

FLASHES

OCT 2014

A MONTHLY MAGAZINE ON KNOWLEDGE AND DEVELOPMENT
BY THE MOHAMMED BIN RASHID AL MAKTOUM FOUNDATION

EDUCATION FIRST

Vision 2021
and the UAE

BRAIN MAPPING

A new technique
reveals the brain's
structure in
greater detail

A GLOBAL CLASSROOM

In conversation with
Catherine Hill

CREATING A THIRST-FREE WORLD



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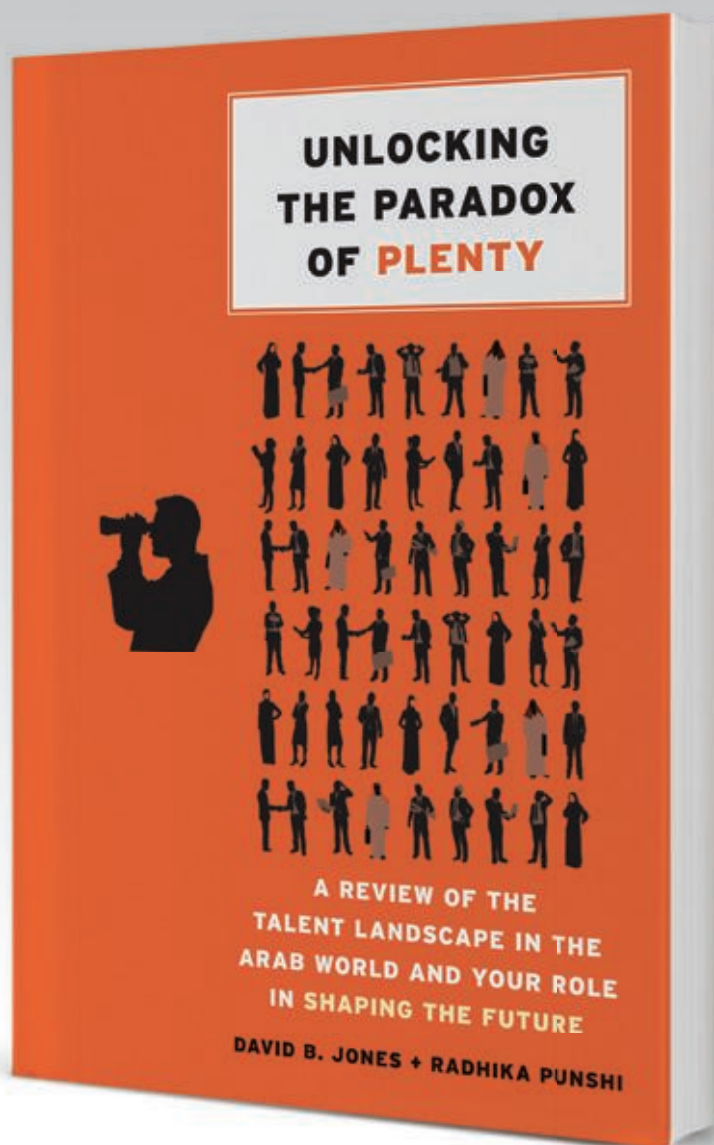
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FOREWORD

In 2021 the United Arab Emirates will celebrate its golden jubilee. While we have achieved much in a short span of time, our goal for that landmark occasion is to turn the UAE into a knowledge-based highly productive economy. Put simply, we want to be among the best countries in the world by 2021. The UAE's Vision 2021 calls for the UAE to be a nation that is 'united in knowledge', and where growth is driven by knowledge and innovation. The pillars of this economy will be innovation, research, science and technology, driven by entrepreneurs in a business-friendly environment, where public and private sectors form effective partnerships. The UAE's Ministry of Economy predicts that by 2021, the 'knowledge economy' will constitute 5% of the country's GDP.

For its complete success UAE Vision 2021 must be linked to a national strategic plan for higher education. Our science and technology university education programmes must be updated to match global standards and we must strengthen scientific expertise in line with the requirements of the private sector and national development needs. This has recently been broached by the Knowledge and Human Development Authority and we expect to see great progress in these areas in the future.

INSEAD's 'Measuring Innovation

Capabilities of Nations' report shows that the UAE is especially good at spreading innovative skills and techniques among its rapidly developing human capital. The country has also displayed a significant ability to incorporate knowledge-based developments due to its cosmopolitan nature, in regard to both the talent pool and presence of international enterprises, as well as adopting advanced information and communication technologies.

Playing a pivotal role in this regard is the Mohammed Bin Rashid Al Maktoum Foundation (MBRF). Through the Foundation, we aim to harness our citizens' potential by maximising their participation, encouraging entrepreneurship and nurturing home-grown public and private sector leaders, while attracting and retaining the best talent. The MBRF's recent brainstorming session with the United Nations Development Programme was a step in this direction. Read more about MBRF and its activities from pages 6-9.

Thumbing through the magazine you will also find informative features on a variety of topics from solar power to new developments in gaming technology. We hope you enjoy reading the issue as much as we enjoyed compiling it.

HE Jamal Bin Huwairib

MD of the Mohammed Bin Rashid
Al Maktoum Foundation

INTRODUCTION

MOHAMMED BIN RASHID AL MAKTOUM FOUNDATION



Committed to promoting knowledge, fostering ideas and innovation and funding research and initiatives.

The Mohammed Bin Rashid Al Maktoum Foundation (MBRF) traces its beginnings to 2007 when it was launched by His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, at the World Economic Forum held in Jordan.

Under the key pillars of research and development, entrepreneurship and education, the Foundation is committed to disseminating knowledge throughout the region by fostering ideas and innovation and funding research projects, activities and initiatives.



مؤسسة محمد بن راشد آل مكتوم
MOHAMMED BIN RASHID
AL MAKTOUM FOUNDATION

VISION

The Mohammed Bin Rashid Al Maktoum Foundation endorses the vision of Dubai's leadership. In the words of His Highness Sheikh Mohammed Bin Rashid Al Maktoum:

"Our region's success depends on creating a knowledge economy and giving tomorrow's leaders the motivation to build a better future."

OUR MESSAGE

Armed with the foresight that the region in general and the UAE in particular needs to adopt a knowledge-based approach to strengthen its economy, MBRF puts forth a vital message. It aims to enable future generations to develop innovative and sustainable solutions by spreading knowledge across the Arab region and fostering ideas that leave a lasting impact.

OUR GOALS

MBRF's goals are in line with its key pillars. The Foundation aspires to create a generation of future leaders who are focussed on implementing sustainable initiatives in all spheres of society. MBRF understands that this can only be achieved when local education standards are on a par with the best international standards. As such, it has pledged to promote, develop and upgrade educational standards in the UAE as well as the wider Gulf. The Foundation also strives to create jobs for the youth by establishing a climate of innovation and entrepreneurship. And last but not least, MBRF is committed to preserving the culture and heritage of the UAE and helping build bridges of communication and understanding with other cultures around the world.



Trailblazing Initiatives

Since its inception, the Foundation has single-mindedly worked towards establishing the UAE as a knowledge-based economy. It has tirelessly launched a number of ground breaking initiatives, such as the Dubai International Poetry Festival, the Arab-German Dialogue and the acclaimed Arab Knowledge Reports. Over 1,000 books have been translated and published as part of MBRF's Translate and Write programme, while its Business Incubators scholarship programme has garnered much interest and appreciation as it affords students from the Arab world a chance to enrol in prestigious universities around the world.

In 2013, the MBRF's efforts gained further steam with the introduction of initiatives that have successfully elevated the status of Dubai and the UAE on the regional knowledge map.

Dubai International Programme for Writing (DIPW)

The DIPW gives wings to the aspirations of new Arab writers. The programme comprises three phases and supports new talent and attempts to raise the literary level of Arab society. Currently in its first phase, DIPW is a platform for 100 debutant Emirati authors to showcase their skills regionally and globally. In the future the Foundation will target all Arab residents of the UAE while the final stage will include talented Arab writers from across the world.

It is worth noting that the Foundation's support is not limited to publishing the works of members but also helping the authors carve out a niche for themselves on the international literary landscape.



My Family Reads

The My Family Reads initiative was launched as a result of the establishment's keenness to encourage the attainment of knowledge and reading in the UAE community. Books will be distributed to families all over the UAE from the publications of the Mohammad Bin Rashid Establishment that have been translated to Arabic.

The most important book title was Shaikh Mohammad's Flashes of Thought. The book titles include a series of the great personalities of history published by National Geographic in cooperation with Book House and other valuable titles.



Book In Minutes

Those claiming busy schedules and hectic lifestyles will be happy to know that they can thumb through global best-sellers in minutes. Under the scheme, international publications by prominent authors are summarised and translated into Arabic, enabling readers to absorb them in minutes. Titles included in the project cover positive energy and leadership and management skills, as well as interpersonal relationships.

Book In Minutes also echoes the Arab tradition of translation that has historically played a key role in establishing the solid foundations of Arab and Islamic civilizations.

House of Poetry

Arabs have always prided themselves on their language and, in particular, their poetry. Poetry was the primary medium of communication in ancient times, through which tribes were praised, enemies were ridiculed, messages were sent and much more. MBRF's House of Poetry is a tribute to the ancient art form. It aims to become a catalyst for a worldwide Arab poetry movement as well as a global platform for poetry, satisfying the poetic cravings of both local and international audiences.

Inside the 'Bait El Shaier', or House of Poetry, located in the historical Shindagha District, visitors will find a comprehensive library containing collections of poetry, analytical works and translations; a modern studio equipped with an audio library and recording equipment and a permanent art gallery showcasing the poetry-based works of famed Emirati calligraphers and sculptors. The Bait also hosts engaging poetry evenings, literary exhibitions and a variety of cultural events and has become the most important hub for Emirati cultural and literary activities in Dubai.



Arab Knowledge Reports

Perhaps one of the most significant endeavours the Foundation has undertaken is the compilation of the Arab Knowledge Reports in conjunction with the United Nations Development Programme. Through a series of analytical reports, the initiative assesses the state of education, information and communication technologies and research and innovation in the Arab world, in addition to addressing the factors that impeded the establishment of a knowledge-based society.

To date, two Knowledge Reports have been published. The first placed emphasis on epistemology (where knowledge comes from), its role in development and how these connect to the concept of freedom. The report also discussed the close relationship between the demands of development and building a knowledge society.

The second report was released in 2011 and addressed the issue of preparing future generations for a knowledge-based society. Relying on field surveys, many of which were pilot surveys, conducted in the UAE, Morocco, Jordan and Yemen, the report used innovative statistical methods to measure the readiness of youth in creating a knowledge-based society with a view to bridging the cognitive gap that was highlighted by the first report.

The Arab Knowledge Reports are available at www.mbrf.ae



Wamadat Magazine

Wamadat, MBRF's Arabic language magazine, was conceptualised to create awareness about the Foundation, its goals, activities and achievements. Primarily targeted at MBRF's employees, it was the first magazine of its kind in the region with the goal of knowledge development. The publication is written by a number of renowned authors and researchers and covers a range of topics in the knowledge development spectrum.

Wamadat, which means 'flashes', draws its name from His Highness Sheikh Mohammed Bin Rashid Al Maktoum's book *Wamadat min Fikr* (Flashes of Thought), which articulates his vision in leadership development and knowledge. The name also emphasises the importance the Mohammed Bin Rashid Al Maktoum Foundation places on knowledge development and its spread across the Arab world.

The Third Arab Knowledge Report

MBRF's Third Arab Knowledge Report is expected to be released by the end of this year. It will address the issue of 'Youth and Localization of Knowledge'; the study analyses and specifies determinants and opportunities for disseminating and nationalising knowledge in the Arab world. It also explores methods for effective youth engagement.

Earlier this year, the Foundation organised a brainstorming workshop for the launch of the Report. Forty experts from around the Arab world met in Dubai for the workshop headed by His Excellency Jamal Bin Huwaireb, Managing Director of MBRF, and Dr Ghaith Fariz, Director of the Arab Knowledge Report, UNDP. In a series of intensive panel discussions, members analysed the integration of youth in the transfer and localisation of knowledge, the progress that has been made so far and the challenges to be overcome. Strategies to encourage the Arab youth to actively participate in the process of empowerment and sustained development were also discussed.

MBRF announced a competition in July, inviting Arab artists to design the cover of the Third Arab Knowledge Report. Contestants were asked to represent the content and objectives of the report as well as reflect Arab identity through their designs. **Watch this space to find out who won!**

BilArabi

While Facebook and Twitter are now commonplace in the Arab world, BilArabi spurs Emirati and Arab nationals to use their mother-tongue – Arabic – on all social media platforms. Launched on December 18, 2013, the International Day for Arabic Language urges people to post and share updates on social media websites such as Facebook, Twitter and Instagram solely in Arabic. Needless to say, the campaign was an instant success at all levels. In fact, the initiative even garnered the appreciation of government bodies and drew the full support of His Highness Sheikh Abdullah Bin Zayed Al Nahyan, UAE Minister of Foreign Affairs, as well as other high-level officials from both the federal and local governments.





CREATING A THIRST-FREE WORLD

THE UAE SUQIA CAMPAIGN IS A SIGNIFICANT
STEP TOWARDS A WORLD WHERE EVERY
PERSON HAS CLEAN WATER TO DRINK



Sheikh
Mohammed
bin Rashid
Al Maktoum
launches the
UAE Wateraid
campaign

Living in the UAE, where we are just one twist of the tap away from clean drinking water, it takes a minute to absorb that there are parts of the world where people are dying due to lack of access to clean water. Let's take a look at the statistics. World Health Organization (WHO) figures show that a child dies every 21 seconds from a water-related illness and 9,863 people die every day from thirst and water-related diseases. The UN's Millennium Development Goals Report 2012 reveals that 783 million people, or 11 per cent of the global population, remain without access to an improved source of drinking water.

As mind-numbing as these figures are, the issues are mainly concentrated in water-deprived regions, such as Sub-Saharan Africa, where more than 40 per cent of the population lives without improved drinking water. It is noteworthy that the current water crisis is not an issue of scarcity, but of access.

UAE Suqia: A Step in the Right Direction

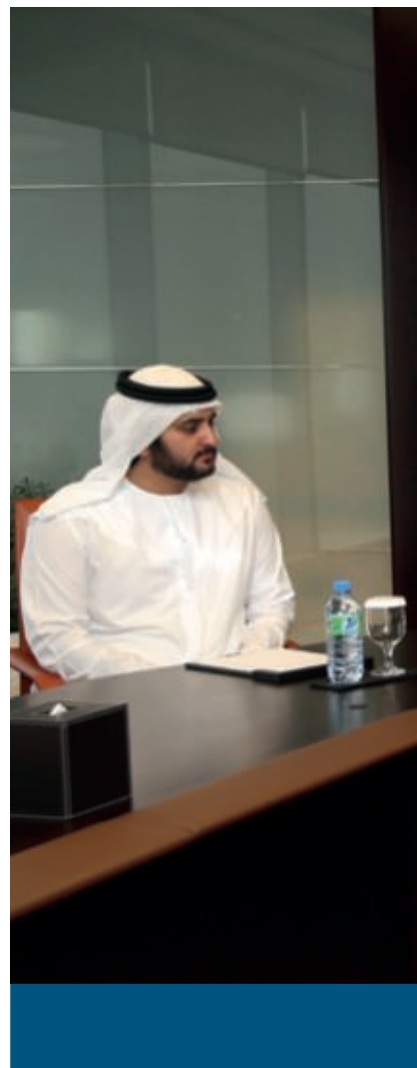
Being a desert country, the UAE has experienced firsthand the hardships of water scarcity as well as inadequate access and is determined not to let other countries and people suffer the same. In June this year, His Highness Sheikh Mohammed bin Rashid Al Maktoum, the Vice President and Prime Minister of the UAE and Ruler of Dubai, launched the UAE Suqia initiative wherein five million people across the globe will gain access to clean water. Suqia

is an Arabic word meaning 'providing water to drink'. The timing of the launch could not have been better: it coincided with the beginning of Ramadan, the Muslim month of mercy and charity. Launching the initiative, Sheikh Mohammed said, "As usual in the UAE, we receive this holy month with charitable initiatives to support underprivileged people. In our country, water is a great blessing. Our ancestors had been deprived of water, thus they knew its value. Supplying drinking water is no longer a luxury, but a duty. The UAE will continue to provide water to millions around the world and spread the message of peace, love and virtue to all the people of the world."

The campaign aimed to fund the digging of wells and the provision of water pumps and water-purification equipment to needy areas. The money raised will also aid in the installation of water collection tanks and pipelines for the efficient distribution of water. Perhaps the most important aspect of the campaign is the construction of water treatment plants in needy areas. In addition, green energy company Masdar will help install solar panels to harness energy in areas where there is no electricity, in order to operate the water pumps and treatment plants.

Donations Poured In

At the beginning of the campaign, authorities estimated that Dh\$125 million would be required to help five million people gain access to potable water. Within hours of the campaign announcement, donations began



**4 MILLION
DONATED
WITHIN
THE FIRST
24 HOURS**



to pour in for Suqia: Dhs4 million was contributed within 24 hours. Funds reached Dhs103.2 million in the first ten days of the campaign, with Dhs8.8 million donated by the UAE's people; by the 15th day, donations exceeded Dhs121 million. At the close of the campaign, Suqia had raised over Dhs140 million, surpassing its own targeted amount. This means that an extra 600,000 people will be able to benefit from the UAE Water Aid campaign.

Progress

Suqia partnered with the Emirates Red Crescent Authority (ERCA) and other charities to implement measures

in 61 countries around the world. ERCA wasted no time and set to work immediately. By mid July, ERCA had completed work on 177 wells which will provide clean drinking water to 267,960 people in Afghanistan, Tanzania, India, Ghana and Iraq.

Operations first began in Afghanistan, where a total of 73 wells were dug in villages that are far from major cities, benefiting 15,960 people. The ERCA went on to build 50 wells in Ghana, 30 wells in India and 20 wells in Tanzania. It also completed work on four artesian wells in Arbil in Iraqi Kurdistan, providing clean water to 150,000 people.

The UAE Water Aid charity was also instructed to give priority to citizens of war-torn Gaza, who are facing severe water shortages. His Highness Sheikh Mohammed told the charity's board to focus on Gaza and provide clean drinking water to them quickly. "The lack of access to clean drinking water is one of the biggest issues that our brethren in Gaza face today, which is why I have instructed the UAE Water Aid campaign to work immediately on the provision of an adequate supply of drinking water as part of urgent humanitarian initiatives launched by the President, His Highness Sheikh Khalifa," he said. ➤



PAST UAE CHARITY CAMPAIGNS

Each Ramadan, the UAE undertakes a charitable cause in keeping with the spirit of the holy month. Here's a look at past campaigns.

What: Dubai Cares
When: September 2007
Impact: Sheikh Mohammed announced the launch of the Dubai Cares campaign to raise money to educate one million children in poor countries. The campaign is Dubai's contribution

to the UN Millennium Development Goal of providing primary education to every child by 2015.

What: Thirst For Education
When: August 2009
Impact: Dubai Cares, the UAE-based philanthropic establishment, launched this initiative to provide children in developing countries with access to clean drinking water.

What: Dress One Million Needy Children
When: July 2013
Impact: The campaign

aimed to collect donations during Ramadan to dress and clothe one million needy children around the world. It eventually helped more than three million underprivileged children in countries all over the world, because of the overwhelming support from the public.

What: Noor Dubai
When: September 2008
Impact: The campaign aimed at curing one million people of visual impairments. Noor Dubai has since reached out to 6.2 million individuals around the world.



**177 WELLS
WILL
PROVIDE
CLEAN
DRINKING
WATER
TO 267,960
PEOPLE**

► **Why the World Needs Initiatives Like Suqia**

In 2008, Kenya was struck by a devastating drought. Volunteers participating in the relief efforts with the Red Cross reported back that water was akin to treasure in the affected areas. As volunteers drove through the streets, children would run up to them holding out bowls made from fruit gourds. The volunteers thought they were asking for money, but were shocked when the children just threw away the money they were given and asked for water instead.

It is in places like these that the UAE Water Aid campaign has the potential to change the lives of millions of people. Sub-Saharan Africa is recognised as one of the driest places on

earth. Women and girls walk around four hours each day to fetch water from the nearest borehole. Usually the hole is barely more than a muddy puddle. With resources spread so thinly, violence is common: African tribes are known to raid each other for basic resources.

In a world where one in nine people do not have access to safe drinking water, where people are willing to kill each other for water, Suqia is not just a ray of hope – it is the need of the day.

UAE on the Water Trail

Between 2009 and 2013, the UAE spent Dhs1 billion on water projects around the world. These projects have helped to improve school enrolment rates, and have been particularly beneficial

for girls living in rural areas, because they can now spend less time collecting water from distant wells. The availability of water has also allowed women to take better care of their families, which has led to improved child health and has given families more time to spend on gaining livelihoods.

The UAE has provided better water resources in more than 61 countries, helping to reduce conflict and provide security. By helping build dams and deliver major water projects, the country has not only provided drinking water, but has also helped agriculture and hydroelectric schemes. The Merowe Dam in Sudan, which the UAE helped to fund, provides 1,250 megawatts of power and irrigates 300,000 hectares of cultivated land. ♪

Education **FIRST**

Vision 2021 aims to make the UAE among the best countries in the world by the time of the Golden Jubilee of the Union.

In order to translate the Vision into reality, its pillars have been mapped into six national priorities – one of which is education – representing the key focus sectors of government action in the coming years. We speak to Dr. Abdulla

Karam, Chairman of the Board of Directors and Director General of the Knowledge and Human Development Authority, who recently announced that attaining the targets set by the UAE National Agenda by 2021 was their main priority. >



“Dubai is a diverse city and the education sector reflects this. To encourage different schools to work together to achieve their long-term goals, KHDA introduced the What Works platform.”

➤ **Tell us about the UAE national education strategy**

Education is a fundamental element for the development of a nation and the best investment in its youth. For that reason, the UAE Vision 2021 National Agenda emphasizes the development of a first-rate education system, which will require a complete transformation of the current education system and teaching methods.

The National Agenda aims for all schools, universities and students to be equipped with smart systems and devices as a basis for all teaching methods, projects and research. There will also be significant investment to promote and reinforce enrolment in pre-schools, as this plays an important role in shaping children's personalities and their future.

Furthermore, the National Agenda has set as a target that our students rank among the best in the world in reading, mathematics and science exams, and to have a strong knowledge of the Arabic language. Moreover, the Agenda will

aim to elevate the rate of graduation from secondary schools to international standards and for all schools to have exceptional leadership and internationally accredited teaching staff.

How has the Expo 2020 win affected the education sector in Dubai?

Expo 2020 will fuel further prosperity in the emirate, with huge developments expected in infrastructure, including educational institutes. Creating more employment opportunities will lead to a greater influx of skilled professionals. As a result of this growth, we anticipate an increased demand for high quality education. Our most recent figures show that around 89% of students in Dubai are now studying at private schools, including 30,994 Emiratis. On average, we are opening 10 new schools every year, providing parents with more choice than ever before. By 2020, we expect a total of 360,000 school places to be available to families living in the region.

Recess at
Al Ittihad Private
School, Dubai





The identification of a student's special needs, the modification of curriculum to meet these needs and efficient progress tracking will be other key points on which schools will be evaluated. There will also be separate reporting on attainment and progress in Early Years (Kindergarten and Foundation Stages).

Dr. Abdulla Karam, Chairman of the Board of Directors and Director General of the Knowledge and Human Development Authority

The UAE aims to be among the world's top performing countries in TIMSS (Trends in International Mathematics and Science Study) and PISA (Programme for International Student Assessment). How will this target be achieved?

What is the KHDA doing to ensure that Dubai meets expected educational standards?

A key part of KHDA's role is to continually improve the quality of education offered in Dubai. The Dubai Schools Inspection Bureau (DSIB) conducts annual inspections of these schools and gives a detailed breakdown of their performance, as well as an overall rating. This rating provides parents with a transparent tool to compare and contrast schools; it also outlines where schools need to improve.

According to our recent findings, one area that needs to be addressed is school leadership, with further emphasis on the need for strong decision-making skills and expert guidance. In addition, schools are being encouraged to ensure that their teachers fully understand individual learners' needs so they can plan and develop lessons effectively.

What provisions are being made for the education of students with special needs?

The education of students with disabilities/special educational needs remains a key priority. DSIB will take into account the school's admission procedures for such students to ensure that they align with the best international practices.

To help schools meet the objectives, KHDA has provided all schools with individual detailed PISA 2012 and TIMSS 2011 reports. The DSIB is conducting workshops to assist schools in their efforts to raise standards. Achieving the targets means that students will be able to apply mathematics appropriately to everyday situations and ask questions that can be answered using scientific methods. In science, students should be able to describe, explain and predict phenomena based on scientific knowledge, and interpret and communicate evidence and conclusions.

How are private schools in Dubai responding to the education targets outlined by the UAE government?

Dubai is a diverse city and the education sector reflects this. To encourage different schools to work together to achieve their long-term goals, KHDA introduced the What Works platform in 2012. This initiative focuses on the sharing of positive practice, allowing schools to improve through collaboration. For the past two years the initiative has encouraged the sharing of best practice on a range of topics including maths, leadership, entrepreneurship, science, well-being and literacy. Through successful networking and instigation of new partnerships, schools can transform the future of Dubai's private education sector. ↑



The Light Way

Innovations that make solar energy more accessible.

Energy systems around the world are undergoing rigorous assessment for their sustainability and eco-friendliness. The whole world is in agreement that the use of fossil fuels for energy production has major drawbacks including limited availability of natural resources and release of greenhouse gases and other pollutants. The solar industry is tackling the problem head on and has been developing innovative solutions that have the potential to make a significant impact on our energy systems. Here are six such innovations.

Solar Roadways

Walkways, roads and car parks are also being tested for suitability as solar energy generators. Spanish company Onyx Solar is currently developing photovoltaic floor panels that are sturdy enough to be walked upon, while Solar Roadways is building a prototype to test their plan to cover roads and car parks with embedded solar panels. Car parks cover up to 15% of city surfaces, and motorways criss-crossing the country make the potential for this technology enormous.

Solar Fabric

A company called Pavilion is currently making solar fabric for use in commercial applications. The fabric, which is as energy-efficient as standard rigid solar panels, could be used to cover entire buildings. For instance, if the US embassy building in London were covered with this fabric, it could generate up to 124 megawatts of electricity.

Solar Windows

Solar windows have undergone a special treatment where their glass surfaces have been sprayed with an 'electricity-generating' coating. The coating remains see-through, yet

has the ability to convert sunshine to energy. The coating is made up of the world's smallest functional solar cells, each of which measures less than a quarter of the size of a grain of rice. It can be applied at room temperature, and there is no requirement for specialized production facilities.

Solar Paint

Researchers at the University of Notre Dame have developed a low-cost solar paint using nano-sized particles of titanium dioxide coated with cadmium sulphide or cadmium selenide. The paint can be brushed onto any conductive material and when exposed to sunlight, it creates electricity with a light-to-energy conversion efficiency of 1%. While 1% efficiency is not high enough for commercial use, scientists are looking to develop this concept further.

Space-based Solar Energy

California-based Solaren Corp. plans to provide electrical power to customers from solar panels mounted on satellites placed in Earth's orbit. Beginning in 2016, the satellites will convert solar power into radio waves and send it to a receiving station in California. The plan is to provide 200 megawatts of continuous power which is equivalent to the average power consumption of 150,000 homes.

Two-sided Solar Cells

Solar panel manufacturer China Sunergy is building a pilot manufacturing line for a two-sided solar cell that can absorb light from both the front and back. The company expects the panels to generate 10-20% more electricity over the course of a year compared to one-sided panels. ↑

UAE: SUNNY SIDE UP

The UAE is now turning the desert's biggest threat – the sun – into its greatest asset. Dubai recently launched a Dh120 million, 13-megawatt photovoltaic power plant which will use sunlight to produce electricity. The plant is the first stage of the planned Mohammed bin Rashid Al Maktoum Solar Park, a vast complex with an output capacity of 1,000 megawatts. The solar park is due to be fully operational by 2030 and will be capable of displacing 15,000 tonnes of carbon dioxide a year – the equivalent of removing 2,000 cars from the road. It will also be the largest photovoltaic plant in the region. Furthermore, Masdar, Abu Dhabi's clean energy company, operates a 10-megawatt photovoltaic plant at its headquarters and the 100-megawatt Shams One plant near Madinat Zayed.

But why should an oil-rich nation invest in renewable energy? The answer is simple; renewable energy will not only help us prolong the life of our hydrocarbon reserves, it will also help us to achieve sustainable development, preserve the environment and bring down energy costs. For us in the GCC, the issue of sustainable energy has an added dimension because of the amount of energy required to desalinate our water resources.

The UAE is already gaining international recognition and our efforts to build capacity in renewable energy and clean technology led us to be selected for the headquarters of the International Renewable Energy Agency (IRENA). It is a world first that the ME is home to an international organisation of this kind.

Why Facebook Bought Oculus Rift

Oculus Rift is the next big thing after mobile phones, claims Facebook.

Considering that Oculus Rift, the virtual reality headset made its debut only in late 2013, Facebook moved very quickly to acquire its creators, Oculus VR. In March this year, Facebook paid approximately US\$2 billion for the company. Discussions between the companies lasted under two weeks. “We locked ourselves in the Facebook HQ and just got the deal done really fast. We didn’t want to disrupt the team and go through months of negotiations,” says Oculus VR’s CEO, Brendan Irebe.

Part of a Knowledge Economy

The deal was reportedly initiated by Facebook’s founder and CEO Mark Zuckerberg, who believes that the virtual reality headset technology is the next major computing platform to come after mobile phones. Zuckerberg sees the acquisition as part of Facebook’s mission to build the so-called ‘knowledge economy’. “This acquisition is a long-term bet on the future of computing,” he says. Zuckerberg described his first time using the VR headset as revelatory: “When I put on the goggles, it’s different from anything I have ever experienced in my life”.

The headset, designed by 21-year-old Palmer Luckey, has been available as a developer kit since March 2013. So far it has primarily been used for video games: many enthusiasts and independent game makers have already released games and demos for the hardware. John Carmack, co-creator of the seminal 3D video game Doom, joined Oculus VR in August 2013. All of this has happened even though the company has not yet announced a launch date for a commercial version of the hardware. At this stage the device

is expected to be released in the second half of 2014.

There’s More to Oculus Than Just Games

Prior to Facebook’s takeover, Oculus VR had already attracted more than US \$91 million in venture funding and a near-fanatical following. The Facebook deal is simply a sign of faith that virtual reality is now sharp enough and cheap enough to have huge potential for more than video games. The idea of merging immersive virtual reality with social communications is intriguing. It could become a compelling tool for teleconferencing, online shopping, or more passive forms of entertainment. There are also reports that some filmmakers are already experimenting with movies designed just for the Rift.

Though video games are where this improved virtual-reality technology has taken off first, it could also have applications in telepresence, architecture, computer-aided design, emergency response training, and phobia therapy. It is noteworthy that in some industries, older VR technology has been in use for years. Some surgeons routinely practice operations using VR simulations, while industrial designers use the technology to view their designs as if they had already been constructed.

Facebook views the technology as more than a peripheral for video games. “Immersive virtual and augmented reality will become a part of people’s everyday life,” Zuckerberg says. History suggests there will be more platforms to come, and whoever builds and defines these will shape the future and reap the benefits.



The Oculus VR team posted a blog on the company’s website acknowledging that the partnership with Facebook might seem odd at first glance, “but when you consider it more carefully, we’re culturally aligned with a focus on innovating and hiring the best and brightest; we believe communication drives new platforms; we want to contribute to a more open, connected world; and we both see virtual reality as the next step.” ↗

WHAT IS OCULUS RIFT?

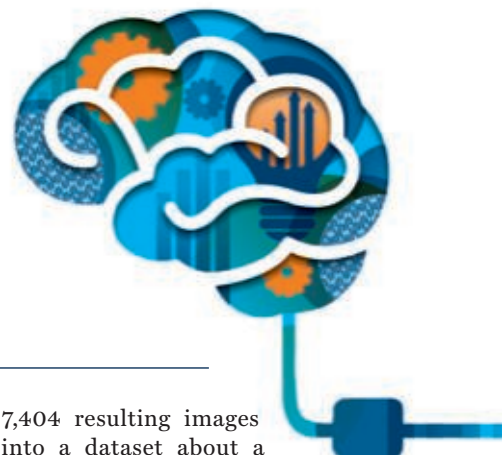
Developed by Palmer Luckey, founder of Oculus VR, the Rift is an affordable virtual reality headset for playing ultra-immersive video games. When you use the Rift, you feel as though you’re actually inside the gaming world. The technology follows the movement of your head in real time; you can lean in to take a better look at a virtual flower or look to the sky to gaze at a virtual cloud, and your mind is drawn into the simulation. You can almost believe you are fully there.

Currently only a few models have been made available to developers, but a version for the general public is expected to be available in UAE stores by the end of this year.

Credit: Simon Parkin, technologyreview.com

Unlocking the Brain

A new brain mapping technique reveals the structure of the brain in far greater detail than ever before.



The human brain is a labyrinthine structure comprising 100 billion neurons and support cells and for decades scientists have been pondering on how these work. Right from the simple task of picking up a pencil to more demanding tasks like building aeroplanes, the human brain is capable of extraordinary performance. But the question that has plagued mankind through the ages is how does the brain do it?

Europe's Human Brain Project is attempting to answer the question by creating a computational simulation of the human brain. As part of this project, an international team of researchers led by German and Canadian scientists has recently succeeded in producing a three-dimensional atlas of the brain that has 50 times the resolution of any previous brain maps. This landmark 3D reconstruction, called BigBrain, shows brain anatomy in microscopic detail at a

spatial resolution of 20 micrometres — smaller than the width of a human hair.

An Interactive Model of the Brain

The atlas, which yields detailed and comprehensive maps of the brain's structure and its different regions, took over a decade to complete and required slicing a human brain into thousands of thin sections and digitally stitching them back together with the help of supercomputers. To guide the brain's digital reconstruction, researchers led by Katrin Amunts at the Jülich Research Centre in Germany initially used an MRI machine to image the post-mortem brain of a 65-year-old woman. The brain was then cut into ultra-thin slices. Scientists stained the sections and then imaged them one by one on a flatbed scanner. Alan Evans and his co-workers at the Montreal Neurological Institute organised the

7,404 resulting images into a dataset about a terabyte in size. Slicing had bent, ripped and torn the tissue; Evans also had to correct these defects in the images. Each image was then aligned to its original position in the brain. The result is mesmerising: a brain model that you can swim through, zooming in or out to see the arrangement of cells and tissues.

The creation of such a detailed brain map, offering a gateway to unprecedented insights into the brain's anatomy and organisation, was long in the works. "It was a dream for almost 20 years," says Amunts. "The dream came true because of an interdisciplinary and intercontinental collaboration spanning from Europe to Canada and from neuro-anatomy to supercomputing."

The fine-grained anatomical resolution of BigBrain will give scientists insights into the neurobiological basis of cognition, language, emotions and other processes. It will serve as an atlas for neurosurgery and provide a framework for research in many directions, including enhanced understanding of brain diseases such as Alzheimer's. The researchers' future plans for using the map include extracting measurements of cortical thickness to gain insights into ageing and neurodegenerative disorders. Eventually, Amunts and her colleagues hope to build a brain model at the resolution of 1 micrometre to capture details of single cell morphology. †

ON THE WORLD'S MIND...

In 2013, President Obama announced US\$100 million in funding for arguably the most ambitious neuroscience initiative ever proposed. Brain Research Through Advancing Innovative Neurotechnologies, or BRAIN, as the project is called, aims to reconstruct the activity of every single neuron as they fire simultaneously in different brain circuits, or perhaps even whole brains. This project could help neuroscientists understand the origins of cognition, perception, and other enigmatic brain activities, which may lead to new, more effective treatments for conditions like autism or mood disorders and could help veterans suffering from brain injuries. Brain science is also on the mind of the European Union, which recently announced a nearly €1.2 billion 10-year proposal to computationally simulate the human brain from the level of molecules and neurons up through neuronal circuits.

Arabia's Greatest Poet

MBRF's recent MoU with the Bahrain Folk Society has put the spotlight on Arab literature. Through the MoU, the Foundation seeks to reinforce the status of poetry, literature and culture in Arab societies. In light of this development, we pay tribute to 10th century poet Abu At-Tayyib Ahmad ibn Al Husayn Al Mutanabbi, unanimously regarded as the greatest classical Arab poet.

The earliest form of Arabic literature, poetry has held an important position in Arab society since time immemorial. In the early days, the poet had a key status, playing the role of historian, soothsayer and even propagandist. Simply through words, poets could decide the fate of tribes – enhance their position by singing their glories or belittling them through biting satire. In times like these, Abu At-Tayyib Ahmad ibn Al Husayn Al Mutanabbi emerged as Arabia's most famed poetic figure.

*I am the one whose literature
can be seen by the blind
And whose words are heard
by the deaf.
The steed, the night and
the desert all know me
As do the sword, the spear,
the paper and the pen.*

wrote Al Mutanabbi. Immensely popular in his time, Al Mutanabbi may have had very little idea of how his verses would conquer the sands of time and become the inspiration for generations of Arabs.

EARLY DAYS

Born in Kufu, Iraq in 915, Al Mutanabbi started writing at a very young age. His consummate skill at writing verse enabled him to pass himself off as divinely inspired. His popular name, Al Mutanabbi, means 'he who passes himself off as a prophet'. It is also claimed that it was his political activities that won the poet this unusual title in his youth, when he led a revolutionary movement in his home town in 932. Though the revolt was suppressed and Al Mutanabbi was imprisoned, it was during this time that he began to pen his first known poems. His pieces exude a poignant sense of nostalgia, isolation, loss and yearning for a home, wisdom and philosophies on life, making them relevant to Arab society even today.

It was customary in ancient times for rulers to offer patronage to poets who would extol their generosity and celebrate their bravery in battle through verse. Al Mutanabbi excelled in this form of poetry, known as panegyrics. His longest affiliation was with Sayf Al Dawla (reign 945–67), the founder and ruler of Aleppo and a great patron

of the arts, science, and poets. Like other poets at the court, Al Mutanabbi accompanied Al Dawla on many of his campaigns against the Byzantine Empire and recorded their events in verse. Through his powerful prose, Al Mutanabbi conjured up vivid images of the battles his patron engaged in, venerated the power of identity and the freedom that comes with knowing oneself.

Well known for his sharp intelligence and wit, Al Mutanabbi discussed courage and life with such flair that his poems are still widely read in the Arab world and are considered to be proverbial. His mastery of the panegyrics genre helped to advance Arab poetry from its classic *qasida* form.

MAJOR WORKS

Al Mutanabbi's best-known work is the *Diwan*, which is divided into five sections. The first part consists of poems written in Syria; the second part contains 161 poems, most of which are dedicated to Sayf Al Dawla; the third part contains numerous poems written for a variety of occasions; the fourth part consists of five



Al Mutanabbi Statue in the heart of the intellectual community in Baghdad

poems written for the Persian statesman, Ibn al 'Amid; and the fifth and final part consists of seven poems for the Prince of Southern Persia, 'Adud al-Daula. In all, the *Diwan* encompasses 287 individual poems, ranging in length from a couple of lines to 60 stanzas. Al Mutanabbi's work has often been described as arrogant and pompous by critics.

THE POET WHO LOVED BOOKS

Besides his importance as a poet and Arab icon who is said to have "revolutionised Arab poetry", Al Mutanabbi also shared a special relationship with books. In fact, he even wrote a whole poem dedicated to the importance of books. Al Mutanabbi's passion for books may have arisen from the fact that in his youth he was so poor that he could not afford to buy books. So he simply wrote and created his own books – collections he carried wherever he travelled.

The Arab poet is also renowned for an extraordinary feat of memory – he is said to have memorized the contents of a 30-folio book in a single reading. It is believed that through

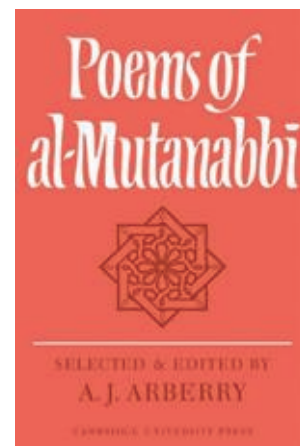
his act of remembering and writing, Al Mutanabbi helped to keep culture alive. Perhaps this is why Baghdad's venerable literary district, famed for preserving texts of historical and cultural importance, was named after him. In 2007, Al Mutanabbi Street was bombed, sparking worldwide outrage. It also set off a new literary movement, with poets and authors, both Arab and foreign, coming together to condemn the act, making Al Mutanabbi the central figure in a literary revolution.

TRAGIC END

Apart from poetic talent, Al Mutanabbi also nurtured high political ambitions, which often got him into trouble. After nine years at Aleppo, Al Mutanabbi fell victim to court intrigue and was forced to flee to Egypt where he joined the court of Abu al-Misk Kafur. Here too his stay was short lived and he was soon on the run again. To avenge his expulsion, Al Mutanabbi brutally satirized Kafur in odes that almost destroyed the ruler's historical reputation. In 965, Al Mutanabbi was murdered by those he insulted in his poetry. He was ambushed and reminded of his

verses in which he celebrated courage and valour. Stirred to action, the poet unsheathed his sword and was promptly killed.

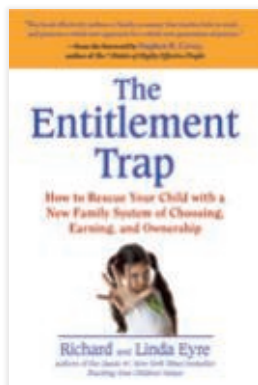
Before his tragic end, Al Mutanabbi's fame had spread to Andalusia in Spain and to Persia, where he is said to have strongly influenced Persian poetry, especially its greatest master, Rumi. Even before his demise, he was recognized as the champion of ethnic Arab poetry, a title that remains unchallenged to this day. ♪





LOVE READING BUT DON'T HAVE THE TIME TO THUMB THROUGH A 100-PAGE PLUS MANUSCRIPT?

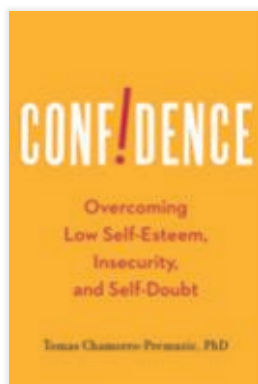
Book in Minutes is a unique initiative by the Mohammed Bin Rashid Al Maktoum Foundation where the three bestsellers, covering positive energy, human resources development, life management and leadership, are translated and condensed into crisp Arabic summaries, enabling readers to go through them in just minutes. Here's the selection for this month.



The Entitlement Trap: How to Rescue Your Child with a New Family System of Choosing, Earning, and Ownership

➤ Authors: Richard Eyre & Linda Eyre

The Eyres are prominent speakers on parenting as well as number one *New York Times* bestselling authors. Their books have helped thousands of parents nurture strong, healthy families. In this book, they synthesize their vast experience to create a blueprint to help instil in children a sense of responsibility and self-sufficiency. Parents are guided on how best to combat the phenomenon of ‘instant gratification’ and ‘entitlement’. At the heart of their plan is the ‘Family Economy’, complete with a family bank, cheque books for children, and a system of initiative-building responsibilities that teach children to earn money for the things they want. The motivation carries over to ownership of their decisions, values and goals. Filled with anecdotes and humour, *The Entitlement Trap* challenges some of the conventional methods of parenting and replaces them with values that will save children from a lifetime of dependence and disabling debt.



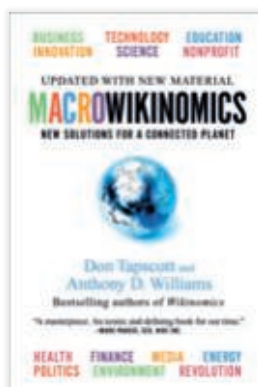
Confidence: Overcoming Low Self-Esteem, Insecurity, and Self-Doubt

➤ Author: Tomas Chamorro-Premuzic, PhD

Millions of people around the world are plagued by low self-confidence and spend years struggling to overcome it. In this book, world-renowned personality expert Professor Tomas Chamorro-Premuzic reveals an astonishing fact: low self-confidence can actually help a person perform better.

Dr. Tomas shows that high confidence can make a person less likeable, less employable and, in the long run, less successful. Contrary to popular belief, low confidence is beneficial in many ways. It makes an individual more aware of his weaknesses. Through the book, Dr. Tomas teaches how to use this knowledge to progress at work, improve social skills and feel better emotionally and physically.

An engaging and practical study of the human mind and emotions, this book can help improve social skills, get promotions and, ultimately, build a successful life. *Confidence* is based on decades of research, including the author’s own ground-breaking work, and is filled with fascinating anecdotal evidence.



MacroWikinomics: New Solutions for a Connected Planet

➤ Authors: Don Tapscott and Anthony Williams

The 2008 global financial crisis showed that the world needed a completely new approach to govern the global economy. In the aftermath of the meltdown, a powerful new model of economic and social innovation has emerged – one where people take advantage of new web-based tools to build a more prosperous and sustainable economy.

A follow-up to *Wikinomics*, the best-selling book of 2007, *MacroWikinomics* offers a new game plan to fix a broken world. Drawing on an entirely new set of original research conducted with countless collaborators in fields such as healthcare, science, education, energy, government and the media, it tells the stories of some of the world’s most dynamic innovators. The onus is now on each of us to lead the transformation in our households, communities and workplaces and the new world of Wikinomics shows how this change is possible

Dubai: A Global Classroom

Over the last 40 years as an educator, I have worked in a great variety of learning environments in the United States, South America, the Middle East and the GCC. For about half that time, I taught or served as a school administrator in public, private and religious schools, in rural and urban schools, and in elementary and secondary schools. For the other half, I have focussed my career on teacher education. Most recently, I am proud and privileged to lead the school of education at the American University in Dubai.

Given the geographical and professional scope of my career, I think it is fair to say that multiculturalism has played a prominent role for me as a defining characteristic of life and learning in nearly every school setting. Being an educator in Dubai, however, stands out as unique in all my work experience because the entire Emirate itself is a global classroom. When you live and work in a city that hosts over 200 nationalities, multiculturalism can be a wonder-filled lesson or way of life, challenging us to learn something new everyday about ourselves, about others, and about how to collaborate and cooperate for the common good as citizens of the world while also honouring and respecting our distinct cultures and beliefs. To the extent that each of us is willing, eager and curious enough to lean into another's culture, living and learning in Dubai can be transformative. In the global classroom that we call Dubai, our cultural differences should not and more often *do not* divide us; rather they unite us in ways that can benefit everyone; every resident and natural born citizen who desires to share a culture of peace and prosperity.

Education in Dubai is a unique global tapestry of various nationalities, cultures, and culture-specific curricula. According to the Knowledge and Human Development Authority in Dubai, private education dominates the educational scene; in fact, over 88% of all schools are considered private or privately-owned. Among the 158 private schools in Dubai, schools follow 15 different curricula structures including British, Indian, American, French, and the International Baccalaureate (IB). Most of the students enrolled in these schools are expats from a multitude of nations. In addition, about 13% of Emirati students also attend private schools.

When you survey Dubai's educational landscape it is easy to see why and how Dubai is often held up as a model of diversity to the world. Most of us come here from somewhere else. While diversity itself is often heralded as a societal strength it also poses great challenges, not least of which is to ensure that all children - regardless of culture and the accident of birth - are served well across the various curricula, instructions and assessments. Thus, in the midst of diverse cultures and the various ways of living and learning in a global setting like Dubai, a focus on personalised learning is clearly emerging. At first glance, the move to personalise learning may seem paradoxical. That's because it is. Yet this is becoming increasingly evident as a best practice in multicultural education. Clearly, one size no longer fits all. To help our children succeed, Dubai's schools are now welcoming and encouraging the movement to personalise learning for each child. This



Catherine Hill

means teachers, now more than ever before, need to know the children they teach and they need to understand and respect the complexity of their specific cultural backgrounds (Ochan and Powell, 2011). Furthermore, they need to know themselves as human beings and as teachers. In fact, this is the starting point of teacher education.

Simply put, we all need to come together so that we can live and learn united. John Hume, the Irish politician who won the Nobel Peace Prize in 1998, once said: "Difference is the essence of humanity. Difference is an accident of birth and it should therefore never be the source of hatred or conflict. The answer to difference is to respect it. Therein lies the most fundamental principle of peace: respect for diversity." This is the principle upon which Dubai was built.


In education as well as in art, His Highness Sheikh Mohammed Bin Rashid Al Maktoum calls all of us - residents and citizens alike - to continue to make Dubai a model of diversity and an open-air gallery for the world to see. For Dubai is both our canvas and our global classroom. †



Catherine Hill is Dean and Associate Professor, School of Education at the American University in Dubai. Dr Hill has conducted research, written widely and given talks on issues concerning children of conflict, multicultural learning environments and the purpose and practices of higher education. She has taught courses in education, sociology and public administration, and held a number of academic appointments at prestigious institutions including the College of Arts and Sciences at Villanova University and the School District of Philadelphia. Her academic pursuits and personal interests have led her to spend considerable time in South America, Lebanon, India, Europe, the United Kingdom and now Dubai.





Three glass test tubes are visible in the foreground, slightly out of focus. They are arranged vertically, with the leftmost one being the most prominent. The background is a solid, light blue color.

HOW THE MEDIA HUMANISED A MEDICAL DISCOVERY

POPULAR EXCITEMENT

about a French rabies cure in 1885 changed the way ordinary people viewed medical progress.

When Louis Pasteur announced the successful inoculation of a human with his experimental rabies vaccine in 1885, he was already well known to the French public. The chemist had been celebrated in France for both intellectual and practical achievements such as preventing the spoilage of wine and beer, saving the silk industry from a silkworm disease, establishing the importance of molecular asymmetry and inventing a vaccine to save cows and sheep from anthrax.

However, across the Atlantic only a few Americans were familiar with his name and science. Louis Pasteur was only known amongst those young American physicians who had completed their medical training in Europe. The survival of the first rabies victim to be treated by Pasteur's method had very little impact on the American populace. The discovery was hardly considered newsworthy. The *New York Herald* announced it only as a part of a cable dispatch. But soon an incident occurred that shed new light on Pasteur's discovery and made him a celebrity across the ocean.

THE INCIDENT

On 2 December, 1885, a dog ran through the streets of Newark, New Jersey, biting seven other dogs – and six boys. This event made headlines in the afternoon papers. The day after the boys were bitten, Dr William O'Gorman, a local physician, wrote to the newspaper urging that the boys be sent immediately to Paris for the new treatment and asking the public to contribute to their expenses if the children's families could not afford it. Within hours of the appeal, sizeable donations had been collected and delivered to the doctor's office. A cable was sent to Pasteur asking if he would receive the boys; the papers carried his fast and precise reply: "Si croyez danger envoyez enfants immédiatement" (If you think there is danger, send the children immediately). Arrangements were made for travel a few days later on a French steamer.

More donations flowed in and the newspapers printed the contributors' names. As interest in the boys' story grew, the press expanded its attention to include their families, the donation of warm clothing for their winter voyage across the North Atlantic, Pasteur's other discoveries, supposed remedies for hydrophobia, the problem



Source: jstor.org

of stray dogs in American cities, methods of dog control, a variety of opinion among local physicians and professors, the inoculation process, Pasteur's other experiments, the germ theory in general and the outfitting of a hospital room in the steamer amongst other news stories.

THE PRESS HAS A FIELD DAY

The boys' trip to Paris created a media sensation across the United States and Canada. Through this accident, a small trickle of inconsequential news reports about a scientific announcement rapidly transformed into a national torrent of news, features, illustrations, editorials, jokes, letters to the editor, cartoons and political satire. Following their successful treatment, the children returned home as "heroes", even taking a subsequent tour across America. The sensation went on to last several months and catapulted Pasteur to celebrity status across North America and generated great interest in medical research.

A CHANGE IN EXPECTATIONS

While the boys' trip to Paris is a story worth telling in its own right, the other noteworthy aspect is the sustained attention by the press and public, which changed popular expectations of medicine. Even with important new discoveries in the 1880s in anatomy, physiology, cell biology and bacteriology, medicine had seen very few successful therapeutic advances and none had ever made a sensation in the press. Though mechanical inventions by Thomas Edison and others had generated grand enthusiasm and American newspapers commonly ran stories on local disease outbreaks, epidemics, accidents and injuries (including dog bites, food poisoning and medical malpractice), a medical development had never before captured the headlines with continued popular attention in America as the rabies story did.

While previous news focused on the intellectual content of the breakthrough or discovery, in this case the focus became what ordinary people saw, read, thought, felt and came to expect of science and medicine, research and discovery. It was about human triumph and the potential for more such successes. Several months of incessant attention to laboratory science helped to create new iconography and new institutions.

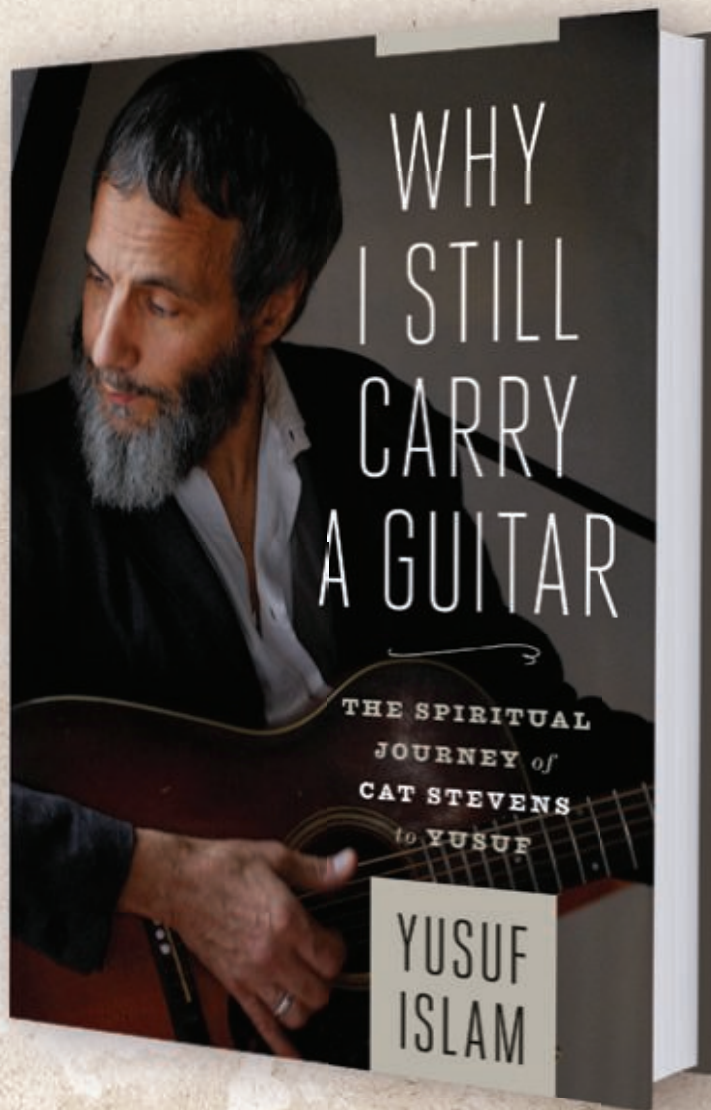
An entirely new idea became embedded in popular consciousness: that medical research could provide widespread benefits. It helped displace a centuries-old misunderstanding – shared by patients and physicians alike – that little ever changed in medicine.

Though Pasteur's rabies treatment was far from the greatest discovery of the age and was connected to the United States only by accident, it triggered a series of events that set a pattern through which later discoveries would be experienced. When American newspapers and magazines devoted extravagant attention to the first Americans treated with Pasteur's brand new rabies cure, they were not simply reporting an event with broad human-interest elements, they were also elaborating a story of medical discovery as something useful and exciting to ordinary people. In the process they were cultivating a sensation about medicine being newly powerful, about scientific knowledge making a difference in the public arena beyond the walls of medical schools and laboratories. †

Joseph Meister, one of the first recipients of Pasteur's vaccine.



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