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AWASUL
دائرة النشر العلمي والتواصل بعمادة البحث العلمي

Shura's CER Chairman . . .

No change in research budget

Seasonal Edition Issued by And SQU

Dr. Jumana Saleh:

The Fountain of Youth is From Within!

Study:

A study on money laundering unveils loopholes that allow criminals to go free. It calls for legal and social justice

The Role of Research in Addressing Medical Errors

Seven Joint Projects between SQU and UAEU

A Comprehensive study of CNS demyelinating disorders in Omani Patients

Femtosecond Laser Lab
Ultrafast Laser Spectroscopy

A study on money laundering unveils loopholes that allow criminals to go free

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Research Reduces Medical Errors

When medical errors become ubiquitous, they are brought to court and reported in the press or social media.

Some argue that this is a thorny and complex issue, as we are talking about medical staff who are involved in this, which makes the errors a matter of probability. Others, on the other hand, believe that modern techniques used in medicine are supposed to reduce the incidence of such errors. At the end of the day, the matter is contingent on the physician's skills and abilities. Still, there are those who call for the need to differentiate between the concepts of medical errors, negligence and complications. They stress that every case has its own conditions, and there is no way of imposing a unified framework for all cases in which medical errors have occurred.

In the midst of these disparate views, research emerges as one of the solutions that could minimize the incidence of such errors, which have claimed the lives of children and young and elderly people, while others are still suffering in hospitals or at home.

Experts say that the results of research can provide correct and accurate data on the pathological cases. It can also provide the medical, modern technologies that could be used in surgeries, thus reducing the number of medical staff, which could in turn reduce the rate of medical errors. Research findings can also help doctors and other staff develop their abilities in the medical field.

In this issue of Tawasul, we try to shed more light on this problem through a feature article that expresses the views of specialists from Sultan Qaboos University and other institutions.

Editor

Seven Joint Projects between SQU and UAEU

The 28th meeting of the Joint Committee of Sultan Qaboos University (SQU) and United Arab Emirates University (UAEU) has endorsed seven joint research projects at SQU. The SQU delegation was headed by Hon. Dr. Hamed bin Suleiman Al Salmi, ex-Deputy Vice Chancellor for Administrative & Financial Affairs, while the UAEU delegation was led by Professor Faeqa Hilal Bu Hazaa, Deputy Vice Chancellor of Finance and Administrative Affairs.

Tsunami hazard assessment for the coastal areas of Diba, Oman, and Diba, Al Fujairah

The project will be conducted by Dr. Adel Mohamed El Shahat El-Hussain, from SQU, and Dr. Khaled Ahmed Al Baloushi, from UAEU. The research is aimed at carrying out a quantitative assessment, using probabilistic and deterministic methods. It also seeks to assess the tsunami seismic risks on Diba, Oman, and Diba, UAE.

Deep desulfurization of liquid fuel in microchannels using deep eutectic solvents

This project will be carried out by Dr. Farouk Sabri Majali, from SQU, and Dr. Basim Mohammad, from UAEU. It aims at investigating the feasibility of ionic liquids and deep fusion solvents for experimental use, to remove sulfur from deep liquid fuel through extraction devices. The study seeks to enhance the removal of sulfur and reduce the cost of using these liquids for practical applications. The project will also examine the different characteristics of the channels` including the channel length , diameter and synthetics. There will be an attempt to study the optimal efficiency of the extraction of sulfuric compounds through practical variables, including the type of solvent, the proportion of fuel, mixing speed, patterns of flow and time of physical contact. An effective, low-cost, and applicable fuel treatment technology will be designed.

Freshness evaluation of fish using electronic nose

The project, "Freshness evaluation of fish using electronic nose (E-nose) and electronic tongue (E-tongue) as compared to spectroscopic methods" , will be undertaken by Dr. Shafiur Rahman, from SQU, and Dr. Sami Ghnimi, from UAE. It aims at overcoming the barriers in the evaluation of the freshness of fish and marine products. The focus of the proposed study is on advanced techniques, such as e-nose and e-tongue, for assessing the quality and safety of fish, compared with many other spectroscopic techniques. This study can supplement or replace traditional techniques, such as chemicals, texture or sensory characterization, which are tedious, hard, expensive and time-consuming. It is hoped that the results of this project will provide the scientific basis for the e-nose and e-tongue, and develop standard protocols and guidelines.

The effect of some phytochemicals with antioxidant and anti-inflammatory properties on the mitigation of experimental chronic kidney disease in rats exposed to diesel exhaust particles

This project will investigate the effects of some plant-based materials with anti-inflammatory and anti-oxidant properties (such as plant hibiscus extract, turmeric) on the mitigation of experimental chronic kidney disease in rats exposed to diesel exhaust particles. The study will measure a number of variables, including the amount of food and drink intake, urine, kidney weight to body weight ratio, enzymes and other components in the blood plasma and in the urine. These are indicators of how efficiently the kidneys function. Some cytokines in the blood plasma will be measured, along with a number of indicators of inflammation or excessive oxidation in the treated animals.

The project will be carried out by Professor Badr Al-Din Hamid Ali, from SQU, and Professor Abdul Rahim Neymar, from UAEU.

Harnessing solar energy and green chemical approach

The project focuses on harnessing solar energy and a green chemical approach to the degradation of endocrine disruptor chemicals present in ground and wastewater. Conducted by Dr. Rengaraj Selvaraj, from SQU, and Dr. Mohammed Al-Meetani, from UAEU, the research seeks to develop clean and safe processing techniques, which are environment-friendly and in line with the population expansion and prosperity in the global economy. It will be centered on the use of solar energy, converting it into chemical energy using the effective nanometer materials focus. This chemical energy will be used with chemical catalysts for water purification and removal of organic contaminants from wastewater. It will also try to understand the relationship between the effectiveness of catalytic chemicals with solar energy and their chemical composition and characteristics on their function. The materials generated by breaking down organic pollutants that cause chemical imbalances in the endocrine glands will be studied. Other aspects to be investigated are the kinetics of chemical reactions and their tracks, and methods of transformation into substances not harmful to the environment.

Research Obstacles in Higher Education Institutions

This quantitative, analytical and comparative study has as its goal an investigation into the research obstacles in higher education institutions in Oman and the United Arab Emirates. Carried out by Dr. Rahma Al-Mahrooqi, from SQU, and Dr. Mohammed Abu Al-Ainain, from UAEU, the project examines the reality of higher education in both countries, and tries to identify and analyze the major obstacles and suggest solutions. It also seeks to develop strategies for enhancing higher education and build a database on its conditions and development.

Development of Energy Harvesting System for Vibrational Structures

The research project is conducted by Dr. Mojtaba Ghodsi, from SQU, and Dr. Samir Emam, from UAEU. It suggests an energy harvesting system using the magnetic effect on material, by converting the vibrational energy of mechanical vibrations into electrical energy. In this research, the efficiency of the harvesting process will be verified under the influence of several factors, including vibrational frequency and its capacity and shape, as well as various environmental conditions. This study will also provide a mathematical experimental model for the suggested magnetic system. As a result, it will shed light on the relationship between efficiency and factors affecting the harvesting process.

Outreach Group Launched

The Department of Academic Publications and Outreach at Sultan Qaboos University has launched a scientific outreach group to be in charge of publishing the University's research activities and highlighting them in the media.

This announcement came at a gathering in the University's Cultural Center under the auspices of H.H. Sayyida Dr. Mona Al Said, Assistant V.C. for International Cooperation. Present at the ceremony was Dr. Rahma Al-Mahrooqi, Deputy Vice-Chancellor for Postgraduate Studies and Research, academics and other employees.

During the ceremony, Ali bin Nasser Al-Hadhrami, Director of Academic Publications and Outreach, said the group will be responsible for reporting on the research activities held at the University's colleges and research centers through the academic bulletin, Tawasul. They will also produce documentaries about the various university facilities, as well as the scientific research that needs special media coverage. They will help marketing such research, publications and activities organized by the Deanship of Research. He called on everyone to come together for the success of the objectives set by the Deanship, and to promote the University in all fields.

The event concluded with a film showcasing the activities and duties of the different departments of the Deanship to help enhance the mission of research and publication. Later, H.H. Al Said announced the launch of the scientific outreach group, which includes distinguished students. A number of media agencies that collaborated with the Deanship of Research in 2015 and some of the Deanship's staff were honored at the function.

Shura's CER Chairman …

No change in research budget despite the financial crunch

Different Omani agencies pay a lot of attention to research because it gives direction in dealing with specific problems in various fields.

Normally, such organizations are those that are immediately relevant to delivering scientific knowledge and education, such as universities, research centers and other academic institutions. However, there are others agencies in Oman that are responsible for addressing research in the Sultanate. One example is the Shura Council's Committee of Education and Research (CER).

In the following interview with Tawasul, H.E. Khalid Al-Faree, the CER Chairman, has talked about his Committee's duties and plans.

Would you explain the Committee's roles and duties?

The Committee has the same powers as the Shura Council, i.e. legislative and monitoring. We have ongoing coordination and collaboration with the authorities in charge of education and research, such as the Council of Education, Ministry of Education, Ministry of Higher Education, The Research Council (TRC) and the Omani Authority for Academic Accreditation.

There is wide collaboration with SQU

Recently, the Shura Council has been more focused on educational issues than research. What is the reason in your opinion?

You mean before we came on this Committee. Well, that was due to the fact that there were urgent problems facing the education sector, which had to be addressed immediately. At that time, there was no clear role for research, at least from the perspective of the society.

What is your Committee's vision of enhancing research?

The Committee believes that research is one of the important foundations for the social and economic development of the country. If we want to be among the developed nations, we should give a lot of attention to science. That is why we have had close coordination with TRC, who were invited to the Shura Council to examine the potential of boosting scientific research in the Sultanate.

Does your Committee have any sort of cooperation with Sultan Qaboos University (SQU)?

Yes, we do. We have expressed our willingness to visit the University to discuss with them the Committee's current study on higher education. We also benefit from the University's academic expertise in conducting studies and addressing some problems in the education sector. We also have joint committees, such as the Committee of Student Advisory Councils in Higher Education Institutions. Indeed, we seek more collaboration with the University in the areas of education and research for the benefit of the country.

How does the Shura Council evaluate the University's research efforts?

The University has recently started to pay more attention to conducting research. We've seen a number of SQU scientists gaining global recognition. However, we think that SQU has the capabilities to deliver much more scientific output.

Do you agree with the opinion that having various agencies supervising research activities will disperse research efforts?

In my view, this is not true. On the contrary, it will have several advantages. First, there will be more focus on the different fields based on specialties, like medicine, agriculture, engineering, education, science, economics, technology and other areas. Secondly, it is quite difficult to have various specialists in a supervisory authority … but, there should be an authority for research that supports, guides and stimulates research, which is TRC.

Shura Council did not consider research at some time as an urgent issue

Given the current economic crisis, how do you see the role of research in promoting the national economy?

Officials have to keep in mind that the research budget should not be compromised, even if the Sultanate runs into financial problems. We hope to see in the next few years a specific share for research in the government budget, at least 1.5 percent. Every rial spent on research will generate more rials in return.

Having diverse agencies supervising research activities is beneficial

This is exactly what the west has done; some countries allocate five percent of their GDP to science, others spend hundreds of billions of dollars for this purpose. For example, the US spending on research is about $450 billion, while China allocates $300 billion.

If we want to join the developed nations, we should pay more attention to science

Do you have any plans for enhancing education and research activities in the next few years?

We have plenty of ideas, but it is difficult to implement them all together. We are trying to do that gradually. As for education, we hope to see two new laws of public education and higher education soon. There are also efforts to collaborate with the agencies concerned with education quality assurance. On research, we are working to have a specific percentage of the government budget for research. On this occasion, I call on the private sector to assume its responsibilities through enhancing collaborative efforts in research.

Fitness of Female Athletes Examined

Dr. Hala Ali Mursi - College of Education

A research team from the College of Education has carried out a study aimed at evaluating the fitness and physiological and psychological condition of members of the female Omani national teams.

Headed by Dr. Hala Ali Mursi, the team has applied a set of descriptive and evaluative tools, including the use of designed tests and measurements, and used the statistical package software SPSS to analyze the test protocol of power, speed, flexibility, endurance and agility.

According to Dr. Hala, this is the first study of its kind that addresses the physical and physiological condition of female Omani national athletes. The research was based on a sample of female athletes in the following sports: track and field, volleyball, basketball, handball, bowling and tennis. The study concluded that the physiological condition data are important psychological parameters for female Omani athletes. The track and field athletes have been more cognizant of their physical conditions, followed by those in the sports of handball, volleyball, and basketball.

Some recommendations were made to improve the physical and physiological condition of the players. It is important at the beginning of the athletic season to evaluate the data on their fitness in order to standardize the training load. Other tests and measurements are also significant in evaluating their physiological condition.

Effects of processing methods on retaining bioactive compounds and antioxidant activity of some mushroom cultivars

Dr. Najeeb Al-Qizani - College of Agriculture and Marine Sciences

A new study is underway to identify the contribution of phenolics and flavonoids to the antioxidant capacity of extracts from four types of mushrooms. In this research, Dr. Najeeb Al-Qizani, from the College of Agriculture and Marine Sciences, will examine the effects of processing methods (drying, freezing and freeze-drying) on the total contents of phenolics and flavonoids and the antioxidant capacity of the mushroom extracts.

According to the researcher, interest in the role of dietary antioxidants in human health has prompted research in the field of food science. Fruits and vegetables are good sources of these bioactive compounds; their marketing potential depends on their antioxidant potency. Among the known vegetables, mushrooms have been reported to be good sources of phenolics. The cultivation of mushroom in Oman has grown in recent years and will continue to grow in the future.

He underlined that developing such an area will greatly help Omani food security. Along with the consumption of fresh mushrooms, the dried forms, including dried powders of mushrooms, have been used as food ingredients to produce flavor and functionality. Drying methods play an important role in the production of dried mushrooms; and the bioactive compounds as well as their antioxidant capacity might be lost during the drying process

Microfiltration of Water in the Oil Industry

Dr. Mushtaq Ahmed - College of Engineering

The huge quantities of water produced along with oil makes this one of the main challenges in the oil and gas industry. Oil-produced water contains a complex mixture of organic and inorganic materials similar to those found in crude oil and natural gas. There is a need for the application of new technologies to come up with better treatment methods for oil-produced water to achieve better quality for beneficial uses, such as injection to underground aquifers to enhance oil production, irrigation, aquifer recharge, and various industrial purposes.

In this regard, a research group from the College of Engineering has examined the possibility of treating oil-produced water for beneficial uses by using different adsorbents with different ratios followed by passing the effluent through a ceramic membrane. The objective of combining adsorption with a ceramic membrane is to enhance pollutant removal and reduction of membrane fouling. The team, led by Dr. Mushtaq Ahmed, has also measured the effect of type and volume of adsorbents and the contact time on the Total Organic Carbon (TOC) and Chemical Oxygen Demand (COD) removal efficiencies. With the ceramic membrane (either α-Al2O3 or ZrO2), the researchers investigated the influence of parameters like Transmembrane Pressure (TMP), Cross-Flow Velocity (CFV), and oil concentration in feed, dissolved solids, salinity level and pH on the separation process.

The project has shown very promising results, where the reduction in oil in water content ranged from 78 to 99.99%. The oil in water content in permeates after filtration ranged from 0.15 ppm to 35 ppm. For turbidity, the reduction was above 96% for all the treatments. The outcome of this study needs to be implemented on a large scale, with the introduction of new technologies to enhance the quality of water produced and reduce the cost associated with the treatment and disposal process.

جامعه السلطان قابوس
عماده البحث العلمي

يسر عمادة البحث العلمي دعوة الباحثين لحضور ورشة بعنوان:

الاستغلال التجاري لرأس المال الفكري

يقدمها :

البروفيسور/ جف سكينر

المدير التنفيذي
معهد ديلويت للابتكار وريادة الأعمال
كلية لندن للأعمال

التاريخ: ٢٠١٦/٤/١٧م
الساعة: ٢:٠٠ ظهرا – ٧:٠٠ مساء

ملاحظة:

- للتسجيل يرجى الضغط على الرابط أسفل الإعلان
- المقاعد محدودة حسب الأولوية في التسجيل

علماً بأن آخر موعد للتسجيل يوم الأربعاء تاريخ ٢٠١٦/٣/١٦م

Sultan Qaboos University
Deanship of Research

The Deanship of Research cordially invites researchers to the workshop entitled:

Commercializing Intellectual Capital

Presented by:

Prof. Jeff Skinner

Executive Director
of the Deloitte Institute of Innovation and Entrepreneurship at
London Business School

Date: 17/4/2016
Time: 2:00 pm – 7:00 pm

Note:

- For registration, please click the link below
- Seats are limited
priority to first registered participants
- Deadline for registration: Wednesday 16 March, 2016

Cyclones and Ocean Biological Productivity

Dr. Sergey Piontkovski - Department of Marine Science and Fisheries

Dr. Sergey Piontkovski, from the Department of Marine Science and Fisheries, SQU, is investigating the relationship between the physical characteristics of atmospheric cyclones, sea surface temperatures, and the biological productivity of the upper mixed layer of the ocean.

Atmospheric tropical cyclones are important elements of the ocean-atmosphere interaction responsible for significant cooling and vertical mixing of the upper layers of the ocean. In terms of biological consequences, the cyclone wind field causes local mixing, resulting in the injection of nutrients into the upper layer of the ocean and inducing phytoplankton bloom.

According to the researcher, multilateral data from various satellites will be used to analyze twenty cyclones. He added that the findings would be presented in scientific papers, conference presentations, outreach activities, and SQU course materials.

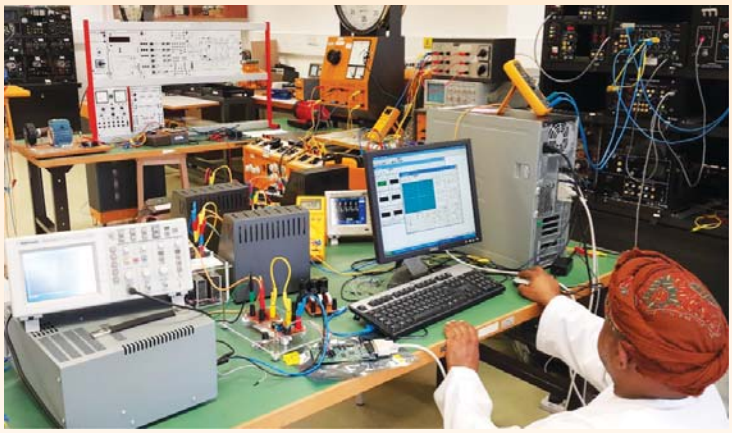
Study

Wind Energy Conversion System in Oman

Dr. Nasir Husseinzade - College of Engineering

Wind energy systems are being developed across the globe as a clean alternative to fossil-fueled electricity generators. There are two distinguishable parts: mechanical and electrical sub-systems. The mechanical sub-system, which converts wind power to mechanical rotating power, consists of blades, a hub and a stand. The electrical sub-system, which converts mechanical energy to electrical energy, consists of a generator and controllers. The generator is usually an asynchronous generator, which produces variable amplitude and variable frequency ac voltage. This produced voltage needs to be modified to a fixed-frequency controllable-amplitude voltage to be connected to the loads. It is the controllers' role to control the generator to obtain the desired electricity output.

A wind energy conversion system can be used either as a part of the electricity grid or as a stand-alone generator. Small generators are more suitable for stand-alone generation. These would be particularly useful for providing electricity to remote scattered loads.



A team of researchers from the College of Engineering has designed and implemented an electrical sub-system of a wind energy conversion system. This was done successfully in the electrical machines laboratory of the Department of Electrical and Computer Engineering. According to the chief investigator, Dr. Nasir Husseinzade, a variable speed DC motor was used to replace the wind turbine, but with similar characteristics. The tests were performed and it was demonstrated that the system produced 50 Hz frequency and controllable voltage in a defined range in spite of the variation in the speed of the motor. The prototype can be used for further research and for educational purposes.

The team leader has suggested having in place a complete stand-alone energy system, including the wind turbine, and new methods in its control system, as an extension to this project. The team which worked on this prototype is ready to expand this innovative research project, Dr. Husseinzade concluded.

Sismic hazard assessment at Yibal oil filed

Dr. Issa El-Hussain - Earthquakes Monitoring Center

The Northern Oman region, which includes Yibal oilfield, has one of the most important on-land gas reservoirs in Oman. The importance of this region comes from the fact that the Omani gas reserves on land are of considerable national economic importance. The area has been subject to earthquakes which have caused minor damages to the oil and gas installations there. Therefore, it becomes imperative to find ways to protect this national wealth against seismic risks. For this purpose, Dr. Issa El-Hussain, Director of the Earthquakes Monitoring Center (EMC) at Sultan Qaboos University, has conducted a study to assess the seismic hazards around the oil field of Yibal.

The scientist said, "Earthquakes with small-magnitude and shallow-depth induced by gas exploitation were proved to cause light damage to structures on oil and gas fields in the region. Therefore, the oil company, Petroleum Development Oman (PDO), has initiated a long-term monitoring program for the seismicity of this area in order to contribute to the Yibal seismic risk reduction."

He further added, "PDO has established a gas condensation station at Yibal and asked the EMC to conduct a deterministic seismic hazard assessment in the region, in order to provide the maximum ground motion spectra at the site and recommend the elastic design response spectra of the intended structure using the European and international codes for construction."

Reflecting on the operations conducted by his center, Dr. El-Hussain continued, "The EMC has reviewed all seismic records on the site of Yibal. Applying the deterministic method, we have first defined the seismic source or sources that might have an impact on the site of interest and then assessed the maximum possible earthquake magnitude for each of the seismic sources. By assuming each of these maximum earthquakes to occur at a location that places the earthquake at the minimum possible distance to the site, the ground motion was predicted primarily, utilizing empirical Ground Motion Prediction Equations (GMPE), which in the current study included the site effect as a parameter."

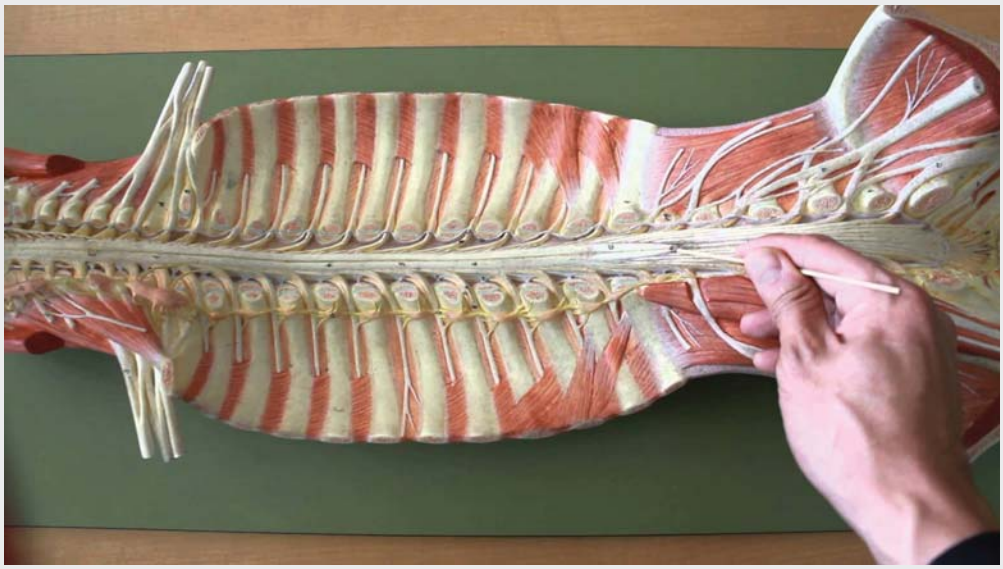
The researcher provided further technical data about the different phases of the project and the results. He said, "The site effect that was considered in all the used GMPEs was evaluated based upon the value of the average shear wave velocity in the upper-most 30 meters (VS30) at each of the selected twelve sites. Shear wave velocity (Vs) was evaluated using the multichannel analysis of surface waves (MASW). Finally, the hazard results were used to calculate the elastic design response spectra at each site."

He carried on, "The hazard values denoted ground motion on the surface, thus, the analysis considered the amplification of soils on the ground-motion shaking. The site effect was accounted for by introducing the calculated VS30 values into the ground-motion prediction equations. VS30 was found to be in the range of 575 m/s to 670 m/s at the site of Yibal."

A Comprehensive study of CNS demyelinating disorders in Omani Patients

College of Medicine and Health Sciences

A team of researchers from the College of Medicine and Health Sciences has launched a study aimed to address the overall clinical profile of central nervous system (CNS) demyelinating disorders in Oman, and the clinical pattern of resemblance of Omani multiple sclerosis (MS) with Asian vs. Western MS. The group also examined the frequency of Neuromyelitis Optica (NMO-IgG) auto-antibody (anti-Aquaporin 4 antibody) in demyelinating disorders, and the clinical, paraclinical and prognostic differences between the NMO-IgG sero-positive vs. sero-negative patients. Further, they investigated the longitudinal pattern of MRI and OCT evolution in these disorders, alterations in the bone mineral density and metabolism among ambulant MS and NMO patients, and determination of factors predicting bone health (bone densitometry measures) in MS and NMO, using multivariate logistic regression analysis.



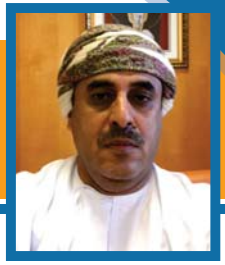
The clinical study includes a retrospective chart view (demographic details, clinical and paraclinical profiles and expanded disease disability scale score as index of disease severity) and prospective evaluation of old (or new relapses) and new patients for a period of 2 years following the commencement of study. Diagnosis of MS and NMO will be based on revised McDonald2 and Wingerchuk3 criteria respectively.

The participating centers include Sultan Qaboos University Hospital and Al-Nada Hospital. These institutions are the major referral centers in Oman and hence, the data gathered will reflect the clinical pattern for the whole country. After informed consent, we shall enroll 100 - 200 patients (with some patients participating in more than one component of the study) with a definite diagnosis of CNS demyelinating disorders for the different study components. NMO auto-antibody serology will be performed at the Clinical Neuroimmunology Unit, Institute for Experimental Neurology, San Raffaele Scientific Institute, Milano, Italy.

Recently diagnosed cases in the different disease categories will undergo longitudinal evaluation with MRI and OCT for RNFL thickness. Ambulant patients with MS and NMO will be recruited for assessment of bone density with dual energy X-ray absorptiometric evaluation of lumbar spine and hip and bone metabolic profiles, including serum levels of calcium and phosphorus, vitamin D3, renal

parameters, thyroid and parathyroid hormones and markers of bone formation and resorption (bone-specific alkaline phosphatase, total alkaline phosphatase, osteocalcin, beta-carboxyterminal telopeptide, amino-terminal propeptide of type I procollagen), albumin and lipids. Using an interview-based food recall questionnaire, the researchers will compare the daily intake of calcium/phytates, and phosphate against the recommended daily allowances. Cumulative glucocorticoid and beta-interferon exposure will be determined. Healthy controls (approximately 30- 100 control subjects) who express interest and voluntary participation, will be enrolled in the different components of the study to obtain the normative data in Omani subjects.

Research in the Sultanate: Fluctuating Funding vs Embracing Research (2)



Saif Mohammed Al-Ramadany - State Council

In Part (1) of this article, published in Tawasul's last edition, we talked about research funding in the Sultanate by several sources such as the Research Council (TRC), universities, colleges, research deanships, laboratories and research centers. We also addressed the challenges of funding research in the midst of falling oil prices and the lack of alternative sources of funding. There was an attempt to fathom the concomitant problems of approving funds allocated for research and higher education, and how such funds are usually handled.

In this part, we shed light on Omani scientists and their contribution to research.

Huge efforts have been made by the government and some private research-funding agencies in the Sultanate to boost research activities. In addition, the growing research interest was translated into the establishment of TRC, which has as amongst its objectives to provide a stimulating research environment that seeks research excellence, research capacity building, knowledge transfer, and research partnerships and links. However, there has been reluctance among many Omani researchers and academia to get involved in this sector, and, instead, they have chosen to confine themselves to teaching. Some higher education institutions might also have burdened Omani academics with administrative duties, such as working on committees, which discourage them from focusing on research. This is evident in funded research where non-Omani researchers lead the scene. Out of the six strategic research projects funded by H.M. grant in the University in 2015, four of them have non-Omanis as their principal investigators, as announced by the University in the annual ceremony on May 2, 2015. According to the University's annual report of higher studies and research for 2013, among the five strategic research projects, there were three conducted by non-Omanis, who received funding worth RO235,000.

Furthermore, out of the thirteen research grants received by Sultan Qaboos University from TRC in 2013, ten were given to non-Omanis and the amount of funding was over RO1.25 million. Here, we are not claiming that funding should be restricted to Omani researchers only, but we are underlining the importance of having more Omanis involved in this task. They are more capable and better for the job, specifically when it comes to strategic research relevant to the Sultanate. Such research is intended to investigate, study and develop vital sectors of crucial interest to the country`s present and future. As the saying goes: God helps those who help themselves.

TRC – the primary incubator for research in the Sultanate – and other public and private institutions should fulfill their responsibilities, in these crucial times, to accommodate their functions with the repercussions of potentially decreased government funding, due to plummeting oil prices and their impact on the state budget. They need to seek innovative solutions to address this deficiency by discovering new and sustainable sources of funding, ease the administrative burden imposed on Omani academics for the sake of conducting research, and intensify training programs for young Omani researchers. Efforts should be made to help Omani researchers to participate in conferences and forums around the world, and to encourage research, investigative and critical approaches in both public education and higher education institutions. As the old proverb says: Early start, grow smart. So, let us have a real start for a more prosperous and stable future in spite of dwindling resources or possible economic crises.

The Role of Research in Addressing Medical Errors

A medical error is a preventable adverse effect of care, whether or not it is evident or harmful to the patient. This might include an inaccurate or incomplete diagnosis or treatment of a disease, injury, syndrome, behavior, infection, or other ailment.

As medical errors increase, the need to find solutions to reduce their incidence becomes acute. Here comes the role of scientific research to address this problem through developing effective remedies and mechanisms.

For this purpose, the academic bulletin, Tawasul, has interviewed a number of specialists on this topic, soliciting their views as to how to take advantage of scientific advances in minimizing medical errors.

Confusion

Dr Mohammed Al-Ghailani, a consultant in the Department of Internal Medicine, Sultan Qaboos University Hospital (SQUH), says there is considerable confusion between medical errors and complications. He explains that doctors usually work hard and earnestly, nonetheless, they are held accountable if they make a mistake, especially when they give their opinions on matters that need specialized knowledge. He stresses that a good physician is one who won't advise on something he or she has no knowledge about, and instead refers the patient to specialists.

He attributes some complications to some patients' habits of not taking the medication regularly. One case is diabetes, which has several complications.

As to the role of research in reducing medical errors, Dr. Al-Ghailani says: "There is no doubt that the scientific investigation of this problem will contribute to raising awareness among doctors and patients alike, and thus medical errors will be minimized."

Team spirit

Dr. Ahmed Al-Mandhari, Senior Consultant in family and public health at SQUH, Director of the Center of Quality Assurance in the Ministry of Health, and Chairman of the Supreme Medical Committee, classifies the causes of medical errors into two groups: the first is related to the medical cadre and the second has to do with the institution or the health system.

He added that 15 percent of the errors are attributed to human factors and the rest are due to the health system of policies, tools and resources ... etc.

Dr.Al-Mandhari

No institution in the world has zero error.

He carried on: ``The reasons include the lack of proper communication among the staff working in the health system and between health personnel, the patient and the community, poor team spirit among those who do surgeries, for example, and insufficient dialogue and lack of trust".

He pointed out that, "Much of the damage inflicted on the patient may be caused by the side effects of a particular drug, or procedure complications done by doctors, or side effects due to illness, and this is not considered medically wrong".

Al-Mandhari clarified that, "There are several solutions to minimize errors, including continuous training to raise the efficiency of health personnel, direct supervision and guidance, and an evaluation and follow-up system in the same organization to identify areas of strength and weakness; other solutions may include the introduction of new technologies and administrative and supervisory controls to reduce the rate of errors. For example, if a patient needs a blood transfusion, the nurse following the procedure should get permission from another higher-ranking nurse who has already examined the information about the patient."

As to the role of scientific research, he pointed out that research is of paramount importance. Research findings will help clarify the strengths of health institutions, as well as the weaknesses to avoid them and work towards resolving them, he said, adding that there is a quality research department in the Ministry of Health which is explicitly concerned with patient safety.

Dr. Al-Qadhi

Research provides statistics that highlight the nature of the problem.

In reply to a question about the possible accountability of doctors in the event of a medical error, he said, "The current mechanism is very appropriate as it guarantees the rights of both patients and medical staff… There have been cases examined by the court. The Ministry has also taken action against a doctor who committed a medical error".

He remarked that there is no health institution in the world where the proportion of errors is zero, and that the only possible way is to minimize such errors.

A medical law

Dr. Hani Al-Qadhi differentiates between medical errors, complications and negligence. However, he underlines that complications cannot not be considered medical errors, as they may occur during the treatment.

He added that medical errors happen when a doctor makes a mistake, but manages to address that fault. However, negligence is that which has criminal implications, as the doctor makes a mistake and fails to diagnose or correct it.

As to the causes of medical errors, Dr. Al-Qadhi says that it happens when the doctor is incompetent, or fails to provide enough information to the family of the patient. He or she must explain to them the possible complications expected from the procedure. Other factors have to do with inadequate training and the concerns of doctors to report a medical error and thus may be subject to accountability.

He called for increasing awareness among physicians, providing statistics necessary to show the extent of the problem in order to avoid it, and promoting the image of the doctor as not an enemy of society. Building trust between the patient and the physician is another solution, he added.

Scientific research can help provide

statistics about the magnitude and causes of the problem, he remarked.

In response to a question about what the competent authorities in the Sultanate should do to reduce medical errors, Dr. Al-Qadhi said, "We must look at the problem from different perspectives. The patient must be protected by strict laws; doctors should be trained; equipment must be provided for physicians. On the other hand, doctors should be protected too, as there is no medical law, a specialized court nor a medical lawyer … we should not deal with medical errors from a criminal perspective, as seeing a doctor standing in the court will look offensive to doctors."

A patient safety law

Ali Al-Qutaiti, Head of the Health and Environmental Committee at the Shura Council, suggests that, "Medical errors are not something new, as many countries experience this problem. The Shura Council has always been aware of this problem, and thus decided at its fifth session to form a team to study the issue. The Deputy Chair of the Council was entrusted with leading the team, which submitted several recommendations to the government."

The Shura Council has issued a patient safety law.

He added that "The Council in the current eighth session of its legislative and supervisory duty adopted the introduction of the Law of Patient Safety, which would contribute to reducing medical errors, even though there will not be a matter of intent, but when complex medical procedures may result in some mistakes."

The law will help provide the best care for the patient, which will hopefully reduce the errors, he remarked.

He referred to a number of solutions in order to overcome or avoid medical errors. These include "raising the efficiency of doctors and health staff, provision of health care in all provinces in the Sultanate, training assistant staff, and applying the principle of punishment and reward." He went on: "Research is expected to play a key role in examining the problem, finding solutions and providing statistics that will benefit everyone. It is only through scientific research that we can find appropriate treatments without operations, and thus reduce medical errors."

A legal insight

Salah Al-Muqbali, a lawyer and legal adviser, talked about the legal proceedings in the case of when a medical error occurs. He said, "That «in the Sultanate, the law has made several references to doctors and their practices. For example, Article 38 of the Omani Penal Code stipulates that 'the following shall not be deemed a crime… surgeries and medical treatments conforming to the rules of the profession, if carried out at the request of the patient, or his consent or that of his legal representatives, or in cases of urgent necessity.' The Royal Decree (2296/) has regulated the medical profession in terms of the approval of the Technical Committee to issue licenses to practice the profession. It also refers to the duties of doctors and their rights, as well as the penalties for flouting the rules of their profession."

He added that, "In the event of a medical error, before resorting to various judicial authorities, there is a committee called the Supreme Medical Committee, at the Ministry of Health, whose primary mission is to give a legal opinion on the medical issues that may emanate from a medical error. The complainant and medical staff will be summoned for questioning, in one or more hearing sessions, according to the nature of the case. Then, a final report will be sent to the competent authority, be it the Ministry of Health or judicial authorities. The case will only be considered through the Committee, as stipulated in the Act of Human Medicine and Dentistry Practice, and in accordance with the principle of the Supreme Court No. (7232009/2/), which provides for the following: 'Medical errors must be presented to the supreme medical committee formed at the Ministry of Health, and presenting the case to another authority will be against the law.' After that, the judicial authorities will proceed with the proceedings, pending the final report of the medical committee. In the case of claiming compensation, the court is obliged to include the Fund of Compensation for Medical Errors in the lawsuit, instead of requiring the doctor or the Health Ministry to pay the compensation if a ruling has been made."

There are legal procedures for demanding compensation for a medical error.

Dr. Abdul Aziz Mahrazi, Head of the Family and Public Health department at SQU, remarked that, "Things had not been clear for patients prior to the establishment of the Higher Committee, i.e. what caused medical errors, and where to lodge a complaint. Patients used to resort to prosecution or the Court, but I do not think that is appropriate. In most countries, medical issues are referred to medical specialists, or a committee that examines the case, offers several opinions, and comes up with a final decision. Most of the medical problems are related to surgical issues."

He added that, "There are different medical errors. Generally, they are related to medication, the way we communicate with the doctor, or if the doctor did not explain the disease or treatment properly. In

Oman, the patient submits his or her complaint to the Medical Commission that initiates an interrogation with the doctor to find out the basis of the problem, and decides whether the doctor was guilty or not. If it turns out that the doctor was wrong, he or she will be barred and the patient will be compensated."

Dr. Al-Mahrazi has called for a culture of trust between doctors and patients based on accepting the faults or the expected outcomes that might be interpreted by the patient as types of medical error. This means that the doctor should be more transparent with the patient. Careful listening and complete attention between the two parties are necessary, especially when talking about procedures leading up to and following

the surgery and its complications. In this way, fewer complaints or misunderstandings will be reported.

In order to address this problem, the doctor suggests providing training courses and lectures for medical students to qualify them in all respects. He stressed the need for quality assurance of medical services in each hospital, including dispensing drugs, patient records and all the information regarding the treatment.

Effectiveness of Childbirth Education Intervention on Pregnancy Outcomes

Dr. Girija Kalayi - College of Nursing

Dr. Girija Kalayil, from the College of Nursing, has recently initiated a study to test the effectiveness of childbirth educational intervention in reducing anxiety and unfavorable pregnancy outcomes among pregnant Omani women.

The approach followed is based on a randomized clinical trial design among the population of Omani low risk nulliparous pregnant women visiting SQU Hospital (SQUH) and the Armed Forces Hospital (AFH).

"Antenatal Clinics and Labour rooms of

SQUH & AFH will be the setting of the study after the approval of the Research Committee and Hospital authority. All low risk nulliparous pregnant women who are willing to participate and in their third trimester (28 - 36 weeks) will be randomly assigned to control and intervention groups till a sample size of 100 is reached, with 50 participants in each group," she explained.

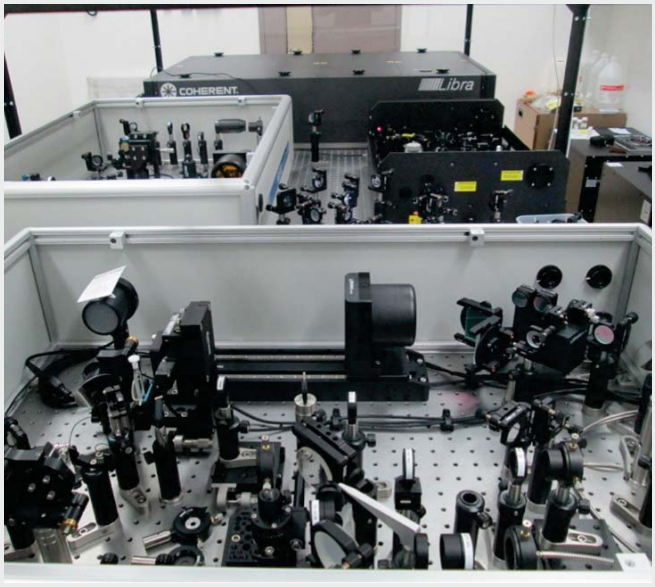
As for the data collection, the researcher further elaborated, "Initially demographic data of all participants will be collected; then their pre and post intervention anxiety levels will be measured using standardized anxiety scale State Trait Anxiety Inventory (STAI). The intervention group will be exposed to two sessions of video assisted childbirth education classes, and each participant will be provided with a Childbirth Education booklet. Pregnancy outcomes of the two groups will be measured using the standardized Pregnancy Outcome Check List." Using SPSS version 16, both descriptive and inferential statistics appropriate to the level and type of data will be used to find answers to the research objectives, she pointed out.

Hopefully, the findings of the study would identify the effectiveness of an educational intervention to decrease anxiety levels and enhance pregnancy outcomes, which will help in informing larger scale studies that examine the efficacy of educational intervention in decreasing anxiety levels, as well as improving pregnancy outcomes. The results would help to incorporate routine prenatal screening of anxiety and take early measures to alleviate or to reduce anxiety so as to have better pregnancy outcomes. Implementing childbirth education as a part of the routine prenatal care, especially for first time pregnant women, would promote the application of evidence based practice in midwifery practice of SQUH & AFH, she concluded.

A Research Device

Femtosecond Laser Lab
Ultrafast Laser Spectroscopy

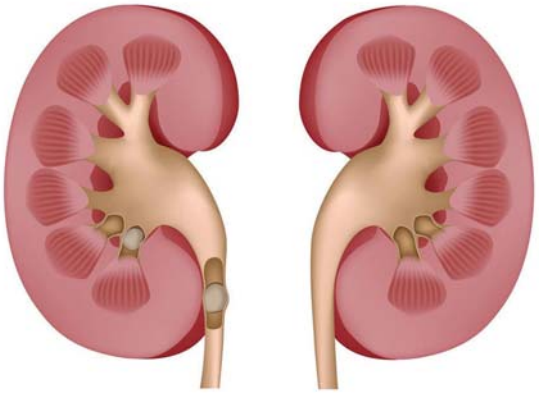
The laser system is capable of measuring femtosecond dynamics using state-of-the-art tools to study light-matter interactions in real time. Time-resolved laser spectroscopy offers a unique way to study nascent applications in various fields related to chemistry, physics, materials science and nanotechnology. It is now possible to monitor directly the initial dynamics with femtosecond resolution (1 femtosecond = 1015- second). With the current setup, two ultra-short laser pulses are generated, one is used to initiate the reaction and the second pulse is used to monitor in a precise manner the state of the system after well-defined time delays between the two pulses. This provides a versatile method to visualize the key dynamical processes in many significant research areas.



Composition of urinary stones in Oman

Mohammed Al-Marhoun - College of Medicine and Health Sciences

Urolithiasis, or renal stone disease, is a common urological condition. In Oman, it is a significant cause of morbidity but there are no data on renal stone prevalence or composition. Therefore, Dr. Mohammed Al-Marhoun, from the College of Medicine and Health Sciences, is embarking on a study aimed at analyzing the components of 500 urinary stones collected from Omani patients treated in the Sultan Qaboos University Hospital. The stones will be analyzed by the Fourier transform infrared spectrophotometer (FT-IRS). This study will be the first of its kind to investigate the types of renal stones in Oman. Knowing the stone composition will provide a basic database for future studies addressing the issues of the etiology of stone formation, treatment of stones, and the prevention of stone recurrence. It will provide an opportunity for training two postgraduate students at the Master's level, or alternatively one PhD candidate for the basic scientific part of the study. It will also increase the capacity of Sultan Qaboos University Hospital for the laboratory diagnosis of renal stones.



الوصال 96.5 FM

ترقبوا

الفقرة الأسبوعية
حول

" الجهود البحثية "

صباح كل **ثلاثاء** على

إذاعة الوصال 96.5 FM

تطرح :

- أهم نتائج الدراسات والبحوث
- آخر المستجدات البحثية
- مشاركة الباحثين في المؤتمرات العلمية الخارجية
- آخر الابتكارات الطلابية

تأتي بالتعاون بين إذاعة الوصال و دائرة النشر العلمي والتواصل
بجامعة السلطان قابوس

A study concludes:

Omani Teenagers and the Internet

Dr. Emad Farouk - College of Arts and Social Sciences

Omani parents should supervise and monitor their children's use of the internet.

Dr. Emad Farouk Saleh from the College of Arts and Social Sciences has recently conducted a study on the impact of the internet on adolescents at post-basic education schools in Oman.

The research significance

According to the academic, the current research work is very significant given the rapid development in global information and communication technology and the huge impact of social media, such as Facebook, Twitter and other networking systems, on their users, particularly children and teenagers. Equally true, the recent political transformations in the Arab world must also have influenced the patterns of thinking and behavior of Arab youth. Therefore, the study seeks to identify the positive and negative effects of the new social media on the socialization of Omani children through a number of core dimensions, i.e. language, identity, values and religious practices.

Methodology

The study was based on a descriptive approach, whereby a sample of pupils was selected from all the 1043 schools in the Sultanate and their responses to questionnaires were analyzed. The sample was retrieved from the database of the strategic research project, "The Impact of New Media on Child Socialization" . It consisted of 10% of all the students enrolled at schools in Oman.

Findings

The study has come up with important results that merit further discussion and reflection on how much children are exposed to the new social media. It was found that the pupils have accounts in the following order of priority: Facebook, Google +, and ,finally ,Twitter. Other Arab, Gulf, and Omani forums have also been important platforms where the youngsters were highly visible.

The majority of families seem to have been concerned about their children's involvement in such activities. Only a small percentage of parents paid little attention to this aspect, which calls for the need to have specialist intervention to raise awareness among those families of the importance of monitoring their children, and specifically teenagers, so as not to be subject to abusive practices or blackmaile by others.

It was also found that the websites associated with the cultural environment of the pupils were the most visited on the internet by them, a reality which could be utilized to introduce efficient plans to promote this tendency. The students seemed to favor religious topics, whereas folkloric dancing and sex turned out to be beyond interest.

As to the impact of the social media on the basic aspects of child socialization, the results showed that there were both positive and negative effects. The researcher has called for adopting social, educational and cultural strategies and plans to address the possible negative impact in the future.

Further, the analysis suggested that the pupils` exposition to the New Media produced moderately positive effects on the basic dimension of values. However, one should not neglect the negative effects of the social media on values, which demands that more attention should be given to helping students build cultural, social and religious firewalls against such growing influences. It was also shown that the positive

effects of these media on the pupils` religious practices were very strong. The academic, however, warned against neglecting some of the long-term dangers that lie in becoming too complacent, and might affect the religious practices of the pupils in the future.

The findings revealed that teenagers had a robust and versatile attitude towards internet content. They were proactive in dealing with the different contents of social media, engaging in different themes to achieve their academic purposes and reaching out to other users within the social network.

Recommendations

Dr. Saleh has submitted a set of recommendations to address the consequences of internet misuse. He urged school counsellors to increase awareness among families of the negative impact of social media on their children. A variety of activities can be held by student groups to shed light on such effects. Preventive measures could be taken in this respect, such as developing attractive webpages for schools to address the serious problems and how to overcome them.

It is worth mentioning that the study was selected as the best research paper at an international conference held in Indonesia last November.

The Fountain of Youth is From Within!

Dr. Jumana Saleh - Biochemistry Department

For thousands of years, people have searched for a "fountain of youth" to slow down the aging process and feel younger. Recently, scientists have determined that the body produces a unique hormone, the human growth hormone HGH, which is claimed to be the hormone of youth. Normally, HGH is released from the pituitary gland into the bloodstream, decreasing fat mass, stimulating muscle growth, increasing energy levels and boosting collagen production. It causes the human body and skin to look more tight, toned and smooth. Many experts believe HGH is the key to combatting aging. Studies have shown that HGH deficiency, in pituitary disorders, causes increased body fat, decreased muscle mass and bone density. Also, a study in the New England Journal of Medicine by Dr. Rudman et al., has shown that older men given HGH, showed improved muscle mass, bone density and decreased body fat. Normal production of HGH decreases with age, reaching almost half the levels by the mid-twenties and declines rapidly with aging. HGH was recently advertised as an injectable hormone, which stirred controversy due to the fear of disturbing the natural production of HGH, and increasing blood sugar levels causing diabetes and metabolic disturbances. Fortunately, numerous studies now show that HGH production may be drastically increased through the following methods with no metabolic risks:

Intermittent Fasting: Though it sounded extreme at first, the concept of intermittent fasting has taken the health and fitness world by storm in recent years. The old mantra of "eat every three hours to keep your metabolism burning fat" has been repeated for long without much evidence. Researchers at the Intermountain Medical Center Heart Institute in the United States, showed in a 2011 study that 24 hours without food increases HGH by an average of 1300 % in women and 2000 % in men. The effect ends when the fast ends. There are many variations of intermittent fasting, but the most popular involves either a daily fast of 16 hours (including sleep) or alternating between periods of eating and periods of fasting. Ramadan fasting certainly agrees with this concept.

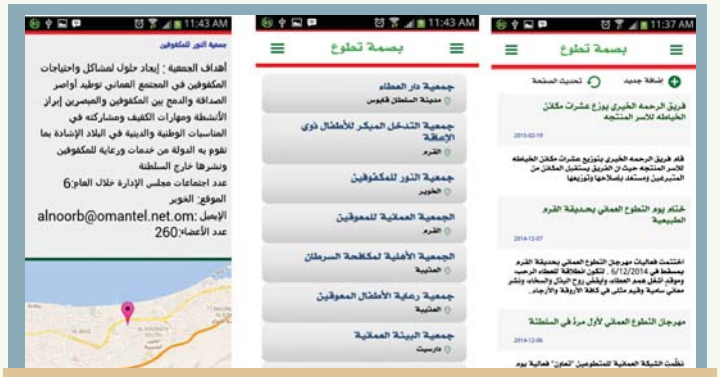
Resistance Exercise: Exercise is one of the major promoters of HGH, but not mild exercise. High-intensity or resistance exercise for a short period of time, should be followed by a prolonged rest (15 seconds of intense exercise then 3-minute rest) and repeated 48- times. Intense resistance training for 30 minutes can lead to an acute HGH increase, reaching about 300% at 90-minutes. For this training, the health status and ability of the person should be considered.

Sleep: Surprisingly, sleep boosts HGH production, up to 75 % at the beginning of sleep, and reaching its peak during deep sleep. Sleep expert Phil Gehrman said that the HGH secretion that takes place during sleep may be involved in tissue repair helping to heal the body repairing tissue damage that occurred during the day.

Therefore, work out hard, skip occasional meals, and sleep deeply, and your body will be primed for better performance, renewed youthfulness and a longer healthy life.

Unprecedented App

A student invents an app for volunteer work



Samples of volunteer activities and agencies in Oman

The Department of Innovation and Entrepreneurship Affairs (DIEA) submitted an innovative application to the Intellectual Property (IP) Department at the Ministry of Commerce and Industry last November. The invention, called Bassmat Tatawwu (signature to volunteer), has been designed by Zainab Al-Kindi, a smart phone app inventor and developer, a web designer, and a Master's level student at the Department of Computer Science, Sultan Qaboos University.

In an interview with Tawasul, she reflected on her invention, its features, and the difficulties encountered during the stages of development.

The concept

According to Al-Kindi, the app was intended to encourage the local community to engage in volunteering activities, thus using technology to serve a variety of social practices. It is in line with the ongoing developments witnessed by society, such as e-government and smart e-services, she added.

She pointed out that the idea behind the invention is new for the local community. According to searches she made on Google and other search engines and websites, the app has never been used in Oman or other Arab countries. It targets the whole community, including children, and thus offers a platform to all age groups.

Applicable to phones with the android operating system, the invention provides an interactive platform to post all information about current volunteering events held by different societies and associations in the Sultanate, as bookmarked on Google Maps.

The inventor stated that her app would help the public sector, including ministries, agencies supporting volunteering activities, the private sector, and civil community organizations to establish databases on volunteer teams and charities, so that their activities and roles could be highlighted and coordinated. The app is also intended to help the Information Technology Authority in its project to develop an e-platform for donations, the ideal forum for raising awareness about volunteering activities.

The stages

She added that the project had passed through several stages, starting from collecting data about volunteer teams in Oman. The application provides information about some volunteer associations in the Sultanate and their locations on Google Maps. An important stage that the application will cover is the planning for major events and properties. It includes all segments of society, and for this purpose, is designed to offer features relevant to youth, and others of interest to children, in

Sample images of the app

Zainab Al-Kindi

- **The app promotes the role of individuals in volunteer work**
- **It is useful to all segments of society**
- **Collecting correct data about volunteer teams was a challenge**
- **The app will be more efficient and handy**
- **The Department of Innovation backed my invention**
- **I tell the youth: despite the challenges, there is always light at the end of the tunnel**

order to encourage volunteer work in the community It also includes a feature called "tweet to volunteer" which could be used to drop tweets through social media.

"Samples of the option "the little volunteer

The challenges

As for the difficulties encountered, she mentioned the problem of how to gather correct information about accredited volunteer teams in the Sultanate, and how to present the idea of the app to the community in order to bring together as many teams as possible under one umbrella, and thus disseminate information about their activities.

Support

Ms. Al Kindi appreciated the support she received from the Department of Innovation and Entrepreneurship Affairs in seeking intellectual property rights for her invention.

Future ideas

She pointed out that she plans to develop some aspects of her app, such as its efficiency, applicability, open conversations, comments, and posting by volunteer teams. Operating at present on phones with the android operating system, the app will be developed to work on other operating systems and web pages. The app could be extended to cover volunteer events in neighboring countries to help charity and volunteer associations to coordinate their activities regionally.

A word to the youth

Zainab Al-Kindi concluded her remarks by calling on Omani youth to work hard in order to overcome the challenges they might face on their road to success. There is always light at the end of the tunnel. Resources should be utilized in a rational manner in order to achieve the ultimate goal of serving the Sultanate.

'Samples of 'Tweet to volunteer' and 'add a volunteer team

SQU Graduates showcase their startups

IED highlights universities' role in establishing high-tech companies

The Innovation and Entrepreneurship Department (IED) held a symposium last month entitled "The Role of Universities in the Startup of High-Tech Companies", under the patronage of H.H. Sayyid Fahad Bin Al Julanda Al Said, and attended by academics from Sultan Qaboos University and other institutions.

The event was opened by a speech given by Sheikha Al-Akhzami, IED Acting Director, in which she underlined the importance of innovation, focusing attention on the youth, and the University's aspirations in this regard.

After that, Dr. Hilal Al-Busaidi talked about the significance of science and innovation these days. He also called for catering to the needs of the youth by enabling them to overcome the challenges ahead and achieve their goals. He emphasized the necessity of taking advantage of the experiences of older generations by building on their achievements. The academic showcased the startup of his company "CEO, Gulf Energy SAOC", stating that his specialty, oil and gas engineering, played an important role in making this possible.

He pointed out that today`s technology serves the aspirations of the youth, but there is strong market competition, which demands that young people look for appropriate ways to develop different ideas successfully. They should exploit the opportunities offered by Sultan Qaboos University to explore the possibilities in the field of entrepreneurship.

Ms. Al-Akhzami went on to speak about the importance of international cooperation in terms of research and innovation, and urged people to engage in entrepreneurship. She gave examples of some successful cases of entrepreneurship and also praised local and international academics at the University who had played a prominent role in the field of innovation and entrepreneurship.

Later, Sami Nasser, Director of the Attorney`s Office in Saba, offered a brief account of the concept of intellectual property (IP) and how it should be applied to small and medium-sized technology-based companies. He introduced the audience

to the various aspects of IP, including the beneficiaries, industrial property rights, patents, trademarks and industrial design. He also shed light on efforts made by the Sultanate to protect copyrights, and the marketing of technology.

The Director of Marketing at TRC explained the steps of commercializing technology in the market, which would open the door for further innovations.

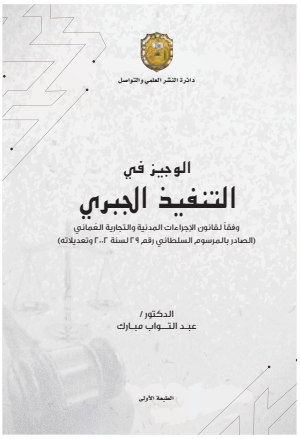
Abdullah Al-Saadi, an SQU graduate, talked about an SQU student project, "Nafath for Renewable energy", a startup by a group of students, which was then turned into a bigger company. It is worth mentioning that "Nafath" has won a number of awards. He emphasized the importance of an academic specialization for developing small and successful businesses.

Finally, Dr. Mahmoud Al-Kindi talked about the concept of innovation and the growing attention and interest of many countries in this field. He ended by reviewing some practical steps and suggestions that could help students to start up their projects.

Book at a Glance

A Book on the Law of Civil and Commercial Procedures

A new book on forced execution according to the Law of Civil and Commercial Procedure in Oman has recently been released by the Department of Academic Publications and Outreach. Authored by **Dr. Abdel Tawab Mubarak,** the publication provides a brief account of the different aspects of forced execution, which is regulated by the Law of Civil and Commercial Procedure promulgated by the Royal Decree No. 29 of 2002. Forced execution is part of the content of a course offered at the College of Law.



The book is divided into three chapters. Chapter One talks about the elements of forced execution, which consists of: 1) the persons included in the execution, including the creditor, the debtor, the third party and the judge and his aides; 2) the types of executive bonds, which are the normal provisions, judicial orders, editors and the minutes of the Magistrate; 3) the place of execution, and the money that may or may not be seized.

Chapter Two addresses the procedures of forced execution, procedures of expropriation, which includes a number of executive seizures, pictures of certain types of seizures, the sale of the seized money in judiciary auction, and the distribution of execution proceeds.

Chapter Three touches on the enforcement disputes, and deals with the general provisions for enforcement disputes, temporary enforcement disputes, and objective enforcement disputes. The writer has also introduced some definitions of the terminology used in the book.

Athletic ability and school involvement of distinguished students

Dr. Abdul-Hamid Saeed Hassan -

Two SQU academics took part in the International Conference on Arts, Social Science, Business and Education, organized by the University of Toronto and held from the 12th to the 13th January, 2016, at the University of Toronto and University of St. Michael›s College in Toronto, Canada. The conference covered areas like Social Science, Education, e-learning, Accounting, Banking, Finance, Economics, Management, Business Law, Business Ethics, and Business Education. It discussed a number of research papers on various topics in education, including self-efficacy, motivation, athletic abilities, school adjustment, psychological processes, and cultural diversity in the curriculum. Dr. Abdul-Hamid Saeed Hassan and Dr. Ahmed Hamdan submitted a paper which addressed the relationship between athletic ability and school adjustment for pupils who excel in mathematics (including the deaf) and those of average achievement. The researchers used three tools to obtain the data, namely, tests to measure athletic ability, the scale of school adjustment, and an IQ test for deaf and ordinary students.

The results indicated statistically significant links between the variables of athletic abilities, mental capacity, and school adjustment. Another analysis has found significant differences in athletic abilities and school compatibility attributed to each of the state variables (outstanding deaf, outstanding normal, average), and in favor of normal and average students. Since the math performance of the deaf students was the lowest among the study groups - even though they have an average level in athletic abilities - they need intensive teaching in mathematics.

During their 15-minute presentation, the researchers provided a brief account of the educational system in the Sultanate of Oman, followed by a short discussion in response to questions asked by the audience.

a Conference Paper Public Agencies on Social Media

Dr. Zahran Al-Salti - College of Economics and Political Science,

An SQU academic presented a paper on the presence of Omani government agencies on social media, at the International Conference on Business and Information held in Bali, Indonesia, last month. The event included 34 research papers, which covered recent developments in the business and information sector and the challenges facing it.

In his presentation, Dr. Zahran Al-Salti, from the College of Economics and Political Science, provided an overview of the level of presence and interaction of Omani organizations on a range of social media platforms. The paper, an exploratory study, was well received by the delegates who came from different countries and institutions. It is based on a strategic project undertaken by the researcher and other academics from the Colleges of Economics and Political Science, Arts and Social Sciences, and Education. Al-Salti chaired one of the conference sessions on information systems management.

This participation is part of the University's efforts to enrich knowledge, exchange expertise, and promote its visibility at international events.

The Omani shelf: warning from the deep

Dr. Sergey Piontkovski - Sultan Qaboos University

Oxygen minimum zones (hypoxic zones), reported for over 400 geographical regions, is a key stressor of coastal ecosystems worldwide. Not surprisingly, hypoxia has become a serious environmental challenge to fishery management. As one of the most prominent oxygen depletions of the ocean, the Arabian Sea oxygen minimum zone extends from the central part of the basin to the coasts of Oman, Iran, Pakistan, and India and makes fisheries vulnerable to the shelf hypoxia. Shelf oxygen depletion causes numerous fish kill incidents along the Omani coast. Nevertheless, temporal variability of the shelf hypoxia and its impact on fish catches are still poorly investigated.

Dr. Sergey piontkovsky, College of Agricultural and Marine Science in Sultan Qaboos University, study was funded by the Office of Naval Research Global for the U.S Navy as an external grant, was based on analysis of data collected from an international Naval Mission 53 began in the western part of the Arabian Sea during the past 50 years.

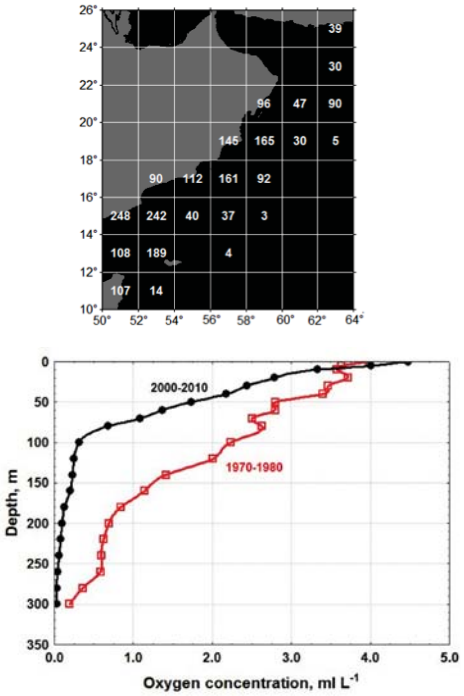
This analysis was based on about 30,000 vertical profiles of temperature, salinity, water density and over 2,000 vertical profiles of dissolved oxygen recorded in the depth range from the surface to 300m. Scientists have found that the thermal stratification of the water column increased and the oxygen minimum zone shoaled from about 150m in the 1960s to 80m in the 2000s. The discovered phenomenon is a warning sign pointing at the fact that the habitat of pelagic fishes is becoming thinner and pushed up to the surface. Perhaps, these oxygen changes were underlain by and related to long-term changes in the intensity of monsoonal winds and thermal structure of the water column.

For example, the summer temperature increase in the western Arabian Sea over the past 50 years exceeded the mean rate reported for tropical latitudes of the world ocean. In being land locked, the Arabian Sea beats world records. The most pronounced changes have been taking place in the upper 30m layer. This means that the thermal stratification of the water column has developed. This could have affected the shoaling of the oxygen minimum. Plus, warming of the water column decreases the solubility of the oxygen coming from the atmosphere.

Large pelagic fishes are active swimmers which require a lot of oxygen for their metabolism, especially in warm tropical waters. The dissolved oxygen concentration below 2 millilitres per litre induces symptoms of stress for many tropical pelagic fishes; therefore, this concentration is believed to be the hypoxic threshold. If this threshold slowly moves up in the water column (over years), fish populations become compressed in the upper layer, which makes them more exposed to fishery.

A vulnerable question to be asked is what will happen to the pelagic ecosystem of the Omani shelf in the nearest future, if the current depth of critical oxygen concentration is about 80m and the oxygen minimum zone is still moving up to the surface? The "uncomfortable shelves" are used to be abandoned, by large pelagic fishes. In the case of Omani shelf this means that declining landings of large pelagic fishes (catches per unit of effort) could have an environmental origin, along with overfishing.

As far as the upward motion of the critical oxygen concentration is concerned, the trend seems to be dangerous indeed, but it is quite possible that shoaling of the critical concentration depth would be switched to and replaced by a subsequent deepening. In other words, let's hope that we are dealing with a long-term fluctuation of water mass properties; the event which is quite common in oceanography. Long-term fluctuations of physical, chemical, and biological characteristics of the ocean are climate driven phenomena. In the Arabian Sea, they are mediated by a basin scale and global scale atmospheric anomalies, like the Siberian High atmospheric pressure system, the Indian Ocean Dipole, and the El-Ninõ Southern Oscillation. In turn, the cyclicity of atmospheric processes (like monsoonal winds) could be mediated by extra-terrestrial forces; for instance, lunar tidal actions which have the periodicity of 56, 95, 125 and 1470 years. These cycles were detected within the thickness of sediment core layers extracted from the Oxygen Minimum Zone of the Pakistan shelf. However, fluctuations of physical, chemical and biological characteristics of the Arabian Sea on the scale of tens to hundreds of years are poorly understood processes so far.



Long-term changes of the dissolved oxygen concentration in the western Arabian Sea. The upper panel exemplifies the number of vertical profiles of the oxygen concentration over regions (2o squares).

A First in Oman

A study on money laundering unveils loopholes that allow criminals to go free It calls for legal and social justice

Yahya Al-Sulaimani - College of Arts and Social Sciences

A Master's dissertation on money laundering in Oman has been examined at the Department of Sociology and Social Work, College of Arts and Social Sciences. The study, conducted by Yahya Al-Sulaimani, has sought to uncover the social factors behind money laundering in Oman and identify its ramifications. It also aims to investigate the sources of illegal funding, the reasons for committing such crimes, and the hurdles in combating money laundering in both the private and public sectors.

Significance of the study

Along with previous studies, the research provides important insights into this phenomenon in Omani society. It also makes an attempt to develop significant approaches to the sociological analysis of money laundering. The findings are expected to provide the experts in the area of socio-economic crimes with a database that will define money laundering, and suggest practical solutions to combat it. Hopefully, the results will provide policy and decision-makers in various social organizations with an array of ideas and mechanisms to address this problem.

Methodology

The researcher has divided the study population into two groups: those who fight money laundering in their fields, i.e. the employees in public sector institutions (civil and security) who were interviewed for gathering data, and the employees who work in the banking sector. The latter sample was 191,

working in different banks in Muscat.

Findings

The study has unveiled

serious problems in this regard, including the struggle for high-ranking positions, poverty, which forces people to resort to human and arms trafficking, prostitution to get money to invest in the stock market, purchasing used vehicles, and doing other businesses as a cover-up against legal prosecution, and ,in this case, criminals taking advantage of some legal loopholes.

The research has also highlighted the spread of traditional methods of illicit money laundering in Omani society, such as concealing money in the house or with a relative. The banking methods used in money laundering include transactions with cash, not checks or documents. Other transactions of money laundering take the forms of deposits and cash transfers.

The study sample has indicated some functional obstacles to combating money laundering. These are classified as social barriers on the one hand, including the lack of public awareness of such crimes, and bureaucratic hurdles on the other, in terms of insufficient training courses for employees to address money laundering in the banking sector.

The results confirmed the existence of a loophole in the anti-money laundering legal system, which enables money launderers to evade punishment.

Recommendations

The study has put forward a set of recommendations to combat money laundering. It called for ensuring social and legal justice, establishing financial and social equality, enabling the community to obtain their full rights to ensure their commitment to social values and fight financial and economic crimes. It also urged a review of the legal regulation of confronting money laundering in Omani society, which is part of the law of combating money laundering and terrorism funding, promulgated by Royal Decree No. 792010/. The study underlined the importance of blocking the legal loopholes and making use of local and international legal experts, academics and all those who fight money laundering in Omani organizations, such as the Department of Public Funds at the Public Prosecution, judicial institutions, and the National Commission for Fighting Money Laundering and Terrorism Financing. It called for intensifying the role of social control organizations and ongoing overseeing of the legitimate activities to prevent suspicious economic activities that utilize criminal returns. It also indicated the importance of disseminating social and legal awareness about the methods and procedures of investigating money laundering, and making use of different media, such as radio, TV, the press, flyers, and brochures in the banking sector, for that purpose. The family can also play a significant role in instilling and promoting social values.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