI in MM are analyzed. Special emphasis is placed on the principles of fairness, transparency, accountability, respect for human dignity, and non-discrimination.

KEYWORDS

ETHICS, MIGRATION, ARTIFICIAL INTELLIGENCE, HUMAN RIGHTS, TRANSPARENCY, TRUSTWORTHINESS, FAIRNESS

THE WORK EXPERIENCES OF TCN WOMEN IN MALTA ON THE EU SINGLE PERMIT

ANNA BORG, [UNIVERSITY OF MALTA]; KRISTA BONELLO RUTTER
GIAPPONE, [UNIVERSITY OF MALTA]

Our paper presents the results of a qualitative study into the work experiences of third country national (TCN) women in Malta, focusing on women from South Asian countries. We conducted in-depth interviews with TCN women working in different sectors and facing a range of challenges. We coded the data using thematic analysis. The interviews make it clear that the TCN working experience is not restricted to the confines of the workplace, but seeps into other areas of life, since the 'single permit' makes the right to reside depend on the employer. Key themes that emerged include, inter alia: the barriers to family reunification; discrimination faced by third-country nationals; procedural delays; the difficulties of changing employment; the gendered experience; support networks; access to rights and remedies. The respondents' individual circumstances displayed heterogeneity, and our presentation will explore differences across sectors and working conditions. However, we also identified commonalities across their experiences. The presentation will provide insights into the local context, as well as into the implementation of the EU Single Permit Directive.

KEYWORDS

MIGRANT WORKERS, HUMAN RIGHTS, THIRD-COUNTRY NATIONALS, WOMEN, GENDER, QUALITATIVE RESEARCH, LABOUR STUDIES

EXPLORING DIGITAL TWIN AND GHG ACCOUNTING IN EUROPEAN PORTS: AN EMPIRICAL PERSPECTIVE

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This study examines the relationship between digital twins and greenhouse gas accounting (GHG) in the port industry. In the last two decades, ports have become increasingly aware of new technologies capable of mitigating climate change. Artificial intelligence (AI), the Internet of Things (IoT), blockchain technology, and related innovations are vital resources. Their effective integration into logistics management can significantly influence a port's success in addressing environmental challenges. Also, many ports in Europe are striving to achieve comprehensive insights into both historical data and real-time updates by implementing digital twin technology. This initiative is mainly focused on decarbonizing port operations at the shipport interface. The linkages between technological and digital factors in evaluating the carbon footprint of ports is not yet well-defined. There remains a scarcity of comprehensive case studies explored within the literature. Scholarly literature often struggles to align with realworld developments, especially for defining the organizational, managerial, and measurement changes needed for environmental sustainability within the port sector's theoretical foundations. Therefore, to fill the knowledge gap a multiple case study approach is used to investigate these issues on the major European ports. Information is gathered by non-financial reports and face-to-face interviews with port authority managers included in the sample. Data collected will undergo coding and analysis by NVivo software. The discussion of results will encompass both theoretical and managerial implications.

KEYWORDS

DECARBONIZATION, PORT OPERATIONS, ENVIRONMENTAL SUSTAINABILITY, PORT AUTHORITIES, MULTIPLE CASE STUDY METHODOLOGY

MULTIDIMENSIONAL DISCRIMINATION IN THE CONTEXT OF (FORCED) MIGRATION: CHALLENGES FOR LEGAL AND COUNSELLING PRACTICE

TINA SPIES; HAZAL BUDAK-KIM; MANJA DIMITRA KOTSAS,
[KIEL UNIVERSITY]

The German General Equal Treatment Act (Allgemeines Gleichbehandlungsgesetz, AGG) transposes European directives on equal treatment and discrimination into national law. Since its introduction in 2006, the AGG has been repeatedly criticised by various social actors. In particular, the AGG has been criticised for its perceived limited effectiveness in combating discrimination beyond a single category. Although Section 4 of the AGG explicitly refers to the concept of "multidimensional discrimination", where different forms of discrimination (e.g. race, class, gender (cf. Crenshaw 1989)) overlap, this poses a challenge in legal and counselling contexts. According to a report by the Federal Anti-Discrimination Agency (2011), this may be partly due to the fact that Section 22 of the AGG requires complainants to provide evidence for each possible ground of discrimination. This makes it more difficult to prove multiple discrimination in both legal and counselling practice. In our presentation, we take this as a starting point and present the results of a research project (EMMD) currently funded by the Federal Anti-Discrimination Agency at Kiel University. The aim of the project is to investigate multidimensional structural discrimination through a multi-layered research approach that includes expert interviews, analysis of documented cases of discrimination from counselling practice, and examination of AGG case law. In our presentation we will focus on cases of multidimensional discrimination in the context of (forced) migration and address particular challenges in legal and counselling practice. Ultimately, these cases are about ensuring legal certainty in all its complexity and thus also about safeguarding human rights.

KEYWORDS

MULTIDIMENSIONAL DISCRIMINATION, INTERSECTIONALITY, HUMAN RIGHTS, AGG, STRUCTURAL DISCRIMINATION, (FORCED) MIGRATION

THE PLATFORM FOR MIGRATION. WORKING AT THE BORDERLANDS OF MIGRATION RESEARCH: THE GAINS, THE COMPLEXITIES AND THE PAINS

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Putting borders around the study of migration and people on the move would inevitably rob it of its richness and complexities. The Platform for Migration at the University of Malta has chosen to 'be the crossroads' to the study of migration, bringing together academics, researchers, practitioners, migrants, students and other stakeholders. Drawing on the work of Anzaldúa (1987, 1990) as a theoretical paradigm, and adopting a collaborative autoethnographic methodology (Haefner et al, 2022), the proposed paper will critically reflect on the process of setting up the Platform and the Mediterranean Journal of Migration, and our efforts to transcend disciplinary borders, navigate and struggle through different perspectives, theories and methodologies. The paper will explore our efforts to generate a creative space for critical dialogue and transformative research that, we hope, will "contribute to an equitable, more sustainable and more inclusive society that brings benefits to migrants and their families, communities of origin, destination and transit, as well as their sending and receiving countries" (Platform for Migration).

KEYWORDS

BORDERLANDS, INTERDISCIPLINARITY, MIGRATION, MEDITERRANEAN
MIGRATION, FRONTIERS, MIXED MIGRATION

EXPLOITATION OF NATURAL RESOURCES OF MARITIME TERRITORIES UNDER OCCUPATION: HUMAN RIGHTS PERSPECTIVE

OLENA NIHREIEVA, [ODESSA I. I. MECHNIKOV NATIONAL UNIVERSITY, UKRAINE - UNIVERSITY OF CADIZ SPAIN]

Recently, in many cases of occupation, for example, in Palestine, Northern Cyprus, the Western Sahara and Ukraine, the exploitation of natural resources of maritime territories under occupation has been causing additional tensions, provoking further aggravation of conflicts and, consequently, increasing migration flows. One of the reasons for that is a fragmented and outdated international legal regulation of relations between occupying power, occupied state and local people, directly affecting human rights of the latter. Thus, an efficient legal regime for occupied territories' natural resources exploitation at sea is needed. In this regard, in our research special attention is paid to a question about the territorial limits of occupation. To better comprehend the issue, the legal regime of maritime territories such as internal waters, territorial sea, archipelagic waters, exclusive economic zone and continental shelf are taken into consideration. The former three are national territories covered by state sovereignty, which means that they fall under the regime of occupation as well. At the same time, the latter two are territories that are international in nature and lie beyond the borders of national territories. This fact gives rise to a question about the legal regime of these territories in the context of an armed conflict between the state that has sovereign rights in their regard, which, however, do not amount to a sovereignty over them, and the occupying state. Against this background, local people's rights concerning the exploitation of natural resources of the above territories shall also receive due consideration.

KEYWORDS

OCCUPIED TERRITORIES AT SEA, HUMAN RIGHTS, NATURAL RESOURCES, CONTINENTAL SHELF, EXCLUSIVE ECONOMIC ZONE, INTERNATIONAL LAW

INSTRUMENTALIZATION OF MIGRANTS - WESTERN BALKAN ROUTE

MARITA BRCIC KULJIS, [UNIVERSITY OF SPLIT]

The use or instrumentalization of migration and migrants is not a new phenomenon. Throughout history, migration has often been used for political and diplomatic purposes. American political scientist Kelly M. Greenhill (2010) coined the term "weaponization of migration" to denote the use of migration as a weapon of political and military warfare. Instrumentalization of migrants is also understood as a hybrid security threat that can cause discomfort and political tension. Instrumentalization of migration has become very common at the external borders of the European Union, and the most famous cases of instrumentalization are at the border of Turkey and Greece, and at the external borders of the European Union and Belarus. After Croatia became part of the Schengen area in 2023, it recorded an increase in illegal immigration of 140% on an annual basis on the Western Balkan route. In addition to the increase in illegal migration, it is being mentioned more and more in official reports the instrumentalization of migrants on Croatia's border with Bosnia and Herzegovina and Serbia. In this context, I will give a short explanation of the very concept of instrumentalization of migration, and analyse what kind of instrumentalization of migration occurred on the borders of Croatia with Serbia and Bosnia and Herzegovina after Croatia entered the Schengen area. In one part, I will deal with the comparison of reasons for the instrumentalization of migrants at different external borders of the EU

KEYWORDS

INSTRUMENTALIZATION OF MIGRATION, MIGRATION, HYBRID SECURITY THREAT, EU, SCHENGEN AREA, WESTERN BALKAN ROUTE, CROATIA

TOWARDS A EUROPEAN MODEL OF INTERNATIONAL PROTECTION FOR CLIMATE DISPLACED PERSONS: THE ITALIAN CASE

ENRIQUE DEL ÁLAMO MARCHENA, [THE UNIVERSITY OF CÁDIZ]

According to several international organizations, such as the International Organization for Migrations, the displacement of persons due to environmental extreme events exacerbated by climate change will have a greater impact on regions in the Global South because of their lack of resilience. This is the case of the Sahel and West African countries whose vulnerable population have to cope with extreme events such as droughts and torrential rains. As a result of this, the population, unable to adapt and sustain their livelihoods, will be forced to displace in two ways; internally, within the country, and externally, out of the country. This second pattern of human mobility is expected to be directed to European Union via Western and Central Mediterranean routes, affecting mainly southern European countries such as Spain, Italy, and Greece. This fact requires us to take a closer look at the normative instruments at European Union law intended for persons who move as a result of environmental disruption caused by climate change. In this sense, although there is no specific normative development in European law on this regard, there are Member States that have made provision for it, as is the case in Italy. Thus, it is of particular interest that we focus on the study of Italian immigration law and its interpretation through the Italian courts, with the aim of proposing a model that can serve to manage this new migratory reality in the European Union via its migration policy.

KEYWORDS

CLIMATE CHANGE, DISPLACEMENT, ENVIRONMENTAL DISRUPTION, EUROPEAN UNION LAW, INTERNATIONAL PROTECTION, ITALIAN IMMIGRATION LAW, HUMAN RIGHTS

CHALLENGES AND SOLUTIONS IN MANAGING THE INFLUX AND PROTECTION OF WAR REFUGEES FROM UKRAINE TO POLAND IN 2022-23

VALENTYNA HODLEVSKA, [UNIVERSITY OF GDAŃSK]; AGNIESZKA
LABENZ, [UNIVERSITY OF WARSAW]

Based on descriptive statistics collected by UNHCR and IOM UN tools such as KOBO as well as external observation at the Polish-Ukrainian border in the period March - September 2022 we want to focus on the processes of the influx of refugees from Ukraine to Poland in 2022- 2023. The analyzed period is a critical point in the ongoing humanitarian crisis caused by the conflict in Ukraine. As the conflict escalates, thousands of Ukrainian citizens are forced to seek refuge in neighboring countries, particularly Poland. This prompts an analysis of the factors driving this particular refugee flow and the consequences for both the host country and the resettled population. As a case study, we plan to delve into the factors motivating Ukrainians to flee their homeland, including armed conflict, political instability, economic hardship and human rights violations. We also analyze the pull factors that make Poland an attractive destination for these refugees, such as geographic proximity, historical ties, the existing Ukrainian diaspora and relatively favorable asylum policies. In addition, we intend to analyze the challenges facing both Ukrainian refugees and the Polish government in managing and accommodating this influx. We plan to consider issues related to legal status, access to basic services, integration opportunities, public sentiment, and broader implications for regional stability and cooperation. By analyzing the refugee influx processes from Ukraine to Poland in the context of broader geopolitical dynamics and migration trends, we intend to provide insights into the complexities of forced displacement, cross-border solidarity, and the need for comprehensive, collaborative responses to the humanitarian needs of refugees in the region.

KEYWORDS

REFUGEE INFLOW, UKRAINE/POLAND, HUMANITARIAN CRISIS, PUSH/PULL FACTORS, MIGRATION CHALLENGES, CROSS-BORDER SOLIDARITY

THE INTEGRATION EXPERIENCE OF SUB-SAHARAN MIGRANTS IN MALTA

MARK JOSEPH ZAMMIT, [UNIVERSITY OF MALTA]

Given that in recent years, significantly fewer individuals have crossed the Mediterranean to reach Malta, the current issue facing the island is not merely migration, but rather integration. This study examines two dimensions of integration: functional and existential. Functional integration encompasses aspects such as employment, housing, finances, and other practicalities. On the other hand, existential integration delves into matters of the heart and spirit, encompassing love, relationships, communal living, friendships, leisure activities, and spiritual beliefs. In light of these considerations, the research question guiding this study is: Are sub-Saharan migrants effectively integrating into Maltese society, and how can we enhance the quality of their integration experience? This qualitative research is based on interviews conducted with 8 participants individually, all of whom arrived in Malta by boat, hail from various sub-Saharan countries and currently reside in Malta. Gender and religious backgrounds were not discriminated against during participant selection. The interviews were structured into 10 sections: Journey, Arrival in Malta, Employment, Housing, Education, Interpersonal Relationships, Religious Practices, Daily Life in Malta, Health, and Aspirations for the Future. Given the study's focus on existential integration, it examines elements identified by participants themselves, including experiences of racism, language barriers, interactions with institutional authorities, challenges related to documentation acquisition, issues of trust, spiritual beliefs, and feelings of isolation and helplessness. The study concludes with a reflection on the significance of identity in the context of integration realities.

KEYWORDS

MIGRATION, INTEGRATION, IDENTITY, SUB-SAHARAN, FAITH, TRUST, RACISM

LATEST UPDATES TO EUROPEAN AND SPANISH CONSUMER CONTRACT LAW IN RELATION TO HUMAN RIGHTS

EULALIA PERALTA LÓPEZ, [UNIVERSITY OF CÁDIZ, PRIVATE LAW DEPARTMENT]

This research aims to explain how the latest updates to the European and Spanish regulations on consumer law have transversally incorporated Human Rights that were not previously included. The motivation for this incorporation is based, on the one hand, on the coincidence of the Sustainable Development Goals with some Human Rights, such as those that are linked with the incorporation of the perspective of social sustainability and that are reflected, first, through the concept of vulnerable consumer and the interpretation that must be made of it regarding the prohibition of discrimination based on different ground (art. 2 and 7 UDHR) and access to basic goods and essential services (art. 25 UDHR) and secondarily, by the obligations imposed on responsible production and consumption, which must cover compliance with human rights related to production under decent working conditions (art. 23 and 24 UDHR) In addition, the emergence of ICTs, automated marketing techniques, Business Intelligent, and the challenge of Artificial Intelligence, have led to deepening the protection against arbitrary interference in private life proclaimed by article 12 of the Universal Declaration of Human Rights that is incorporated through various legislation that affects this aspect.

KEYWORDS

HUMAN RIGHTS, CONSUMER LAW, SUSTAINABLE DEVELOPMENT GOALS, CONTRACTS, SOCIAL SUSTAINABILITY

WINDOWS FOR A BODY LANDSCAPE OF TRACES: GENDER, BODY AND (IM)MOBILITIES IN THE DEGREES OF SOCIAL WORK AND SOCIAL EDUCATION

INMACULADA ANTOLÍNEZ DOMÍNGUEZ [1]; ESPERANZA JORGE
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This paper will describe an innovative teaching tool which aims at encouraging people to come up with counternarratives where race and migration are concerned. The motivation arises from: 1) The resurgence of xenophobic discourses, racist attitudes and hate crimes in Spanish society today (Ministry of the Interior, 2022); 2) The tool will help participants reflect on female migration, especially that from Nigeria, which has been plagued by gender based violence and human trafficking. Rarely do people analyze human trafficking and gender based violence where migration is concerned. These issues remain invisible when speaking about migration in general. When speaking about human trafficking from a gender perspective we rarely include the experiences of the protagonists themselves. In this paper we will evaluate the effectiveness of a specific counternarrative which is illustrated in the book Decalogue of Traces (Jorge, Monday & Antolínez, 2021) and the installation Windows for a Corporeal Landscape of Traces (Jorge, Monday, Antolínez & Tey, 2023). Both are based on the biographical experience of Akhere Monday, a young Nigerian who narrates how the migratory journey left traces on her body. We regard the installation, and the book that accompanies it, as a "counternarrative" within the model of Critical Race Theory (Delgado, 1999). These both invite the listener to adopt a critical stance on dominant and privileged discourses.

KEYWORDS

MIGRATION, GENDER, HUMAN TRAFFICKING, COUNTER-NARRATIVES, NIGERIA

IMPLEMENTATION OF THE RIGHT OF A MINOR VICTIM TO INFORMATION AND BE HEARD IN POLISH CRIMINAL PROCESS - CONCLUSIONS BASED ON EMPIRICAL RESEARCH

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A child, like every adult, is the addressee and recipient of rights and freedoms guaranteed by international and national law. One of the most important rights of a child involved in a criminal trial as a minor victim is the right to be heard and the right to information. These rights are guaranteed in the Convention on the Rights of the Child (Article 12) ensuring that children have the opportunity to be heard in any judicial and administrative proceedings that concern them and that their views are given due weight in accordance with the age and maturity of the child. Therefore, children should be informed of the consequences or effects associated with the decisions of the authorities, and the child's influence thereon "should be greater the older the child is". Moreover, Article 10 of the ECHR indicates that everyone has the right to express their opinion. Currently, in Polish criminal proceedings, the child's right to be heard and informed is mainly realised through the child's participation in the interrogation. Partial results of the research conducted as part of the scientific project "The impact of the form of carrying out procedural activities and the course of criminal proceedings on the risk of secondary victimization among minor victims - file research" will be presented together with the conclusions based on the data obtained regarding the implementation of the abovementioned rights of children victims of crime.

KEYWORDS

RIGHTS OF THE CHILD, VICTIMS OF CRIME, SECONDARY VICTIMIZATION,
RIGHT TO BE HEARD, RIGHT TO INFORMATION

RISE TO NEW HORIZONS



INTERDISCIPLINARY





USE OF INFOGRAPHICS AS A TOOL AND TEACHING METHOD IN STUDENT RESEARCH PROJECTS

LINE KOLÅS; ODDLAUG MARIE LINDGAARD; NINNI ANITA ROTMO OLSEN, [NORD UNIVERSITY]

In higher education, students embark on journeys of knowledge creation through research projects such as bachelor's and master's projects. These projects equip them with skills in research methodologies. In today's fast-paced world, the use of visual aids like infographics can be effective tools. In today's fast-paced world, the use of visual aids like infographics can be effective tools. We have experienced that while IT students excel in data collection, they often encounter challenges in the analysis phase of their research projects. This action research initiative aimed to explore the efficacy of integrating infographics as a pedagogical approach within student research projects. Departing from conventional usage primarily for presentation, we propose infographics as an analytical tool to aid students in analysing collected data. Through iterative action research cycles including planning, execution, observation, and reflection, we propose a teaching methodology featuring diverse workshop activities. These activities are designed to empower students in the analysis of their data utilizing infographics. By engaging in the creative process of infographic development, the infographics contribute to clarification, categorization, quality assurance, reflection, and interaction in that respect nurturing personalized comprehension and aesthetic perspective of the data and its analysis. Our findings emphasise the power of employing symbols, signs, icons, and drawings in combination with academic reflections to decode and activate meaning visually, thereby fostering clarity and novel insights.

KEYWORDS

INFOGRAPHICS, STUDENT RESEARCH, ANALYSIS, LEARNING, HIGHER EDUCATION, INTERDISCIPLINARY

MINIATURIZATION OF ECOTOXICOLOGICAL TESTS AND THEIR APPLICATION TO ASSESS THE TOXICITY OF PHARMACEUTICALS TOWARDS BALTIC CYANOBACTERIA

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Pollution of sea waters with pharmaceuticals is an emerging problem, as reported by environmental scientists. These pollutants are particularly dangerous because they have high biological activity and affect organisms even at very low concentrations. Therefore, there is a concern about its effect on entire aquatic ecosystems, from mammals to microorganisms such as algae and cyanobacteria. The latter belong to phytoplankton, which is the basis of the ecosystem and constitutes the basis of the food chain in the aquatic environment. Furthermore, the increase in blooms of toxic cyanobacteria is temporally and spatially problematic for people. It is therefore necessary to immediately determine the impact of pharmaceutical contaminants on this group of organisms. For this purpose, ecotoxicological tests are carried out, which are time-consuming and require large expenditures. In this research, we attempted to miniaturize such tests, while taking into account the guidelines of the OECD 201 standard. Miniaturization of ecotoxicological tests is aimed at reducing the amount of reagents, materials, time and workload. The developed tests enable quick testing of the toxicity of chemical substances in many concentrations simultaneously in small volumes. The developed method was used to examine the toxicity of pharmaceuticals from several groups towards the Baltic cyanobacteria *Synechocystis salina*. The most toxic of the tested drugs was an antibiotic from the penicillin group - amoxicillin.

KEYWORDS

WATER POLLUTION, ECOTOXICOLOGICAL TESTS, MINIATURIZATION OF TESTS, PHARMACEUTICALS CONTAMINATION, CYANOBACTERIA, PHYTOPLANKTON, GREEN CHEMISTRY

LAGOON MAR MENOR AS A LEGAL PERSON

ADRIANNA SUSKA-ZALEWSKA, [UNIVERSITY OF GDANSK,
DOCTORAL SCHOOL OF HUMANITIES AND SOCIAL SCIENCES]

Twenty years ago it was rather unthinkable to imagine that a natural entity like a river or a mountain can be considered as a subject of legal rights. Nevertheless, first legal acts granting rights to Nature emerged in North and South America about eighteen years ago and now there are instances of Rights of Nature legislation on every continent. The first European country that introduced a legally binding document recognising Rights of Nature was Spain as the state adopted a legal act in September 2022. Moreover, for now it is the only European state granting legal rights to a natural entity by the force of the national parliament act. The natural entity under consideration is the Mar Menor lagoon located in the province of Murcia that years prior to adopting the legal act was highly polluted. By conducting a case study on the Mar Menor legal act, I would like to point out the motives behind adopting the Rights of Nature legal act and outline beneficial outcomes of recognising rights of the lagoon, especially in relation to environmental protection. Bearing in mind the difficulties that may appear during execution of rights of a natural entity, I will present the potential solutions to them. As there appear controversies surrounding Rights of Nature, I would like to address them. At the end, there would be a comparison to the European environmental policy.

KEYWORDS

RIGHTS OF NATURE, ENVIRONMENTAL PROTECTION, INTERDISCIPLINARITY

COORDINATES IN BLUE: USING AIS FOR SCIENTIFIC RESEARCH PURPOSES

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In the past, boat captains and their crew had to rely mainly on their senses to know if they were on the right path to land or if other boats were close by. As time went on, several new ways of finding land arrived, such as being guided by lighthouses or following landmarks with detailed nautical charts. Nowadays, we can see the real-time position of various types of boats at sea. With the development and implementation of this technology in the early 2000s, the automatic identification system (AIS) became an asset for navigation and monitoring of boats in a nonintrusive way. The objective of this presentation is to make a temporal comparison concerning how vessels were monitored with ancestral rudimentary methods as opposed to a new advanced technology – the AIS.

KEYWORDS

AUTOMATIC IDENTIFICATION SYSTEM (AIS), TECHNOLOGY, MONITORING

REGULATORY CHALLENGES FOR SEAPORTS IN THE ERA OF DECARBONIZATION OF SHIPPING

AGNIESZKA GÓRKA, [DOCTORAL SCHOOL OF HUMANITIES AND SOCIAL SCIENCES OF UNIVERSITY OF GDAŃSK]

The maritime transport sector, which at the European level is responsible for 3% of greenhouse gas emissions, was included in the European ETS in 2024. Rising CO₂ fees will accelerate the decarbonization of shipping. Fifth-generation seaports, otherwise known as innovation seaports, "green", which are characterized by the implementation of innovative solutions, especially green solutions, will play a special role in this process. To achieve fifth-generation, seaports will face changes at the infrastructure, regulatory and commercial levels. In the speech, I will present the legal aspects that will require changes or adaptation to the fifth generation of seaports. In the future, ships will be bunkered with synthetic fuels, green ammonia, hydrogen, which requires the adaptation of seaport infrastructure. The challenge for the seaport authority will be to adopt new technical regulations to ensure security at the seaport. It is also a responsibility for legislative bodies at the EU and national levels to set general criteria for the safe operation of seaports, which will be overseen by the public administration. During the speech, I will present current regulations pointing out potential changes and regulatory proposals. Secondly, the relationship between entities operating in the port area is normalized by concluded contracts. The fifth-generation seaport will require green contracts to be in place to implement sustainability, which will also be relevant to ESG reporting. Under the speech, I will present examples of contractual clauses to classify contracts as "green", e.g., a bunkering contract between a port and a renewable fuel trader.

KEYWORDS

SUSTAINABLE DEVELOPMENT, DECARBONIZATION, EUROPEAN MARITIME LAW, SEAPORTS, GREEN AMMONIA, PORT INFRASTRUCTURE, CONTRACTS

ECOLOGICAL AND SOCIOECONOMIC ASPECTS OF SUBSISTENCE FISHERIES IN CENTRAL AFRICA: THE CASE STUDY OF LITTLE FISH FISHERY FROM SÃO TOMÉ AND PRÍNCIPE

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An unknown type of artisanal fishery commonly referred as the peixinho fishery (Portuguese for little fish) is characterized to determine its contribution to the local fishing communities from São Tomé and Príncipe. Even though the small-scale fisheries represent the primary income source and play an important role in the food security of many families from São Tomé and Príncipe, there is no knowledge about this unique type of artisanal fisheries which targets specific goby species [*Sicydium bustamantei* Greeff, 1884, *Sicydium brevifile* Ogilvie-Grant, 1884, and *Awaous lateristriga* (Duméril, 1861)]. These species undergo life cycles involving freshwater and marine migration, and it is in the upstream migration when the juveniles are caught in the mouth of the rivers. However, overfishing, habitat degradation, and changes in seasonal patterns threaten this fishery's sustainability. In this present work, we use the Local Ecological Knowledge (LEK) gathered through semi-structured questionnaires and participant observations, to enhance the understanding of this unrevealed fishery promoting epistemic diversity and transdisciplinary approaches in conservation management. Albeit the final results were not obtained yet, we expect that the little fish fishery is a women-based fishery, and differences in the fishing techniques depending on the fishing gear and fishing area. Additionally, a relationship between this fishery and the lunar phases and seasonality is predicted. The notion of the little fish fishery could contribute to develop more comprehensive management measures due to the consideration of the cultural and ecological context of the peixinho fishing communities.

KEYWORDS

LOCAL ECOLOGICAL KNOWLEDGE (LEK), EPISTEMIC DIVERSITY, GOBBY FRY FISHERIES, SMALL ISLAND DEVELOPING STATE (SIDS), FOOD SECURITY, SCIENCE

THE IMPORTANCE OF DEVELOPING INTERCULTURAL COMPETENCE – HOW CAN SCHOOLS AND UNIVERSITIES PROMOTE THESE SKILLS?

ELLEN FRANZISKA HANKE [KIEL UNIVERSITY]

My particular focus on the topic of “Intercultural Competence” is on the connection between interculturality and education. Since intercultural competencies are becoming more and more important these days, the question arises as to what possibilities there are to bring the topic closer to schoolchildren and students and to ensure that they learn intercultural competencies. This raises various questions that I would like to address in more detail: What does intercultural competence mean and how is it defined? Why is it useful or even necessary to acquire intercultural skills these days? What phases do we have to go through to develop intercultural skills? How is intercultural competence expressed and which levels play a role? What are the contents of intercultural learning? How can intercultural competencies be promoted among pupils in a school context or among students at university? What does the promotion of intercultural competencies achieve in school lessons and at the university? What other options are there to learn intercultural skills outside of school and university? Does intercultural competence depend on the level of education? What studies are there in intercultural competence development and what do they say? My aim of the lecture is to show the audience how important it is to promote intercultural competence in school lessons and seminars and to present a broad picture of the possibilities for this.

KEYWORDS

INTERCULTURAL COMPETENCE, EDUCATION, LEARNING, POSSIBILITIES, DEVELOPMENT, FUTURE

TIME SQUEEZE AND MENTAL WELLBEING: A CASE STUDY ON WORKLIFE BALANCE AMONG MALTESE PARENTS

KAREN MUGLIETT; SUZANNE PISCOPO [UNIVERSITY OF MALTA]

Background: There is a scarcity of research on how disequilibrium in worklife balance impacts Maltese parents' wellbeing. In a 2018 Eurobarometer, 20% of Maltese respondents were not satisfied with their worklife balance. This study sought to explore time usage by Maltese parents as related to household tasks and child care, uncovering distribution, and the impact of the experiences on the holistic wellbeing of each parent. **Methodology:** A case study approach with six parent-couples was adopted. Recruitment was through social media groups and snowballing. Ten interviews, six time-use grids and six midweek-day diaries of chores were completed. Thematic analysis was used for the interviews, numeric analysis and synthesis for the grids and diaries to identify the person mainly responsible for a task, time on task, enjoyment of the task, together with other insights on practices and coping strategies. **Results:** A multi-layered scenario of determinants of parents' daily management of home/family care tasks emerged. This involved features of division of tasks; formality of decision-making and discussion regarding tasks; internal and external stressors; and various needs: flexibility/adaptation at the personal, household and workplace level; unpaid/paid support; practical wisdom (planning, shopping), mental strength; 'family time' and 'me time.' Mothers/one parent from the same-gender couple took on more than 60% of the responsibilities. **Discussion:** As couples navigate the complexities of family and home responsibilities, they employ practical wisdom/mental fortitude with different levels of success. They engage mental fortitude. **Conclusion:** Interventions needed to cultivate the appropriate mindsets and abilities to efficiently manage home and family care tasks.

KEYWORDS

HEALTH, HOLISTIC WELL-BEING, WORK-LIFE BALANCE, SOCIAL SCIENCES, STRENGTHENING FAMILIES

BLUE AND GREEN: YET TO BE SEEN? A TURQUOOOISE APPROACH TO EDUCATION FOR SUSTAINABLE MANAGEMENT

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How does one craft an academic version of an MBA programme, which is sensitive to the green credentials expected of sustainability-conscious and driven managers today, as well as to the opportunities and attitudes that emerge from the blue economy? Living on the coastal edge of Europe fosters 'pirates' and 'adventure', enthuses Foucault, rather than order and obedience. Can we harness this quiriness in the service of the sustainable management of organisations? This is the motivation towards the development of TURQUOOOISE: the code name for a new, joint master's degree programme in the sustainable management of organisations. This paper outlines the inspiration behind the programme of studies and invites the audience to consider whether there will be a demand from regular students (to register for the whole programme) or from those already working (to register for one or more micro-credentials). An interdisciplinary partnership of six universities, members of the SEA-EU Alliance, led to the co-creation of a study programme that combines business, economics, environmental sciences and behavioural aspects, in order to educate and train individuals for sustainable management futures. After the successful completion of this programme, TURQUOOOISE graduates will be well prepared to critically analyse mainstream management concepts, discuss scenarios and create collective visions for more sustainable approaches in and for organisations, be they private or public, commercial or non-profit. Throughout stakeholder meetings, both market practitioners and policy makers have affirmed an urgent need for development of such skills and competences among the younger generations.

KEYWORDS

SUSTAINABLE DEVELOPMENT, BLUE ECONOMY, GREEN CREDENTIALS, MANAGERIAL SKILLS, MANAGEMENT EDUCATION, PROJECT MANAGEMENT

DISASTERS, CLIMATE CHANGE AND SOCIAL CAPITAL IN SMALL ISLAND STATES: REVERSING THE TRENDS IN CARIBBEAN SIDS?

ALLANSON CRUICKSHANK; STEFANO MONCADA, [ISLANDS AND SMALL STATES INSTITUTE, UNIVERSITY OF MALTA]; ADELLE THOMAS, [CLIMATE ANALYTICS, UNIVERSITY OF THE BAHAMAS]

The literature is replete with references to the value of social capital in small island developing states (SIDS). The success of community-based disaster risk reduction (CBDRR) and community-based adaptation (CBA) are largely dependent on the strength of social capital in these communities. Civil society, local NGOs, indigenous populations, faith-based organisations, the sense of community among residents, among others, tend to be major contributors to developing and strengthening social capital. This paper examines the state of community social capital with regards to CBDRR and CBA in the Caribbean SIDS of Dominica and St. Vincent and the Grenadines (SVG). The methodology includes thematic analysis from elite interviews with key actors involved in disaster risk reduction (DRR) and climate change adaptation (CCA); and, participatory focus groups using NVivo software. The findings show that, contrary to what is generally understood, social capital in Dominica, locally termed Koudmen, and SVG seem to be declining when compared to previous years. In both cases, it was found that the persons engaged in disaster response and CBA initiatives are calling for monetary compensation, rather than relying on social capital. Interestingly, in both countries, the reduction in social capital has not been as pronounced among the indigenous populations and in remote and isolated communities. These results may indicate a conflict in the way urban societies in SIDS are drifting away from traditional and vernacular values, which may result in an erosion of social capital overtime.

KEYWORDS

SOCIAL CAPITAL, SIDS, COMMUNITY-BASED DISASTER RISK REDUCTION, CBA, CARIBBEAN

THE STORY BEHIND A HOLE IN AMBER

BLAŻEJ BOJARSKI; KAROLINA CIEROCKA; JACEK SZWED,
[UNIVERSITY OF GDANSK]

The identification and interpretation of ichnofossils can be challenging and requires a high degree of expertise and objectivity in the examination of the material. These fossils are the subject of ichnological studies and the information preserved in these traces is highly valuable for palaeoenvironmental, palaeoecological and sedimentological research. Trace fossils are found both in the matrix and on the surface of fossil resins. Although they have been recognised for some time, they have only recently been described and there is still some confusion about their origin, with some describing them as living organisms or their remains. In this report, we present our ichnological studies on the ichnofossils *Teredolites clavatus* and *Teredolites longissimus* preserved in the Eocene 'Baltic amber'. This group of fossil resins, mainly succinite, has a complex geological history that poses a challenge to study. In spite of this, the ichnofossils preserved on Baltic amber nuggets can provide insight into the taphonomy of Baltic amber and its fossil content.

KEYWORDS

FOSSIL RESINS, BALTIC AMBER, TEREDOLITES, ICHNOFOSSILS,
PALEOECOLOGY, INCLUSIONS

QUANTIFYING THE ECONOMIC VALUE OF MARINE ECOSYSTEMS: A PRELIMINARY VALUATION STUDY FROM THE MALTESE ISLANDS

MARIJA PIA GATT; ALAN DEIDUN [DEPARTMENT OF GEOSCIENCES, FACULTY OF SCIENCE, UNIVERSITY OF MALTA, MSIDA, MALTA]; MARIE BRIGUGLIO [FACULTY OF ECONOMICS MANAGEMENT AND ACCOUNTANCY, UNIVERSITY OF MALTA, MSIDA, MALTA]

Ecosystem service valuation provides crucial insights into the benefits that ecosystems provide to humans. By quantifying these benefits, decision-makers can better understand the trade-offs involved in different management strategies. This study employs the contingent valuation method and a gamma regression model to evaluate the economic value of 11 coastal locations in Malta, and their associated ecosystem components. The valuation results indicate spatial variation in the economic value of the coastal locations, suggesting that different locations offer varying levels of benefits to society and that different ecosystem components hold varying economic values. *Posidonia oceanica*, reefs, and maerl generated higher values compared to other components like sandbanks and caves. However, the chosen methodological approach for valuation significantly influenced the estimated economic value of ecosystem components. Model-based estimates tended to yield higher values than observed willingness-to-pay (WTP) values. Methodological disparities should be accounted for when interpreting valuation outcomes. Furthermore, the substantial disparities between observed and modeled values underscore the potential economic significance of these ecosystems, especially within the modeled scenario. This study emphasizes the importance of acknowledging the economic value of ecosystems in conservation planning and decision-making processes. Such insights can guide resource allocation, policy formulation, and prioritization of conservation efforts to enhance societal welfare and environmental sustainability.

KEYWORDS

ECOSYSTEM-SERVICE VALUATION, CONTINGENT VALUATION METHOD, WILLINGNESS TO PAY, ECONOMIC VALUE, ECOSYSTEM-BASED MANAGEMENT, MARINE CONSERVATION, MARINE ECOSYSTEMS

EVALUATING THE POTENTIAL FOR INDUSTRIAL SYMBIOSIS AT THE HAL FAR INDUSTRIAL ESTATE IN THE MALTESE ISLANDS

NICHOLAS VELLA; ROBERT N. FARRUGIA, [INSTITUTE FOR SUSTAINABLE ENERGY, UNIVERSITY OF MALTA]; MARGARET CAMILLERI-FENECH, [INSTITUTE FOR CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT, UNIVERSITY OF MALTA]

The transition from a linear to a circular economy is a multi-faceted endeavour that requires a compound of disciplines. Industrial Symbiosis (IS) is a prominent means to achieve such a target for industry. Still, IS will not happen by itself but requires a facilitator who identifies areas of potential collaboration, establishes a suitable communications platform between parties, and highlights the benefits that such a relationship can bring to the participants. As a case study, this dissertation will address an industrial cluster in Hal Far, Malta, construe an appropriate methodology to discover the potential for IS within it and demonstrate how such a process can function as a catalyst towards the formation of symbiotic relationships. The study is split into three thematic, namely, (a) a collaborative thematic, (b) an energy resource thematic, and (c) a material resource thematic. The results revealed a series of interesting IS opportunities for both the energy and material resource thematic as well as exposed major contrasts between them. For the thermal energy component, the study identified a potential recovery of c.136MWh/Wk, as well as a potential material resource recovery aspect with an estimated carbon footprint saving of 1.3 tonnes of CO₂/Wk. Several pre-existing materials IS relationships were also identified, with an estimated carbon footprint savings of 3.2 tonnes of CO₂/Wk.

KEYWORDS

CIRCULAR ECONOMY, ECO-INDUSTRIAL PARK, ENERGY SYMBIOSIS, INDUSTRIAL SYMBIOSIS, MATERIAL RECOVERY, SUSTAINABILITY.

STUDENT WITH DYSLEXIA AT THE UNIVERSITY IN POLAND - DESCRIPTION OF THE LEGAL SITUATION AND GOOD PRACTICES

MARTA ŁOCKIEWICZ; MICHALINA IGNACIUK, [UNIVERSITY OF GDAŃSK]

The aim of our presentation is to present the system of support for students with dyslexia at Polish state universities and to identify and evaluate good practices that are already implemented. Using the analysis of found data (formal and informal documents and national and local legal regulations, also presented on the university websites), we found that only 9 (15%) state universities in Poland introduced actual forms of support for students with dyslexia and the faculty, such as exam concessions (6 universities), consultation with a specialist (6 universities – for students, 5 universities – for teachers), and provision of information and educational materials (9 universities) (Ignaciuk & Łockiewicz, 2022). State and private university students with dyslexia, as compared with controls, manifest lower levels of life satisfaction, positive emotions, resilience, and perceived/expected support (Kalka & Łockiewicz, 2017), are at risk of social exclusion (Łockiewicz & Bogdanowicz, 2013) and lowered self-esteem (Wejner-Jaworska, 2019). Thus, systemic support for people with dyslexia at all educational stages is needed (Ignaciuk & Łockiewicz, 2022). Comparing Polish and British system of support for higher education students with dyslexia, we formulated a list of recommendations: the extension of the examination time by 25% of the standard time, grading written assignments based on content, not the accuracy of spelling, and modifying the form of an exam (from written to oral) (Ignaciuk & Łockiewicz, 2022).

KEYWORDS

DYSLEXIA, ADULTS WITH DYSLEXIA, STUDENT SUPPORT SYSTEM, LEGAL REGULATIONS, RATIONAL ADJUSTMENTS, POLISH UNIVERSITIES, DYSLEXIA AWARENESS

CHEFS WORKING IN THE MALTESE CATERING ENVIRONMENT ADOPTING AN INTERSECTIONAL ETHNOGRAPHIC APPROACH

CARMENRITA BUGEJA, [UNIVERSITY OF MALTA]

This research aims to understand the experiences of chefs working in the catering environment. It will look into the systemic and structural inequalities which chefs face on an individual, situational and organisational basis and how these impinge on their wellbeing on both a personal and professional basis. It will explore the coping mechanisms they resort to counteract the source of stress and the changes they would like to see on an organisational, institutional and legal basis to improve their quality of life. The research will focus on how private life issues impinge on work and hence wellbeing. The study adopts an intersectional perspective, while taking into consideration organisational culture. The findings will then be used to help establish guidelines for good practice in the local culinary sector. The main aim of this research is to use ethnography to find out the microaggressions workers face, and the effect this can have on an employee's wellbeing. Note will also be taken of indirect discrimination that can occur when a so-called neutral policy or measure can have a differential impact on individuals who are positioned differently on the basis of their sex, interacting with their age, nationality, different abilities, race and sexual orientation.

KEYWORDS

CHEFS, KITCHEN, ETHNOGRAPHY, INTERSECTIONALITY, WELLBEING

LEGAL REGIME FOR THE PROTECTION OF SUBMARINE FIBER OPTIC CABLES IN ARGENTINA AND URUGUAY

FRANCIA ELIZABETH GONZÁLEZ ANGELOTTI, [UNIVERSITY OF CADIZ]

The object of the research that I am developing for the Doctoral School of the University of Cádiz, awarded a scholarship by the Ibero-American Postgraduate University Association, refers to the liability regime derived from the breakage of subsea cables in the River Plate. Underwater telecommunications cables allow global Internet access. Interconnect with several States and make electronic communication possible for commerce, banking, public services and the security of the States themselves. This technology crosses the oceans and transits the maritime spaces of other States as a way of ensuring the global transmission of data. Argentina and Uruguay established by Treaty the legal regime of the River Plate and its Maritime Front, with legal solutions consistent with UNCLOS. The breakage of subsea cables is due to climate disasters, shark attacks and in 77 % of cases it is due to human intervention derived from fishing activity, prohibition of fishing and anchoring in the areas where subsea cables are located. UNCLOS commits States to creating laws and regulations that contribute to the protection of subsea cables and prohibiting fishing and anchoring in areas where submarine cables are installed. This means that there are different legal solutions regarding liability for their breakage in Latin America. In the case of Argentina and Uruguay, establish a prohibition on fishing and anchoring in the areas where the subsea cables are located. However, the transit of foreign ships that carry out poaching by disconnecting the Automatic Identification System (AIS) is common, ignoring the location of the underwater cables, damaging the Internet data transmission of users. In the maritime space of the River Plate there are difficulties in controlling clandestine fishing vessels that do not comply with fishing control policies, affecting biodiversity and sailing in areas that coincide with the underground laying of subsea cables. In EEZ and in the common fishing zone cloned vessels are common (they use the same registry) where they transfer the fishery product and are removed to another vessel while the first continues fishing. This makes control by the maritime authorities difficult. In addition, activation of the AIS is not required in the EEZ. Maritime planning and maritime collaboration between Argentina and Uruguay are becoming increasingly necessary in order to avoid the extinction of fishing species and protect critical infrastructure on the Internet in the region.

KEYWORDS

STEM, CRITICAL IMPORTANCE, UNCLOS, SUBSEA CABLES, TELECOMMUNICATIONS, VESSELS

AN AUTOETHNOGRAPHIC PERSPECTIVE ON ENVIRONMENTAL SUSTAINABILITY EXPLORATIONS BY STUDENTS FROM DIFFERENT EUROPEAN UNIVERSITIES DURING A FIVE-DAY LIVE-IN EVENT

DAMIAN SPITERI [UNIVERSITY OF MALTA]

This paper presents an autoethnographic examination of the lecturer's role in the Social Europe Days, an annual five-day live-in event in which the University of Malta has been participating since 2016. During this event, university students from different parts of Europe convene, together with lecturers from their respective institutions, to reflect on environmental sustainability. The researcher has attended these events for the past three years and presents an autoethnographic account that captures the essence of the dialogues and collaborative endeavours that emerged during the event which has been conducted in May 2024. Social Europe Days are structured around workshops, panel discussions, and collaborative projects. The paper highlights the inclusive and collaborative environment cultivated throughout the event, emphasizing the value placed on every participant's voice and contribution to the discourse. An autoethnographic approach, chosen due to the researcher's role as a lecturer, enables reflection upon aspects like the cultural reflexivity, subjective depth, and narrative richness that is manifested during the event. This study contributes to the conference's theme by offering perspectives on the transformative moments, emotional reflections, and cultural exchanges that defined this unique five-day journey. Ultimately, it shows the power of international collaboration in advancing a collective vision for a more sustainable and interconnected future; and the importance of involving students in co-curricular activities which empower them to be champions of sustainable practices within their academic and local communities.

KEYWORDS

AUTOETHNOGRAPHY, INTERCONTINENTAL DIALOGUE, SUSTAINABILITY EDUCATION, COCURRICULAR ACTIVITY

LEGAL FRAMEWORK FOR INTERNATIONAL COOPERATION AND CONSERVATION OF MARINE PROTECTED AREAS IN THE ANTHROPOCEAN ERA: COMPARISON BETWEEN EUROPE AND LATIN AMERICA

JULIÁN ANDRÉS ÁLVAREZ RESTREPO [UNIVERSITY OF CÁDIZ]

The legal and political protection of the marine environment must change the anthropocentric perspective established in Sustainable Development Goal number 14, which reads as follows “Conserve and sustainably use oceans, seas and marine resources for sustainable development”, being necessary to transcend to an Anthropoceanic scenario in terms of the author Cristina Romera Castillo (2022), where value must be given to the ocean not only for the ecosystem services that it provides to man and his future generations, but also for the importance it has for the very life of the earth. According to author Michelle Bender (2022) (Director of the Ocean Rights Earth Law Center), there are few instruments of International Law for the protection of marine protected areas, making it necessary for the Laws of the Earth to be applied for their conservation. In this way, the general objective of this paper is to socialize the international legal framework applicable to the cooperation and conservation of marine protected areas, from a critical perspective, since some instruments were created more than 30 years ago and must be updated according to advances. scientists, where the Law must also advance in a new area of knowledge: The Law of the Anthropocean or Environmental Protection of the Marine Environment, as a necessity for good global ocean governance.

KEYWORDS

MARINE PROTECTED AREAS, INTERNATIONAL LAW, ANTHROPOCEAN, INTERNATIONAL COOPERATION, SUSTAINABILITY, ENVIRONMENT AND LAW OF THE SEA

ADVANCING EQUITY, DIVERSITY, AND INCLUSION. POLICY AND STRATEGIC APPROACHES AT THE UNIVERSITY OF MALTA

NADIA ABDILLA [UNIVERSITY OF MALTA]

The significance and prominence of Equity, Diversity and Inclusion (EDI) have, in recent years, notably increased within university systems. Although the endeavours of EDI sensitised, self-motivated individuals' efforts play a critical role in fostering a more inclusive and equitable working and studying university environment, impactful transformation lies in the power of effective systemic change. In 2021, the launching of the European Commission's (EC) Horizon Europe programme mandated the inclusion of Gender Equality Plans (GEP) as integral components of its Research and Innovation (R&I) Funded Programmes. Having a GEP in place has become a basic requirement for an organisation to participate in the EC's research framework programme. This decision deepened the efforts of EU Higher Educational Institutions (HEI) towards a general transformation of the organisational processes of the same institutions. Establishing specific, focused policies and procedures lays the groundwork for mainstreaming EDI across various areas. The University of Malta (UM) has two core documents in place which guide and act as the foundation to foster an inclusive organisational atmosphere and help cultivate a higher education environment that is more innovative, fulfilling, and fruitful. In line with the UM's Strategic Plan 2020-2025, this paper sets out to provide an overview of the UM's Equity, Diversity and Inclusion Policy alongside the UM's intersectional Gender+ Equity Plan (G+EP) for 2022-2025. Additionally, this paper identifies the challenges encountered in effecting change while also shedding light on organisational best practices, stressing that prioritising the implementation of policies is as equally important as their initial design.

KEYWORDS

EQUITY, DIVERSITY, INCLUSION, POLICY, ORGANISATIONAL CHANGE, INTERSECTIONALITY.

ADDING VALUE TO THE TOURISM PRODUCT OF A COASTAL CITY: USING AN ANALYSIS OF THE TOURIST EXPERIENCE OF PLACE AT CADIZ (SPAIN) AND COTTONERA (MALTA)

JOHN EBEJER, [DEPARTMENT OF TOURISM MANAGEMENT, UNIVERSITY OF MALTA]; GEMA RAMIREZ GUERRERO, [DEPARTAMENTO DE MARKETING Y COMUNICACIÓN, UNIVERSIDAD DE CÁDIZ]

The purpose of this research is to test a methodology for destination enhancement that has been put forward in tourism literature. The methodology is based on an extensive desk research on how places provide for positive and memorable experiences to tourists. The methodology involves the carrying out of a landscape analysis that goes beyond the physical aspects and considers the various meanings that are associated with a place. This leads to a proper understanding of the tourist experience of the place which in turn enables destination managers to identify initiatives for the enhancement of the tourism product. The research explores the validity of the methodology by testing it on selected places at two city destinations namely Cadiz (Spain) and Cottonera (Malta). Coastal places within urban areas are selected for this research making it possible to investigate the maritime influence on the tourism experience. The research makes recommendations for improvements to these urban places. The research also suggests improvements to the methodology.

KEYWORDS

TOURIST EXPERIENCE, URBAN SPACES, PLACE, TOURISM PRODUCT, COASTAL DESTINATIONS, PLACE-MEANING STUDIES

AI FOR WELLBEING: A PROOF-OF-CONCEPT OF DATA MINING ON WELLBEING RESEARCH TRENDS FROM MALTA

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Recent years have seen a burgeoning literature on wellbeing measurement and modelling but different countries face different issues at different points in time. Furthermore, in the field of wellbeing, evidence-based policy-making is still at its infancy. This study can be considered as a proof-of-concept to stimulate evidence-based policy-making in any country, at any time. It capitalises on the growing body of research and employs an Artificial Intelligence/Data Mining approach. Relevant publications are acquired from publicly available repositories (such as Semantic Scholar and CrossRef), and from the UM's Open Access Repository. Topic modelling (using Bert Transformer Models) is applied on the abstracts to identify the main topics, and quantify the association of each publication to the different topics. Each topic is represented by the salient keywords, a dashboard of which is set up to demonstrate popularity over time. Users are able to select any topic on the dashboard to view associated words, the trajectory of that topic's popularity along the years, a network of the prolific authors within that topic, and how they collaborate. This dashboard will contribute to research on wellbeing and to evidence-based policy making by 1. allowing users to identify the key issues in wellbeing in their particular country (or cluster of countries), 2. Revealing the different levels of engagement of researchers with those themes over time, and identifying under-researched themes 3. Sourcing the publications themselves, by theme and time, and iv. Identifying the experts and their collaborative links.

KEYWORDS

WELLBEING, EVIDENCE-BASE, DATA MINING, TOPIC MODELLING, VISUALISATION, AUTHOR NETWORK, LITERATURE DASHBOARD

EFFECT OF PH CHANGE ON CHRONIC TOXICITY OF DICLOFENAC TO DAPHNIA MAGNA

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The acidification of waters and the increase in their average temperature has long been well determined. It has also been noted that in the era of climate change, the fates and toxicity of environmental pollutants is also changing. It is observed that a decrease in pH causes an increase in the acute toxicity of compounds with acidic properties, while a decrease in the toxicity of compounds with basic properties. However, most studies to date have not considered the effect of pH on the toxicity of contaminants. Seem logical that ecotoxicological experiments should be supplemented with the effect of water acidification on the chronic toxicity of pharmaceuticals, as one of emerging pollutants. Therefore, it was decided to conduct chronic ecotoxicological tests checking the effect of reduced pH on the toxicity of diclofenac to the crustacean *Daphnia magna*, taking into account reproduction of the organisms as an endpoint. The tests were conducted according to standardized OECD 211 procedures. A statistical comparative analysis of the results obtained during chronic tests at standard pH (pH = 8.0) and reduced pH (pH = 7.0) was performed. The conducted studies provide new information on DCF toxicity, necessary for advanced risk analysis of the presence of the pharmaceutical in the aquatic environment, and in addition, they also fit in with the Sustainable Development Goals by addressing global warming (goal 13) and impacts on aquatic organisms (goal 14).

KEYWORDS

ACIDIFICATION OF ENVIRONMENTAL WATER, GLOBAL WARMING,
DICLOFENAC, SUSTAINABLE DEVELOPMENT, ECOTOXICOLOGY, DAPHNIA
MAGNA ASSAY

GLOBAL PANORAMA OF ORGANIC MARKET AND COMPARATIVE ANALYSIS BETWEEN FRANCE AND BRAZIL

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The main goal of this study is to develop a general overview of the organic market in Brazil and in the world between 2012 and 2021, as well as carrying out a comparative study between the organic market in France and Brazil. This comparison aims to characterise the organic market in the two countries, highlighting their strengths and weaknesses, threats and opportunities in both realities, as well as estimating the determinants of organic consumption in Brazil. To this end, initially an exploratory analysis of data on the panorama of the organic market will be carried out, with the data being obtained through official research and literature. Next, a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis will be carried out, seeking to map the key variables within the internal and external environment of the two countries, with regard to the organic market. Finally, a regression analysis will be carried out in order to estimate the variables that influence the consumption of organic products in Brazil, such as income and years of study, identifying through the Granger causality method if the selected variables help to predict the values of organic consumption. It is expected that results obtained from the research will help in the creation of strategies and in the recommendation of actions and public policies aimed at the consumption of organic products in Brazil.

KEYWORDS

ORGANIC AGRICULTURE, MARKET ANALYSIS, ECONOMICS, CONSUMPTION, SALES

ENVIRONMENTAL IMPACT ASSESSMENT USING ADVANCED TECHNIQUES TO IMPROVE SITUATIONAL AWARENESS: THE ROLE OF SPECTRAL INDICES IN A MULTILAYERED APPROACH

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MASSIMILIANO LEGA, [PARTHENOPE UNIVERSITY OF NAPLES]

This presentation delves into the exploration of advanced monitoring methods for detection of environmental pollution phenomena also through the use of remote and proximal sensing instruments, like satellites and drones. Pollution is not always directly observable but can be detected through monitoring its effects on the environment. Some phenomena are visible only at different spatial and temporal resolutions or with broader geographic coverage, requirements achievable only through the synergistic use of aerial platforms with different types of missions. For these reasons, particular attention will be paid to showing how these tools can be used synergistically in complex combined (remote/proximal/in-situ) and multidisciplinary analyses. The presentation focuses on the versatility of this approach. By connecting various tools, it is possible to conduct multilayered analysis capable of describing pollution phenomena from various perspectives. Case studies, such as the examination of remote indices on coastal zones, will be presented to illustrate the potential of this approach. Remote indices are an extremely flexible tool, that play a crucial role in environmental monitoring. Their application in coastal areas poses challenges, but through a multilayered approach that goes from satellite, to drones observation, to in-situ sampling, we can improve their effectiveness and use them to monitor events like algal blooms. Therefore, this presentation will demonstrate, as an example of the effectiveness and flexibility of this multilayer approach, the utilization of remote sensing indices for coastal areas.

KEYWORDS

SITUATIONAL AWARENESS, ENVIRONMENTAL MONITORING, REMOTE SENSING, REMOTE INDEX

SCICULTURED COURSE KIT: BURSTING DISCIPLINARY BUBBLES IN TERTIARY EDUCATION TO ADDRESS SOCIETAL CHALLENGES

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EDUCATION, FACULTY OF EDUCATION]

In a world of 'wicked problems' requiring multilayered solutions, co-creation between disciplines is essential to address issues like climate change, educational systems and widening inequality. Challenges that at first appear too complex to address can start to be tackled through a deep transdisciplinary analysis and collaboration. SciCultureD is an Erasmus+ project envisioning solutions to society's pressing issues by helping diverse groups of people work together effectively– bursting the boundaries between the arts, sciences and entrepreneurship. This talk will introduce the toolkit developed through the Erasmus+ project SciCulture and SciCultureD. The CourseKit is a playful tool for educators and course developers in tertiary education. It helps to design courses ranging from a 2-hour workshop to a semester-long course, to even a whole Master's. This card-based tool helps players design a learning experience that prepares students to address the sustainability and societal challenges combining Design Thinking and creative pedagogies like empowerment and agency, and ethics and trusteeship. The talk will guide participants in the use of the physical and digital toolkits through diverse case studies such as the SciCultureD Intensive Courses (Germany 2023, Malta 2024, online workshops). The talk will present the key concepts behind the SciCultureD project as well. After the talk, participants are welcome to reach out to the project partners to continue working with them to develop their project ideas or courses.

KEYWORDS

INTERDISCIPLINARITY, STEAM, CREATIVE PEDAGOGIES, CO-CREATION;
DESIGN THINKING, SUSTAINABLE DEVELOPMENT GOALS, SUSTAINABILITY

THE ROLE OF ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE MANAGEMENT AND NEW LEADERSHIP STYLES

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The emergence of artificial intelligence and its impact on human resource management, growth, development, and well-being have become strategic issues. Traditional leadership models deserve to be reviewed to increase the well-being and happiness of employees, analysing the risk factors that AI has for workers. This work aims to contribute at a theoretical level, linking new leadership models with the digital transition in which we are involved. At a qualitative level, the article aims to interview managers to understand this phenomenon in greater depth. Conclusions, discussion, and future lines of work will be provided in the full article.

KEYWORDS

ARTIFICIAL INTELLIGENCE, LEADERSHIP, SOCIAL SCIENCES

IDENTIFICATION OF SMART KNOWLEDGE VALORISATION STRATEGIES

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Smart knowledge valorisation strategies represent an opportunity for universities to increase innovation, value research, and foster regional economic development and competitiveness. Aligned with the UE Council Recommendation 2022/2415, of 2 December 2022 on the guiding principles for knowledge valorisation, it is possible to identify that there is a need to incentivise multidisciplinary activities that may accelerate scientific progress based on research. The diversity of research activities and the possibility to stimulate research agents to diversify and integrate different areas on their studies may promote valuable intangible results, particularly when connected with market needs and strategies. Those research results may carry valuable and transferable Intellectual Property Rights that are able to increase the value of research and that may dictate the development of innovation ecosystems or hubs. Hence, under its third mission strategy, and aiming to increase knowledge valorisation and promote regional development, the University of Algarve has launched a multidisciplinary initiative known as 'R&D TEC PhD Scholarships 2023', aiming towards the selection and qualification of topics for attribution of PhD scholarships for the development of innovative technologies (IDT UAlg TEC 2023), opening the door for companies to propose research topics to be developed by doctoral students, overseen by SME's, with the support of a full scholarship from UAlg. Research Topics are proposed by SME's, spin-off or start-up companies integrated into the UAlg TEC@ ecosystem, namely incubated or accelerated ones, resulting from research needs. This connection with the entrepreneurial ecosystem attracts companies involvement and make them responsible for hosting and stimulating, in partnership with UAlg, the research development process throughout the period of award of the IDT UAlg TEC Grant.

KEYWORDS

KNOWLEDGE VALORISATION, INTELLECTUAL PROPERTY RIGHTS, ENTREPRENEURSHIP, COMPANIES, START-UP AND SPIN-OFF COMPANIES, MULTIDISCIPLINARY



BEING SEA - EU CONFERENCE

First edition | 10 to 12 June 2024 | Malta

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10 to 12 June 2024, Malta



ISBN 978-9918-0-0843-8



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